

# UNIVERSITY of HAWAI‘I®

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## MĀNOA



## 2014–2015 Catalog

This *Catalog* was prepared to provide information and does not constitute a contract. UH Mānoa reserves the right to change, delete, supplement, or otherwise amend at any time and without prior notice the information, requirements, and policies contained in this *Catalog*.

UH Mānoa recognizes its obligation to provide program accessibility for persons with disabilities. Contact the KOKUA Program at (808) 956-7511 (Voice/Text) to obtain information to the existence and location of services, activities, and facilities that are accessible to persons with disabilities. This *Catalog* is available in alternate format upon request by persons with disabilities.

The University of Hawai'i at Mānoa is accredited by the Western Association of Schools and Colleges (WASC) Senior College and University Commission, 985 Atlantic Avenue, Suite 100, Alameda, CA 94501, tel: (510) 748-9001, fax: (510) 748-9797, email: [wascsr@wascsenior.org](mailto:wascsr@wascsenior.org), web: [www.wascweb.org](http://www.wascweb.org)

# How to Use This Catalog



The 2014-2015 *University of Hawai'i at Mānoa (UH Mānoa) Catalog* is a comprehensive guide to UH Mānoa programs, course offerings, services, tuition, financial aid, faculty, facilities, academic policies, and other information of general importance to UH Mānoa students. The information in this *Catalog* is not necessarily complete; names and contact numbers for other publications and offices, which may offer additional information about specific areas of interest, have been included.

The *Catalog* is divided into five major sections:

- Information about the University and the campus, student services, academic policies, tuition and financial aid;
- Information about the individual colleges and schools and their academic programs;
- Descriptions of courses offered;
- Lists of administrators, faculty, and staff with their academic backgrounds; and
- Campus policies and information, glossary, and index.

If you are a prospective freshman or transfer undergraduate student, consult the sections on undergraduate education, Undergraduate General Education Requirements, tuition, financial aid, and student life. In addition, you should read the program section of the department, college or school that interests you. Before selecting classes, read the course descriptions for prerequisites, credit hours, and other relevant information. For additional information on specific programs of study, consult the department chair, program director, or major advisor.

If you are a prospective graduate student, consult the graduate education section and the graduate chair of the program in which you are interested for information regarding admission requirements, degree options, registration, and related procedures.

If you are a continuing student, keep this *Catalog* handy as a source of general information. Familiarity with its contents can smooth your progress toward your degree.

Although every effort is made to keep the *Catalog* correct and current, there will be changes in courses offered and program requirements. Check the *Registration Guide* at [www.hawaii.edu/myuh/manoa](http://www.hawaii.edu/myuh/manoa) and your department, college or school for the most current information.

**Web Information:** This *Catalog* is available online at: [www.catalog.hawaii.edu](http://www.catalog.hawaii.edu).

**General Campus Information:** For further information on UH Mānoa, contact:

UH Mānoa General Information  
Campus Center 212  
2465 Campus Road  
Honolulu, HI 96822  
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Web: [www.hawaii.edu](http://www.hawaii.edu)

The University of Hawai'i is an equal opportunity/affirmative action institution.

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**Cover and Section Heads:** This is the tenth year a "Design the *Catalog* Cover" competition was presented to the UH Mānoa student community. Mitchell Fong is a graphic design major. The concept for his cover represents UH Mānoa with images that were chosen for their properties relating to learning, the arts, school spirit, and friendship. The green "swoosh" represents a leaf, which is echoed on the back cover with kalo leaves. The pictures blended together with the leaf create a growing, thriving community.

**Photographs:** Cover photographs courtesy of Creative Services and Jose Magno, Office of Admissions. Inside photographs courtesy of the schools and colleges.

**Comments:** Contact the Mānoa Catalog Office at (808) 956-9947, 2600 Campus Road QLCSS 102, Honolulu, HI 96822, or email [mcatalog@hawaii.edu](mailto:mcatalog@hawaii.edu) to comment on this publication.

# Chancellor's Message



As Chancellor of the University of Hawai'i at Mānoa, I am delighted to introduce you to the *2014-2015 General Catalog*. These pages contain the information you need to begin an academic journey at the nation's most unique campus of higher education—a land-grant, world-class university situated in the middle of the Pacific Ocean, where East meets West.

UH Mānoa is committed to achieving academic and research excellence, and we are being recognized for our efforts. In 2013, we were invited to join the Association of Pacific Rim Universities, the leading consortium of research universities for our region.

Our students are learning, doing research, developing critical thinking, and being imbued with a global sense of citizenship. And they are matriculating on a campus grounded in the traditional values of the Native Hawaiian culture.

Begin the journey by reviewing this updated *Catalog*, filled with general information on our colleges, schools, programs, courses, and personnel. Discover the academic programs and dedicated individuals united by a singular mission—transforming students' lives.

Aloha,  
Tom Apple  
Chancellor  
UH Mānoa

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# The University of Hawai'i

## The University of Hawai'i System

The University of Hawai'i (UH) is a postsecondary education system composed of 10 campuses throughout the 50th state. In addition to the flagship campus at Mānoa, the UH system includes UH Hilo, a four-year campus located on the island of Hawai'i, and UH West O'ahu, a four-year campus located on the leeward side of O'ahu. There are four UH Community College campuses on O'ahu (Honolulu Community College, Kapi'olani Community College, Leeward Community College, and Windward Community College) and one on each of three neighbor islands (UH Maui College, Kaua'i Community College, and Hawai'i Community College), making college classes accessible and affordable in easing the transition from high school to college for many students.

The mission of the UH system is to provide quality college and university education and training; create knowledge through research and scholarship; provide service through extension, technical assistance, and training; contribute to the cultural heritage of the community; and respond to state needs. The campuses, organized under one board, differentially emphasize instruction, research, and service. The system's special distinction is found in its Hawaiian, Asian, and Pacific orientation and international leadership role. Core values bind the system together: Hawai'i's gracious spirit of aloha; collaboration and respect; academic freedom and intellectual vigor; institutional integrity and service; access, affordability, and excellence; active learning and discovery; diversity, fairness, and equity; leveraged technology; Hawaiian and Asian-Pacific advantage; innovation and empowerment; accountability and fiscal integrity; and mālama'āina sustainability.

The UH seal contains a torch and a book titled *Mālamalama* in the center of a circular map of the Pacific, surrounded by the state motto, *Ua mau ke ea o ka 'āina i ka pono* ("The life of the land is perpetuated in righteousness"). The UH motto, inscribed in both the Hawaiian and English languages on Founders' Gate at UH Mānoa is *Maluna a'e o nā lāhui a pau ke ola o ke kanaka* ("Above all nations is humanity"). The motto is reflected in the ethnic diversity of UH students: 23.9 percent Hawaiian or part Hawaiian, 18.9 percent Caucasian, 13.1 percent Filipino, 8.5 percent Japanese, 4.5 percent Chinese, 13.2 percent mixed ethnicity, and 17.9 percent other.

UH governance is vested in the Board of Regents, appointed by the governor of Hawai'i and confirmed by the State Legislature. The regents in turn appoint a president of the UH.

## The UH Mānoa Campus

University of Hawai'i at Mānoa (UH Mānoa) is a research university of international standing. It creates, refines, disseminates, and perpetuates human knowledge; offers a comprehensive array of undergraduate, graduate, and professional degrees through the doctoral level, including law and medicine; carries out advanced research; and extends services to the community. Students have special opportunities for Asian, Pacific, and Hawaiian educational experiences and involvement in research activities, service learning, and co-curricular activities.

UH Mānoa has widely recognized strengths in tropical agriculture, tropical medicine, oceanography, astronomy, electrical engineering, volcanology, evolutionary biology, comparative philosophy, comparative religion, Hawaiian studies, Asian studies, Pacific Islands studies, and Asian and Pacific region public health. UH Mānoa offers instruction in more languages than any U.S. institution outside the Department of State.

The main UH campus located in Mānoa valley on the island of O'ahu began in 1907 as a land-grant college of agriculture and mechanic arts. With the addition of a College of Arts and Sciences in 1920, the college became the University of Hawai'i. In 1972, it became UH Mānoa to distinguish it from the other units in the growing UH system.

Today, 20,000-plus students are enrolled in UH Mānoa courses, on campus or via distance delivery, studying toward bachelor's degrees in 94 fields of study, master's degrees in 84, doctorates in 52, first professional degrees in architecture, law, and medicine, and a total of 60 undergraduate and graduate certificates. UH Mānoa also offers 5 post-baccalaureate certificates. There are 298 degrees and certificates offered. In addition, 72.5 percent of UH Mānoa students are undergraduates, 55.8 percent are women, and 74 percent attend school full-time. The mean age of students is 25.

The beauty of Mānoa valley serves as a backdrop for a unique yet inviting campus. Wander through the campus and find an authentic Japanese tea house and garden located on East-West Center grounds, a studies center that is a replica of a Korean king's throne hall, and a Hawaiian taro patch. Other structures include the Pacific Ocean Science and Technology building on campus and a privately donated marine biology facility on Coconut Island.

UH Mānoa is accredited by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges. Professional programs are individually accredited by appropriate agencies.

A popular campus symbol is the rainbow, a frequent sight in Mānoa valley. Green and white are UH Mānoa's colors.

# 2014 - 2015 Calendar

## August 2014

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## September 2014

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## October 2014

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## November 2014

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## December 2014

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## January 2015

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\* Refer to the *Registration Guide*  
 ○ = Important academic dates.  
 □ = Important dates for graduate students.  
*Italics* = Important academic dates for graduate students.  
**Bold** = Observed state holidays (non-instructional days)  
 \*\* Some programs have earlier deadlines. Check with your department or school.

Check the online Calendar at [www.hawaii.edu](http://www.hawaii.edu) for the most updated version.

## 2014 Fall Semester

\*Orientation/academic advising/registration for continuing, new, and unclassified students

Visit [manoa.hawaii.edu/graduate/content/graduate-programs](http://manoa.hawaii.edu/graduate/content/graduate-programs) for deadline information as graduate admission deadlines vary by program. The Graduate Division begins processing applications around September 1 for the following fall semester.

August 15 (F)

Holiday: **Statehood Day** (non-instructional day)

August 25 (M)

First day of instruction

September 1 (M)

\*\*Spring admission application priority deadline for undergraduate students; final deadline for second bachelor's degree students and international undergraduate students

Holiday: **Labor Day** (non-instructional day)

September 2 (Tu)

\*Last day to drop courses (tentative)

September 3 (W)

\*Last day to register/add courses/change grading option (tentative)

September 12 (F)

Last day for undergraduates to file application for graduation for fall  
*Last day for classified graduate students to file application for graduation for fall*

October 1 (W)

\*\*Spring admission application final deadline for undergraduate students  
*Last day for returning classified graduate students to file for spring readmission*

October 24 (F)

Last day for restricted withdrawals

November 3 (M)

Last day for instructors to submit "I" removal grades for spring and summer to the Office of the Registrar  
 Last day to apply for credit by examination for fall semester

November 4 (Tu)

Holiday: **Election Day** (non-instructional day)

November 7 (F)

*Theses and dissertations due in Graduate Division*

November 11 (Tu)

Holiday: **Veterans Day** (non-instructional day)

November 14 (F)

*Last day to file petition for admission to doctoral program (only by currently enrolled Mānoa campus master's candidates graduating at end of semester)*

November 26 (W)

Last day for examinations before finals

November 27 (Th)

Holiday: **Thanksgiving Day** (non-instructional day)

November 28 (F)

Non-Instructional Day

December 11 (Th)

Last day of instruction

December 12-13 (F-Sa)

Study days

December 15 (M)

*Spring admission application deadline for post-baccalaureate unclassified students*

December 15-19 (M-F)

Final examinations

December 20 (Sa)

Commencement; semester ends

December 25 (Th)

Holiday: **Christmas Day**

## 2015 Spring Semester

\*Orientation/academic advising/registration for continuing, new, and unclassified students

Visit [manoa.hawaii.edu/graduate/content/graduate-programs](http://manoa.hawaii.edu/graduate/content/graduate-programs) for deadline information as graduate admission deadlines vary by program. The Graduate Division begins processing applications around May 1 for the following spring semester.

January 1 (Th)

Holiday: **New Year's Day**

January 5 (M)

\*\*Fall admission application priority deadline for undergraduate students; final deadline for second bachelor's degree students and international undergraduate students

January 12 (M)

First day of instruction

January 19 (M)

Holiday: **Martin Luther King, Jr. Day** (non-instructional day)

January 20 (Tu)

\*Last day to drop courses (tentative)

January 21 (W)	*Last day to register/add courses/change grade option (tentative)
January 30 (F)	Last day for undergraduates to file application for graduation for spring <i>Last day for classified graduate students to file application for graduation for spring</i> Last day to file application for graduation for summer for spring commencement exercise on May 16, 2015.
February 16 (M)	Holiday: <b>Presidents' Day</b> (non-instructional day)
March 1 (Su)	**Fall admission application final deadline for undergraduate students
March 2 (M)	<i>Last day for returning classified graduates to file for summer readmission</i>
March 13 (F)	Last day for restricted withdrawals
March 23-27 (M-F)	Spring recess
March 26 (Th)	Holiday: <b>Kūhiō Day</b> (non-instructional day)
April 1 (W)	Last day for instructors to submit "I" removal grades for fall to the Office of the Registrar Last day to apply for credit by examination for spring semester
April 2 (Th)	<i>Last day for returning classified graduates to file for fall readmission</i> <i>Theses and dissertations due in Graduate Division</i>
April 3 (F)	Holiday: <b>Good Friday</b> (non-instructional day)
April 21 (Tu)	Last day for examinations before finals
May 6 (W)	Last day of instruction
May 7-8 (Th-F)	Study days
May 11-15 (M-F)	Final examinations
May 16 (Sa)	Commencement; semester ends

## 2015 Summer Session

May 25 (M)	Holiday: <b>Memorial Day</b> (non-instructional day)
May 26 (Tu)	First day of instruction (first session)
May 29 (F)	Last day for undergraduates to file application for graduation for summer <i>Last day for classified graduate students to file application for graduation for summer</i> Last day to file application for graduation for summer for fall commencement exercise on December 19, 2015.
June 5 (F)	<i>Last day to file petition for admission to doctoral program (only by Mānoa campus master's candidates who graduated in the spring)</i>
June 11 (Th)	Holiday: <b>Kamehameha Day</b> (non-instructional day)
July 2 (Th)	First session ends <i>Theses and dissertations due in Graduate Division</i>
July 3 (F)	Holiday observed: <b>Independence Day</b> (non-instructional day)
July 6 (M)	First day of instruction (second session)
July 15 (W)	<i>Fall admission application deadline for post-baccalaureate unclassified students</i>
August 14 (F)	Second session ends
August 21 (F)	Holiday: <b>Statehood Day</b>

### February 2015

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### March 2015

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### April 2015

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### May 2015

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31						

### June 2015

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### July 2015

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### August 2015

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23	24	25	26	27	28	29
30	31					

\* Refer to the *Registration Guide*

○ = Important academic dates.

□ = Important dates for graduate students.

*Italics* = Important academic dates for graduate students.

**Bold** = Observed state holidays (non-instructional days)

\*\* Some programs have earlier deadlines. Check with your department or school.



# Undergraduate Education

## Assistant Vice Chancellor for Undergraduate Education

Queen Lili'uokalani Center for Student Services 213  
 2600 Campus Road  
 Honolulu HI 96822  
 Tel: (808) 956-6231  
 Fax: (808) 956-2191

Web: [manoa.hawaii.edu/undergrad/oavcue/](http://manoa.hawaii.edu/undergrad/oavcue/)  
 Departments and programs: Access College Excellence,  
 Aerospace Studies, First-Year Programs, Honors Program,  
 Interdisciplinary Studies, Learning Assistance Center,  
 Mānoa Advising Center, Mānoa Catalog, Mānoa Transfer

Coordination Center, Military Science, Pre-Health/Pre-Law  
 Advising Center, Service Learning, Student Athlete Academic  
 Services, Student Success Center, Student Support Services

## Assistant Vice Chancellor for Enrollment Management

Queen Lili'uokalani Center for Student Services 214  
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Departments and programs: Admissions, Admissions-Campus  
 Recruitment, Financial Aid, Registrar

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## Admission

Office of Admissions  
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Honolulu, HI 96822  
Tel: (808) 956-8975/(808) 956-7541 (Voice/Text)  
Toll free (in U.S.): (800) 823-9771  
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Web: [www.manoa.hawaii.edu/admissions](http://www.manoa.hawaii.edu/admissions)

## Registrar

Office of the Registrar  
Queen Lili'uokalani Center for Student Services 010  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8010  
Fax: (808) 956-7830  
Email: [uhmanoa.records@hawaii.edu](mailto:uhmanoa.records@hawaii.edu)  
Web: [www.manoa.hawaii.edu/records/](http://www.manoa.hawaii.edu/records/)

Admission requirements for UH Mānoa are similar to those of comparable state institutions of higher education. Applicants are advised to consult appropriate UH Mānoa colleges and schools for specific information since individual academic programs may have special admission policies and procedures.

The following regulations and procedures are subject to change without prior notice. Prospective students should consult the most current *Catalog* and/or an advisor before applying for admission.

International students should refer to “Admission of International Applicants” within this section of the *Catalog*.

## Admission of Classified Students

Classified undergraduates are those admitted to approved programs of study leading to UH Mānoa baccalaureate degrees. Students who have earned 0–24 credit hours are freshmen; those with 25–54 credit hours are sophomores; those with 55–88 credit hours are juniors; and those with 89 or more credit hours are seniors.

Freshmen and sophomores are lower division students, while juniors and seniors are upper division students.

## Admission of Freshmen

Students applying for admission as a freshman must complete the Self-Reported Application. The initial admissions decision will be based on self-reported data. Upon request from the Office of Admissions, an official transcript and official College Board (SAT) or American College Test (ACT) scores must be submitted. Applicants taking the General Education Development (GED) high school-equivalency test must submit GED results in addition to the Self-Reported Application. Applicants who have been home-schooled must submit GED scores, or SAT subject tests (minimum of the subjects) including math, or ACT subscores in addition to the Self-Reported Application. A high rating in one area will not ensure admission, nor will poor performance in an area exclude applicants if other evidence shows they may be successful in university-level work.

**SAT or ACT.** Candidates for fall admission should take the SAT or ACT no later than November of their senior year in high school. Candidates for spring admission should take the test before July. Applicants must also take and submit scores of the writing test. Information is available from high school coun-

selors or from the testing agencies. For SAT, contact College Board, P.O. Box 025505, Miami, FL 33102. For ACT, contact American College Testing Program, P.O. Box 414, Iowa City, IA 52243.

**High School Record.** Applicants should have grades high enough to place them in the upper 40 percent of their graduating class.

**Minimum Unit Requirements.** Applicants should complete 22 units of high school work (grades 9–12) of which at least 17 are college preparatory. The term “unit” means satisfactory completion of a full school year’s course of study or the equivalent in laboratory and shop exercises. A listing of courses and grades from the ninth through twelfth grades must be included. College-preparatory subjects must include at least four units in English; three in mathematics including college-preparatory geometry and second-year algebra; three in natural sciences; three in social sciences; and four additional units, which may include higher mathematics, additional science, additional social studies, and foreign language. All other courses for which the high school grants credit may be offered to satisfy the remaining unit requirements, although there should be no less than a half-unit nor more than two units in any one subject.

Students entering curricula in engineering, mathematics, and biological and physical sciences must meet the special mathematics requirements listed in the college sections of this *Catalog*.

**Profile of Admitted Students.** All applications are evaluated on an individual basis. Generally, successful applicants attain a B (not B-) average for all college-preparatory high school course work, achieve SAT scores of 510 (critical reading), 510 (writing), and 510 (math) or ACT score of 22 in each section, and rank in the upper 40 percent of their graduating class.

UH Mānoa accepts all Hawai‘i residents who meet UH Mānoa admissions standards.

Nonresident applicants should await notice of acceptance before coming to Hawai‘i. By Board of Regents policy, the number of nonresidents admitted is limited.

Admission decisions are made independent of the availability of financial aid and housing. Students must apply separately for financial aid and housing. (See the “Tuition, Fees, and Financial Aid” and “Student Life” sections of this *Catalog*.)

## Admission of Requirements of Homeschooled Applicants

Complete homeschooled applicants are expected to meet the minimum admissions requirements indicated for freshman applicants. Please review the detailed requirements below for homeschooled applicants.

### Required Documents

Complete the Self-Reported Application if your homeschool transcript reflects a traditional high school curriculum. If you are in a non-traditional program, please include a separate statement that includes titles and descriptions of all coursework completed. Other additional information such as textbooks used, methods of teaching, and methods of evaluation and the resulting grades or structured assessments must be entered in the “Comment” box. If the additional information exceeds the amount of space given, attach an additional sheet to the hard copy Self-Reported Supplement or submit an email if you completed the online version.

Also, one of the following: GED scores, SAT subject tests (minimum of three subjects) including math, or ACT subscores.

## Admission of Transfer Applicants

Transfer applicants are those currently or previously enrolled at a college or university other than UH Mānoa. Transfer applicants include those who previously attended UH Mānoa and subsequent to their UH Mānoa attendance enrolled at another UH college, university, or UH Mānoa. To obtain an application form, refer to “Application Procedures” within this section of the *Catalog*.

Applicants who have earned at least 24 semester credit hours of work or completed 12 transferable credits and have at least 12 credits in progress in courses comparable to UH Mānoa offerings at a regionally accredited U.S. college or university must submit an application and have each postsecondary institution previously attended send an official transcript (including withdrawals, courses taken, and grades received) directly to the Office of Admissions. Unofficial transcripts, hand-carried transcripts, faxed transcripts, and student copies of transcripts or grade reports will not be accepted.

Applicants who have earned fewer than 24 acceptable credit hours or who have enrolled in an unaccredited institution must submit high school transcripts and official SAT or ACT scores in addition to official transcripts from all postsecondary institutions previously attended. Admission will be based on both college and high school work.

Transfer applicants are expected to present a satisfactory academic record in courses comparable to UH Mānoa offerings. Nonresident candidates must present a better than average record. The number of nonresidents admitted is limited by Board of Regents policy.

Applicants enrolled at another college or university must have a final transcript submitted to the Office of Admissions at the end of the current term. Until this is received, any acceptance is provisional. Failure either to submit the transcript within a reasonable time or to complete the semester’s work satisfactorily will result in denial of admission or, in the case of registered students, cancellation of registration.

Credit hours in courses taken at U.S. regionally accredited colleges or universities that are substantially equivalent to UH Mānoa offerings and in which grades of D (not D-) or better have been earned will be transferred. Grades and grade points from other institutions are not transferred. Credit/No credit and pass/fail credits may be accepted if the standard for these credits is equivalent to that at UH Mānoa (see “Grades” within this section of the *Catalog*).

However, not all transfer credits accepted will necessarily satisfy curricular requirements toward a particular degree. UH Mānoa applies no more than 60 credit hours from non-UH junior or community colleges to satisfy degree requirements.

Transfers from unaccredited colleges or universities must also meet UH Mānoa campus admission standards for new freshmen. Students who complete a minimum of 30 credit hours with an average of C (not C-) or better at UH Mānoa may be granted credit for the courses completed at unaccredited institutions that are candidates for accreditation. These courses, which must be substantially equivalent to UH Mānoa courses, will be counted only as lower division credits to a maximum of 60 credit hours.

The department or program in which the student is pursuing a degree may decide that certain courses required for the major that were taken in the past must be retaken. Courses that are declared outdated for the major will still count toward the Gen-

eral Education Core if they meet core requirements. Students should consult with their respective academic advisor in their major field of study for details.

International applicants should refer to “Admission of International Applicants” within this section of the *Catalog*.

All colleges previously attended must be disclosed. Incomplete, incorrect, or false information is subject to disciplinary measures.

## Evaluating Transfer Credits

UH Mānoa reserves the right to accept or reject credits earned at any other institution of higher education. In general, UH Mānoa accepts credits earned at institutions fully accredited by U.S. regional accrediting associations, provided that such credits are substantially equivalent to courses at UH Mānoa, and have been completed with a grade of D (not D-) or better. An evaluation of transfer credits will be undertaken only after a student has been admitted to a program leading to a degree and has confirmed his or her intention to enroll.

Transfer decisions about courses taken at other UH campuses are guided by the UH Articulation Agreement. Only course credits are accepted in transfer. Grades and grade points from other institutions do not transfer to UH Mānoa.

## Notable Restrictions on Transfer Credit

Although all qualified courses may be transferred from two-year colleges, UH Mānoa applies no more than 60 credits from non-UH community or junior colleges toward the credits required for a bachelor’s degree. Other notable restrictions on transfer credit include:

- Courses taken out of sequence (backtracking): Credit is not awarded for lower level courses if they are taken subsequent to or concurrently with a higher level course for which there are explicit or implicit prerequisites.
- College Level Examination Program (CLEP) and Advanced Placement (AP): Credits awarded for CLEP and AP examinations do not count toward meeting the 24-credit requirement for admission as a transfer student nor do they exempt other applicants from submitting SAT/ACT scores and high school transcripts.
- Correspondence school credit: No more than 30 credits of correspondence course work from regionally accredited U.S. colleges and universities will be accepted in transfer.
- Life experience: UH Mānoa does not award credits for life experience. By individual arrangement, enrolled students may arrange for credit by examination.
- Military service or schooling: Course work taken through military schools may be considered for credit with the consent of the appropriate UH Mānoa department. The student’s DD-214 or DD-295 form or American Council of Education (ACE) Registry transcript must be submitted. Credits awarded for military schooling do not count toward meeting the 24-credit requirement for admission as a transfer student nor exempt other applicants from submitting SAT/ACT scores and high school transcripts.
- Courses with nontraditional grades: Courses completed with nontraditional grades such as CR (credit), P (pass), S (satisfactory) may be transferable only if the grade represents a D (not D-) or better. Generally, courses with nontraditional grades will be accepted as elective credit only and will not fulfill UH Mānoa, college, school, or departmental requirements.

- Courses receiving no credit: Courses not accepted for transfer credit include (but are not limited to) the following:
  - Courses from unaccredited institutions: Course work taken at any institution not fully accredited by a regional U.S. accrediting association is not transferable. After completing a minimum of 30 credits at UH Mānoa with a GPA of 2.0 or better, a student may be granted credit for course work completed at unaccredited institutions which were candidates for accreditation at the time of the student's attendance there. No more than 60 credits from such institutions may be applied to degree requirements at UH Mānoa.
  - Developmental or remedial courses
  - Repeated or duplicate courses: Transfer credit is generally not awarded for courses that duplicate material for which academic credit has already been given. Credit will not be awarded for a repeated course in which a passing grade was previously earned, nor for more than one version of a cross-listed course.
  - Courses that provide instruction in a particular religious doctrine
  - Vocational or technical courses
  - Mathematics courses considered below college level: courses include (but are not limited to) basic math and business math.

### Admission of International Applicants

International students wishing to apply should request an application and a form called "Supplementary Information for International Students." The deadline is **January 5** for fall admission and **September 1** for spring admission. If admitted, international students must receive two clearances in order to register: (1) University Health Services clearance documenting adherence with health regulations, and (2) International Student Services (ISS) clearance documenting adherence to international student regulations and proof of adequate health insurance. **Note:** International applicants with a non-immigrant visa status other than student status should contact the ISS. Federal restrictions on full-time study may apply.

### Additional Requirements

**Transcripts.** In addition to the application, applicants must present evidence of having completed or received the equivalent of a U.S. high school diploma. Official transcripts of all secondary and postsecondary work must be sent directly to the Office of Admissions by each institution attended. Certified photocopies of the certificates and results of any qualifying examinations (e.g., General Certificate of Education) must also be submitted. Certified English translations must be attached to documents and transcripts written in a foreign language.

Applicants enrolled in a secondary school or another college or university must have a final transcript submitted to the Office of Admissions at the end of the current term. Until this is received, any acceptance is provisional. Failure to submit the transcript or to complete the semester's/year's work satisfactorily will result in denial of admission and/or cancellation of registration.

**Examinations.** Applicants also must submit official results of the SAT or American College Test (ACT) (see "SAT or ACT") and the Test of English as a Foreign Language (TOEFL). These examinations are normally required of all foreign applicants, including students who either have been

admitted to or have matriculated at other universities. SAT applications may be obtained by writing to the College Board, P.O. Box 025505, Miami, FL 33102. ACT applications may be obtained by writing to the American College Testing Program, P.O. Box 414, Iowa City, IA 52243. TOEFL applications may be obtained by writing to Educational Testing Service, P.O. Box 6151, Princeton, NJ 08541.

**ACT or SAT Exemptions.** Students who have earned at least 24 semester hours of acceptable credits—excluding English Language Institute and/or English as a Second Language courses—are exempt from submitting the ACT or SAT results. The credits must have been completed at a regionally accredited U.S. college or university and must be equivalent to UH Mānoa offerings.

**TOEFL Requirements and Exemptions.** Applicants are required to score a minimum of 61 (internet-based), 173 (computer-based), or 500 (paper-based) on the TOEFL. The following applicants are exempt from the TOEFL examination: (a) those whose native language is English; (b) those who hold a bachelor's or master's degree from a regionally accredited university in the U.S. or a recognized university in Australia, Britain, Canada (excluding Quebec), Ireland, or New Zealand; (c) those who score 510 or better on the verbal and 510 or better on the writing sections of the SAT; (d) those who score 22 in English and 22 in reading sections of the ACT; (e) those who have completed six years of continuous schooling through the high school or college level in American Samoa and/or Guam and in one of the countries listed above under (b); (f) those who have completed English composition at a regionally accredited U.S. institution with a D or better grade; or (g) those who completed at least three years of high school in Hawai'i with a cumulative GPA of 3.2 and SAT critical reading of 460 and SAT writing of 460. Admission to summer ELI classes does not imply a waiver of the TOEFL exam for fall or spring semester admission.

**English Language Institute.** International and immigrant students who are admitted to UH Mānoa and whose native language is not English are referred to the English Language Institute to determine if they must take the ELI placement tests and the Mānoa Writing Placement examination. If a student does not fulfill this obligation, ELI will place a hold on the student's registration. Please contact the Department of Second Language Studies for additional information. (See the "ELI" section of this *Catalog*)

### Admission of International Exchange Students

Students matriculating at a university outside the U.S. may apply for admission as an international exchange student in the third or fourth year of study, through the Mānoa International Exchange (MIX). Admission may be granted for a maximum of two semesters as a "Visiting Student." Priority is given to students from institutions with a formal exchange agreement with UH; however, other qualified students from any foreign institution may also be considered.

Those sponsored by their home government or an external scholarship program such as Fulbright or Rotary International may also be admitted as exchange students, either as a classified, degree-seeking student, or as a non-degree visiting student. Exchange students may enter the U.S. under either the F-1 or J-1 visa, depending on the funding source and preferences of the sponsoring agency.

Exchange students must submit standard admission materials, official TOEFL scores of 68 (internet-based), 190 (computer-

based), or 520 (paper-based) unless exempt (see “Admission of International Applicants” for exemption criteria), and for those engaged in non-degree study, a special MIX application. For further information, contact International Student Services, Queen Lili‘uokalani Center for Student Services, 2600 Campus Road, Honolulu, HI 96822 or visit [www.hawaii.edu/issmanoa](http://www.hawaii.edu/issmanoa).

### Admission of Returning Students

A student who experiences a break in enrollment at UH Mānoa without having taken an approved leave of absence or who has been suspended or dismissed must apply for readmission. A student who has attended another college or university, or UH campus subsequent to attendance at UH Mānoa must apply as a transfer student (see “Admission of Transfer Applicants”). Readmission is not automatic because of enrollment limitations and changes in academic regulations. Students who are readmitted will be subject to the General Education Core, major, and graduation requirements in effect at the time of readmission. Questions concerning readmission should be directed to the student academic services office in the college/school to which the student is applying.

### Admission of Unclassified Students

Persons who wish to take UH Mānoa courses but do not wish to enroll in degree programs may apply for admission as unclassified students through the Office of Admissions. Undergraduate applicants must meet the admission standards for a regular classified, degree-seeking undergraduate. Post-baccalaureate applicants should contact the Graduate Division.

Classified applicants receive admission priority; thus, unclassified applicants may be denied admission because of enrollment restrictions.

Persons interested only in taking courses offered by Outreach College should refer to the “Outreach College” section of the *Catalog*, or should inquire at Outreach College, (808) 956-7221 or (1-800) 862-6628.

### High School/Dual Enrollment Program

High school students who have demonstrated exceptional academic achievement, have completed most of their high school graduation requirements, and can no longer benefit from high school offerings may enroll concurrently in UH Mānoa courses while enrolled in high school. Eligibility is restricted to high school juniors and seniors.

Students wishing to take advantage of this program should follow the procedures for “Admission of Freshmen.” Eligible students must present outstanding high school grades and SAT or ACT scores, be recommended by school authorities, and have the permission of their parent(s) or legal guardian to participate in the High School/Dual Enrollment Program.

Regular UH Mānoa admission deadlines, normal tuition and fee schedules, course prerequisites, and admission requirements other than high school graduation all apply to the High School/Dual Enrollment Program.

### Application Procedures

To obtain an admission application form and/or related information, prospective students should consult their high school counselors (in Hawai‘i) or write to the Office of Admissions, 2600 Campus Road Room 001, Honolulu, HI 96822. The application is also available online ([apply.hawaii.edu](http://apply.hawaii.edu)). The



application is valid only for the semester specified. For deadline information, refer to the “Calendar.”

For information regarding application procedures for non-U.S. citizens and/or nonnative speakers of English, refer to “International Admission Process.”

### Deadlines

The admission application initial deadline for the fall semester is **January 5**; the final deadline is **May 1**. The initial deadline for the spring semester is **September 1**; the final deadline is **October 1**. Some professional schools and individual programs may have earlier deadlines. Consult the appropriate student academic services dean for specific deadlines.

In addition to the application form, applicants must submit official test scores and arrange to have official transcripts of all schools, colleges, universities, business, and postsecondary schools attended sent directly from each institution involved by the appropriate deadline. Unofficial transcripts, hand-carried transcripts, faxed transcripts, and student copies of transcripts or grade reports will not be accepted. All other required credentials, as noted in the application, should also be sent with the application form. No applications, even those received before the closing date, will be acted upon after enrollment is filled for a program. Applications and documents submitted to UH Mānoa are deemed the property of UH Mānoa and therefore will not be returned to the applicant nor be available for copying.

### Application Fee

Applications must be accompanied by a nonrefundable, non-transferable application fee. The application and fee are valid only for the semester specified on the application.

### Special Instructions

#### Student Identification Numbers

UH Mānoa will issue student identification numbers at the point of acceptance and intent to enroll to all students for use as his or her permanent identification.

#### Student Ethnicity Data

Students are urged to supply racial/ethnic information on applications and other forms when requested, since UH Mānoa must provide a number of federal, state, and educational agencies with this data each year. Whenever such information is lacking, UH Mānoa personnel must make an educated guess. Self-identification is preferable.

## Email Correspondance

Electronic mail is a Board of Regents approved communications method. Email communications to students will be sent to email addresses submitted on the students' admissions application. Email communications will be sent to the student's University of Hawaii email address after the student's user account has been established.

## Change of Address

Students are responsible for keeping UH Mānoa's Office of the Registrar (Queen Lili'uokalani Center for Student Services 010) informed of their correct address (i.e., mailing, permanent, email, etc.). Change of address may also be completed through the *MyUH Portal* at myuh.hawaii.edu.

## Misrepresentation

By UH Mānoa policy, all applicants for admission are **required** to list all current and previous enrollment in any postsecondary institution on the application form. Applicants for admission who fail to inform UH Mānoa of such enrollment at the time of application or who submit, or have submitted on their behalf, any required information or document that is inaccurate, incorrect, or fraudulent or that has been altered without proper authorization may be denied admission to UH Mānoa. If the omissions and/or alterations are discovered after the student is enrolled, the student's admission may be rescinded and his or her enrollment canceled. Credits earned at any unreported college or school are not accepted in transfer. The student or prospective student may also be referred to the Student Conduct Committee for possible disciplinary action.

## Academic Advising

Academic advising at UH Mānoa is an expression of our educational mission and ideals. Advising helps students to integrate and discern meaning from the many facets of their academic journey and to locate their unique journey within the context of their hopes, dreams, abilities, goals, interests, and in fact, within the full trajectory of their lives. Advising conveys higher education's modes of thinking, learning, and decision making, teaches students to think critically about their roles and responsibilities, and encourages students to become active members in our higher education community as well as leaders in our global community.

Overseen by the Assistant Vice-Chancellor for Undergraduate Education and coordinated through the Council of Academic Advisors, academic advising is college- and school-based, so that students' primary connection remains with their academic unit.

UH Mānoa provides academic advising for undergraduate students through the student academic services office in their college/school. In addition, students can log onto the STAR system via *MyUH Portal* (myuh.hawaii.edu) to see how courses taken might fulfill degree requirements. STAR is an advising tool that allows students to manage their academic coursework, but should not be considered a substitute for meeting with advisors to verify degree requirements. Academic advisors bring to their responsibilities as educators not only knowledge of academic disciplines, but also understanding of the rationale that underlies the curricula of the colleges, schools, and UH Mānoa. Students are strongly encouraged to seek advising assistance early in their academic journeys.

Academic advising involves:

- Assisting students in clarifying, articulating, and attaining academic and life goals;
- Facilitating students' adjustment to the campus;
- Educating students on how to develop educational plans and assess their academic progress;
- Explaining and clarifying requirements, policies, and procedures;
- Encouraging students to think critically about their roles and responsibilities as students and as members of a democratic and global community;
- Helping students locate and access available resources and to engage in the UH Mānoa community;
- Counseling students on personal issues as they relate to academic progress; and
- Serving as advocates and mediators for students.

College or school advisors complement departmental advisors, who are specialists in their subjects. Departmental advisors advise on major requirements, available opportunities, career options, and graduate or professional degrees in their discipline. Students can locate their academic advisors at manoa.hawaii.edu/academics/advising.

## Mandatory Advising and Declaration of Majors

All students will benefit from two major academic policies related to advising. First, they will receive mandatory advising every semester for their first two years. Second, students will be required to declare their major prior to the start of their junior year. These policies were introduced to encourage early identification of potential majors, support efficient graduation, and promote each student's engagement in his or her academic journey.

## Registration and Enrollment

### Registration Procedures

Registration is open to those students officially admitted to UH Mānoa by the appropriate admissions office and to students in good standing who are continuing in an approved program of study. Students who have graduated, withdrawn, or have not been continuously enrolled must complete the admission process before being permitted to register. New, transfer, and returning classified students who are admitted to UH Mānoa are required to pay a nonrefundable, nontransferable tuition deposit to confirm their admitted status. Admitted students may be barred from registration until they have complied with all UH requirements, including but not limited to, medical clearances, the purchase of health insurance by nonimmigrant foreign students, and required English language placement testing. Students may also be barred from registering until they have cleared all academic or financial obligations.

Students are assigned specific appointment times in which to register. All registration activity is conducted by personal computer through the World Wide Web. The *MyUH Portal* website at myuh.hawaii.edu provides the UH community with secure, personalized access to enrollment services such as registration. Each student's registration time will be available through the *MyUH Portal* approximately two weeks before registration.

Information on registration procedures is contained in the online *Registration Guide* at www.hawaii.edu/myuh/manoa/, which includes registration dates and instructions. The *Registration Guide* is available shortly before registration begins each fall and spring semester. The listing of course offerings with up-

to-date class location and meeting times is found at the Check Class Availability website: [www.sis.hawaii.edu/uhdad/avail\\_classes?i=MAN](http://www.sis.hawaii.edu/uhdad/avail_classes?i=MAN).

Unclassified students and auditors register after classified students.

### Auditors

Auditors are regularly admitted students who enroll for informational instruction only, and attend classes with the consent of the instructor. Auditors receive no credit, and they do not take course examinations. The extent of their classroom participation is at the instructor's discretion. Auditors are not generally allowed in art studios, laboratory science, mathematics, elementary and intermediate Hawaiian and foreign languages, creative writing, English composition, physical education, communication and other performance courses, or in classes where they might displace credit students. Audit courses are entered on student transcripts with a grade of L and are subject to regular tuition and fee charges. Audit courses are not counted in determining a student's enrollment status.

### Late Registration

Students who failed to register during the designated registration period may still register for credit during the first 10 calendar days of instruction (see the "Calendar"). There is a fee for late registration.

### Maximum Registration

Undergraduate students who request enrollment in 20 or more credit hours of work in any semester must obtain special approval from their college student academic services office and process their changes during the Change of Registration period after instruction begins. Students may not register for courses in Outreach College, for credit or audit, in excess of the maximum registration allowed by the college/school in which they are enrolled unless given permission for an overload by the college/school.

### Enrollment Status

For academic purposes, students may be classified as either part-time or full-time students. A full-time undergraduate carries a minimum of 12 credit hours. Undergraduate students carrying fewer than 12 credits are classified as part-time. Audited courses are not counted in determining the enrollment status of a student.

### Change of College or Major

Classified students may apply for transfer from one college to another during the fall or the spring semester. Application for transfer must be made on a form supplied by the student academic services office of the college/school that the student wishes to enter. The application must be approved by the dean of that college/school. Deadlines for transfers within UH Mānoa are determined by individual student academic services offices. Contact the college/school directly for deadlines. Students planning to transfer into professional schools should consult the dean's office for deadlines. Students wishing to enter the College of Education should follow the procedures specific to that college.

Changes of college, school, curriculum, or major are not permitted during registration periods.

Unclassified students who wish to become degree candidates must complete the regular application process.

### Changes in Registration

All deadlines for adding courses, partial withdrawal, or complete withdrawal are subject to change. Refer to the current *Registration Guide* for applicable deadlines and procedures.

### To Add a Course

Courses may be added during the first 10 calendar days of instruction.

### To Drop a Course (Partial Withdrawal)

A course may be dropped through the sixth day of instruction without notation on the student's record. Thereafter, grades of W will be posted. The colleges/schools differ in their policies, but, in general, a course may be dropped from the seventh day of instruction up to Friday of the ninth week of instruction with the consent of the instructor and the approval of the student's college/school dean.

After the ninth week no withdrawals are permitted except for unusual or extenuating circumstances beyond the control of the student. These withdrawals require the consent of the student's college/school dean, and consent may be given only after the dean consults the instructor.

If students do not officially complete the withdrawal procedure, an F or NC, as appropriate, may be awarded by the instructor in place of a passing grade.

### Complete Withdrawal

Students occasionally find, for a wide variety of reasons, that they are unable to complete the semester and need to withdraw completely from the university. Students should note that once school starts, they have incurred a financial obligation to the university. Withdrawing completely from UH Mānoa does not release the student from his or her financial obligations.

Prior to the first day of instruction, students can withdraw online. No course registration will appear on their records, and the students will incur no financial obligation for tuition and fees.

From the first to the sixth day of instruction, students withdrawing completely from UH Mānoa will have a withdrawal action noted on their records. No courses will be listed for that semester.

From the seventh day through the ninth week of instruction, students withdrawing completely from UH Mānoa will receive a W grade for each course on their record.

After the ninth week of instruction, students are not allowed to withdraw except in unusual or extenuating circumstances beyond their control. Withdrawing after the ninth week requires petitioning for approval from the student's college/school dean. Students who receive approval will receive a W grade for each course on their record.

To apply for a complete withdrawal, students should see the student academic services office of their college/school. Once the student receives approval to withdraw, the student must obtain all signatures as indicated on the forms and submit the completed forms to the UH Mānoa Cashier's Office.

Complete withdrawal does not release the student from his or her financial obligations to the university. The refund schedule for withdrawal is noted in both the "Tuition, Fees, and Financial Aid" section of this *Catalog* and in the *Registration Guide*.

When withdrawing, a continuing classified undergraduate student who has completed at least one semester at UH Mānoa may choose to apply for a leave of absence. Leave of absence forms are available through the student academic services office

of the student's college/school and require approval by the college/school dean. Students who do not obtain a leave of absence must apply for readmission by submitting the UH System Application Form to the Office of Admissions before the specified deadline and must be readmitted before they are able to register.

### Retroactive Withdrawals

Retroactive withdrawals are partial or complete course withdrawals processed after the semester has ended. UH Mānoa is obligated to insure the integrity of the transcript as an historical document, which must reflect the actual history of a student's experience at UH Mānoa. Because of this, the student who is requesting a retroactive withdrawal will need to present a convincing case and provide relevant documentation that supports the existence of circumstances beyond their control that prevented them from initiating the withdrawal request in a timely manner. Any request submitted two or more years after the course ended will not be reviewed. Should a retroactive withdrawal be approved, the action will result in the grade being changed to a W. Tuition refunds will not be considered and any academic action applied for that semester will remain on the student's record.

If you were a financial aid recipient during the semester in which you are seeking a withdrawal, be sure to check with Financial Aid Services to determine whether this will result in a financial obligation or future ineligibility for financial aid.

### Credits and Grades

Work accomplished by students is usually recognized in terms of credit hours, grades, grade points, and grade point averages.

Students must complete a minimum of 120 (45 upper division (300+ level)) credits and have a minimum of a C (not C-) average (minimum GPA of 2.0) to earn a baccalaureate degree. Colleges, schools, and degree programs have specific requirements. Students should check with their college/school advisor.

### Credit Hours

Credit hours (or credits) for course work are determined on a semester or semester-equivalent basis for work satisfactorily accomplished. Credit hours granted for specific courses are listed in this *Catalog* and the *Check Class Availability* website each semester.

### Grades

Student achievement is designated by the following grades: A+, A, A- (excellent), B+, B, B- (above average), C+, C, (average), C-, D+, D, D- (minimal passing), F (failure), CR (credit), NC (no credit), I (incomplete), and L (audit). A grade of I is given to a student who has not completed a small but important part of a semester's work if the instructor believes that the incomplete was caused by conditions beyond the student's control. Each student receiving a grade of I should consult his or her instructor promptly to determine the steps to be taken and the deadline to complete the course work for changing the grade of I to a final grade. The designated November and April deadlines (see the "Calendar") refer to the dates instructors must report adjusted grades. Student deadlines for completing their course work must be adjusted accordingly.

An instructor recording a grade of I on the final grade sheet will also record the grade that will replace the I if the work is not made up by the deadline; that grade is computed on the basis of what grades or other evidence the instructor does have,

averaged together with Fs or zeros for all incomplete work (including the final examination, if it has not been taken). If the work is completed prior to the deadline, the instructor will report a change of grade, taking the completed work into consideration. If the instructor does not submit a grade to replace the incomplete, the grade of I will be replaced by an F or an NC (as appropriate) as of the April or November deadline. All grades of I must be cleared by a student's college prior to graduation.

### Credit/No Credit Option

The credit/no credit option encourages students to broaden their education by venturing into subjects outside their fields of specialization without risking a relatively low grade. The CR designation denotes C (not C-) caliber work or better. However, students should be aware that some colleges and many graduate and professional schools evaluate CR as C and NC as F. The same is true of some employers and scholarship awarding agencies.

Certain courses may be designated as mandatory CR/NC. In addition to any such mandatory CR/NC courses, no more than 40 credit hours of CR may be counted toward the degree. Neither CR nor NC is computed in the grade point average. The CR/NC option must be exercised during the registration period. The CR/NC option is limited to elective courses; this option is not allowed for any course taken to fulfill a UH Mānoa undergraduate general education, college, school, or department nonelective requirement, with the exception of those courses offered for mandatory CR/NC.

### Grade Points

Grade points for each credit hour received in a course will be computed as follows:

A+ = 4.0	B+ = 3.3	C+ = 2.3	D+ = 1.3	F = 0.0
A = 4.0	B = 3.0	C = 2.0	D = 1.0	
A- = 3.7	B- = 2.7	C- = 1.7	D- = 0.7	

Students entering as undergraduates are not given grade points for work done outside UH Mānoa.

### Grade Point Averages

Grade point averages (GPA) are determined by dividing the total number of grade points by the total number of credit hours for which a student has received letter grades (excluding I, NC, CR, W, or L).

The semester GPA is calculated on any one semester's credits and grade points. The cumulative GPA is calculated on all such work taken at UH Mānoa.

### "Repeatable" Courses

Some courses are designated "repeatable" in the *Catalog* and can be taken for credit a limited number of times, as indicated by the course description.

Students may take "repeatable" courses as many times as allowed by the *Catalog* description. For these courses, all grades are permanently recorded on the transcript and impact the Grade Point Average, (GPA). Students can count up to the designated limit of credits toward degree requirements.

When students take "repeatable" courses beyond the designated limit, grades continue to be recorded on the transcript,

but those grades do not impact the GPA and the credits are not counted toward degree requirements.

All courses that are not designated “repeatable” can only be taken for credit once. This means that only one set of credits (i.e., 1 credit for a 1-credit course; 3 credits for a 3-credit course, etc.) can count toward degree requirements, even if you repeat the course.

UH Mānoa will not provide financial aid for a course that is not listed as repeatable in the course description or if a student repeated the course more than the number of times listed in the course description. Financial aid recipients who are repeating courses should see the Financial Aid Services Office with any questions.

### Repeating Failed Courses

Students who receive an F or NC earn no credits. Students may repeat any course in which they received an F or NC for that semester. Starting with Fall 2012, for courses taken as a repeat, the last grade received for the course shall be included in the student’s cumulative GPA. The grade from the previous attempt shall be excluded from the GPA. Grades for each attempt are permanently recorded on the transcript.

### Repeating Courses with Grades of C-, D+, D, or D-

Students who receive grades of C-, D+, D, or D- earn the credits for that course. Students may repeat any course in which they received a grade of C-, D+, D, or D-. Starting with Fall 2012, for courses taken as a repeat, the last grade received for the course shall be included in the student’s cumulative GPA for that semester. The grade from the previous attempt shall be excluded from the GPA. Grades for each attempt are permanently recorded on the transcript. Only one set of credits (i.e., 1 credit for a 1-credit course; 3 credits for a 3-credit course, etc.) can count toward degree requirements. Students should check with their academic advisor on repeating courses that they have already received a minimal passing grade.

For students who receive financial aid repeating courses in which they received a grade of C-, D+, D, or D-, their enrollment status may not include the repeat course and may affect the amount of aid received. Students should check with the Financial Aid Services Office on repeating courses that they have already received a minimal passing grade in regards to their eligibility for financial aid.

### Repeating Courses with Grades of C or Higher

Students who have already received a grade of C or higher for a course that is not designated as “repeatable” may repeat it only with the permission of the instructor or of the department offering the course. Grades for each attempt are permanently recorded in the transcript, but only the first grade (not the repeat) is included in the GPA. Only one set of credits (i.e., 1 credit for a 1-credit course; 3 credits for a 3-credit course, etc.) can count toward degree requirements.

For students on financial aid, repeating courses in which they received a passing grade, their enrollment status will not include the repeat course and may affect the amount of aid received.

### Duplicate Credits

Students can earn only one set of credits (i.e., 1 credit for a 1-credit course, 3 credits for a 3-credit course, etc.) for courses that are equivalent or comparable in content. Examples include:

- Cross-listed courses (e.g., BIOL 402 and MBBE 402)

- Transfer equivalencies (e.g., ZOOL 141 and PHYL 141, ENG 255 and ENG 271)
- Different levels of the same material (e.g., CHEM 151 and CHEM 161)
- Equivalent credits earned through exams, such as AP, IB, CLEP, etc.

### Backtracking

“Backtracking” refers to taking either a prerequisite course or the lower level course in a tracked sequence concurrently with or after a more advanced course. Examples include:

- Completing Korean 211 and then taking Korean 102, its prerequisite
- Completing Japanese 202 and then taking Japanese 101, a lower level
- Taking Math 432 and then taking Math 431, a two-semester sequence that must be taken in order

If students choose to backtrack, credit is not awarded for the lower-level/prerequisite course, and although the grade is recorded in the transcript, it does not impact the GPA. In some cases, students may backtrack with the express permission of the student’s college/school academic services office.

### Excess Credit Policy

A student who by the end of any semester has earned 24 credit hours beyond those required for graduation and has fulfilled all specific program and UH requirements may be graduated by action of the student’s college/school.

### Grades

Grades are available through the *MyUH Portal* one week after the final examination period each semester. Grades for courses taken through Outreach College do not follow this schedule.

### Examinations

#### Course Examinations

Final examinations are required in all undergraduate courses (except writing courses, directed reading, creative arts, research, seminars, internships, and field experiences) and must be taken during the scheduled examination period. No examinations (other than laboratory tests and short quizzes) are allowed during the two calendar weeks before the last day of instruction. Take-home final exams may be distributed at any time but may not be required to be turned in before finals. The schedule of final examinations is published in the *Registration Guide*.

#### Language Courses

Students who plan to continue the study of a language begun elsewhere must take a placement test to determine the course in which they should enroll.

For specific regulations governing courses that native or bilingual speakers may take for credit, students should consult the department chairs of European languages, East Asian languages, Hawaiian language, or Indo-Pacific languages.

#### Advanced Placement Examination

The Advanced Placement examinations are administered in high schools by the Educational Testing Service for the College Entrance Examination Board for students who have completed specific college-level courses in high school. Students should consult the Office of Admissions for the most current UH Mānoa credit granting policy.

## Credit by Examination

Students who wish credit by examination for basic courses in calculus, general biology, general chemistry, economics, English literature, psychology, and sociology should consult the Counseling and Student Development Center. Students apply to the center, pay the fee, and take the corresponding subject examination under the College-Level Examination Program (CLEP). A satisfactory score on these examinations, as determined by the appropriate department, yields course credit.

If a written exam is appropriate in other courses, it is prepared under the auspices of the department concerned, is more comprehensive than the usual “final examination,” and is designed to serve as the scholastic equivalent of the course.

Applicants must be enrolled classified students; must present evidence that they have a mastery of the content of the courses (but have not received college credit); must apply, with department approval, to the dean’s office by the specified deadline; and must pay the current fee. Applications are available in the college/school student academic services office.

Courses passed by examination do not carry grades or grade points.

## Recognition of International Baccalaureate

UH Mānoa recognizes the international baccalaureate for course credit. Students should submit higher-level examination scores to the Office of Admissions. Course credit is granted for acceptable scores. Contact the Office of Admissions for more information.

## Academic Programs

### Undergraduate Certificate Programs

UH Mānoa offers a number of undergraduate certificate programs, some of which are interdisciplinary. Certificates require a minimum of 15 credit hours of specified courses and a 2.5 GPA in those courses.

Undergraduate certificate programs are listed in the “Degrees, Minors, and Certificates” section.

### Bachelor’s Degree

#### Objectives

Institutional learning objectives include both academic and co-curricular learning and are listed on page 25. The baccalaureate academic program provides the student with a coherent undergraduate education that includes a comprehensive set of integrated learning opportunities. There are five basic components (listed below). Students can see the five components and requirements on bachelor degree program sheets at [manoa.hawaii.edu/ovcaa/programsheets/](http://manoa.hawaii.edu/ovcaa/programsheets/).

#### Requirements

**General Education Requirements.** The General Education requirements are based on the conviction that an educated person has access to a shared body of knowledge; a comprehension of the major divisions of learning; and an understanding of the commonality in our ways of thinking, of experiencing self, and of acquiring new knowledge and skills. The common body of knowledge focuses broadly on heritage; values; political, economic, and social life; and a relationship with nature. Its study requires critical reading and listening, careful judgment, and clear exposition. The common thread in general educa-

tion is the interconnectedness of human knowledge. See the “Undergraduate General Education Requirements” section for more information.

**Graduation Requirements.** See the “Focus” and “Hawaiian or Second Language” parts of the “Undergraduate General Education Requirements” section.

**Degree Requirements.** Some programs have degree-specific requirements, such as course requirements that distinguish a Bachelor of Arts from a Bachelor of Science.

**College or School Requirements.** Colleges/schools may specify which General Education courses should be taken to meet their requirements. They may also have additional requirements. Students should refer to specific college/school sections for more information.

**Major or Academic Specialization Requirements.** The major consists of a specific number of credit hours and required courses in a particular field or discipline and related courses in other subjects that are associated with and contribute to that discipline. Students must satisfy the requirements for the selected major and, if applicable, the minor or concentration selected. Detailed information can be found in the appropriate major or academic specialization sections. Students may also consult the bachelor degree program sheets at [manoa.hawaii.edu/ovcaa/programsheets/](http://manoa.hawaii.edu/ovcaa/programsheets/).

**Minor Requirements.** Some departments offer a minor, which is a set of courses that relate to an approved baccalaureate degree. A minor course of study consists of a minimum of 15 credit hours of non-introductory work (i.e., upper division courses and 200-level courses that have a college-level prerequisite) that is completed with a grade of C (not C-) or better. Minors are listed in the “Degrees, Minors, and Certificates” section.

#### Concurrent Degrees

Qualified students may seek concurrent undergraduate degrees in any two different schools or colleges. Admission is subject to approval by both schools or colleges; priority for admission into any baccalaureate program is given to students seeking their first undergraduate degree. Students seeking concurrent degrees must (1) have a 3.25 GPA and show strong promise of success in the proposed concurrent programs; (2) complete the college, academic specialization, and graduation requirements for **both** colleges or schools; (3) complete the General Education Core Requirements in their initial degree program; and (4) complete a minimum of 30 credits in each degree program. Concurrent degree students may not use the same course to satisfy major requirements in both degree programs, unless the specific course is required by both programs. Interested students must complete the UHM-3 Form (UH Mānoa Concurrent Undergraduate Degree Application), which may be obtained from academic advisors.

#### Second Bachelor’s Degree

Applicants for a second bachelor’s degree must meet admission and graduation requirements of UH Mānoa, the college/school and the academic specialization. Students seeking their first bachelor’s degree have priority for admission and registration. Admitted students should confer with their academic advisors about graduation requirements.

## Graduation Requirements and Policies

### Progress Toward the Bachelor's Degree

Students are expected to complete their academic work and apply for a degree in a timely manner (see "Excess Credit Policy"). The department or program in which the student is pursuing a degree may decide that certain courses required for the major that were taken in the past must be retaken. Courses that are declared outdated for the major will still count toward the General Education Core if they meet core requirements. Students should consult with their academic advisor in their major field of study for details.

### Residency Requirements

Students must earn a minimum of 30 credit hours in residence (i.e., taking credit courses or their equivalent by examination) at UH Mānoa. However, meeting the residency requirements does not necessarily mean that degree requirements have been met; the latter are determined by individual colleges or schools.

A degree candidate must be registered and in attendance during the semester (or summer session) he or she completes the requirements for his or her degree, unless permission has been given for graduation in absentia by the appropriate college/school dean.

### Application for Degree

An application for graduation must be obtained at the student academic services office of the appropriate college/school. This must be done by the deadlines specified in the "Calendar."

## Academic Honors

### Dean's List

Undergraduate students are awarded the Dean's List distinction if they: (1) earn a semester grade point average of 3.5 or higher based on 12 credits or more taken for a grade, and (2) do not receive grades of W, I, F, or NC for that semester. The grades used for calculation of grade point average will be those earned by a date determined by the Office of the Registrar. Colleges or schools may establish independent criteria for the award of Dean's List distinction with the approval of the Vice Chancellor for Academic Affairs.

### Graduating with Honors

Honors degrees are granted only to participants in the UH Mānoa Honors Program (see page 21).

### Graduating with Distinction

Graduating seniors who have completed 30 or more credit hours of work at UH Mānoa with the following cumulative GPA are eligible for graduation with distinction as noted:

- 3.5 to 3.74 *cum laude*
- 3.75 to 3.9 *magna cum laude*
- over 3.9 *summa cum laude*

Graduation with distinction is subject to the following stipulations:

1. The 30 or more credit hours from UH Mānoa must come from courses carrying grade points (this excludes CR/NC);
2. The cumulative GPA for graduating with distinction is calculated on the total college work (which encompasses academic work at UH Mānoa and all other colleges and universities, if any). This academic work includes both transfer-

able and nontransferrable credits carrying grade points but excludes CR/NC or other non-letter grade options such as pass/fail; and

3. Candidates for second degrees are not eligible.

The appropriate designations will be recorded on the diploma and transcripts.

### Honor Societies

Alpha Epsilon, *National Honor Society for Extension Service*  
 Alpha Kappa Delta, *International Sociology Honor Society*  
 Alpha Omega Alpha, *National Honor Society in Medicine*  
 Beta Alpha Psi, *National Accounting Honor Society*  
 Beta Gamma Sigma, *National Business Honor Society*  
 Beta Phi Mu, *International Library Science Honor Society*  
 Chi Epsilon, *National Civil Engineering Honor Society*  
 Delta Phi Alpha, *National German Honor Society*  
 Epsilon Sigma Phi, *National Extension Honor Society*  
 Eta Kappa Nu, *National Electrical Engineering Honor Society*  
 Eta Sigma Delta, *International Hospitality Management Honor Society*  
 Gamma Sigma Delta, *National Agriculture and Human Resources Honor Society*  
 Golden Key International Honour Society, *International Undergraduate Honor Society*  
 Kappa Tau Alpha, *National Journalism Honor Society*  
 Lambda Delta, *Freshmen Honor Society*  
 Mortar Board, *Senior Honor Society*  
 Mu Kappa Tau, *Marketing National Honor Society*  
 National Society of Collegiate Scholars, *Sophomore Honor Society*  
 Omicron Delta Epsilon, *International Honor Society in Economics*  
 Phi Alpha Theta, *National Honor Society in History*  
 Phi Beta Kappa, *National Liberal Arts and Sciences Honor Society*  
 Phi Delta Kappa, *National Education Honor Society*  
 Phi Eta Sigma, *National Freshmen Honor Society*  
 Phi Kappa Phi, *National Honor Society (general)*  
 Phi Theta Kappa, *International Honor Society for Two-Year Colleges*  
 Phi Upsilon Omicron, *National Home Economics Honor Society*  
 Pi Delta Phi, *National French Honor Society*  
 Pi Kappa Lambda, *National Music Honor Society*  
 Pi Lambda Theta, *National Education Honor Society*  
 Pi Sigma Alpha, *National Political Science Honor Society*  
 Pi Tau Sigma, *National Mechanical Engineering Honor Society*  
 Psi Chi, *National Honor Society in Psychology*  
 Sigma Delta Pi, *National Spanish Honor Society*  
 Sigma Phi Alpha, *National Dental Hygiene Honor Society*  
 Sigma Pi Sigma, *National Physics Honor Society*  
 Sigma Theta Tau, *National Honor Society in Nursing*  
 Sigma Xi The Scientific Research Society, *National Sciences Honor Society*  
 Tau Beta Pi, *National Engineering Honor Society*  
 Tau Sigma, *National Honor Society for Transfer Students*

For further information on these honor societies, contact the appropriate academic unit.

### Satisfactory Academic Progress Toward a Degree, Minimum UH Mānoa Academic Standard, and Good Academic Standing

Once a student has attempted at least 24 college credits at UH Mānoa, he or she shall make satisfactory academic progress toward a degree and remain in good academic standing by maintaining a cumulative grade point average of 2.0.

## Academic Probation, Suspension, and Dismissal

No academic action shall be taken until a student has attempted 24 credit hours.

- Suspension and dismissal actions for all students will only be taken after spring semester.
- All students who have or would have had an academic action taken will be directed to see their academic advisor immediately and a “hold” will be placed on their registration until that meeting has occurred. The college advising office will work proactively with the student over the course of the semester to help improve academic performance.
- All retention and continuation data will be collected from colleges and units at the end of spring semester to assess the effectiveness of their intervention strategies.

Undergraduate and unclassified students seeking exemption for cause from regulations and requirements contained in this *Catalog* should consult the dean of student academic services of their college/school. UH Mānoa reserves the right to withhold the degree or to request the withdrawal of a student for cause.

### Probation

Students may be placed on academic probation at the end of any semester when their cumulative GPA falls below 2.0 or when they fail to maintain the minimum academic requirements of their college, school, or program. Probationary students may register for classes at UH Mānoa, but must achieve a current GPA of at least 2.0 in each probationary semester to be allowed further registration. Failure to meet these conditions may result in suspension or dismissal.

Unless an extension has been granted by the college/school’s student academic services dean, students may be put on probation if they have taken 24 credit hours beyond those required for graduation but still have not completed their specific program requirements.

Regulations governing academic probation will be applied at the end of each semester.

### Suspension

Students may be suspended when they fail to achieve a cumulative GPA of at least 1.7 after attempting 24 credit hours or when they fail to meet the terms of probation.

Once suspended, a student is not eligible for readmission to UH Mānoa or Outreach College for one full semester (fall or spring). A suspended student who is currently registered in an Outreach College summer course may complete the course. However, completion of the course will not change the suspension.

Regulations governing academic suspension are applied at the end of each spring semester.

### Applications for Return from Suspension

Students who wish to return after suspension should apply to the Office of Admissions—for the fall semester by the initial deadline of **January 5** or final deadline of **May 1**, and for the spring semester by the initial deadline of **September 1** or final deadline of **October 1**.

Suspended students who attend another institution will be considered “transfer students” when reapplying to UH Mānoa, and must meet all transfer requirements. They will have their work evaluated by the college/school in order to determine eligibility for readmission.

Students who take no courses after being suspended for the required one semester are eligible to be readmitted into the college/school from which they have been suspended provided they submit an application form by the official deadline. However, readmission is not automatic if the student stays out beyond the required period.

Students readmitted after suspension are placed on probation and must meet the terms and conditions of probation as specified above. Failure to do so will result in dismissal.

### Dismissal

Students who have been suspended and who subsequently fail to maintain the minimum academic requirements of UH Mānoa or their college, school, or program or fail to meet the terms of probation may be dismissed. Such students will be readmitted only in unusual circumstances. Students admitted on probation may be dismissed if they fail to maintain the minimum academic requirements or to meet the terms of probation.

Once dismissed, a student is not eligible for readmission to UH Mānoa or Outreach College for a minimum of one academic year (fall and spring semester). A dismissed student who is currently registered in an Outreach College Summer Session course may complete the course. However, completion of the course will not change the dismissal.

Regulations governing academic dismissal are applied at the end of each semester (fall or spring).

The following conditions apply to students who have been dismissed one or more years:

1. To apply for readmission as a classified or unclassified student at UH Mānoa, the student should do so on the admissions application form, following established procedures and deadlines. The student must meet the standard admission criteria applicable to all students. The Colleges of Arts and Sciences require a written statement from the student explaining the circumstances of the dismissal and a rationale for reinstatement. If readmitted, the student is placed on academic probation and must meet established terms of probation;
2. To enroll in Outreach College, the student is eligible if he or she has attended any UH system campus or other regionally accredited college or university subsequent to the dismissal and earned a cumulative post-dismissal GPA of 2.0 or better for a minimum of 12 earned credits. Transcripts will be required to establish eligibility; or
3. To enroll in Outreach College, the student who has not earned a cumulative post-dismissal GPA of 2.0 or better for a minimum of 12 earned credits at another UH system campus or other regionally accredited college or university subsequent to dismissal may petition the dean of Outreach College for special enrollment consideration.

### Other Provisions

Upon finding that a student is suffering from a physical or mental condition detrimental to the student or to UH Mānoa, the vice chancellor for students will, on medical advice, recommend proper action to the appropriate college/school’s student academic services dean. The dean may request that the student be withdrawn officially, without prejudice or academic penalty. Readmission is contingent upon review and recommendation by the college/school’s student academic services dean and the vice chancellor for students.

## Leave of Absence

Continuing classified undergraduate students may apply for a leave of absence for a specified period of one or two semesters if they (1) have just completed their prior semester (fall or spring) at UH Mānoa, (2) are in good standing (neither on probation nor subject to suspension or dismissal), and (3) are not enrolled at any institution. Students who do not meet the requirements may consult their College Student Academic Services offices. Students may not take more than two regular semesters of leave before graduation; additional semesters of leave will be granted only under extenuating circumstances. The granting of a leave of absence indicates a continuing relationship with UH Mānoa and allows students to resume studies at a specific time without applying for readmission. Students who take a leave of absence will continue to be subject to the core, major, and graduation requirements in effect at the time their leave began.

Students have two options for taking an official leave of absence: (1) a planned leave, and (2) a leave taken at the time of withdrawal from UH Mānoa. To apply for a planned leave for the upcoming semester, students should submit an application for leave of absence prior to the beginning of the semester that the leave is to be taken. Application for a leave can also be submitted at the time of complete withdrawal from UH Mānoa. Applications for a leave of absence are available in the student academic services office at the student's college/school. The date of return from leave must be specified at the time of application.

Students who do not reenroll at UH Mānoa at the end of their leave of absence will be considered to have withdrawn without notice; they will be required to apply for readmission to UH Mānoa and will be subject to the core, major, and graduation requirements in effect at the time of readmission.

Students should be aware that taking a leave of absence may affect their residency status and eligibility for programs such as financial aid, intercollegiate athletics, etc. Upon return from an approved leave of absence, students may also find that registration in courses with fixed faculty/student ratios may be dependent upon availability of space.

## Programs

### Financial Literacy Program

Crawford Hall Room 225  
2550 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6572  
Email: [finlit@hawaii.edu](mailto:finlit@hawaii.edu)  
Web: [manoa.hawaii.edu/undergrad/finlit/](http://manoa.hawaii.edu/undergrad/finlit/)  
Coordinator: S. Miyashiro

The Financial Literacy Program (FLP) provides tools and solutions to our UH Mānoa students equipping them to become responsible and financially independent by better managing their personal finances, improving their economic opportunity and to obtaining a desirable quality of life. FLP offers free workshops, presentations, seminars, resources and interactive activities on a variety of financial topics such as goal setting, personal budgeting, savings, obtaining and managing credit, student loans, investing, retirement, insurance and much more. Our workshops and seminars include practical tips and

strategies that students can apply to their personal financial situations. All of our services are available to our UH Mānoa community.

### First-Year Programs

Student Success Center  
Gregg M. Sinclair Library  
2425 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8626  
Email: [freshman@hawaii.edu](mailto:freshman@hawaii.edu)  
Web: [www.manoa.hawaii.edu/undergrad/freshman/](http://www.manoa.hawaii.edu/undergrad/freshman/)  
Coordinator: K. Van Duser

First-Year Programs ease the transition of new students into the academic and social communities at UH Mānoa. First-Year Programs provide the opportunity to develop personal relationships with faculty and other students, enhance active involvement in the educational process, and build connections to UH Mānoa. In addition, First-Year Programs familiarize students with the array of resources and programs available at UH Mānoa.

### Access to College Excellence

Tel: (808) 956-8626  
Web: [manoa.hawaii.edu/undergrad/freshman/access-to-college-excellence/](http://manoa.hawaii.edu/undergrad/freshman/access-to-college-excellence/)  
Coordinator: K. Van Duser

Access to College Excellence (ACE) learning communities offer a combination of three general education courses and a small group, 1-credit integrating seminar (CAS 110: Integrating Seminar I). Courses are grouped to provide freshmen with an introduction to various academic perspectives while fulfilling graduation requirements. CAS 110 is led by an upperclassman peer mentor who supports freshmen cohorts in their new learning environment. Successful college students themselves, peer mentors assist with the development of successful academic strategies, creation of social and interpersonal networks, and involvement in a variety of campus events. ACE espouses a well-rounded, multifaceted approach to college education. Freshmen who are eager to learn, enthusiastic about making friends while increasing independence, and excited about getting involved will benefit from what ACE has to offer.

### Freshman Seminars

Tel: (808) 956-8626  
Web: [manoa.hawaii.edu/undergrad/freshman/program-overview/](http://manoa.hawaii.edu/undergrad/freshman/program-overview/)  
Coordinator: K. Van Duser

Freshman Seminars offers freshmen a variety of courses, which enable them to learn in small class environments (classes are limited to 10 students). The purpose of this program is threefold:

1. To create an intimate learning community for faculty and students who place a high value on the human dimension of education;
2. To provide students with small classes in which they take an active and responsible part and receive constant peer stimulation, support, and feedback;
3. To offer advanced students an opportunity to gain experience in leadership and mastery over their major by teaching.

The three credit seminars are mainly, but not limited to, General Education Core classes led by qualified advanced students under the direction of department faculty. These seminars provide valuable learning experiences for both the students taking the class and the students leading the class. Courses vary each semester, but may include: communicology, ethnic studies, library and information systems, political science, religion, and sociology. They are listed in the *Registration Guide* under each department.

## General Education Office

Bilger Hall 104  
2545 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-6660  
Fax: (808) 956-9170  
Email: [gened@hawaii.edu](mailto:gened@hawaii.edu)  
Web: [www.hawaii.edu/gened](http://www.hawaii.edu/gened)  
Faculty Administrator: T. Sammons

The General Education Office (GEO) is the administrative support arm of Mānoa's faculty-governed General Education (GenEd) Program. GEO staff assist the faculty groups that oversee GenEd by coordinating faculty review of proposed and existing GenEd courses, maintaining records of the GenEd Program, and assisting with faculty development and training efforts.

## Honors Program

Greg M. Sinclair Library 128  
2425 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8391  
Web: [manoa.hawaii.edu/undergrad/honors/](http://manoa.hawaii.edu/undergrad/honors/)  
Director: V. Gonzalez

The Honors Program provides opportunities for talented and motivated undergraduates to excel in their academic studies. Students complete a challenging enquiry-based curriculum that encourages learning through independent research and creative expression. They enjoy intimate and personalized educational experiences within the setting of a large research university through small classes, dedicated advising, peer mentorship, and faculty-guided projects. The Honors Program encourages critical thinking and excellence in oral and written communication; instills respect for diversity and commitment to social justice; and develops the capacity for civic engagement and leadership. It fosters among its students and faculty a sense of identity and a joy of learning, which it promotes within the university and beyond.

## Selected Studies

Selected Studies is the lower division component of the Honors Program. It offers both its own Honors courses, conducted in seminar format and specially designated "A Sections," which are small, discussion-based versions of regular departmental offerings. These courses are designed to meet the general education requirements of students in the Honors Program. A full list of Honors (HON) courses is available in the "Courses" section.

A certificate for Sophomore Honors is awarded to students in Selected Studies who complete sufficient credits in Honors courses and who maintain a minimum GPA of 3.25 in those courses and overall. In addition, a special notation is made on the student's transcript.

Admission to Selected Studies is by invitation to high school students with outstanding academic records and aptitude test scores. Others may be nominated or may apply with the recommendation of a high school teacher or counselor. UH Mānoa students may also apply in their first year with the recommendation of a university instructor.

## Upper Division

Honors degrees are awarded in most disciplines at UH Mānoa, but candidates must be enrolled in the UH Mānoa Honors Program. Upper Division Honors students take a sequence of 12 credits that culminates in a Senior Honors Project, which is independent thesis research or creative work completed under the supervision of a faculty member. The sequence begins with a Junior Honors Seminar and an upper-division seminar course on research methods. Subsequently, students pursue a two-semester program of independent research for the Senior Honors Project under the supervision of their faculty advisor. The Senior Honors Project is presented or performed at the Fall Forum or the Spring Symposium. The full list of courses is available in the "Courses" section of this *Catalog* under Honors (HON).

To graduate with Honors, students must complete the requirements for a bachelor's degree and maintain a minimum cumulative GPA of 3.2 in both their major and in their senior-junior years. In addition, at least one of these GPAs must be in the top 25% of the graduating class in their college/school. The Honors Council receives written assessments of performance from instructors and thesis supervisors for all coursework in Upper Division Honors, and receives a copy of the Honors Senior Project. Assessing this evidence, the Honors Council decides whether candidates are awarded "Honors," "High Honors," or "Highest Honors." Students receive a diploma, their achievement is acknowledged at Commencement, and a notation is made on their transcript.

Admission to the Honors Program is by invitation to those on Deans' lists, but others may be nominated or may apply with the recommendations of instructors and faculty at UH Mānoa. Students need at least three semesters to complete the requirements so it is best to apply in the second semester of the sophomore year or early during the junior year.

## Interdisciplinary Studies

Krauss 116  
2500 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7296  
Web: [manoa.hawaii.edu/undergrad/is/](http://manoa.hawaii.edu/undergrad/is/)  
Director: J. Odin

The objective of the Interdisciplinary Studies (IS) Program is to provide students with an opportunity to pursue a course of study that is not restricted to conventional departmental or unit boundaries. A crucial feature is the advising process, which aims to develop the student's ability to formulate a major equivalent comprised of upper division courses with thematic integrity and continuity. This ensures flexibility in the curriculum while precluding loss of academic substance and rigor. Thus students create their own degree proposals that must draw upon no less than three disciplines in the UH Mānoa *Catalog* in the study of a particular problem or theme, along with specifically designed IS courses.

While the IS program encourages creation of individually-conceived curricula, it also serves to accommodate students in a variety of fields that lack an undergraduate major and are interdisciplinary in nature. These include:

1. Pre-professional majors (e.g., pre-law, pre-med, pre-optometry, pre-physical therapy);
2. Undergraduate majors that are established at UH Mānoa only as graduate programs (e.g., astronomy, educational psychology, linguistics); and
3. Interdisciplinary majors for which there is no currently existing department or program (e.g., criminology, gerontology, disability studies, health studies, globalization studies, international studies).

Students interested in these programs should see both the program in Interdisciplinary Studies for an orientation at Krauss Hall 116 and an advisor from the relevant program.

Degree proposals must focus upon the identified academic theme, be made in writing, and be accepted by the interdisciplinary studies faculty before the student enrolls for 21 of the 36 credits required in the major equivalent.

In all cases, IS students must satisfy the UH Mānoa degree graduation requirements and General Education Core in order to be eligible for a bachelor's degree. Students must also maintain a minimum 2.5 GPA for the major equivalent courses. These courses may not be taken CR/NC, unless mandatory. Successful candidates earn a bachelor of arts in Interdisciplinary Studies from the Colleges of Arts and Sciences in the appropriate interdisciplinary program.

Details about admission to the IS program offered in the Colleges of Arts and Sciences, and assistance in preparing an individually designed major are available at the program office.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Learning Assistance Center

Student Success Center, Gregg M. Sinclair Library  
2425 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6114  
Email: [learning@hawaii.edu](mailto:learning@hawaii.edu)  
Web: [www.manoa.hawaii.edu/undergrad/learning/](http://www.manoa.hawaii.edu/undergrad/learning/)  
Director: R. Woodruff

The Learning Assistance Center (LAC) is a developmental education program that provides academic counseling services and assists students in developing learning skills to increase academic success. The LAC assists students in becoming autonomous, confident, and effective learners in order to successfully meet academic standards. It assists students in the ongoing development of academic and affective skills that contribute to positive adjustment and performance in the learning environment. Students can participate in individual or group sessions to become more proficient in managing time, reading, writing, taking notes, taking exams, and to enhance academic motivation. A tutoring program that provides help for courses that students find particularly challenging is available. Initial assessment, counseling and support services for students with learning disabilities are also provided.



### Mānoa Advising Center

Queen Lili'uokalani Center for Student Services 101  
2600 Campus Road  
Honolulu, HI 96822  
Email: [macadv@hawaii.edu](mailto:macadv@hawaii.edu)  
Web: [manoa.hawaii.edu/undergrad/MAC/](http://manoa.hawaii.edu/undergrad/MAC/)  
Director: M. Makino-Kanehiro

The Mānoa Advising Center (MAC) is an advising office for students who have not yet declared a major.

- MAC provides advising to select pre-majors (students who must apply/be admitted to or be selected as majors) such as Pre-Business, Pre-Medical Technology, Pre-Dental Hygiene, Pre-Social Work, Pre-Medicine, Pre-Pharmacy, and Pre-Law with special attention paid to admission requirements and planning to facilitate successful transition into their chosen majors.
- MAC assists exploratory students who have not yet selected a major with their selection process by presenting options and providing general education advising.

Students with declared majors are referred to appropriate major, school, and college advisors.

MAC is staffed by academic advisors and peer advisors (specially selected and trained upperclassmen).

### Mānoa Transfer Coordination Center

Student Success Center, Gregg M. Sinclair Library  
2425 Campus Road  
Honolulu, HI 96822  
Email: [niwasaki@hawaii.edu](mailto:niwasaki@hawaii.edu)  
Web: [manoa.hawaii.edu/undergrad/Transfer/](http://manoa.hawaii.edu/undergrad/Transfer/)  
Coordinator: Nicole Iwasaki

The Mānoa Transfer Coordination Center (MTCC) is to help students transfer smoothly from a UH community college to UH Mānoa and provide advising support throughout the transfer process, including the Ka'ie'ie Degree Pathway Program.

Transfer advisors can:

- Explain the various transfer options for UH Mānoa
- Identify and provide contact information of specific college and major advisors at UH Mānoa
- Identify UH Mānoa campus resources
- Address transfer issues
- Provide guidance to students in the Ka'ie'ie Degree Pathway Program.

## Mānoa Writing Program

Bilger Hall 104  
2545 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-6660  
Fax: (808) 956-9170  
Email: mwp@hawaii.edu  
Web: manoa.hawaii.edu/mwp/  
Director: J. Henry

The Mānoa Writing Program was created by the UH Board of Regents in 1987 to administer General Education writing requirements. Its efforts are guided by a board of seven professors, each from a different department. The faculty board reviews requests to give classes writing-intensive (W) Focus designations, offers faculty workshops on teaching with writing, and surveys students, who must complete five W courses to graduate. Administering over 500 W sections per semester, the Mānoa Writing Program's ultimate goal is to prepare all UH Mānoa graduates for the different writing tasks that society and their professions will present to them.

## New Student Orientation

Campus Center 208  
2465 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-3667  
Email: nso@hawaii.edu  
Web: www.hawaii.edu/nso  
Coordinator: M. Westfall-Senda

Before the spring and fall semesters begin, the Office of Student Life and Development offers New Student Orientation (NSO) sessions for incoming freshman and transfer students as well as their parents and family members. Student sessions have been designed to help prepare incoming students for their first year at UH Mānoa by providing important information about campus life and how to access campus resources. Students who attend NSO sessions also learn how to get involved in co-curriculum programs, engage with other new students, and network with current UH Mānoa students. Participants in parent sessions learn about the campus, available resources, and current policies to provide support and encouragement to their student during their time at UH Mānoa.

## Pre-Health/Pre-Law Advising Center

Queen Lili'uokalani Center for Student Services 101  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4045  
Email: uhpac@hawaii.edu  
Web: www.manoa.hawaii.edu/undergrad/PAC/  
Director:

The Pre-Health/Pre-Law Advising Center (PAC) is a walk-in resource center for students interested in law, medicine (allopathic, chiropractic, naturopathic, osteopathic, podiatric), or any of the health sciences (dentistry, occupational therapy, optometry, pharmacy, physician assistant, physical therapy, public health, veterinary medicine, etc.). PAC advisors help students clarify their career goals, choose a major, plan appropriate coursework, research professional programs, find opportunities to gain experience, and apply to professional programs.

## Service Learning Program

Queen Lili'uokalani Center for Student Services 209  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4641  
Fax: (808) 956-3394  
Email: slp@hawaii.edu  
Web: manoa.hawaii.edu/undergrad/servicelearn/  
Director: A. Pascua

The Service Learning Program offers UH Mānoa students and community agencies the opportunity to participate in a partnership of volunteer service.

The Service Learning Program functions as a clearinghouse. It links UH Mānoa students interested in donating their valuable time and experience with volunteer agencies within the community.

Students receive information on the volunteer experience, and agencies have access to enthusiastic, energetic, and skilled student volunteers.

The Service Learning Program serves as the headquarters for Hawai'i/Pacific Islands Campus Compact, a membership organization comprised of presidents and chancellors to promote civic engagement in higher education. Hawai'i/Pacific Islands Campus Compact also provides opportunities for students to become members of Americorps, a federal service program.

## Student Athlete Academic Services

Nagatani Academic Center  
1337 Lower Campus Road, PE/A  
Honolulu, HI 96822  
Tel: (808) 956-3388  
Fax: (808) 956-5042  
Web: manoa.hawaii.edu/undergrad/SAAS/  
Department Chair: J. Matsuda

Student Athlete Academic Services (SAAS), is the academic support program for student-athletes at UH Mānoa. Working closely with instructional faculty, coaches, and campus resources, academic advisors assist students in formulating and meeting their academic goals while participating in intercollegiate athletics. SAAS is conveniently located in the Nagatani Academic Center (NAC), adjacent to the Stan Sheriff Arena in the Athletic Department complex.

SAAS provides orientation programs, academic and athletic advising, and registration assistance. Learning services include peer mentoring, subject tutoring, and small group study sessions.

## Student Success Center

Gregg M. Sinclair Library  
2425 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-5425  
Email: geary@hawaii.edu  
Web: manoa.hawaii.edu/undergrad/ssc/  
Interim Coordinator: K. Van Duser

The Student Success Center at Sinclair Library offers students a welcoming and convivial place to study and learn and provides them the information and skills they need to be successful in their academic career and beyond. The center provides comfortable seating, is open long hours, permits students to bring their own snacks, all in a space that has nature light and air.

The Student Success Center occupies the first floor of Sinclair Library and provides a place for students to work with librarians, mentors, tutors, advisors, counselors, and/or teachers, to meet their individual needs. At the entrance to the center, the Information Concierge Desk has staff available to assist students in finding the help they need to succeed in their academic work from many departments on campus. In addition, the center hosts a number of partners including the First Year Programs, Honors Program, Writing Center, English 100 Mentoring Program, and the Wong Computer Lab and Digital Media Center where students can find equipment for word processing and production of digital media products. Generous study spaces with electrical power for personal laptop computers are spread throughout the first floor. Group study rooms with media equipment for powerpoint or video presentations are available for student use via online reservation. More details about the center are available at [manoa.hawaii.edu/undergrad/ssc/](http://manoa.hawaii.edu/undergrad/ssc/).

## Student Support Services

Krauss 114  
2500 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-8402  
Fax: (808) 956-9763  
Email: [sss@hawaii.edu](mailto:sss@hawaii.edu)  
Website: [manoa.hawaii.edu/undergrad/ssc/](http://manoa.hawaii.edu/undergrad/ssc/)  
Director: M. Yoshimoto

Student Support Services (SSS) is a federally funded program that provides academic advising and planning, special courses, financial aid advice, graduate and professional school advising, tutoring, mentoring, and academic enrichment activities to program students enrolled at UH Mānoa.

Students are selected to participate based on income and financial aid eligibility, whether parents have completed a bachelor's degree, and potential to benefit from program services.

The goal of SSS is to increase college retention, academic success and graduation rates of program participants. For application and other information, please contact SSS Advisors Gary Tachiyama and Barbara Watanabe at (808) 956-8402.

## Study Abroad Center

Moore 115  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-5143  
Fax: (808) 956-9319  
Email: [uhmsac@hawaii.edu](mailto:uhmsac@hawaii.edu)  
Web: [www.studyabroad.org](http://www.studyabroad.org)  
Director: S. Rai

The Study Abroad Center (SAC) collaborates with various UH Mānoa academic departments to provide opportunities for students to study, and faculty members to teach and conduct research, in another country. SAC develops, implements, and evaluates UH Mānoa study abroad programs. The center provides informational, advisory, and support services to students and faculty concerning international educational opportunities.

SAC programs are offered for a summer term, a semester, or an academic year. The essence of SAC programs is to acquire knowledge through academic work and to develop a cross-

cultural understanding through cultural immersion. Students earn UH Mānoa credits for course work completed abroad. The courses offered in these study abroad programs may be used to fulfill a student's major, language, general education, graduation, or elective course requirements. Any Study Abroad course may be used as an exemption to fulfill a focus requirement. Students on Study Abroad may use the focus exemption to satisfy an appropriate 3-credit diversification and/or focus requirement. Courses taken overseas will appear on UH Mānoa transcripts as UH Mānoa courses.

SAC provides faculty members with opportunities to develop courses and publications based upon research and teaching experiences within the global arena. In addition, faculty members who lead study abroad programs have a wide range of responsibilities in their capacity as "in-country" resident directors.

SAC programs and course offerings may vary each academic term.

## Semester and Year Programs

SAC offers semester programs in Australia, Denmark, England, France, Italy, Japan, and Spain. The Year-in-Japan program is offered only for a full academic year. Students enrolled in these programs must register for a minimum of 12 credit hours each term. All programs offer several content courses that are taught in English.

## Summer Programs

SAC summer programs require enrollment in a minimum of 6 credit hours. Course offerings include, but are not limited to, archaeology field schools (Tuscany and Cyprus), architecture and design, environmental sustainability, social sciences, international business, health policy (Copenhagen), Arabic (Seville), business, humanities/social sciences (Paris), Engineering (Lille), European art and architecture (various locations in Western and Eastern Europe), French (Annecy and Angers), German, business humanities and political science (Berlin), Italian humanities (Florence), Japanese (Kobe), Mandarin (Hainan), Russian (Vladivostok), and Spanish and Latin American film and literature (Mendoza).

## Self-Designed Study Abroad Programs

Students can design a study abroad program different from those offered by SAC and receive UH Mānoa credits. Such a program may fall under the category of the Self-Designed Study Abroad Program. A Self-Designed Study Abroad Program can be created for countries and/or cities where UH Mānoa does not have an existing study abroad program. Students have conducted Self-Designed Study Abroad Programs in Austria, Brazil, Cambodia, China, Costa Rica, Egypt, Greece, Ghana, India, Israel, Japan, Mexico, Morocco, Nepal, New Zealand, South Africa, Spain, Switzerland, Taiwan, Vietnam, and United Arab Emirates.

## Study Abroad Internships

Study Abroad internships are available in Florence, London, Paris, and Seville. Internships are carefully planned and each student is placed in a working environment that has been requested and carefully selected according to specific criteria. Internships are generally unpaid. Internship credits will be based on the field of the internship. Internship credits range from 2, 3, 4, or 6 credits in the areas of Academy of Creative

Media, Apparel and Product Design and Merchandising, Business, Finance, Human Resources, Management and Information Systems, Marketing, Real Estate, Social Work, and Travel Industry Management.

### Admission Requirements

SAC programs are designed primarily for undergraduate students who have completed a minimum of 24 credits with a cumulative GPA of 3.0. UH Mānoa Financial Aid is applicable and available to eligible students. Several program specific scholarships are also available. Admission to some intensive language programs require a minimum of one year of language study at the college level. For program brochures, detailed information, and an application, contact SAC or visit the website at [www.studyabroad.org](http://www.studyabroad.org).

## Initiatives

### Exploratory Student Initiative

Queen Liliuokalani Center for Student Services 101  
2600 Campus Road  
Honolulu, HI 96822-2217

The Exploratory Student Initiative will require all exploratory students to select one of seven broad interest areas upon entering UH Mānoa. The broad interest areas are as follows: Sciences; Multidisciplinary Studies; Business and Industry; Language Studies; Humanities and Social Sciences; Visual, Creative and Performing Arts; and Exploratory. Students will use the STAR pre-registration system to help guide them into one of the seven broad interest areas and select appropriate courses. Students will complete an assessment examining their values, interests, and career goals. The Exploratory Student Initiative will provide advising, a series of major/occupational workshops and co-curricular opportunities designed to support first-year exploratory students in their declaration of a major and encourage active student engagement within the UH Mānoa community.

### Mānoa Peer Advisors

Queen Liliuokalani Center for Student Services 101  
2600 Campus Road  
Honolulu, HI 96822-2217  
Email: [uhmpa@hawaii.edu](mailto:uhmpa@hawaii.edu)  
Web: [www2.hawaii.edu/~uhmpa/](http://www2.hawaii.edu/~uhmpa/)

Supervisors: M. Makino-Kanehiro, R. Mitsunaga, D. Nakaoka, R. O. Bingham

The Mānoa Peer Advisors (MPA) program provides peer advisors for advising offices throughout campus. The purpose of MPA is to increase students' access to academic advising,

relieve workload for academic advisors, develop valuable skills, and provide role model representatives for UH Mānoa. MPAs are selected each spring in a competitive application process to be trained intensively during Summer Session I on UH Mānoa General Education requirements, advising practices, the philosophy and techniques of advising, and the resources available to students. Upon successful completion of training, MPAs are matched with advising offices, where they provide advising to fellow students during the academic year.

### Mānoa Sophomore Experience (MSE)

Email: [secondyr@hawaii.edu](mailto:secondyr@hawaii.edu)

Web: [manoa.hawaii.edu/undergrad/sophomore/](http://manoa.hawaii.edu/undergrad/sophomore/)

Coordinators: K. Shiroma and R. Tagalicod

The Mānoa Sophomore Experience (MSE) is a committee dedicated to helping sophomores navigate academic requirements and campus life so they become engaged with the campus community and invested in their college experience. Committee members include faculty and staff from various departments in Student and Academic Affairs, student representatives, and a dedicated peer mentor.

### Mānoa Institutional Learning Objectives for Undergraduate Students

Institutional Learning Objectives (ILOs) encompass the UH Mānoa undergraduate experience as a whole—academic and co-curricular. It is through the combined efforts of faculty, students, staff, and administrators that students achieve the ILOs.

#### 1. **Know—Breadth and Depth of Knowledge**

Students develop their understanding of the world with emphasis on Hawai'i, Asia, and the Pacific by integrating

- a. General education knowledge (arts and humanities, biological sciences, languages, physical sciences, social sciences, technology);
- b. Specialized study in an academic field; and
- c. Understanding of Hawaiian culture and history.

#### 2. **Do—Intellectual and Practical Skills**

Students improve their abilities to

- d. Think critically and creatively;
- e. Conduct research; and
- f. Communicate and report.

#### 3. **Value—Personal and Social Responsibility**

Students demonstrate excellence, integrity, and engagement through

- g. Continuous learning and personal growth;
- h. Respect for people and cultures, in particular Hawaiian culture;
- i. Stewardship of the natural environment; and
- j. Civic participation in their communities.

# Undergraduate General Education Requirements



To graduate from UH Mānoa, a student must satisfy (a) General Education requirements, (b) requirements of the student's college or school, and (c) requirements of the student's specific academic major. (Consulting his or her college/school advising office can help a student select courses that simultaneously satisfy more than one requirement.) This section of the *Catalog* describes the four components of the UH Mānoa General Education requirements:

1. Foundations
2. Diversification
3. Focus
4. Hawaiian or Second Language

Foundations and Diversification together are UH Mānoa *Core* requirements. Focus and Hawaiian or Second Language together are UH Mānoa *Special Graduation* requirements.

Students who transfer to UH Mānoa having completed the Foundations/Basic requirements at another UH system school are considered to have fulfilled UH Mānoa Foundations requirements. Students who transfer to UH Mānoa having completed the Diversification/Area requirements at another

UH system school are considered to have fulfilled UH Mānoa Diversification requirements. Finally, students who transfer to UH Mānoa having completed both the Foundations/Basic and the Diversification/Area requirements at another UH system school are considered to have fulfilled the UH Mānoa Core (Foundations and Diversification) requirements.

A grade of D (not D-) or higher is required for a course to fulfill General Education requirements. The Credit/No Credit option is not allowed for any course taken to fulfill a General Education requirement, with the exception of those courses offered only for CR/NC. (See "Grades" on p. 15 of the *Catalog* for additional information.)

## 1. Foundations Requirements: 12 credits

The Foundations requirements are intended to give students skills and perspectives that are fundamental to undertaking higher education. Students complete the Foundations requirements during their first year at UH Mānoa. Courses taken to fulfill the Foundations requirements may not be used to fulfill Diversification or Focus requirements.

## General Education Overview

### UH Mānoa Core Requirements

1. Foundations Requirements..... p. 26
  - Written Communication (FW\*; 3 credits)
  - Symbolic Reasoning (FS\*; 3 credits)
  - Global and Multicultural Perspectives (FGA\*, FGB\*, FGC\*; 6 credits)
2. Diversification Requirements ..... p. 28
  - Arts, Humanities, and Literatures (a total of 6 credits from 2 areas)
    - Arts (DA\*)
    - Humanities (DH\*)
    - Literatures (DL\*)
  - Social Sciences (DS\*; a total of 6 credits from 2 different departments)
  - Natural Sciences (3 credits biological science, 3 credits physical science, 1 credit science lab)
    - Biological Science (DB\*)
    - Physical Science (DP\*)
    - Laboratory (science) (DY\*)

### UH Mānoa Special Graduation Requirements

3. Focus Requirements ..... p. 28
  - Contemporary Ethical Issues (E or ETH\*\*;
  - 1 course, 300- or 400-level)
  - Hawaiian, Asian, and Pacific Issues (H or HAP\*\*;
  - 1 course, any level)
  - Oral Communication (O or OC\*\*;
  - 1 course, 300- or 400-level)
  - Writing Intensive (W or WI\*\*;
  - 5 courses, at least two of which are at the 300- or 400-level)
4. Hawaiian or Second Language (HSL\*; competence at the 202 level) ..... p. 29  
(Some colleges/schools have waived or modified this requirement. Consult your college/school advisor.)

\* These abbreviations appear after course descriptions to identify courses that meet specific requirements. See the "Courses" section in the back of this *Catalog* to view course descriptions.

\*\* The STAR Degree Check indicates Focus classes by "E," "H," "O," and "W." "Check Class Availability" on the UH Mānoa Registration Homepage, [www.hawaii.edu/myuh/manoa](http://www.hawaii.edu/myuh/manoa), indicates Focus sections with "ETH," "HAP," "OC," and "WI."

### ■ Written Communication (FW): 3 credits

Written Communication courses introduce students to the rhetorical, conceptual, and stylistic demands of writing at the college level; courses give instruction in composing processes, search strategies, and composing from sources. Courses also provide students with experiences in the library and on the internet and enhance their skills in accessing and using various types of primary and secondary materials.

#### FW Courses

- ENG 100, 100A Composition I
- ENG 190 Composition for Transfer Students to UH Mānoa
- ESL 100 Composition I for Second Language Writers

To enroll in a course that meets the Written Communication requirement, students must first determine their course eligibility by visiting [www.manoa.hawaii.edu/mwp](http://www.manoa.hawaii.edu/mwp). Non-native speakers of English should visit [www.hawaii.edu/eli](http://www.hawaii.edu/eli) or contact the English Language Institute at (808) 956-8610, [uhmeli@hawaii.edu](mailto:uhmeli@hawaii.edu).

Students can satisfy the FW requirement by earning specified Advanced Placement examination scores. (See [www.manoa.hawaii.edu/admissions/undergrad/pdf/AP.pdf](http://www.manoa.hawaii.edu/admissions/undergrad/pdf/AP.pdf) for details.) Students may also be able to satisfy this requirement through submission of a collection of writing. For eligibility criteria and other information, visit [www.manoa.hawaii.edu/mwp](http://www.manoa.hawaii.edu/mwp) or contact the General Education Office at (808) 956-6660, [gened@hawaii.edu](mailto:gened@hawaii.edu).

### General Education Goals

UH Mānoa provides an environment in which both faculty and students can discover, examine, preserve, and transmit the knowledge, wisdom, and values that will enrich present and future generations. UH Mānoa's special and global distinction is found in its Hawaiian, Asian, and Pacific orientation. The academic program structure and research enterprise take special advantage of Hawai'i's unique environment.

General Education at UH Mānoa involves a flexible and diverse multi-disciplinary curriculum. The General Education requirements foster a deeper appreciation of the complexities and potentialities of the human experience from the perspectives of the arts, humanities, and the natural and social sciences. They also encourage an understanding of imagination and creativity through the application of abstract and intuitive thinking. Upon graduation, students will be able to:

- Appreciate the values and ideas of cultures as they have evolved and as they find expression in literature, history, philosophy, religion, art, and music;
- Reason and analyze effectively;
- Communicate clearly and effectively in Standard English;
- Know the aims and methods of science;
- Recognize the ways in which individuals and social institutions organize and shape behavior.

### ■ Symbolic Reasoning (FS): 3 credits

Symbolic Reasoning courses expose students to the beauty and power of formal systems, as well as to their clarity and precision; courses do not focus solely on computational skills. Students learn the concept of proof as a chain of inferences. They learn to apply formal rules or algorithms, engage in hypothetical reasoning, and traverse a bridge between theory and practice. In addition, students develop the ability to use appropriate symbolic techniques in the context of problem solving and to present and critically evaluate evidence.

#### FS Courses

- BUS 250\* Applied Math in Business
- ICS 141 Discrete Mathematics for Computer Science I
- ICS 241\* Discrete Mathematics for Computer Science II
- MATH 100 Survey of Mathematics
- MATH 112\* Math for Elementary Teachers II
- MATH 140\*\* Precalculus
- MATH 161 Precalculus and Elements of Calculus for Economics and the Social Sciences
- MATH 203\*\* Calculus for Business and Social Sciences
- MATH 215\*\* Applied Calculus I
- MATH 241\*\* Calculus I
- MATH 251A\*\* Accelerated Calculus I
- NREM 203 Applied Calculus for Management, Life Sciences, and Human Resources
- PHIL 110, 110A Introduction to Deductive Logic
- PHIL 111 Introduction to Inductive Logic

\* Has a prerequisite.

\*\* Requires placement by Math Department's Precalculus Assessment; visit [www.math.hawaii.edu](http://www.math.hawaii.edu).

### ■ Global and Multicultural Perspectives (FG): 2 courses, 6 credits

Global and Multicultural Perspectives courses provide thematic treatments of global processes and cross-cultural interactions from a variety of perspectives. Students will gain a sense of human development from prehistory to modern times through consideration of narratives and artifacts from diverse cultures. At least one component of each of these courses will involve the indigenous cultures of Hawai'i, the Pacific, or Asia.

#### FG Courses

To satisfy this requirement, students must take a total of six credits; the six credits must come from two different groups.

**Group A** (courses marked FGA in this *Catalog* and online; courses cover the time period prehistory to 1500)

- ANTH 151, 151A Emerging Humanity
- ART 175 Survey of Global Art I
- HIST 151 World History to 1500
- HIST 161A World Cultures in Perspective
- LLEA 151 World Myth to 1500 C.E.
- WS 175 History of Gender, Sex, and Sexuality in Global Perspectives to 1500 CE

**Group B** (FGB; courses cover the time period 1500 to modern times)

- AMST 150 America and the World
- ANTH 152, 152A Culture and Humanity

- ART 176 Survey of Global Art II
  - FSHN 141 Culture and Cuisine: The Global Diversity of Food
  - GEOG 102 World Regional Geography
  - HAW 100 Language in Hawa‘i: A Microcosm of Global Language Issues
  - HIST 152 World History since 1500
  - HIST 162A World Cultures in Perspective
  - LING 105 Language Endangerment, Globalization, and Indigenous Peoples
  - TIM 102 Food and World Cultures
  - WS 176 History of Gender, Sex and Sexuality in Global Perspective, 1500 CE to the Present
- Group C** (FGC; courses cover the time period prehistory to modern times)
- BOT 105, 105A Ethnobotany
  - GEOG 151, 151A Geography and Contemporary Society
  - HIST 156 World History of Human Disease
  - LLL 150 Literature and Social Change
  - MUS 107 Music in World Cultures
  - REL 150, 150A Introduction to the World’s Major Religions

#### For Non-UH System Transfer Students Only

Students who transfer from a non-UH System school with one or more western civilization courses will be required to take only three credits of Global and Multicultural Perspectives. If the course or courses that they have taken are time-period specific, the credits that they take at UH Mānoa must cover a different time period.

## 2. Diversification Requirements: 19 credits

The Diversification requirements are intended to assure that every student has exposure to different domains of academic knowledge, while at the same time allowing flexibility in choice of courses for students with different goals and interests.

Students can complete the Diversification requirements over the full four years of their academic program. Students may satisfy the Diversification requirements by taking approved courses for which they meet course prerequisites. Some courses that satisfy Diversification requirements may also simultaneously satisfy Focus and/or major requirements. (See the “Can a single course satisfy more than one requirement?” table on the next page.)

### Please Note:

Additional courses that satisfy General Education Core requirements may have been approved after the publication of this *Catalog*. Check the online *Registration Guide* for the most up-to-date information. All students should be aware that UH Mānoa’s individual schools and colleges may (a) have additional program requirements and (b) require specific General Education courses to meet their program requirements. Consult your college advisor. (See p. 30 for contact information.)

#### ■ Arts, Humanities, and Literatures (DA, DH, DL): 6 credits

To satisfy this requirement, students must take six credits; the six credits must include two of the three different areas: Arts “DA,” Humanities “DH,” and Literatures “DL.”

#### ■ Natural Sciences (DB, DP, DY): 7 credits

To satisfy this requirement, students must take three credits in Biological Sciences “DB,” three credits in Physical Sciences “DP,” and one credit of Science Laboratory “DY.”

#### ■ Social Sciences (DS): 6 credits

To satisfy this requirement, students must take a total of six credits from two different departments.\*

#### Diversification Courses

Diversification courses are identified in this *Catalog* on pp. 366-512 with the following letters after the course description:

DA = Arts	DP = Physical Sciences
DB = Biological Sciences	DS = Social Sciences
DH = Humanities	DY = Laboratory (science)
DL = Literatures	

## 3. Focus Requirements

The Focus requirements identify important additional skills and knowledge necessary for living and working in diverse communities. Courses fulfilling Focus requirements are offered in departments across the curriculum and vary each semester. To meet a Focus requirement, a course must have official UH Mānoa Focus designation during the semester in which it is taken. Courses taken outside the UH System cannot be used to fulfill Focus requirements. Instead, non-UH System transfer students’ Focus requirements are adjusted according to the number of credit hours awarded by UH Mānoa for non-UH System courses. (See next page.)

#### ■ Hawaiian, Asian, and Pacific Issues (H or HAP): 1 course, any level

These courses focus on issues in Hawaiian and Asian or Pacific cultures and history; they promote cross-cultural understanding between nations and cultures.

#### ■ Contemporary Ethical Issues (E or ETH): 1 course, 300- or 400-level

These courses involve significant readings on, and discussion of, contemporary ethical issues; they give students tools for the development of responsible ethical judgments.

#### ■ Oral Communication (O or OC): 1 course, 300- or 400-level

These courses provide students with training in oral delivery and give them the opportunity to do individual and/or group oral reports.

\*Some departments have multiple course alphas. Students who take their two DS courses from the same department but with different course alphas are considered to have fulfilled the DS requirement. For example, the Family and Consumer Sciences Department offers two course alphas: Family Resources (FAMR) and Fashion Design and Merchandising (FDM). A student who takes FAMR 230 and FDM 200 is considered to have fulfilled the DS requirement.

Can a single course satisfy more than one requirement?						
Requirements	Hawaiian/Second Language	Foundations	Diversification	Focus	Major	Minor/Certificate
Hawaiian/Second Language	----	no	no	YES	no	no
Foundations	no	----	no	no	YES	no
Diversification	no	no	----	YES	YES	no
Focus	YES	no	YES	----	YES	YES
Major	no	YES	YES	YES	----	no
Minor/Certificate	no	no	no	YES	no	----

### ■ Writing Intensive (W or WI): 5 courses, including at least two at the 300- or 400-level

These courses collectively help students both to learn course content and to communicate through writing. Small writing-intensive classes, in which instructors work with students on writing related to course topics, are offered in nearly all departments.

**Note:** Students are strongly encouraged to satisfy the Foundations-Written Communication (FW) requirement before they enroll in writing-intensive courses.

#### Focus Courses

Focus courses change each semester. Therefore, Focus designations are not shown in this *Catalog*, but appear each semester on Class Availability at [www.sis.hawaii.edu/uhdad/avail\\_classes?i=MAN](http://www.sis.hawaii.edu/uhdad/avail_classes?i=MAN). Focus designations are indicated in the GenEd/Focus column as ETH, HAP, OC, and/or WI.

#### Focus Requirements for Students with Non-UH System Credits

Students who transfer credits from a non-UH System institution may have adjusted (“prorated”) Focus requirements. The adjustment is based on the number of non-UH System transfer credit hours accepted when a student is admitted to UH Mānoa.

Therefore, non-UH System credits completed while an active UH Mānoa student are not included in proration (summer courses, Study Abroad, National Student Exchange, etc.).

Number of accepted non-UH credit hours:	Focus Requirement			
	W	H	E	O
0-36	5*	1	1	1
37-54	4*	1	1	1
55-88	3*	1	1-E	1-O
89+	2*	1	0	0

\*At least two “W” courses must be numbered at the 300- or 400- level.

#### Focus Requirements for UH System Transfer Students

Students who enter the UH System in Fall 2011 and thereafter must meet all of the Focus requirements. Students who entered the UH System from Spring 2005 through Spring 2011 must meet requirements given in the following table. Students who entered UH prior to Spring 2005 should check with a UH Mānoa college/school advisor to determine their Focus

requirements. Depending on the number of UH transfer credit hours accepted, E and O requirements for transfer students may be reduced. The W and H requirements are not affected, since students may transfer approved UH System courses to help them satisfy the W and H Focus requirements.

Number of accepted UH credit hours:	Focus Requirement			
	W	H	E	O
0-54	5*	1	1	1
55-88	5*	1	1-E	1-O
89+	5*	1	0	0

\*At least two “W” courses must be at the 300- or 400- level.

#### Exemption from a Focus Requirement

Students who have engaged in an extraordinary educational experience that took place outside of the ordinary university curriculum may request a one-course exemption from a Focus requirement that is directly related to that educational experience. To request an exemption, students must demonstrate to the General Education Committee that the experience fulfilled the goals of the Focus area. If approved, the exemption reduces the number of courses required for the appropriate Focus requirement; however, it does not reduce the total number of credit hours needed to graduate. Students are limited to one exemption. Restrictions apply. For information, students should consult a college/school academic advisor and visit [www.hawaii.edu/gened/focus\\_exemption.htm](http://www.hawaii.edu/gened/focus_exemption.htm).

## 4. Hawaiian or Second Language Requirement

Knowledge of a second language encourages deeper awareness of the structure of language and its relation to thought. It develops sensitivity to other ways of ordering personal experience and social institutions, provides a direct way of comparing another culture to one’s own, and provides insight into the workings of one’s native language.

Before graduation, students must show competence at the 202 (or equivalent) level in Hawaiian or a second language by doing one of the following:

- Completing a four-semester sequence (usually 101, 102, 201, and 202) in a single language.

- b. Demonstrating competence by taking a UH Mānoa language-competency exam if one is offered. Check with the language department in question.
- c. Receiving a language-requirement waiver by demonstrating 202-level second language competency. For example, waivers may be given to students who are native speakers of a language other than English. Contact an academic advisor in your college for further information.

**Important Note:** The Hawaiian or Second Language requirement has been modified or waived for students in the following schools and colleges: Shidler College of Business; College of Education; College of Engineering; John A. Burns School of Medicine; School of Nursing and Dental Hygiene; School of Ocean and Earth Science and Technology; Myron B. Thompson School of Social Work; College of Tropical Agriculture and Human Resources. (See [www.hawaii.edu/gened/hsl.htm](http://www.hawaii.edu/gened/hsl.htm) for additional information.) Students in these colleges/schools should consult a college/school advisor.

**Students should be aware that changing their major may involve a change in their college/school and thus change their Hawaiian or Second Language requirement.** A list of majors and their respective colleges/schools can be found on pp. 74-78.

### Credits for Previous Language Experience

All students under the current General Education requirements with experience in a language other than English (including native speakers) may earn “back credits.” These students may take any UH Mānoa course appropriate to their level of proficiency in which there is significant use of that language. (Appropriate level is determined by a placement exam or an advisor; significant use is determined by the course content.) Upon completion of this course, students will receive between 3 and 16 back credits if they earn a letter grade of C (not C-) or better. (The course must be the *first* Hawaiian or second language course taken since high school; and it must be taken for a letter grade, not CR/NC.) Back credits may be earned for only one language. Other restrictions apply. Check with the appropriate language department for details and forms. Information is also available at [www.hawaii.edu/gened/hsl.htm](http://www.hawaii.edu/gened/hsl.htm).

### Languages in which a Four-semester Sequence is Offered

Arabic, Cambodian, Chamorro (Khmer), Filipino, French, German, Greek, Hawaiian, Hindi/Urdu, Ilokano, Indonesian, Italian, Japanese, Korean, Latin, Mandarin, Maori, Portuguese, Russian, Samoan, Sanskrit, Spanish, Tahitian, Thai, Tongan, Vietnamese.

Some language courses are not offered regularly, and this is noted in the course description section of this *Catalog*.

American Sign Language also fulfills the language requirement. Courses in American Sign Language are not offered at UH Mānoa, but the campus will consider students who complete American Sign Language to the second level of study as having met UH Mānoa’s Hawaiian or Second Language requirement.

### Academic Planning: Tips for New Students

UH Mānoa has a wide range of fields, majors, and courses from which to choose and build a dynamic and satisfying academic program. Here are some tips to help students get started:

- **Contact an advisor.** Assistance in planning an academic program is available. Resources include:
  - New Student Orientation and Fall Extended Orientation workshops, (808) 956-3667, [www.hawaii.edu/nso](http://www.hawaii.edu/nso);
  - College/school and major advisors. (See contact information at the end of this section.)
- **Explore different academic areas.** Most freshmen are exploring possible majors during their first year. These students may select General Education Foundations and Diversification courses that allow them to sample different fields, which can help in deciding on a major. See pp. 26-27 for a list of Foundations courses; see the “Courses” section of this *Catalog* to find courses with a Diversification designation. The “Courses” section also lists course prerequisites.
- **Plan ahead.** Majors and colleges/schools may have requirements that should be met in the first year. Once students decide on a major, they should find out what particular courses are required for the major and also by the college/school in which the major is located. (Program requirements and four-year academic plans for all undergraduate majors can be found at [manoa.hawaii.edu/ovcaa/programsheets](http://manoa.hawaii.edu/ovcaa/programsheets).) Students who have not yet decided on a major should become familiar with potential majors and with their college/school requirements in order to take recommended courses when possible.
- **Enhance educational experience through special opportunities.** Consider participating in one of the following:
  - First-Year Programs, (808) 956-8626, [manoa.hawaii.edu/undergrad/freshman/](http://manoa.hawaii.edu/undergrad/freshman/);
  - Honors Program, (808) 956-8391, [manoa.hawaii.edu/undergrad/honors/](http://manoa.hawaii.edu/undergrad/honors/);
  - Student Life and Development (formerly Co-curricular Activities, Programs and Services), (808) 956-8178, [www.manoa.hawaii.edu/studentlife/](http://www.manoa.hawaii.edu/studentlife/);
  - A research project or internship (see major department);
  - Service Learning, (808) 956-4641, [manoa.hawaii.edu/undergrad/servicelearn/](http://manoa.hawaii.edu/undergrad/servicelearn/);
  - National Student Exchange, (808) 956-6772, [www2.hawaii.edu/~nse/](http://www2.hawaii.edu/~nse/); and
  - Study Abroad Program, (808) 956-5143, (808) 956-6958, [www.studyabroad.org](http://www.studyabroad.org).

### Transfer Students

Transfer students should contact an advisor as soon as possible. An advisor can often help a transfer student make choices that will help the student make steady progress toward graduation. Students with a major should contact an advisor from the college or school in which the major is located; students who have not yet chosen a major should contact the Mānoa Advising Center. (See list of advising offices on the next page.)

Many requirements, including General Education Foundations, Diversification, and Hawaiian or Second Language requirements, may be met by transferring articulated courses from other campuses. Students can check the Office of the Registrar

**Undergraduate Advising Offices**

<b>College/School and Website</b>	<b>Location</b>	<b>Contact</b>
School of Architecture, <a href="http://www.arch.hawaii.edu">www.arch.hawaii.edu</a>	Architecture 202	(808) 956-7225
Colleges of Arts and Sciences (declared majors), <a href="http://www.advising.hawaii.edu/artsci/">www.advising.hawaii.edu/artsci/</a>	QLCSS 113	(808) 956-8755
Shidler College of Business, <a href="http://www.shidler.hawaii.edu/undergraduate/advising">www.shidler.hawaii.edu/undergraduate/advising</a>	Business Administration B101	(808) 956-8215
College of Education, <a href="http://coe.hawaii.edu/undergraduate/advising-paths-to-teaching">coe.hawaii.edu/undergraduate/advising-paths-to-teaching</a>	Everly Hall 126	(808) 956-7849
College of Engineering, <a href="http://www.eng.hawaii.edu/current-students/undergraduate-students/advisement-academic-services/">www.eng.hawaii.edu/current-students/undergraduate-students/advisement-academic-services/</a>	Holmes 250	(808) 956-8404
Hawai'i inuiākea School of Hawaiian Knowledge, <a href="http://manoa.hawaii.edu/nhss/academicadvising/">manoa.hawaii.edu/nhss/academicadvising/</a>		
Hawaiian Studies	KAMA 211	(808) 956-0642
Kawaihuelani Center for Hawaiian Language	Spalding 253	(808) 956-7637
Honors, <a href="http://www.honors.hawaii.edu">www.honors.hawaii.edu</a> ,	Sinclair Library 128	(808) 956-0756
RAPS Advising Office, <a href="http://www.hawaii.edu/raps">www.hawaii.edu/raps</a>	Sinclair Library 128	(808) 956-0756
Mānoa Advising Center (general Arts & Sciences students and pre-majors), <a href="http://manoa.hawaii.edu/undergrad/mac/">manoa.hawaii.edu/undergrad/mac/</a>	QLCSS 101	macadv@hawaii.edu
John A. Burns School of Medicine		
Medical Technology, <a href="http://www.hawaii.edu/medtech/Medtech.html">www.hawaii.edu/medtech/Medtech.html</a>	Biomed C206	(808) 956-8557
Public Health, <a href="http://www.manoa.hawaii.edu/publichealth/admissions">www.manoa.hawaii.edu/publichealth/admissions</a>	Biomed D204	(808) 956-8267
School of Nursing and Dental Hygiene, <a href="http://www.nursing.hawaii.edu/Advising_Information">www.nursing.hawaii.edu/Advising_Information</a>		
Dental Hygiene	Hemenway 200B	(808) 956-8821
Nursing	Webster 201	(808) 956-8939
School of Ocean & Earth Science & Technology, <a href="http://www.soest.hawaii.edu/soest_web/academics/soest.academics_advising">www.soest.hawaii.edu/soest_web/academics/soest.academics_advising</a>	HIG 135	(808) 956-8763
Outreach College, <a href="http://www.outreach.hawaii.edu/">www.outreach.hawaii.edu/</a>	Sinclair Library 301	(808) 956-7221
School of Pacific and Asian Studies, <a href="http://manoa.hawaii.edu/spas/">manoa.hawaii.edu/spas/</a>	Moore 407	(808) 956-7814
Pre-Health/Pre-Law Advising Center, <a href="http://www.manoa.hawaii.edu/undergrad/PAC/">www.manoa.hawaii.edu/undergrad/PAC/</a>	QLCSS 101	(808) 956-4045
Myron B. Thompson School of Social Work, <a href="http://www.hawaii.edu/sswork">www.hawaii.edu/sswork</a>	Henke 230	(808) 956-7182
Student-Athlete Academics Services, <a href="http://manoa.hawaii.edu/undergrad/SAAS/">manoa.hawaii.edu/undergrad/SAAS/</a>	Nagatani Academic Center	(808) 956-3388
Student Support Services, <a href="http://manoa.hawaii.edu/undergrad/sss/">manoa.hawaii.edu/undergrad/sss/</a>	Krauss 114	(808) 956-8402
School of Travel Industry Management, <a href="http://www.tim.hawaii.edu">www.tim.hawaii.edu</a>	George 346	(808) 956-8946
College of Tropical Agriculture & Human Resources,	Gilmore 210	(808) 956-6733

website: [manoa.hawaii.edu/admissions/undergrad/transfer.html](http://manoa.hawaii.edu/admissions/undergrad/transfer.html)  
for more information.

**Important:** Transfer students should consult the UH Mānoa college/school advising office for their major to find out about their major's requirements and about recommended General Education course choices.



# Graduate Education

## Office of Graduate Education (Graduate Division)

Dean  
Spalding 360  
2540 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-7541

Associate Dean  
Spalding 359  
2540 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8950

Graduate Student Services  
Spalding 353B  
2540 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8544  
(808) 956-8500  
(808) 956-4257 (Voice/Text)  
Fax: (808) 956-4261  
Email: General Inquiries: [graduate.education@hawaii.edu](mailto:graduate.education@hawaii.edu)  
Current Student Inquiries: [graduate.education@hawaii.edu](mailto:graduate.education@hawaii.edu)  
Web: [manoa.hawaii.edu/graduate](http://manoa.hawaii.edu/graduate)

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### Graduate Council

Members of the Graduate Council are appointed by the Faculty Senate. The council advises the dean on graduate courses, programs, and administrative matters.

### Graduate Assembly

The Graduate Assembly is composed of the chairs of each graduate program. It functions as an advisory board to the dean on major policy matters and serves as a forum for discussion on matters pertaining to graduate study.

### Chairs of the Graduate Programs

The chairs of the graduate programs are appointed by the dean of the Graduate Division. The chairs in turn recommend faculty advisors or committees for graduate students working toward advanced degrees. If the dean of the Graduate Division concurs, he/she appoints the persons recommended by the chairs.

The chairs of the graduate programs serve as the liaison with the Graduate Division in matters of policy, procedural changes, program effectiveness, and general graduate student affairs. They advise the Graduate Division on admission of graduate students, advise graduate students on their degree programs, review graduate student petitions, keep records on their graduate students, and certify that degree candidates have completed all requirements.

### Graduate Student Organization

See the "Student Life" section for information on this organization.

### WICHE Regional Graduate Programs

See the "Tuition, Fees, and Financial Aid" section for information on these programs.

## Academic Policies

The following regulations and procedures governing admission to the Graduate Division of UH Mānoa are subject to change without prior notice. Prospective students should consult with the Graduate Division for updated policies.

Although UH Mānoa attempts to accommodate the course requests of students, course offerings may be limited by financial, space, and staffing considerations or may otherwise be unavailable. Nothing in this *Catalog* may be construed to promise or guarantee registration in any course or course of study (whether required or elective), nor may anything be construed to promise or guarantee the completion of an academic program within a specified length of time.

## Student Responsibility

It is the responsibility of students to know and observe all regulations and procedures relating to the program they are pursuing, as well as those of UH Mānoa and the Graduate Division. In no case will a regulation be waived or an exception granted because students plead ignorance of or contend that they were not informed of the regulations or procedures. Questions on regulations and their interpretation pertaining to studies at the graduate level should be addressed to the Dean, Office of Graduate Education.

Students planning to graduate should familiarize themselves with the dates relating to application for graduation and other pertinent deadlines (see the “Calendar”). It is necessary to apply for graduation by the specified deadline in order to graduate in a particular term, whether or not the student plans to attend the commencement ceremonies.

Students must satisfy the degree requirements of the *Catalog* in force during the term for which they were admitted; or they may, with the consent of their advisors, meet graduation requirements by complying with the provisions of a later *Catalog*. Students readmitted to a degree program must meet degree requirements of the *Catalog* in force at the time of the later admission (or of a subsequent *Catalog*, as provided above). Aside from degree requirements, all students are subject to the regulations and policies stated in the *Catalog* currently in force. Exceptions to the regulations contained in the *Catalog* require the written approval of the Graduate Division, unless otherwise stated in the *Catalog*.

Students admitted to the Graduate Division are assumed to be mature adults and are expected to behave accordingly. All written work should observe high editorial standards, and high standards of academic honesty are expected. Though advisory services are provided to assist the student, the student alone is responsible for following the procedures and completing the steps required in the degree program. Requirements of the Graduate Division, both procedural and substantive, may be waived only by written request of the student and/or committee concerned and must have the written approval of the Graduate Division. Petition forms are available in department offices, the Graduate Division Student Services Office, and online at [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/).

## Academic Integrity

UH Mānoa has adopted policies and procedures for dealing with academic (and research) misconduct by its students, faculty, and staff. The guidelines, which are available in department offices and in the Office of the Dean of the Graduate Division, pertain to the intentional commission of any academic

misconduct, including falsification of research results, improper assignment of authorship, plagiarism, deceptive manipulation of experiments or of research procedures, and misappropriation of research funds.

If a graduate student fails to maintain the standards of academic or professional integrity expected in his or her discipline or program, the student’s admission to the program may be terminated. (See “Campus Policies” for further discussion of policy pertaining to academic honesty.)

## Research with Human or Animal Subjects

Students intending to conduct research using human or animal subjects should be aware of federal, state, and UH Mānoa regulations and review processes to ensure compliance with protective standards. These regulations cover research funded by non-UH Mānoa sources, sponsored by UH Mānoa, or conducted by or under the direction of any employee or agent of UH Mānoa in connection with his or her institutional responsibilities or using any UH Mānoa property or facility. These regulations also cover research involving the use of UH Mānoa’s non-public information to identify or contact research subjects.

Students and UH Mānoa employees should refer to the “Campus Policies” section for more information on federal research guidelines and check with their respective graduate chairperson for guidance.

## Admission

Applicants for advanced degree programs must hold a bachelor’s degree from a regionally accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning. The standards of the degree in question must be equivalent in both the distribution of academic subject matter and in scholarship achievement requirements to those maintained at UH Mānoa.

All applicants should have outstanding academic records. The evaluation is based on the applicant’s academic record, as well as test scores, the statement of objectives, and where appropriate, professional experience. Applicants may submit unofficial copies of transcripts and test scores while applying for admissions. However, admitted students are required to submit official transcripts and test scores in order to enroll at UH Mānoa.

Completed applications are screened by the Graduate Student Services Office. Applications that meet the requirements of the Graduate Division are forwarded to the respective graduate program, where the standards applied may be more stringent than those set by the Graduate Division. There the applications are subjected to a more comprehensive and intensive review by the graduate faculty. Where admission is intensely competitive, admission decisions are reached through a comparison of the relative merits of all applicants applying in the program or in an area of concentration, if applicable, for that particular semester. The graduate program then makes a recommendation to the Graduate Division either to admit or deny the applicant. The final decision to make a formal offer of admission rests with the Graduate Division, which takes into full consideration the recommendation of the graduate program. Admission is valid only for the semester of which the student was accepted.

Applicants may be denied admission for any number of reasons. Some of the more common bases of denial are undis-

tinguished academic records and poor test scores, inadequate preparation and background for advanced academic or professional study, unclear or unfocused objectives for graduate study, or inability of the program to accommodate all qualified applicants due to limited space or lack of faculty to guide the students in specified areas of interest. It is suggested that applicants consult the chair of the selected program concerning their interests and availability of faculty members in their intended areas of study.

The Graduate Division notifies each applicant of its decision. Official notification of acceptance or rejection is generally mailed between February and June for fall admission, depending on when the completed application is received and when a decision is reached. Most of the notifications are mailed in April and May. For spring, notification is generally between October and December. In programs with intense competition, selections are often made early. Applicants should not make definite arrangements to attend UH Mānoa until they receive formal notice of acceptance from the Graduate Division.

All applicants are required to specify on the application form all current and previous enrollment in any postsecondary institution. Any applicant who fails to inform UH Mānoa of such enrollment or who submits or has submitted any required information or document that is fraudulent or that has been altered without proper authorization may be denied admission to UH Mānoa. If the omissions and/or alterations are discovered after the student is enrolled, enrollment may be canceled and the student may be referred to UH Mānoa's Student Conduct Committee for possible disciplinary action.

### Application Procedures and Deadlines

You may apply for graduate admission by downloading an application form or by electronic application from the website listed below. Specific program information should be obtained directly from the appropriate graduate program. For a listing of graduate programs contact information, visit the website: [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/). Communication should be addressed to the graduate chair of the appropriate graduate program.

For further information on general graduate admissions, write or email the Graduate Student Services Office at [graduate.education@hawaii.edu](mailto:graduate.education@hawaii.edu). Business, medicine, and law are not part of the Graduate Division. Applicants should apply directly to the Shidler College of Business, John A. Burns School of Medicine (see the "John A. Burns School of Medicine" section) or to the William S. Richardson School of Law (see the "William S. Richardson School of Law" section).

### Application Requirements

Students applying for admission to graduate programs must submit the following:

#### To the Graduate Division

1. On-line application form and application fee—no fee waivers;
2. One official transcript from each postsecondary institution attended, sent directly from the institution to the Graduate Division or received in a sealed institutional envelope. Transcripts are **NOT** required for course work completed at any of the UH campuses. The Graduate Student Services Office will obtain UH transcripts on behalf of applicants;
3. Official Test of English as a Foreign Language (TOEFL) or IELTS Academic Modules Test score report, if required (for

international applicants, as well as some immigrant and U.S. applicants); and

4. Verification of financial status (for international applicants).

If more than 25 percent of a student's undergraduate course work at a U.S. institution has been graded under a nontraditional grading system (i.e., pass/fail, credit/no credit, satisfactory/unsatisfactory, etc.), then:

1. Transcripts must be accompanied by official course performance reports, i.e., faculty evaluations (one copy each of transcripts and performance reports);
2. Transcripts from nontraditional grading systems must include course descriptions and grade conversion information; and
3. The applicant must take the Graduate Record Examination (GRE) General Test and have the results forwarded to the Graduate Division. [Applicants to the Shidler College of Business and the School of Accountancy should take the Graduate Management Admission Test (GMAT) in place of the GRE. Applicants to the School of Travel Industry Management may take the GMAT instead of the GRE.]

#### To the Graduate Program

1. Letters of recommendation if required by the graduate program;
2. One official transcript from each postsecondary institution attended, sent directly to the graduate program by the institution, if required by the graduate program;
3. Standardized test scores (excluding TOEFL and IELTS) such as GRE, GMAT, if required by the graduate program;
4. Special application forms, statement of objectives and long-range goals if required by the graduate program; and
5. Samples of work (slides, manuscripts, portfolio, or tapes), résumés, and writing samples if required by the graduate program.

For details, refer to the specific graduate program brochure and application instructions. Materials submitted in support of an application are not released for other purposes and cannot be returned to the applicant. Failure to fill out the application completely according to instructions may result in delays and/or file closure.

### Application Deadlines

Please refer to the Graduate Division Prospective Student section at [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/) or specific graduate program brochure for specific application deadlines. Each graduate program may have different deadlines and some programs do not have spring admissions.

In many cases, admission offers include financial support, such as assistantships, scholarships, fellowships, and tuition waivers. Frequently, this support is awarded early to highly qualified applicants. Applications are processed by the Graduate Division as early as **September 1** for the fall semester and **May 1** for the spring semester. It is recommended that a completed graduate admissions application be submitted as early as possible.

### International Applicants

International applicants must submit official academic records in the original language accompanied by certified English translations. These translations must bear either the embossed seal or inked stamp of the issuing institution or governmental

agency or the original signature of the translator, and they must be complete and exact word-for-word translations of the original documents.

The following lists the *minimum academic qualifications* expected of international applicants from the following selected countries or areas for admissions consideration. These qualifications must be completed prior to enrollment. Not all regions and countries are represented and admission eligibility is determined upon review of all required application materials.

- Australia, Canada, South Africa: Bachelor's degree requiring at least four years of study or an honours bachelor degree.
- Baltic and East European States, former Soviet Republics: Diplom, Inzenyr, Magister, Oklevél: diploma requiring four to five years of post-secondary study.
- Bangladesh, India, Myanmar, Nepal, and Pakistan: Completed master's degree at the time of application or a four-five year bachelor's degree such as the B. Engineering, B. Technology, or B. Agriculture.
- United Kingdom and British patterned systems: Honours bachelor degree.
- France or French patterned systems: Maîtrise or title of Ingénieur; four-five year degree.
- Germany: University Diplom, Magister Artium, or Staatsexamen. The vordiplom alone is not sufficient.
- Philippines: Bachelor's degree from chartered higher education institutions (state universities and colleges) or CHED approved institutions and degree programs or FAAP certified level II or III accreditation status.
- Bologna-compliant three year bachelor degrees will be given consideration.

If admitted, international students must receive two clearances in order to register: (1) University Health Services clearance documenting adherence with health regulations; and (2) International Student Services (ISS) clearance documenting adherence to international student regulations and proof of adequate health insurance. **Note:** International applicants with a non-immigrant visa status other than student status should contact the ISS. Federal restrictions on full-time study may apply.

### Concurrent Pursuit of Multiple Graduate Programs

Current UH Mānoa graduate students who wish to pursue an additional graduate degree concurrently are required to obtain advance approval from their program chair and the Graduate Dean. Upon approval, students may apply for admission to an additional program after completing one semester of study in their initial program.

Students must submit the Petition to Apply for Concurrent Degree to their current program chair for approval prior to applying for an additional graduate program. It is recommended that the petition be submitted at least two weeks prior to the program's admission deadline. The petition is located on the Graduate Division website at [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/).

Upon approval from the graduate chair, the student submits the approved petition, a new graduate admissions application, and the application fee to the Graduate Student Services Office. Approval of this petition only grants permission to apply and does not imply admission.

Approval is not required to apply to official dual degrees or to graduate certificate programs. Concurrent doctorates are

not permitted and multiple doctoral degrees are generally not permitted. If approved, each degree must be distinct, and representing a unique body of knowledge. Each dissertation must be distinct and not incorporate parts of a previous dissertation.

### Concurrent Graduate Certificates

Current UH Mānoa graduate students who wish to pursue an additional graduate certificate concurrently are required to apply directly to the Graduate Student Services Office. The Concurrent Graduate Certificate Program application can be downloaded from the Graduate Division website at [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/). The application and application fee must be submitted to the Graduate Student Services Office, 2540 Maile Way, Spalding 353B, Honolulu, HI 96822.

### English Language Institute

International and immigrant students admitted to UH Mānoa whose native language is not English may be referred to the English Language Institute to determine if they must take the ELI placement examinations. If a student does not fulfill this obligation, ELI will place a hold on the student's registration. Please refer to the "English as a Second Language" section within the Colleges of Arts and Sciences for additional information.

### Standardized Examinations

Standardized test application forms are available at the Counseling and Student Development Center, (808) 956-3454. Out-of-state students and applicants from international countries should write to the address designated for each examination (see pertinent section).

Individuals with visual, physical, hearing, or learning disabilities who are required to take either the GRE or GMAT should contact the Educational Testing Service for information regarding special arrangements to take these examinations.

### Graduate Record Examination

The GRE and subtests may be required by some graduate programs and recommended by others. For the requirements of the individual graduate programs, consult the relevant graduate program descriptions in this *Catalog*. The GRE General Test (Package 1) is also required by the Graduate Division for students who have completed 25 percent or more of their undergraduate work at a U.S. institution under a nontraditional grading system. Test information is available through the Counseling and Student Development Center, (808) 956-3454. Applicants may request test registration forms directly from Graduate Record Examinations, Educational Testing Service (ETS), Box 6000, Princeton, NJ 08541-6000, web: [www.ets.org/gre/](http://www.ets.org/gre/). Submit completed registration forms and test fees to ETS at least one month before the examination date.

### Evidence of English Language Proficiency

Applicants whose native language is not English must submit official Test of English as a Foreign Language (TOEFL) scores or International English Language Testing System (IELTS) Academic Modules test results. The TOEFL score report and IELTS test results must be from a test taken within the last 2 years. A minimum TOEFL score of 500/61 (paper/internet) or IELTS overall band test result of 6.00 is required. Many programs require higher scores. The minimum score for teaching assistantship applicants is 600/100 for TOEFL and 7.00 for the IELTS.

Applicants who have completed a bachelor's or advanced degree program within the last five years at a regionally accredited/recognized institution in the U.S., Australia, Canada, Ireland, New Zealand, Singapore, or United Kingdom need not submit English language proficiency test scores.

Final admission requires submission of the official TOEFL/IELTS results. Applicants should, therefore, obtain the *TOEFL Bulletin of Information* early to check on the availability of the test and should take the test in time to meet graduate admissions application deadlines.

The TOEFL is administered at centers throughout the world. Applicants who wish to take the TOEFL outside the U.S. should obtain the *TOEFL Bulletin of Information for Candidates, International Edition*. This bulletin is generally available at U.S. embassies and consulates and at binational educational commissions and consulates abroad. Applicants may also order a bulletin directly from the representative who serves the area or country in which they plan to take the test. For complete information about the TOEFL, visit [www.ets.org/toefl/](http://www.ets.org/toefl/).

### International English Language Testing System (IELTS)

Applicants should contact the nearest British Council/Embassy/Consulate or IDP Education Australia Office in their country for the nearest testing center. It is advised that you also check the IELTS website for the most up-to-date information for testing centers. Web: [www.ielts.org/](http://www.ielts.org/)

## Additional Requirements and Information

### Reapplication

Newly accepted students who do not register in the program during the semester for which they are admitted or who withdraw from all courses within the designated withdrawal period (see the "Calendar" for designated withdrawal dates) are considered no-shows and their admission status is rendered invalid. A new application is required for readmission consideration.

### Change in Graduate Program

Applicants for a change in program are considered in competition with all other applicants to the new field. East-West Center students must consult their program officer before initiating any changes in graduate programs. The applicant must submit a Graduate Admissions application along with all documentation required by the new program (letters of recommendation, transcripts, test scores, etc.) to the Graduate Student Services Office within the standard admission deadlines for the graduate program. [If a change is granted, it becomes effective in the following semester contingent upon receipt of the Statement of Intention to Register (SIR) form.]

Students who are admitted to a new program are considered to be withdrawing from their current program. A student may return to the current graduate program only by petition to, and approval of, the graduate program and the Graduate Division.

### Readmission

Classified graduate students who wish to re-enroll after a lapse in enrollment of one or more semesters must apply for readmission. The readmission application form is found at: [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/). The following documents must be submitted to the Graduate Division Student Services Office by the established deadlines:

1. Application form;
2. Application fee;

3. Confidential Financial Statement for International Applicants (if applicable);
4. Transcripts reflecting any studies since last admission to the UH Mānoa Graduate Division; and
5. Any other material requested by the graduate program (e.g., current test scores).

Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

### Document Retention

Applications and supporting documents in the following categories are retained by the Graduate Division for limited periods as indicated:

- Incomplete applications—two years.
- Applications with no action taken by graduate program; denials (those denied admission); no-shows (those not enrolled in the semester of admission); transcripts and test scores (TOEFL scores, master file of GRE scores)—two years.
- Academic records of graduated students—five years.
- Academic records of inactive students—seven years.

### Classification of Students

Only students who have been admitted to an advanced degree, certificate program, or special non-degree program by the Graduate Division are designated as classified (regular, provisional, or special non-degree) graduate students.

### Regular Graduate Student

An applicant will be eligible for admission as a "regular" classified graduate student if he or she has the following:

1. A GPA of 3.0 or better in the last four semesters or approximately 60 semester credits (or the equivalent in quarter credits) of work as an undergraduate;
2. A master's degree with a GPA of 3.0 or better; or
3. A GPA of 3.0 or better in at least 12 credit hours of relevant upper division and/or graduate-level post-baccalaureate work.

Students who have taken courses after receiving a bachelor's degree and whose GPA for 12 or more credit hours of upper division and/or graduate-level post-baccalaureate work is below 3.0 are not generally admissible even if they meet the minimum GPA requirements in category 1. International students with a GPA of less than a B average in their undergraduate work and/or less than a B average in 12 credit hours of post-baccalaureate work are generally not admissible.

### Provisional Graduate Student

Students whose bachelor's and/or master's degrees were incomplete at the time they filed applications for admission are "provisional" graduate students. They must submit an official transcript certifying completion of their degree to the Graduate Student Services Office. This must be submitted within 60 days after the award of the degree. Registration will be denied for the following semester to those who fail to meet this requirement.

### Special Non-degree Graduate Students

Special non-degree graduate students are admitted by the Graduate Division as classified graduate students for a specified program of study, research, or training without degree objectives for a limited period of time (usually one year) under the sponsorship of an educational institution or government agency.



### Post-Baccalaureate Unclassified Students

Individuals who wish to take UH Mānoa courses as a post-baccalaureate unclassified (PBU) student, must apply to the Graduate Student Services Office, University of Hawai'i at Mānoa, 2540 Maile Way, Spalding Hall 353B, Honolulu, HI 96822. (International applicants on an F-1 Student VISA are not eligible to apply.)

Students must submit an on-line application, application fee, and an official transcript verifying degree conferral of a bachelor's degree or advanced degree, from a regionally accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning. Applicants who received their bachelor's degree from a foreign institution are also required to submit official Test of English as a Foreign Language (TOEFL) scores or International English Language Testing System (IELTS) Academic Modules test results.

Applicants may download the PBU application from the Graduate Studies website at [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/) or complete the graduate on-line application and select Post-Baccalaureate Unclassified as their intended program. Admission as an unclassified post-baccalaureate student does not constitute admissions as a classified student, nor does it guarantee future admissions as a classified student to a degree program. PBU students may not be eligible for certain benefits and services such as Veterans Affairs benefits, social security benefits, some types of federal financial aid, etc. PBU students are subject to graduate tuition rates. PBU students will need approval to take 600-800 level courses at UH Mānoa.

### Summer Session

Students who take course work at the graduate level in a summer session but who have not been admitted to an advanced degree program at UH Mānoa register as post-baccalaureate unclassified students. However, appropriate but limited credit hours earned from summer session courses while in unclassified status prior to admission to the Graduate Division are countable toward an advanced degree at the recommendation of the graduate programs involved. See "Post-Baccalaureate Unclassified Students" above.

Application for admission to a summer session should be made to Outreach College, University of Hawai'i at Mānoa, 2440 Campus Road, Box 447, Honolulu, HI 96822. Admission to a summer session does not imply or guarantee eventual admission to the Graduate Division.

## Registration

### Regular Registration

Registration dates and instructions are given in the online *Registration Guide* at [www.hawaii.edu/myuh/manoa/](http://www.hawaii.edu/myuh/manoa/), which is available a few weeks before registration each semester. The listing of course offerings with up-to-date class location and meeting times is found at the Check Class Availability website: [www.sis.hawaii.edu/uhdad/avail.classes?i=MAN](http://www.sis.hawaii.edu/uhdad/avail.classes?i=MAN).

### Late Registration

Students may register for credit hours through the last day of registration. There is a fee for late registration.

The late registration period is also the final time for classified graduate students to register to audit graduate courses, in accordance with the procedures outlined under "Course Auditing."

### Course Auditing

Classified graduate students may audit courses with the consent of the instructor. An audit approval form, available in the graduate program department office, must be completed and presented for registration. Audit courses are entered on student transcripts with a grade of L and are included in the tuition calculation. Audit courses may not be used for purposes of determining full-time or part-time enrollment status or graduate assistantship eligibility.

### Course Changes

Refer to the *Registration Guide* for complete information regarding procedures for course changes.

### Withdrawal from Courses

Refer to the *Registration Guide* for complete information regarding procedures for withdrawal from courses.

### Complete Withdrawal

To withdraw from all courses prior to the beginning of classes, students should consult with the department and follow directions in the *Registration Guide*.

Continuing students who withdraw from all courses after classes begin must obtain a Complete Withdrawal Form from the Graduate Student Services Office, obtain the necessary signatures as indicated on the form, and turn in the completed form to the UH Mānoa Cashier's Office, Queen Lili'uokalani Center for Student Services 105. A semester in which a cancellation or withdrawal is made is considered a semester of nonattendance. Thus, students must petition for readmission or file a renewal application, whichever is appropriate, to return to their studies in the same program. Petitions for readmission and renewal applications are considered along with all new applications for that semester. Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

Newly admitted students who cancel or withdraw from all courses before the drop period ends (see the *Registration Guide* for the date) are considered "no shows," and their admission status becomes invalid. To return, they must reapply for admission. Newly admitted students who withdraw after the drop period (see the *Registration Guide* for the date) must complete a Petition for Readmission form if they wish to return the following semester. Petitions for readmission are considered along with all new applications for admission for that semester.

ter. Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

### **Retroactive Withdrawals**

Retroactive withdrawals are partial or complete course withdrawals processed after the semester has ended. UH Mānoa is obligated to ensure the integrity of the transcript as an historical document, which must reflect the actual history of a student's experience at UH Mānoa. Because of this, the student who is requesting a retroactive withdrawal will need to present a convincing case and provide relevant documentation that supports the existence of circumstances beyond their control that prevented them from initiating the withdrawal request in a timely manner. Any request after two years of the course ending will not be reviewed. Should a retroactive withdrawal be approved, the action will result in the grade being changed to a W. Tuition refunds will not be considered and any academic action applied for that semester will remain on the student's record. Students who were financial aid recipients during the semester in which they are seeking a withdrawal should check with Financial Aid Services to determine if this will result in a financial obligation or will result in future ineligibility for financial aid.

### **Failure to Withdraw**

If students cease to attend classes without officially withdrawing, they will receive final grades at the instructors' discretion. If the instructor does not award a grade, an F or NC will be assigned.

### **Denial of Registration**

The Graduate Division will deny further registration to any student whose course work is below the required level or who is not making satisfactory academic progress.

### **Enrollment Requirements**

#### **Continuing Enrollment**

After admission, students must be enrolled at UH Mānoa every fall and spring semester for at least course work, thesis, dissertation, or research credit. Students graduating in summer must be enrolled in at least one session. Students who are neither enrolled nor on approved leaves of absence, will be regarded as withdrawn from their degree programs. They will be required to apply for readmission in accordance with established regulations if they wish to resume their studies.

#### **Leave of Absence**

A leave of absence for a period of time no longer than one calendar year may be granted to currently enrolled students in good standing (minimum GPA of 3.0) after (1) completion of at least one semester of course work relevant to the degree as a classified graduate student, and (2) upon recommendation of the chair of the graduate program and approval by Graduate Division. The date of return from a leave must be set at the time the leave is requested. Forms are available on the website.

Students must withdraw from courses if requesting a leave of absence. Students not returning from leave on time will be required to petition for readmission to UH Mānoa in accordance with the established regulations. Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

Students on approved leave do not pay tuition or fees. No leave should be requested if the student will be using UH Mānoa facilities or faculty or staff services. Time on approved leave is not counted against the seven-year limit for completion of degree programs.

Students on probation are not granted an approved leave of absence.

### **Credit Hours**

#### **Course Loads**

Sixteen credit hours in a semester and 8 credit hours in a six-week summer session are considered maximum course loads and may be exceeded only with the approval of the graduate chair and the Graduate Division. The minimum full-time load for graduate students is 8 credit hours of course work. Courses taken for audit do not count toward determining full- or part-time enrollment status.

Eligible doctoral candidates may be considered as carrying a full academic load (full-time status) when enrolled for 1 credit hour of Dissertation 800.

Eligible master's candidates may be considered as carrying a full academic load (full-time status) when enrolled for 1 credit hour of Thesis 700F after completing all required credits for the graduate degree including the program's requirements for Thesis 700.

For graduate assistants, the full-time load is 6 credit hours of course work relevant to their degree. Audit hours do not count toward the minimum. Because their duties ordinarily require 20 hours per week, they are restricted to a maximum of 9 credit hours. However, with special permission from the graduate chair and the Graduate Division, graduate assistants may register for 12 credit hours, including audits.

#### **Variable Credit Courses**

The number of credit hours obtainable in most courses is stated in this *Catalog*. Certain courses, designated (V) in *Catalog* course listings, offer variable credit. Students in these courses usually pursue individual work. The number of credit hours a student will earn in such a course must be approved by the instructor at the time of registration. Students must register for a definite number of credit hours and may earn no more or less than the stated number.

#### **Graduate Credit for Seniors**

Seniors at UH may earn credit toward an advanced degree for some courses completed during their last semester as undergraduates provided (1) the courses taken are in excess of the requirement for the bachelor's degree, and (2) such courses fulfill requirements in the prospective graduate field. A Petition for Submission of Credit Toward an Advanced Degree for Courses Taken by an Undergraduate form is available at the Graduate Division Student Services Office at Spalding 353B and on the web. It must be approved by the academic advisor, the college dean, and the chair of the department in which the course is offered, and it must be filed with the Graduate Division Student Services Office during the registration period. The granting of such permission does not guarantee that the credit hours taken will be accepted by a graduate program as fulfilling degree requirements. Courses taken under this rule are counted in the graduate GPA at the time of graduation. Failure to complete the baccalaureate degree as scheduled nullifies any approval granted by the Graduate Division.

### Credit by Examination

Graduate students may obtain credit by examination in courses numbered 300-498 (excluding 399) with the approval of the chair of the graduate program, the instructor concerned, and Graduate Division, subject to general UH regulations and procedures. There is no limit on the number of examinations that a graduate student may take during any one semester. Credit may not be obtained by examination in courses numbered 600 or above.

### Extension and Correspondence Course Credits

No graduate credit is allowed for extension and correspondence courses.

### Undergraduate Deficiencies

Undergraduate deficiencies are courses required by a graduate program, prerequisites, or other requirements for admission that the student did not complete prior to admission. Courses in directed research/reading are not to be used to make up deficiencies.

### Transfer of Credits

Credits from institutions other than UH Mānoa or taken as a post-baccalaureate unclassified (PBU) at UH Mānoa can be considered for transfer upon submission of (1) a memo approved by the chair of the graduate program, or (2) the Petition to Transfer/Substitute Credits form, which is available on the web.

Courses being considered from institutions other than UH Mānoa must be accompanied by an official transcript, transcript guide, and course syllabus if substituting for a required course.

Doctoral students may not transfer credits. Graduate certificate students may transfer six UH Mānoa PBU credits.

### Policy Governing Transfer of Credits from Other Institutions

1. The request for transfer of credit hours must be made during the *first* semester the student is enrolled in the program.
2. Only credit hours from an accredited university are transferable.
3. Regardless of the number of credits transferred, more than half of the total number of credits used to fulfill master's degree requirements must be earned at UH Mānoa while enrolled as a graduate student. For example, if the master's degree requires 30 credits total, 16 or more credits must be earned at UH Mānoa while enrolled as a graduate student.
4. With approval from the graduate program and the Graduate Division, up to 6 credit hours of work completed at another accredited institution following advancement to candidacy at UH Mānoa may be transferred, providing such transfer does not exceed the maximum allowable.
5. Credit hours used to obtain a previous degree will not be transferred.
6. No credit hours may be transferred from another institution unless the grade is B- or better. Course grades of S, CR, and P are not transferable.
7. Credit hours to be transferred must have been completed within seven years preceding the date upon which the advanced degree is to be conferred by UH Mānoa.
8. Quarter credit hours are converted to semester hours by using this formula:  $2/3$  times number of quarter credit hours equals number of semester credit hours (rounding off to the

lower whole number). Conversion is done by the Graduate Division and is calculated for the total credit hours requested for transfer rather than for individual course credit hours.

9. Credit hours earned in international institutions must be certified by the departments as to the equivalent level of the courses being transferred (i.e., whether 300-398, 400-498, or 600-798 level).
10. The minimum residence requirement of full-time study must be upheld regardless of the number of credit hours transferred to UH Mānoa.
11. Transfer of courses to meet practicum, seminar, thesis, or dissertation requirements is not permitted.
12. Extension credits from other universities are not transferable.
13. Directed reading/directed research credits (x99) are not transferable.
14. Transfer credits are not included in GPA calculations except for the final calculations when the student graduates.

If the petition is approved, the units (or UH Mānoa equivalent) will be counted as part of the student's degree program.

### Double Counting

A student who pursues two distinct master's degrees at UH Mānoa, either simultaneously or consecutively, may apply to have up to 6 credit hours of graduate course work accepted for credit in both degree programs under the following provisions:

1. The courses being double counted are electives in both programs;
2. Written approval of the graduate chairs of both programs (only approval by the second chair is required if the degrees are being pursued sequentially) and the Graduate Division is obtained; and
3. The course work for each degree is completed within the prescribed time limits.

### Dual Degree

A student in a UH Mānoa-approved "dual degree" program who fails to meet the academic requirements specified for that program will be dismissed from the dual degree program and the Graduate Division.

### Examinations

The schedule of final examinations is published in the *Registration Guide*. No examinations (other than laboratory tests and short quizzes) are allowed during the two weeks prior to the final examination period.

### Grades

Student achievement is designated by: A+, A, A- (high achievement), B+, B, B- (meets expectations), C+, C, C-, (below expectations), D+, D, D- (inadequate performance), F (failure), CR (credit), NC (no credit), NG (no grade and work in progress), S (satisfactory), and I (incomplete). L is the designation given to audited courses. Grades lower than C- may not be used to fulfill requirements for advanced degrees.

The 500 course is offered as a 1-credit course, with credit awarded upon completion of the Plan B requirements. Credit for this course does not count toward meeting degree requirements or toward meeting full-time enrollment status. Students must be registered during the term in which the degree is to be awarded.

An I is given to students who fail to complete a small but important part of a semester's work before the semester grades are determined, if the instructor believes that the failure was caused by conditions beyond the student's control and not by carelessness and procrastination. Students are expected to complete all courses. Therefore, students receiving an I should contact the instructor to determine the steps to be taken to remove the I. The deadline for removing an I received in the fall semester is the following **April 1**; for removing an I received in the spring semester or the summer session, the deadline is the following **November 1**.

Instructors who record a grade of I for undergraduate courses (100-499) must also record the grade that will replace the I if the work is not made up by the deadline; that grade is computed on the basis of what grades or other evidence the instructors have, averaged together with Fs for all incomplete work (including the final examination, if it is not taken). This alternate grade may be the appropriate letter grade, or if the course was taken under credit/no credit, CR/NC. (The designation W cannot be used as an alternate grade.)

Instructors who record a grade of I for graduate courses (600-799, excluding 700) have the option of recording an alternate grade to replace the I if the work is not made up by the deadline. This includes courses taken for letter grade or for credit/no credit, CR/NC. If the instructor chooses to record an incomplete for a graduate course with no alternate grade, the instructor may (1) allow the grade of I to remain permanently unaltered on the student's record; (2) submit to the Office of the Registrar a change-of-grade form, with the grade computed on the basis of work completed by the deadline noted above; (3) after the deadline for removing the I, at the student's request submit a Change of Grade form to the Graduate Division Student Services Office requesting a conversion of the I to a grade. Such conversions may be permitted on a case-by-case basis only during the two semesters immediately following the semester in which the I was received. After that period, the I will be permanent.

If work for a course in which an I has been assigned is completed prior to the deadline, the instructor will report a change of grade, taking the completed work into consideration. A grade of F or NC, as appropriate, will be assigned in those cases where an instructor has not assigned a grade to a student who has never attended or has ceased to attend class without officially withdrawing.

### Change of Grades

Grades may be changed only within one full academic year following the end of the semester in which the course was completed. To change a grade, the course instructor completes and submits a Change of Grade form to the Graduate Division Student Services Office. The instructor must state the reason for the grade change on the form and sign the form. "Additional work submitted" is not an acceptable reason for changing a grade.

### Repeated Courses

Solely for the purpose of graduate academic actions in the computing of the GPA of students who retake a course that is otherwise non-repeatable, only the most recent grade will be included.

Students switching from either Plan A or Plan B to Plan C must have a minimum GPA of 3.0 in all courses completed

(300-398, 400-498, 600-798). Credit hours taken under the credit/no credit option (except 699) while under Plan C will not be counted toward degree requirements for either Plan A or Plan B.

### Credit/No Credit Option

The major purpose of the credit/no credit option is to encourage students to broaden their education by venturing into subject areas outside their fields of specialization without hazarding a relatively low grade. Under the option, students receive grades of CR (credit) or NC (no credit). These do not carry grade points and, therefore, are not computed in the student's GPA.

The option must be exercised at the time of registration and only under the following conditions:

1. Except as noted, courses taken under the CR/NC option may not be applied toward the requirements for the master's degree. Only 699 directed reading/research courses may be taken on CR/NC at the option of the graduate program and may be granted credit toward a master's degree within the limits already prescribed by the Graduate Division (see master's degree requirements, Plan A and Plan B).
2. A course for which a grade of NC is received may be retaken under the CR/NC option.
3. The CR designation in the non-letter grade system denotes C caliber work or better.
4. The NC designation and the course in which it is received will appear in official records as part of the student's academic history.
5. The NC designation affects neither the credit hour total nor the grade point total of the student.

### Requirements for Continued Registration

#### Satisfactory Progress

To remain eligible for further graduate work and to be awarded a graduate degree, students must maintain progress towards completion of their programs and must have a B average (3.0 GPA) for all courses completed at UH Mānoa applicable to the degree. Students must also have a B average for all courses taken as a classified graduate student and for all graduate courses numbered 600 and above.

The Graduate Division disregards grades or credit hours for courses numbered 100-198, 200-298, 399, and 499, except those required to fulfill undergraduate deficiencies.

Satisfactory academic progress in a program also involves maintaining the academic and professional standards expected in a particular discipline or program; failure to maintain these standards may result in termination of student's admission to the program.

#### Fulfillment of Credit Hour Requirements

Credit hour requirements for graduate degrees can only be fulfilled by grades of A, B, and C. Grades of A, B, C, and CR can be used to make up undergraduate deficiencies. Grades of CR for 699 directed reading or research courses are counted in credit hour requirements within stated rules but are not computed for GPAs. Grades of NC are neither counted nor computed. Grades of D and F are not counted toward the completion of requirements for advanced degrees but are computed in the GPA, along with grades for all courses taken to satisfy undergraduate deficiencies and courses counted toward advanced degrees.

## Probation and Dismissal

A regular student whose cumulative GPA fails to meet the minimum requirements after completing at least 8 credit hours of course work will be placed on academic probation for the following semester. The student must be registered in the semester he or she is placed on probation.

A conditional student whose GPA since admission fails to meet the minimum requirements after completing one semester of course work will be placed on academic probation for the following semester. (ESL students are subject to dismissal.)

All grades for courses taken during the probationary semester, as well as the grades for all previously taken classified credits, will be included in calculating the GPA at the end of the probationary semester. No extensions of the probationary semester may be granted due to incompletes I.

A student on academic probation who fails to attain the minimum standards at the end of the probationary semester will be denied further registration in that program.

For purposes of these rules, a “semester” is the calendar period, regardless of the number of credit hours taken.

For students pursuing approved concurrent graduate degree programs, the requirements stated above are applicable to both programs but will be applied toward each program independently.

## Policy on Reinstatement after Dismissal

To be reinstated to the same program after academic dismissal, the student must submit completed readmission forms to the Graduate Division Student Services Office and meet the standard admission criteria applicable to the graduate program. The graduate program must submit a petition to the Graduate Division on the student’s behalf, providing **strong** justification for the action. If reinstated, all courses applicable to the degree are subject to the seven year rule (i.e., must be completed within seven years of the date the degree is to be awarded) and the student will be subject to the degree requirements in effect at the time of reinstatement.

To be admitted to a new program after academic dismissal or voluntary withdrawal, the student must submit a new application to the Graduate Division Student Services Office and meet the standard admission criteria applicable to the graduate program. Such students will be treated like new students.

## Policy on Disciplinary Suspension

To be reinstated to the same program after suspension for disciplinary reasons, the student must submit completed readmission forms to the Graduate Division Student Services Office and meet the standard admission criteria applicable to the graduate program. Students suspended for disciplinary reasons must adhere to posted application deadlines and may not be re-admitted mid-semester.

## Special Non-degree Students

Special non-degree graduate students are not subject to the B average rule.

## Diplomas

The Graduate Application for Degree form must be filed at the beginning of the semester (see the “Calendar” for dates and deadlines) in which the student expects to complete the degree requirements. Students can also obtain a Hawaiian language version of their degree. Application forms may be obtained at

the Graduate Division Student Services Office, and the fee paid at the Cashier’s Office or online through the student’s MyUH account.

## Degree Checks

A degree check will be made for all students who file a degree application form.

The Graduate Division may delete from the graduation list the name of any student whose final grade report contains either a grade of I (incomplete) or a missing grade, or whose records have any other discrepancies.

## Conferring of Degrees

Degrees are conferred and diplomas awarded three times annually, in December, May, and August. Students completing their degree requirements may, upon request, receive certification from the Graduate Division that the degree will be conferred at the end of the appropriate semester. Diplomas are issued by the Office of the Registrar. Inquiries regarding diplomas should be addressed to the Office of the Registrar, Queen Lili’uokalani Center for Student Services, Room 010, 2600 Campus Road, Honolulu, HI 96822 [tel. (808) 956-8010], and not to the Graduate Division.

## Transcripts

Transcripts may be obtained from the Office of the Registrar.

## Certificate Programs

UH Mānoa offers a number of graduate-level programs that culminate in the awarding of a certificate. These programs are available to classified graduate students who are enrolled in one of the master’s or doctoral degree programs described in this *Catalog*. In a few areas, applications may be considered from non-degree-seeking students. Certificates require a minimum of 15 credit hours of specified courses and a 3.0 GPA in those courses. Detailed information may be obtained by writing to the appropriate graduate chairs.

Certificate programs are offered in the following fields:

- Advanced library and information science
- Advanced women’s studies
- Chinese studies
- Clinical psychology
- Conflict resolution
- Disability and diversity studies
- Disaster management and humanitarian assistance
- Early Childhood Pk-3
- Gerontology
- Global health protection and security
- Historic preservation
- International cultural studies
- Japanese studies
- Korean studies
- Museum studies
- Nursing
- Ocean policy
- Online learning technology
- Pacific Islands studies
- Philippine studies
- Planning studies
- Public administration

- Public policy
- Reading K-12
- Resource management
- Second language studies
- South Asian studies
- Southeast Asian studies
- Telecommunications and information resource management
- Urban and regional planning

## Master's Degree Programs

UH Mānoa confers the degrees of master of architecture, master of arts, master of education, master of education in teaching, master of fine arts, master of geoscience, master of library and information science, master of music, master of public administration, master of public health, master of science, master of social work, and master of urban and regional planning.

Faculty or staff members at rank 3 and above may not be awarded a master's degree by UH Mānoa in the graduate program administered by the department in which they are employed.

The master of accounting degree is offered through the Shidler College of Business for students who are contemplating careers in professional accountancy.

The master of arts degree is offered through the Colleges of Arts and Sciences, the School of Pacific and Asian Studies, and the Hawai'i inuiākea School of Hawaiian Knowledge for advanced course work including research in the following disciplines:

- American studies
- Anthropology
- Art and art history
- Asian studies
- Communication
- Communicology (formerly Speech)
- Dance
- East Asian languages and literatures
- Economics
- English
- French
- Geography
- Geology and Geophysics
- Hawaiian
- Hawaiian studies
- History
- Linguistics
- Mathematics
- Music
- Pacific Islands studies
- Philosophy
- Political science
- Psychology
- Religion
- Second language studies
- Sociology
- Spanish
- Theatre

The master of education degree is offered through the College of Education for advanced course work including research in the following disciplines:

- Curriculum studies
- Early childhood education
- Educational administration
- Educational foundations
- Educational psychology
- Educational technology
- Special education

The master of education in teaching degree is offered through the Institute of Teacher Education.

The master of fine arts degree is offered through the Department of Theatre and Dance and the Department of Art and Art History for creative endeavors.

The master of geoscience for professionals is offered through the Department of Geology and Geophysics.

The master of library and information science degree is offered through the Department of Information and Computer Sciences as preparation for careers in information services in public, college, school, and technical libraries. Graduates are also prepared for careers in other types of information environments.

The master of music degree is offered through the Department of Music for composition and performance in music.

The master of public administration degree is offered through the Public Administration Program.

The master of public health degree is offered through the Public Health program to provide individuals with a broad background for professional practice in the field of public health at local, state, national, and international levels.

The master of science degree is offered through the Public Health program, the Colleges of Arts and Sciences, Education, Engineering, Tropical Agriculture and Human Resources and the Schools of Ocean and Earth Science and Technology, Medicine, Nursing and Dental Hygiene, Travel Industry Management, and for advanced course work including research in the following disciplines:

- Animal sciences
- Astronomy
- Biological engineering
- Biomedical sciences
- Botany
- Cell and molecular biology
- Chemistry
- Civil and environmental engineering
- Communication sciences and disorders
- Computer sciences
- Developmental and reproductive biology
- Electrical engineering
- Entomology
- Food science
- Geology and geophysics
- Kinesiology and rehabilitation science
- Marine biology
- Mechanical engineering
- Meteorology
- Microbiology
- Molecular biosciences and bioengineering
- Natural resources and environmental management
- Nursing
- Nutritional sciences
- Ocean and resources engineering

- Oceanography
- Physics
- Public health
- Travel industry management
- Tropical medicine
- Tropical plant and soil sciences
- Tropical plant pathology
- Zoology

The master of social work degree is offered through the School of Social Work. The program prepares graduates for counseling individuals, families, and groups; for social policy formulation and community organization; and for research and administration in the human services.

The master of urban and regional planning degree is offered through the Department of Urban and Regional Planning.

### **Requirements and Procedures for Master's Degrees**

The rules and requirements listed below are those of the Graduate Division and must be observed by all students pursuing a master's degree. Note that some graduate programs have special requirements.

#### **Residence**

The minimum residence requirement is two semesters of full-time work or four six-week summer sessions or the equivalent in credit hours applicable to the student's degree program.

#### **Language Requirements**

At the option of the graduate program, the intended candidate for the master's degree may be required to demonstrate comprehension of one or more foreign languages. For specific language requirements in particular graduate programs, see the appropriate graduate program listed in this *Catalog*. English is not considered a foreign language in this context. These requirements must be passed before the student can be advanced to candidacy.

#### **Time Allowed**

Candidates for the master's degree will be expected to complete all requirements within seven years after admission into the master's program. Candidates who fail to complete all requirements within five years of admission will be placed on probation. If not completed after seven years, candidates are automatically dropped from the program. Extensions of time are allowed only upon petition by the graduate chair explaining why more time might be justified.

#### **Types of Master's Degree Programs**

In general, there are three types of programs that students may follow to earn a master's degree; thesis, portfolio, and examination. Not all plans are available in all programs.

Graduate Division uses progress forms to track thesis and dissertation students. These forms are available on the website.

### **Thesis (Plan A)**

#### **Credit Hour Requirements**

A minimum of 30 credit hours is required including 18 credit hours of approved course work, excluding 699s and Thesis 700, at least 12 of which must be in courses numbered 600-798; at least one graduate seminar in the major or related field; and at least 6 credit hours of Thesis 700. The thesis

research credit requirements are set uniformly for each graduate program by the faculty in that program.

Candidates must be registered in the thesis research course (700) each semester during which the thesis is being written. Candidates who accumulate the maximum number of thesis research credit hours, but fail to complete the thesis must register for a minimum of 1 credit hour of thesis research at the beginning of the term in which all requirements for the degree will be completed.

#### **Thesis Requirement**

When a thesis proposal has been approved by the student's committee, the chair of the graduate program sends to the Graduate Division a Student Progress Form II (approval of thesis topic). The student may then enroll in the thesis research course (700) at the beginning of the next term. Students must register for Thesis 700 during the announced registration period. Failure to make satisfactory progress on a thesis does not entitle a student to a refund of tuition.

Upon request by the thesis committee, relevant work done by the student in directed reading/research (course 699) may be utilized as part of the thesis research. In such instances, the total credit hours for such directed reading/research (course 699) and thesis research (700) to be applied toward the minimum requirement for the degree shall not exceed the maximum total credit hours specified for thesis research in the graduate program.

The thesis committee is made up of three members of the graduate faculty.

The chair of the thesis committee is primarily responsible for directing and guiding the candidate's research and writing activities. It is the student's responsibility to keep all members of the committee informed of the scope, plan, and progress of both the research and the thesis. The committee members approve via Progress Form II and Progress Form IV (signature page). Guidelines for thesis preparation are available at the Graduate Division website.

The electronic submission of the thesis is required. Submit a pdf file on a disc (two discs if publishing with ProQuest Information and Learning). Theses must be deposited with the Graduate Division by the specified deadline (see the "Calendar").

#### **General Examination**

At the option of the faculty of the graduate program, a general examination may be required before a student is advanced to candidacy for a master's degree. All students within a particular graduate program must take the examination if it is required. The examination is usually given during the first semester of residence. It is designed to reveal the quality of the student's preparation for advanced work in the program and the ability of the student to pursue graduate work at the master's level. The examination also enables the student's committee or advisor to assist in planning a program that will overcome any deficiencies in the student's background.

A student who passes the examination may be recommended for advancement to candidacy for the master's degree. A student who fails the general examination may repeat it once upon approval by the graduate program. However, students failing the general examination a second time are dropped from the program.

In graduate programs not requiring a general examination, the student may be advanced to candidacy upon the recommendation of the advisor and/or the graduate faculty of the program concerned. It is assumed that in these cases the recommendation for advancement to candidacy will be based on some evaluation of the student's potential performance other than a general examination. Students who are denied advancement to candidacy are dropped from the program and lose their status as classified graduate students.

### **Final Examination**

A final oral examination covering the thesis and related areas may be required by individual graduate programs. All Plan A students within a particular graduate program must take the examination if it is required at all. It should be held prior to the specified deadline before the end of the term during which the degree is conferred. It is conducted by the thesis committee and is open to all graduate faculty members. As an alternative, the committee chair may have the candidate present results of the thesis at a departmental graduate seminar, but all members of the thesis committee must be present.

Students failing the final examination may repeat it only once upon petition approved by the graduate program and the Graduate Division. Students who fail the final examination a second time are dropped from the program and lose their status as classified graduate students. If the graduate program does not require a final examination, the chair of the graduate faculty concerned reports the completion of all degree requirements on Student Progress Form III.

### **Portfolio (Plan B)**

#### **Credit Hour Requirements**

A minimum of 30 credit hours is required. A minimum of 18 credit hours must be earned in courses numbered 600-798 (excluding Thesis 700) including at least one graduate seminar in the major program or in a related program. Not more than 9 credit hours in directed reading/research (course 699) may be applied to meet degree requirements. This degree plan typically includes a final project, practicum, or similar culminating experience.

When the student is advanced to candidacy, the chair of the graduate program appoints a program advisor or a program committee made up of members of the graduate faculty. The program advisor/committee advises the candidate and approves a coherent program of courses for the candidate.

Candidates must be enrolled during the term in which they complete the requirements for the degree; regular course work or the appropriate Master's Plan B Studies 500 may be used to meet this requirement. The 500 course is offered as a 1-credit course with a mandatory grading of S/NG but does not carry credit toward meeting degree requirements.

#### **General Examination**

At the option of the faculty of the graduate program, a general examination may be required before a student is advanced to candidacy for a master's degree. All students within a particular graduate program must take the examination if it is required at all. The examination is usually given during the first semester of residence. It is designed to reveal the quality of the student's preparation for advanced work in the program and the ability of the student to pursue graduate work at the master's level. The examination also enables the student's commit-

tee or advisor to assist in planning a program that will overcome any deficiencies in the student's background.

A student who passes the examination may be recommended for advancement to candidacy for the master's degree. A student who fails the general examination may repeat it once upon approval by the graduate program. However, students failing the general examination a second time are dropped from the program.

In graduate programs not requiring a general examination, the student may be advanced to candidacy upon the recommendation of the advisor and/or the graduate faculty of the graduate program concerned. It is assumed that in these cases, the recommendation for advancement to candidacy will be based on some evaluation of the student's potential performance other than performance in the general examination. Students who are denied advancement to candidacy are dropped from the program and lose their status as classified graduate students.

### **Final Examination**

At the option of the faculty of the graduate program, a final examination may be required of Plan B candidates for the master's degree. If required, it is designed to determine the candidate's achievement in the graduate program at the master's level. This examination has several possible forms. It may be a seminar appearance, a written comprehensive examination, an oral examination, some equivalent, or a combination of these. If a final examination is required by the graduate program, it must be given prior to the established deadline before the end of the term during which the degree is conferred.

Students failing the final examination may be permitted to repeat it only once upon approval by the graduate program and the Graduate Division. Students failing the examination a second time are dropped from the program and lose their status as classified graduate students.

### **Examination (Plan C)**

Neither a thesis nor a certain number of credit hours is required by this plan. The student must demonstrate competence by examination and must meet the minimum residence requirement of two semesters of full-time study.

A preliminary conference will be held to discuss the student's objectives and how to meet them and to determine the general program the student will follow to prepare for the required examinations. The conference will be conducted by the chair of the graduate program or by a designated member of the graduate faculty. The plan of study developed at this conference may include course work and/or independent study and research. Plan C is available in second language studies, linguistics, mathematics, natural resources and environmental management, physics, and tropical plant and soil sciences. Each graduate program specifies its own requirements in addition to the following:

Candidates must be enrolled during the term in which they complete the requirements for the degree; regular course work or the appropriate Master's Plan C Studies 500 may be used to meet this requirement. The 500 course is offered with a mandatory grading of S/NG but does not carry credit toward meeting degree requirements.

#### **General Examination**

A general exploratory examination (oral and/or written) will be given to determine if the intended candidate should be

admitted to candidacy for the master's degree under Plan C and to ascertain weaknesses in the student's academic preparation. This examination is designed to reveal the quality of the student's preparation for advanced work in the program and the ability of the student to pursue graduate work at the master's level. The examination will be conducted by the student's interim advisor and the graduate faculty of the program or a committee thereof consisting of at least three members of the faculty. It is given during the first semester of residence and is from one to two hours in length. A student who fails the general examination may repeat it upon recommendation from the graduate program and approval by the dean of the Graduate Division. A student who fails the general examination a second time is dropped from the program and loses classified graduate student status.

### Final Examination

A final examination or series of examinations, written and oral, will be given to determine the candidate's comprehension of the graduate program at the master's level. Since there are no course requirements for this plan, the final examinations will be designed to give the student opportunity to demonstrate a level of achievement consonant with the level of achievement required by Plans A and B. It is assumed that many students will prepare themselves for the examinations by taking courses recommended by advisors.

Specifications for the number of written examinations required, what they cover, and the amount of time required for each (two or more hours for written examinations and one or more for the oral portion) are set forth in the statement of requirements in each graduate program. The written examinations may be given by the candidate's committee or by an examination committee of graduate faculty members constituted for that purpose.

The oral portion of the final examination follows the written portions and must be held prior to the specified deadline before the end of the term during which the degree is conferred. It is conducted by the candidate's committee and is open to all members of the faculty. The examination must be announced in the weekly *News@UH*. It may be scheduled on any working day during normal working hours. Arrangements for the final examination must be made at least three weeks prior to the date of examination for fall and spring semesters, and four weeks prior to the date of the examination for the summer.

Candidates failing the final examination may be allowed to repeat it upon approval by the graduate faculty concerned and the Graduate Division. Students failing the final examination a second time are dropped from the program and lose their status as classified graduate students.

### Doctor of Philosophy Programs

Faculty or staff members at rank 3 and above may not be awarded a doctoral degree by UH Mānoa in the graduate program administered by the department in which they are employed.

The doctor of philosophy (PhD) degree is awarded only for the most distinguished scholarly achievement. The quality of a candidate's work is judged by a variety of means, culminating in a set of comprehensive and final examinations and a dissertation. The dissertation describes completed research and must be a significant original contribution to knowledge in the candi-

date's chosen program. The additional, special requirements in any given graduate program prepare the candidate for the examinations and successful completion of the dissertation.

Candidates are accepted only in graduate programs in which the teaching staff, library, laboratory equipment, and cooperative relationships with other research institutions make it possible to offer training.

The doctor of philosophy is offered in the following areas:

- American studies
- Anthropology
- Astronomy
- Botany
- Cell and molecular biology
- Chemistry
- Civil and environmental engineering
- Clinical research
- Communication and information sciences
- Computer science
- Developmental and reproductive biology
- East Asian languages and literatures
- Economics
- Education
- Educational psychology
- Electrical engineering
- English
- Entomology
- Epidemiology
- Geography
- Geology and geophysics
- History
- International management
- Linguistics
- Marine biology
- Mathematics
- Mechanical engineering
- Meteorology
- Microbiology
- Molecular biosciences and bioengineering
- Music
- Natural resources and environmental management
- Nursing
- Nutrition
- Ocean and resources engineering
- Oceanography
- Philosophy
- Physics
- Political science
- Psychology
- Second language studies
- Social welfare
- Sociology
- Theatre
- Tropical medicine
- Tropical plant and soil sciences
- Tropical plant pathology
- Urban and regional planning
- Zoology

### Doctor of Education

The degree of Doctor of Education (EdD) is awarded for distinguished academic preparation for professional practice in the field of education. The quality of a candidate's work is judged by a variety of experiences, culminating in an internship, a set of comprehensive and final examinations, and a dissertation. The dissertation is based on a selected research problem and is a significant part of the candidate's field experience or internship.

### Doctor of Public Health

The degree of Doctor of Public Health (DrPH) is awarded for distinguished academic preparation for professional practice in the field of public health. The quality of a candidate's work is judged by a variety of means, culminating in a set of comprehensive and final examinations and a dissertation. The dissertation must be a significant original contribution to knowledge in the field of public health practice. Required course work is designed to prepare the candidate for the examinations and the dissertation.

### Doctor of Nursing Practice

The degree of Doctor of Nursing Practice (DNP) is awarded for distinguished academic preparation for professional practice in the field of nursing. Candidates must progress through course work and a series of capstone experience culminating in a final project. The student must produce a tangible and deliverable academic product that is derived from practice immersion experience and is reviewed and evaluated by the faculty.

## Requirements and Procedures for Doctoral Degrees

### Time Allowed

Doctoral students are expected to complete all requirements within seven years after admission into the doctoral program. Candidates who fail to complete all requirements within seven years of admission will be placed on probation and are subject to dismissal at any point after, but automatically after 10 years. Extensions of time are allowed only upon petition by the graduate chair explaining why more time might be justified.

### Credit Hour Requirements

There is no minimum number of required course credit hours set for doctoral degrees. Registration in courses by doctoral students is governed by (1) the judgment of advisors or faculty in charge of the relevant program of study as to the importance of particular course work to the training and preparation of the candidate for the writing of examinations and/or the dissertation; (2) residence requirements; and/or (3) provisions of graduate assistantships, fellowships, or scholarships. For information regarding required or recommended courses, see the section appropriate to the graduate program.

### Language Requirements

At the option of the graduate program, intended candidates for the doctoral degree may be required to take a written examination to demonstrate comprehension of one or more foreign languages. To pass the examination they must be able to read research materials in their graduate program at a reasonable speed. English is not considered a foreign language in this context.

No limit has been placed on the number of times students may take the examination. However, it must be passed before students can be advanced to candidacy and take the comprehensive examination.

### Doctoral Committee

The doctoral committee may be selected at any time after a student becomes an intended candidate. The chair of the graduate faculty of the program recommends to the Graduate Division appointment of a doctoral committee consisting of at least five members of the graduate faculty. The committee must include one graduate faculty member from another field of study. This university representative must be a full member of the regular graduate faculty. The majority of the committee and the committee chair must be from the graduate program in which the degree program is offered. This committee, appointed by the Graduate Division, prescribes for the candidate a course of study in preparation for the comprehensive and oral examinations described below. It also approves the dissertation research topic and the dissertation itself.

It is the student's responsibility to select an appropriate dissertation topic coinciding with the expertise and interest of a graduate faculty member who is willing to work with him/her.

### Examinations

Doctoral candidates must pass the following examinations:

#### Qualifying Examination

A qualifying examination may be required by some graduate programs. The purpose of this examination is to determine whether to encourage students to proceed in a doctoral program and, if encouraged, to enable advisors to assist students in planning a program that will familiarize them with the requisite knowledge and techniques of their chosen graduate program. Graduate programs requiring this examination give it early in the intended candidate's program (often coinciding with the master's final examination). It may be oral and/or written and is conducted by a special examination committee appointed by the graduate chair of the graduate program or by the student's doctoral committee. A student who fails the qualifying examination may repeat it once at the discretion of the graduate faculty concerned. However, students failing the qualifying examination a second time are dropped from the program and lose their status as classified graduate students.

#### Comprehensive Examination

The comprehensive examination is an important step in the sequence of study toward the doctoral degree. This examination covers the major graduate program and work fundamental thereto and minor fields as may be required by the graduate program. Its purpose is to ascertain the student's comprehension of the chosen graduate program.

The examination is given only after the student has completed the foreign language requirement, if any, and when, in the judgment of the graduate faculty, the student has had sufficient preparation in the graduate program either through course work or other individual study and research. The comprehensive examination may be either oral or oral and written. It is conducted by a committee of the graduate faculty.

A student who fails the comprehensive examination may repeat it once at the discretion of the graduate faculty concerned. A student who fails the examination a second time is dropped from the program and loses classified graduate student status.

The student who passes the examination is eligible, at the option of the various graduate programs, to receive a UH Mānoa certificate indicating that all requirements of the doctorate except for the dissertation have been completed.

### Final Examination

A final examination in defense of the dissertation may also cover related subjects and is required of all candidates for the doctoral degree. The examination is oral and is conducted by the candidate's doctoral committee. It is never less than one hour in length. Arrangements for the final examination must be made at least two weeks prior to the date of examination, since an announcement must appear in the *News@UH*. The examination must be held while UH Mānoa is in session and must be open to the public.

A candidate who fails the final examination may be allowed to repeat it upon approval by the graduate faculty concerned and the Graduate Division. A candidate who fails the final oral examination twice is dropped from the program and loses classified graduate student status.

A candidate who passes the examination, and who has met all other requirements, will be awarded the doctoral degree at the end of the appropriate term.

### Dissertation

The doctoral dissertation for the PhD is expected to be a scholarly presentation of an original contribution to knowledge resulting from independent research.

An essential aspect of dissertation research is the free and full dissemination of research results. Moreover, all dissertations must be publicly defended in an oral examination. Therefore, proprietary or classified information is not suitable for a dissertation; data which cannot be made public at the time of the final defense should not be incorporated into the student's research.

When the dissertation topic has been approved by the doctoral committee, it will notify the Graduate Division through submission of Student Progress Form II. The candidate may then register for the dissertation research course (800) during the next registration period.

A candidate should look to the chair of his or her doctoral committee for primary direction regarding research methods and the preparation of results. It is the joint responsibility of the chair and the student to see that all members of the committee are kept informed of the scope, plan, and progress of both the research and the dissertation. Guidelines for preparation of the dissertation can be obtained at the Graduate Division website.

Copies of the completed dissertation must be submitted to committee members at least four weeks prior to the date of the final oral examination. Please check with Graduate Division Student Services (or the website) regarding the submission procedures for thesis and dissertations.

A majority of the members of the doctoral committee, including the committee chair, must approve both the dissertation and the oral defense of the dissertation. A minority member has the right of appeal to the Graduate Division for a final decision. The chair must ensure that the final form of the dissertation, including revisions and amendments agreed upon, is acceptable to a majority of the committee. The committee members express their approval on the Student Progress Form III and Student Progress Form IV (formerly signature page).

Candidates must be registered in the appropriate dissertation research course (800) during the term in which the work for the degree is completed. Failure to make satisfactory progress on the dissertation does not entitle a student to a refund of tuition.

The graduate chair of a program has the privilege of being an ex officio member of all doctoral committees in the field.

All doctoral students are required to publish their dissertation (in its entirety) with ProQuest Information and Learning or an equivalent publishing firm suggested by the student and approved by the Graduate Division.





# Student Life

Services and programs are provided on the campus to help students make the transition to UH Mānoa, to secure basic financial assistance and housing, to obtain the personal assistance needed to achieve academic goals, and to plan for productive careers.

Co-curricular programs offer students opportunities for leadership development and cultural, social, and recreational experiences. These programs provide excellent opportunities to gain leadership skills, to serve the community, and to obtain insights into community organization and development. Students are urged to participate in campus programs as involvement enhances the learning experience and leads to a more enjoyable and successful student life on campus.

## Vice Chancellor for Students

Queen Lili'uokalani Center for Student Services 409  
 2600 Campus Road  
 Honolulu, HI 96822  
 Tel: (808) 956-3290 (Voice/Text)  
 Fax: (808) 956-9682

The Office of the Vice Chancellor for Students coordinates educational services and programs within the Office of Student Affairs and acts as a resource on the development of UH Mānoa policies related to student affairs. The Office of the Vice Chancellor for Students also advises and assists students regarding discrimination, academic disputes and grievances, conduct code issues, and other related matters.

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## Housing

Student Housing Services  
Frear Hall  
2569 Dole Street  
Honolulu, HI 96822-2381

### On-Campus

Tel: (808) 956-8177  
Fax: (808) 956-5995  
Email: [uhmsh@hawaii.edu](mailto:uhmsh@hawaii.edu)  
Web: [manoa.hawaii.edu/housing](http://manoa.hawaii.edu/housing)

UH Mānoa has approximately 3,800 bed spaces available on campus. Facilities range from residence halls with shared doubles or suites with a limited number of singles, to apartments with shared one-bedroom and two-bedroom units. A limited number of modified and accessible units are also available. Students with families live in the apartment area.

Living on campus provides students with a residential learning experience that is supported and enhanced by live-in housing staff. Residence Directors and Resident Assistants actively serve as resources, help to develop positive communities, and organize activities and programs. Residents are able to make stronger connections with other students and their academic pursuits while experiencing a greater engagement in campus life.

Residents living in the traditional residence halls are required to select and purchase a dining plan from a variety of dining plans offered. A dining plan is optional for apartment residents. Residents dine at the Hale Aloha or Gateway House cafeterias. Detailed dining plan information is available at our Student Housing Services website.

Applications received by the application deadline are prioritized by predetermined categories. Placement is offered only to those applicants who have been accepted into classified programs of study and have confirmed their intent to attend the university. Applications received after the application deadline are assigned on a first come, first serve basis. Neither on-time nor late applications are guaranteed an assignment offer.

### Off-Campus Housing Referral Program

Tel: (808) 956-7356  
Fax: (808) 956-6732  
Email: [och@hawaii.edu](mailto:och@hawaii.edu)  
Web: [www.housing.hawaii.edu/och](http://www.housing.hawaii.edu/och)

The UH Mānoa Off-Campus Housing Referral Program (OCH) is a referral service provided and maintained by Student Housing Services. Students, faculty, and staff may access online referrals for off-campus rentals. The program also provides a Guide to Living Off-Campus, which includes information on landlord-tenant laws, utilities, and average costs of Honolulu housing.

You must be a registered student or faculty/staff member at UH Mānoa to access the listing pages. Students, faculty, and staff are required to use their UH Mānoa username to gain access to the listing database. For incoming or affiliated students, faculty, and staff, the creation of a temporary account is possible. Temporary accounts are issued for a maximum of 30 days.

A listing on the website does not indicate approval or endorsement as UH Mānoa does not investigate, endorse



or guarantee the accuracy of any referrals listed on the Off-Campus Housing website.

### Commuting and Parking (formerly Parking)

Commuter Services  
Queen Lili'uokalani Center for Student Services 014  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8899  
Fax: (808) 956-9811  
Email: [parking@hawaii.edu](mailto:parking@hawaii.edu)  
Web: [www.manoa.hawaii.edu/commuter](http://www.manoa.hawaii.edu/commuter)

The mission of Commuter Services (formerly known as Parking Services) is to maximize access to the UH Mānoa campus through a commitment to innovation, environmental sustainability, resource management, and quality customer service.

Students, faculty, and staff employ various modes of transportation to campus. Alternative options to driving alone include Honolulu's bus system (TheBus), biking, walking, and carpooling.

Currently, full-time students (after paying their mandatory \$30/semester Transportation Fee) qualify for a U-Pass, which allows them to ride TheBus at no cost 24/7 during the fall and spring semesters. The U-Pass sticker is affixed to the student's ID and issued at the Ticket, Information, and ID Office in the Campus Center. UH Mānoa is served by bus routes 4, 6, 13, and 18, plus express routes A, 80A, 85, 85A, 90, and 94. Real-time bus schedules are available at [www.thebus.org/Route/Routes.asp](http://www.thebus.org/Route/Routes.asp). For more information, call (808) 848-5555 or go to [www.thebus.org](http://www.thebus.org).

The University's Rainbow Shuttle system consists of multiple routes through campus and the neighboring vicinity, day and evening. This free service includes regular runs to and from residence halls, as well as adjacent neighborhoods, and off-campus parking locations. For shuttle schedules and route maps, get the app "UHM Shuttle" or go to [www.uhmshuttle.com](http://www.uhmshuttle.com).

Bike parking on campus is also free—cyclists are reminded to lock their bike to one of the many authorized racks to avoid citation.

UH Mānoa's car sharing program, a partnership with Enterprise Rent-A-Car, provides those commuting to or living on campus without a vehicle the option of a short-term car rental. Shared cars are conveniently parked at various locations around

campus. Learn more about this low-cost, environmentally-friendly membership program at [manoa.hawaii.edu/commuter/carshare.html](http://manoa.hawaii.edu/commuter/carshare.html).

If you plan to drive to Mānoa, a limited number of parking permits are available to UH Mānoa affiliates. Read more about the permit application process on our website. Apply for regular day permits, as well as carpool (students only), evening, and medical permits. Visitors and students may also pay a daily fee to park, on a space-available basis, in designated locations, such as the Lower Campus Parking Structure. Motorcycles and mopeds must also have a paid permit to park in designated lots on campus.

Parking regulations are enforced 24 hours daily throughout the year. Vehicles in violation are subject to citation and/or towing. Please familiarize yourself with UH Mānoa parking regulations on our website; plus the campus policy governing bikes, skateboards, and other coasting devices at [manoa.hawaii.edu/movewithaloha](http://manoa.hawaii.edu/movewithaloha).

Commuter Services Office is open Monday through Friday, 7:45 a.m. to 4:30 p.m.; closed on holidays.

## Security

Campus Security and Emergency Management

1951 East-West Road

Honolulu, HI 96822

For emergencies: Call 911

To report a crime or request assistance: (808) 956-6911

For assistance during power outages: (808) 590-5400,  
973-2899

Campus Security Escort Service: (808) 956-SAFE (7233)

Business Tel: (808) 956-8211

Fax: (808) 956-8495

Email: [uhcs@hawaii.edu](mailto:uhcs@hawaii.edu)

Web: [www.hawaii.edu/security](http://www.hawaii.edu/security)

Campus Security is dedicated to providing and promoting a safe and secure campus, and serving our community with aloha.

Campus Security provides protection and security for the university and campus community 24 hours a day throughout the year. Its duties include patrolling the UH Mānoa campus and property in the surrounding community, and enforcing UH Mānoa rules and regulations. Duties also include crime prevention, and investigating reports of suspicious persons and incidents. Security escort is offered to students and employees walking alone at night from one facility to another. 72 Emergency Call Boxes or stations identified by a red box or push-button phone are located throughout campus. They are easily identified at night by blue lights and provide instant communication with Campus Security.

UH Mānoa Campus Security complies with the 1999 Clery Act. For information concerning Campus Security policies, the Clery Annual Security Report, and crime prevention and other safety tips, visit [www.hawaii.edu/security](http://www.hawaii.edu/security).

## Mānoa Bookstore

2465 Campus Road

Honolulu, HI 96822

Tel: (808) 956-8252

Fax: (808) 956-4323

Web: [www.bookstore.hawaii.edu/manoa](http://www.bookstore.hawaii.edu/manoa)

University of Hawai‘i at Mānoa Bookstore (Mānoa Bookstore), an operation of UH Mānoa Campus Services, offers a great selection of textbooks, school and office supplies, technology products, apparel, spirit items, and more. Located in Campus Center, its regular hours of operation are: Monday-Friday from 8:00 a.m. to 4:30 p.m., Saturday from 9:00 a.m. to 12:30 p.m., and closed on Sundays and holidays. All proceeds from Mānoa Bookstore sales benefit the University of Hawai‘i.

The book department provides required textbooks for all courses, supplemental study guides, books by University of Hawai‘i authors, and hardback bestsellers. Textbooks are requested by faculty and made available for purchase at the start of each academic term. Mānoa Bookstore offers many affordable options for textbook purchases: new, used, rental, and/or digital books, when available. Books may be ordered online or by phone for at-home delivery or in-store pick-up. Prices of books in-store may also be compared with online retailers at [www.bookstore.hawaii.edu/manoa](http://www.bookstore.hawaii.edu/manoa). For students who wish to sell books they no longer need, the Bookstore hosts a textbook buyback session six times a year.

Because college is not all about books, Mānoa Bookstore carries general office and school supplies as well as a wide variety of art supplies recommended by academic instructors. In addition, the Bookstore offers convenience items, snacks and beverages, health and beauty aids, greeting cards, alumni accessories, and small gifts. When it's time to graduate, students shop for their caps and gowns, commencement announcements, and diploma frames in Mānoa Bookstore's supplies department.

For new computer, laptop, or tablet purchases, ask about the Bookstore's educational pricing for UH Mānoa students and staff (valid UH ID or current registration required). Mānoa Bookstore is an Adobe software seller, Dell University retailer, and an Apple Authorized Campus Store with Apple-certified technicians. The computer department also carries headphones, laptop cases, portable speakers, adapters, and other tech accessories.

For document services, see the Bookstore's Campus Solutions, conveniently located next to the Customer Service counter. Campus Solutions is a one-stop shop for affordable copying and printing on campus. Campus Solutions also handles document finishing, faxing, scanning, and laminating services for students, staff, and visitors. Simple printing jobs may be ordered online at [www.bookstore.hawaii.edu/manoa](http://www.bookstore.hawaii.edu/manoa).

In addition to classroom necessities, Mānoa Bookstore features official University of Hawai‘i licensed logo clothing and spirit items, including brand name athletic wear, T-shirts, alumni apparel, and game gear for University of Hawai‘i fans. The Bookstore's Campus Road fashion line also carries trendy, non-logo apparel. Handbags, backpacks, hats, drinkware, dorm accessories, and jewelry are other popular items in-store.

Mānoa Bookstore has everything for college life and more. Information about special events, contests, sales, new products, and seasonal hours may be found on the Bookstore's website ([www.bookstore.hawaii.edu/manoa](http://www.bookstore.hawaii.edu/manoa)), Facebook page ([www.facebook.com/manoabookstore](http://www.facebook.com/manoabookstore)), Twitter (@manoabookstore),

and Instagram (@manoabookstore), or by signing up for the Bookstore's monthly e-newsletter.

## Library Services

### Hamilton Library

2550 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-7203 (Voice/Text)  
(808) 956-2534 (Voice/Text)  
Web: library.manoa.hawaii.edu

### Sinclair Library

2425 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8308 ext. 52 (Voice/Text)  
(808) 956-5417 (Voice/Text)  
Web: guides.library.manoa.hawaii.edu/sinclairlibrary

### Library Hours

Web: library.manoa.hawaii.edu/about/hours.html

### Library Departments, Collections & Services

Web: library.manoa.hawaii.edu/departments/colldept.html

### Library Staff Directory by Departments and Collections

Web: library.manoa.hawaii.edu/about/directory/department.php

UH Mānoa Library (housed in Hamilton and Sinclair facilities) provides the largest collection of information research materials in the state. More than 3.4 million volumes, including about 44,000 currently received print and electronic journal titles, make this the 57th largest research library in the U.S. Its website provides access to local and national indexes, specialized databases, internet resources, unique, local digitized collections, and library catalogs throughout the nation.

Hamilton Library contains the main book, periodical, and microform collections. Separate components include the Asia Collection; Archives & Manuscripts; Hawaiian & Pacific Collections; Special Research Collections (including rare books); the Charlot Collection; Government Documents; Maps, Aerials, and GIS (MAGIS); Business, Humanities and Social Sciences; and Science and Technology (including medicine). Librarians provide reference services, online information retrieval, research paper consultation, and instruction on library use, and information literacy. The Interlibrary Loan service helps faculty and students obtain research material from off-campus sources. A Computerized Learning and Information Center is staffed in partnership with Information Technology Services. Graduate students may reserve lockers and private study carrels in Hamilton on a space-available basis.

Sinclair Library houses the Reserve Materials Collection, the Wong Audiovisual Center, the Wong Computer Lab, the Student Success Center, and the Music Collection. Older bound periodicals are also housed in Sinclair. The Wong Audiovisual Center has a large collection of video and sound recordings that may be reserved for classroom showings or individual use. The Student Success Center offers tutoring and workshops on study skills, test-taking strategies, career planning, writing, and information literacy.

## Health Services

University Health Services Mānoa  
1710 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-8965 Reception Desk  
(808) 956-6221 Specialty Clinics  
Fax: (808) 956-0853  
Web: www.hawaii.edu/shs/

University Health Services Mānoa (UHSM) offers medical services and health promotion programs for students, faculty, and staff. Patient Care: Monday through Friday, 8:30 a.m. to 4 p.m. Hours of operation: Monday through Friday, 7:45 a.m. to 4:30 p.m. For overnight and weekends, medical professional telephone consultation is available. For clinic hours, appointments, or information, please call UHSM, or visit the website above.

## Health Clearance

The State of Hawai'i mandates that certain health requirements be met for entrance to post-secondary educational institutions. (Hawai'i Administrative Rules, DOH Title 11, Chapter 157)

**You may not register for classes until you have received health clearance.**

### Health Clearance Requirements are:

- **Submit Health Clearance Form.** Information on obtaining the Health Clearance Form is given to students along with their acceptance packet. Complete the front page of this form to the best of your ability. The back page can be completed by your physician or, if you have your own personal immunization records, you can submit a copy of the records.
- **Comply with State of Hawai'i tuberculosis clearance guidelines.** ALL students enrolled at UH Mānoa must have tuberculosis (TB) clearance. A negative TB skin test (PPD-Mantoux) within one year prior to your enrollment is required. Skin test results must be read in 48 to 72 hours and results documented in millimeters, i.e., 0mm. If positive, a chest x-ray is required. TB tests must be performed by a U.S. licensed provider.
- **Returning or Transferring Students from a post-secondary school in Hawai'i** (i.e., UH Hilo, Community Colleges, Chaminade, HPU, etc.):
  - When you re-enroll in another post-secondary school in Hawai'i, a copy of your original certificate shall meet the Tuberculosis requirements for certification.
  - The Tuberculosis certificate must be done in Hawai'i for a post-secondary school.
  - Hawai'i students with a history of a positive PPD and negative chest x-ray must complete and return the Tuberculosis Symptom Screening form.
- **Provide documentation of immunity to measles, mumps, and rubella (MMR)**
  - You need two live doses of measles vaccine, with at least one being an MMR (Measles, Mumps, and Rubella) vaccine.
  - Your first dose must have been given on or after your first birthday.
  - Your second MMR vaccine must have been given at least 4 weeks after the first vaccine.
  - Measles, Mumps, and Rubella immunizations may be waived if:

- You have a blood test to prove your immunity to measles, mumps, and rubella. The measles, mumps, and rubella titers are needed, OR
- You were born before 1957.

## Clinical Services

### General Medical Clinic

Physicians and nurses provide primary medical care for illness and injury. Services also include immunizations, travel counseling, allergy shots, and physical examinations. A clinical laboratory provides testing, and the pharmacy stocks prescription and over-the-counter medications. UHSM assists patients in obtaining specialized medical services in the community.

### Specialty Clinics

Specialty clinics include sports medicine, dermatology, and psychiatric services. The following special services are also offered:

- Nutritional counseling is provided for medical conditions and weight, sports, and fitness concerns.
- The Women's Health Clinic offers examinations, pap tests, contraception and emergency contraception, tests and treatment for sexually transmitted infections, pregnancy tests, and education and counseling.

### Fees

Services, supplies, and medications are provided at reasonable cost to clients with and without billable insurance. UHSM will submit claims for visits and procedures to the endorsed UH student insurance plans and other non-HMO companies.

### Health Promotion Program

Queen Lili'uokalani Center for Student Services, 313D  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-3574 Health Promotion and Mānoa Alcohol  
Project Resource Center  
Fax: (808) 956-6371

### Student Health Insurance

All students are strongly urged to purchase medical insurance. Nonimmigrant international students are required to have insurance coverage. UH Mānoa endorses student health insurance plans with enrollment periods at the beginning of each semester. The endorsed plans cover visits at UHSM. Contact the Health Promotion Resource Center or visit the UHSM website for information on these plans.

### Health Resource Center

The Resource Center provides a wide range of health education materials for personal use and class presentations and papers. Resource center personnel are available to assist students, faculty, and staff.

### Peer Education/Service Learning Program (LOKAHI Program)

Based at the Health Resource Center, LOKAHI is a peer education/service learning program through which staff and trained student educators provide presentations for classes and other campus groups. Topics include responsible sexuality; safe dating; body image; tobacco; alcohol and other drugs; wellness; and stress management.

### Alcohol and Other Drug Education Program (ADEP)

ADEP provides education, brief intervention, counseling, and referral in regard to alcohol and other drugs. This includes work with students who have violated alcohol and/or drug use guidelines, as well as self-referrals. Visit the website at [www.hawaii.edu/shs/health\\_promotion/adepphp](http://www.hawaii.edu/shs/health_promotion/adepphp).

### Mānoa Alcohol Project (MAP)

Mānoa Alcohol Project (MAP) is a grant-funded project providing primary prevention services to reduce underage and harmful consequences of drinking. Visit the website at [www.facebook.com/UH.MAP](http://www.facebook.com/UH.MAP).

### Student Employment and Training Opportunities

Paid employment opportunities are listed at the Mānoa Career Center. Volunteers serve in peer education programs and on the Student Health Advisory Council (SHAC). Students also receive training to fulfill academic requirements in medicine, nursing, social work, psychology, and public health. Staff members assist students with research projects.

### Food Service

Mānoa Dining Services: A partnership between Student Affairs and Sodexo  
2573 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-2131  
(808) 956-8721  
Fax: (808) 956-9671  
Web: [www.uhmdining.com](http://www.uhmdining.com)

Mānoa Dining Services has a variety of options for students, staff, faculty, and visitors on campus. Centrally located at Campus Center, you'll find favorites such as Starbucks, Jamba Juice, Pizza Hut, Taco Bell, Simply To Go, and Campus Center Food Court. Ba-Le, located in Hemenway Hall, specializes in Vietnamese-style sandwiches, pho, bubble teas and an assortment of grab and go salads and sandwiches. Located on lower campus are Hale Aloha Café and Gateway Café, all-you-care-to-eat dining halls for students, staff, faculty, and visitors.

Mānoa Dining Services also offers catering for all tiers of events. Try our Shoestring menu, which includes ala carte items like furikake mochiko chicken or baked manapua—great for student groups and their budget! Our Community menu is perfect for the casual affair, with themed buffets or party packages featuring wings, tacos, and sandwich options. The Flavors menu is designed to showcase our full service catering. Menu choices range from the Classic Continental breakfast buffets to served luncheons and dinners featuring tasty entrees like Roasted Chicken Florentine. In need of something different? Our Executive Chef is able to design custom menus for your next special event!

### Meal Plans

Student Affairs Dining offers meal plans to students living on-campus, as well as for faculty, staff, and student commuters. Full meal plans ranging from 50 meals per semester to 19 meals per week are available for our frequent diners.

Also, Flash Cash, our debit card system, allows you to add cash to your UH ID card. Flash Cash allows you to leave the credit card and cash at home and use your UH ID for your dining purchases. It's quick, convenient, and easy to reload.

Additionally, you'll earn up to 10% in bonus points for every deposit. Flash Cash can be purchased at the Campus Center Ticket, Information, and ID Office.

The Resident Dining Club Card is also available for anyone that would like to dine at Hale Aloha and Gateway Cafés. The club card gives you a free all-you-care-to-eat meal after the cash purchase of any 5 meals at either location. You can pick up your club card when you dine at either of these locations.

To view our menu and hours of operation visit us online at [www.uhmdining.com](http://www.uhmdining.com).

## Mānoa Career Center

Queen Lili'uokalani Center for Student Services 212  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7007  
(808) 956-9318  
Fax: (808) 956-4082  
Email: [careers@hawaii.edu](mailto:careers@hawaii.edu)  
Web: [manoa.hawaii.edu/careercenter](http://manoa.hawaii.edu/careercenter)

The Mānoa Career Center empowers students to engage in career life planning through awareness, exploration, experience, and reflection. As a student-centered organization, the center contributes to the engagement and retention of students in career life planning through counseling; experiential, work-based learning programs; outreach activities, and workshops that promote professional and personal development. Over 9,000 students engage in an array of services and programs. The Mānoa Career Center motto: Careers begin here.

## Career Development

### Counseling and Offerings

A variety of offerings are available to assist in career planning for employment and/or graduate or professional schools.

### Resources

- Career and experiential listings from local, mainland, and overseas employers
- Job search and applying to graduate school handouts
- Salary information, employer literature, employment market trends, career search related books, and magazines
- Graduate school directories and information

### Services

- Personalized career counseling
- Job skills workshops, resume, cover letter, and personal statement reviews
- Credential files
- Employer recruitment program
- Practice interviews

## Experiential and Career

### Programs and Opportunities

Experience before graduation provides tremendous opportunities to clarify career expectations and develop professional workplace skills. Consider the following experiential and career opportunities.

### University

- Students work on the campus community

## Federal Work Study

- Students utilize need-based aid in campus or community service positions

## Non-University

- Part-time, full-time, and seasonal work opportunities

## Co-op and Internships

Students receive career-related experience before graduation:

- Enhance communication and other transferable skills
- Put theory into practice and gain professional skills
- Engage in job search strategies
- Network with professionals
- Develop and build your career plan and portfolio

## Child Care

Children's Center Administrative Office  
Queen Lili'uokalani Center for Student Services 407  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7963  
Fax: (808) 956-4157  
Email: [uhmcc@hawaii.edu](mailto:uhmcc@hawaii.edu)  
Web: [www.hawaii.edu/childrenscenter](http://www.hawaii.edu/childrenscenter)

Child care is available at the Children's Center on the Mānoa campus for a limited number of two- to five-year-old children of students, faculty, and staff. The facility offers full-time and a limited number of part-week care to approximately 90 children each semester. The Children's Center follows the UH calendar and is open from 8 a.m. to 5 p.m.

The developmental approach to early childhood education offers each child individual attention in an atmosphere that is conducive to building a strong self-concept, interactive skills, and an experiential base. Group sizes and adult-child ratios are favorable, and teachers are degreed and experienced in early childhood education. The program includes a wide range of opportunities for parental involvement. Applications should be made well in advance of the semester needed.

## Counseling Services

### Counseling and Student Development

Counseling and Student Development Center  
Queen Lili'uokalani Center for Student Services 312  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7927  
Fax: (808) 956-9682

The challenges of choosing the right career, achieving or maintaining one's independence, relating successfully to others, and leading a happy and successful life converge during a student's college years. College life adds the concerns of exams, term papers, quizzes, and class reports. Even students who are prepared to do their best in college may experience problems. The Counseling and Student Development Center (CSDC) provides the following services to assist students.

### Career Counseling

Students should choose their majors before they progress very far in their academic programs. Most students expect their academic studies to lead to specific careers upon graduation. Career counseling explores strengths and limitations, interests and values, personality and skills, and applies this understand-

ing to developing academic and occupational plans. (See also “Career Development and Student Employment.”)

### Personal Counseling

Some people occasionally, even regularly, feel worried, unhappy, and depressed. Lack of confidence, fear, low self-esteem, inability to get along with others, loneliness, not being able to cope with people and situations, and similar problems can be discussed with one of CSDC’s professional counselors. All matters discussed in counseling are confidential and will not affect academic standing.

### Psychiatric Consultation

People who find themselves seriously depressed, unable to control their behavior, or doing things they don’t understand may want and need psychiatric consultations. A talk with a counselor is recommended to determine whether psychiatric consultation is required.

### Testing

Testing is frequently used as part of counseling to help students understand themselves better and plan their careers. Counselors will discuss which tests to take and interpret them after they are scored. In addition, the Testing Office now administers the computer-based GRE, TOEFL, and PRAXIS exams. An appointment to schedule an exam can be made over the phone with a major credit card by calling (808) 956-3454, or with a check at the Testing Office, Queen Lili’uokalani Center for Student Services Room 307. Information about registration for paper-based admissions or certification exams, including SAT, ACT, LSAT, MCAT, and PRAXIS also is available at this office.

### Outreach

Workshops and seminars to promote personal development and academic success are offered throughout the year. Stress management, assertiveness, improving self-esteem, career and life planning, and coping with difficult people are just a few of the topics that are available. Sessions to address specific needs can be developed and conducted at the request of faculty or a group of students.

### Consultation

CSDC provides consultation services for individual students, faculty, and groups that may need help in solving organizational problems, overcoming interpersonal difficulties, and planning staff development programs.

### Office of Judicial Affairs

Queen Lili’uokalani Center for Student Services 207  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4416  
Fax: (808) 956-2537  
Email: oja@hawaii.edu

Anchored by theoretical and philosophical approaches of adult development and education, the Office of Judicial Affairs is committed to ensuring the rights and upholding the responsibilities of students to create a safe and welcoming campus learning environment.

## Support Services

### Office of Admissions-Campus Recruitment

Queen Lili’uokalani Center for Student Services 001  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7137  
Fax: (808) 956-4148  
Email: visituhm@hawaii.edu  
Web: manoa.hawaii.edu/admissions/undergrad/visit/

Admissions Counselors work with school staff and community organizations to encourage their students to pursue higher education. Services that facilitate students’ undergraduate enrollment to UH Mānoa are provided by this office. In addition, the Office of Admissions offers campus tours and on-campus and off-campus recruitment programs to prospective undergraduate students and their families.

The Office of Admissions also coordinates the Student Ambassador program. This program creates a cadre of current UH Mānoa students to represent UH Mānoa at various campus events. Student Ambassadors escort visiting high school students to their classes, speak on student panels, give campus tours, participate in student forums, and mentor new freshmen.

Individuals and groups wishing to learn more about UH Mānoa undergraduate programs and resources may contact the Office of Admissions. Campus tours are offered daily (Monday through Friday) by appointment at: manoa.hawaii.edu/admissions/undergrad/visit/ or email: visituhm@hawaii.edu. Neighbor Island and continental U.S. calls are accepted toll free at (877) 447-3233.

### Advocacy Office

Queen Lili’uokalani Center for Student Services 210  
2600 Campus Road  
Honolulu, HI 96822

The Advocacy Office falls under the UH Mānoa Chancellor’s Office. It provides assistance and advocacy for students, staff, and faculty at UH Mānoa through direct services, training, and consultation regarding various areas of civil rights, gender discrimination, and gender-based violence. The specific areas and services available to the UH Mānoa community are described below.

### Civil Rights Specialist

Tel: (808) 956-4431  
Fax: (808) 956-4541  
Email: jln@hawaii.edu

The Civil Rights Specialist advises students, employees, applicants, and the public on the UH’s complaint process and procedures. The Civil Rights Specialist also advises and counsels students and employees on their rights under state and federal nondiscrimination laws.

The Civil Rights Specialist sets up alternative dispute resolutions and assists in resolving disputes through informal procedures.

The Civil Rights Specialist conducts training workshops systemwide that cover policies, procedures, and laws pertaining to civil rights, affirmative action, and other discrimination issues. The Civil Rights Specialist can be contacted in person, by phone, by mail, or through email.

### Gender Equity Specialist

Tel: (808) 956-9977

Fax: (808) 956-4541

Email: [rosejenn@hawaii.edu](mailto:rosejenn@hawaii.edu)

Web: [manoa.hawaii.edu/mco/Gender\\_Equity](http://manoa.hawaii.edu/mco/Gender_Equity)

The Gender Equity Specialist provides advocacy services to students, faculty, and staff members on matters relating to sexual harassment, sexual assault, domestic violence, stalking, and gender discrimination. Services include counseling; filing informal complaints through the university; developing long-term coping strategies; short and long-term case management; implementing vital safety plans for daily life; outreach to off-campus resources; and arranging informal resolutions. In addition, the Gender Equity Specialist can assist in filing formal complaints with the Equal Employment Opportunity/Affirmative Action (EEO/AA) Office of the Vice Chancellor for Students. The Gender Equity Specialist will answer questions, listen to complaints, offer advice on filing procedures, advocate for the best interests of the client, and help protect the grievant from retaliation.

In addition to individual advocacy, the Gender Equity Specialist offers comprehensive training to the campus population on interpersonal, inter-gender, and cross-cultural communication; the rights and responsibilities of students, faculty, and staff on issues relating to sexual harassment in academia; and interpretation of state and federal laws and guidelines. The Gender Equity Specialist is also intimately involved in raising awareness of gender-based violence and discrimination to the UH Mānoa community through workshops, seminars, and outreach.

Students, faculty, and staff members may contact the Gender Equity Specialist in person, by phone, by mail, or through email.

### Bridge to Hope

Queen Lili'uokalani Center for Student Services 211

2600 Campus Road

Honolulu, HI 96822

Tel: (808) 956-8059

Fax: (808) 956-9314

Email: [bthinfo@hawaii.edu](mailto:bthinfo@hawaii.edu); [gotkids@hawaii.edu](mailto:gotkids@hawaii.edu)

Web: [www.hawaii.edu/bridgetohope/](http://www.hawaii.edu/bridgetohope/)

[www.manoa.hawaii.edu/studentparents](http://www.manoa.hawaii.edu/studentparents)

Bridge to Hope (BTH) provides student support services to students with children. The Student Parents At Mānoa (SPAM) program serves all student parents while Bridge to Hope assists with on-campus student employment and other services to help welfare (TANF) participating students succeed in their educational goals. Bridge to Hope (TANF) is available on every UH campus. The systemwide coordinator is located at UH Mānoa in the Women's Center.

### College Opportunities Program

Queen Lili'uokalani Center for Student Services 308

2600 Campus Road

Honolulu, HI 96822

Tel: (808) 956-6186

Fax: (808) 956-6837

Email: [copuhm@hawaii.edu](mailto:copuhm@hawaii.edu)

Web: [www.hawaii.edu/cop/](http://www.hawaii.edu/cop/)

The College Opportunities Program (COP) offers a state-wide entry-level freshman program that provides a summer

and first-year residential college experience. Its mission is to recruit, screen, select, and prepare Hawai'i residents for a successful freshman year at UH Mānoa. The program recruits individuals who may not meet the requirements for regular UH Mānoa admission, are academically under-prepared, economically disadvantaged, non-traditional, or in need of a structured college entry. Selected students who participate in and meet the summer program requirements gain admission to the UH Mānoa in the fall semester.

### Graduate and Professional Access (GPA)

Queen Lili'uokalani Center for Student Services 413

2600 Campus Road

Honolulu, HI 96822

Tel: (808) 956-4642

Fax: (808) 956-9240

Email: [maileg@hawaii.edu](mailto:maileg@hawaii.edu)

Graduate Professional Access (GPA) addresses underrepresented students in graduate and professional degree programs. Through partnerships with current student support programs serving underrepresented ethnic minorities in the public school system, GPA conducts research on access to higher education, provides internship opportunities in STEM fields, service learning projects, and test preparation for entry into graduate degree programs. GPA provides support and retention activities that increase the entry and graduation rate of underrepresented students from graduate and professional degree programs that will diversify the workforce in Hawai'i and the Pacific.

### Health Careers Opportunity Program

Queen Lili'uokalani Center for Student Services 413

2600 Campus Road

Honolulu, HI 96822

Tel: (808) 956-4642

Fax: (808) 956-9240

Email: [hcop@hawaii.edu](mailto:hcop@hawaii.edu)

The Health Careers Opportunity Program (HCOP) strives to build diversity in the health workforce by providing high school and college students from disadvantaged backgrounds an opportunity to develop the skills needed to enter, and graduate from health professions schools. The goal of HCOP is to increase the number of health professionals serving in areas of need in Hawai'i and the Pacific. HCOP provides career exploration and shadowing; learning skills development; academic, financial aid, and personal counseling; preparation for college majors in health programs; and certification in first aid and CPR.

### KOKUA Program (Office for Students with Disabilities)

Queen Lili'uokalani Center for Student Services 013

2600 Campus Road

Honolulu, HI 96822

Tel: (808) 956-7511 (Voice/Text)

(808) 956-7612 (Voice/Text)

Fax: (808) 956-8093

Email: [kokua@hawaii.edu](mailto:kokua@hawaii.edu)

Web: [www.hawaii.edu/kokua](http://www.hawaii.edu/kokua)

The KOKUA Program provides disability access services to UH Mānoa students with documented physical and/or mental

disabilities, e.g., health disabilities, hearing impairments, learning disabilities, mobility restrictions, psychological disabilities, visual impairments, etc. Services include alternate media, campus intervention, disability access counseling, early registration, faculty liaison, note-taking, sign language interpreting, technology access, testing accommodations, etc. Accessible on-campus transportation may be available. Students with disabilities who may require disability access services are strongly encouraged to contact KOKUA of their needs as far in advance as possible to ensure better campus access.

New students should contact KOKUA for program orientation at least two months prior to the start of their entering semester. Although KOKUA strives to ensure campus access for students with disabilities, it is necessary to note that the century old campus (located on hilly terrain) does pose architectural barriers that are being addressed by on-going projects.

The university is committed to ensuring equal access to the Mānoa experience for students with disabilities. Creating equal access is a shared responsibility involving the student, KOKUA, and the rest of the campus community.

### **Kua'ana Native Hawaiian Student Development Services**

Office of Student Equity, Excellence and Diversity  
Queen Lili'uokalani Center for Student Services 406  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-2644  
Email: kuumeaa@hawaii.edu

Kua'ana Native Hawaiian Student Development Services (Kua'ana) reflects the belief that higher education is a major factor in ensuring a better future for Hawaiians as individuals and as a people. Kua'ana focuses on encouraging and facilitating the entry of Hawaiian students into UH Mānoa and supports them in fulfilling their academic expectations through the development of new programs and the use of existing resources. Kua'ana services include scholarship awards, peer support, the Annual Hapai Pu Financial Aid Fair, a comprehensive community service program designed especially for Hawaiian students to interact with programs, projects and issues in the Hawaiian community, access to scholarship opportunities, and support for all Native Hawaiian students in STEM-related programs.

### **Lesbian, Gay, Bisexual, Transgender and Intersex Student Services**

Queen Lili'uokalani Center for Student Services 211  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-9250  
Fax: (808) 956-9314  
Email: lgbtq@hawaii.edu  
Web: manoa.hawaii.edu/lgbt/index.html

Lesbian, Gay, Bisexual, Transgender, and Intersex (LGBTI) Student Services strives to maintain a safe and inclusive campus environment for all students of UH Mānoa regardless of their gender identity or sexual orientation. Our office offers a lending library on LGBTI issues and Queer Theory; a WiFi wireless hotspot; lounge to relax or bring your lunch; and meeting area to read or study. LGBTI Student Services also offers a range of educational, information and advocacy programs.

1. Crisis response and professional referral services relating to harassment and bias-related incidents, and other specialized needs.
2. Resources and individualized support on issues such as “coming out,” positive identity development, healthy relationships, and academic/career planning.
3. The Safe Zone Training Program for allies of LGBTI people raises awareness of LGBTI issues on campus and sharpens skills of allies to help end harassment. Ally participants receive a poster to display to indicate that they are part of a professional network of student support.
4. Student support via weekly drop-in groups for LGBTI and ally students and support for student run programs, events and clubs, including our weekly LGBTI and Ally Coffee Hour.
5. Educational programs and events, including National Coming Out Day in October; “The Gathering,” our annual UH Systemwide LGBTI conference; and Rainbow Graduation, which celebrates the achievements of our graduating LGBTI and ally students.

### **Office of Multicultural Student Services**

Queen Lili'uokalani Center for Student Services 309  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7348  
Fax: (808) 956-4622  
Web: omss.ssc.hawaii.edu

The Office of Multicultural Student Services (OMSS) seeks to increase the awareness and appreciation of multicultural issues impacting UH Mānoa and the larger community. To accomplish this mission, OMSS seeks to (a) provide employment, training, and educational support to UH Mānoa students who wish to tutor and advise public school students; (b) address the problem of underrepresentation of minorities in higher education by recruiting students of underrepresented ethnic groups to apply for admission to UH; (c) coordinate special projects for under-served populations and communities; and (d) conduct UH Mānoa campus activities that identify and increase awareness of multicultural issues. OMSS also functions as a university partner with community agencies and organizations having similar goals of addressing ethnic-racial prejudice and discrimination in Hawai'i.

### **PAU (Prevention, Awareness, Understanding) Violence Against Women Program**

Queen Lili'uokalani Center for Student Services 211  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8059  
Fax: (808) 956-9314  
Email: pauvaw@hawaii.edu

The PAU (Prevention, Awareness, Understanding) Violence Against Women Program provides training and education to students, faculty, and staff around issues of relationship violence, sexual assault, and stalking. Housed under the Women's Center, the PAU Violence Program also coordinates a campus-community partner response team known as the Sexual Assault Task Force, which meets regularly to develop, implement, and evaluate victim-centered policies and procedure related to sexual and relationship violence issues for UH Mānoa students. PAU

Violence also provides crisis support and referrals to survivors of sexual and relationship violence.

### **Senior Citizen Visitor Program–Nā Kūpuna**

Queen Lili‘uokalani Center for Student Services 413  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4642  
Fax: (808) 956-9240  
Email: nakupuna@hawaii.edu

The Senior Citizen Visitor Program (SCVP) or Nā Kūpuna, administered by Student Equity, Excellence, and Diversity (SEED), is available to residents of Hawai‘i who are age 60 years and older. The program allows senior citizens to participate in UH Mānoa classes offered during the fall and spring semesters, provided they have the consent of the instructor. Participation in SCVP entitles the visitor to use libraries and other UH facilities. Visitors are exempt from tuition; course credit is not awarded, and permanent records are not maintained. Senior citizens wishing to receive credit for courses must apply for admission to the university and must pay all tuition and fees.

### **Office of Student Equity, Excellence, and Diversity**

Queen Lili‘uokalani Center for Student Services 413  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4642  
Fax: (808) 956-9240  
Email: seed@hawaii.edu  
Web: www.hawaii.edu/diversity

The Office of Student Equity, Excellence, and Diversity (SEED) coordinates various programs, projects, and committees at UH Mānoa and other campuses that support diversity on our campus, including services for students with disabilities, Native Hawaiians, and ethnic groups underrepresented in higher education, women, lesbian, gay, bisexual, transgendered, and intersex students, academically talented students, as well as underprepared and disadvantaged students.

SEED administers several programs aimed at specific constituencies such as: Bridge to Hope, Children’s Center, College Opportunities Program, Graduate and Professional Access, Health Careers Opportunities Program, KOKUA, Kua‘ana Student Services, LGBTI Center, Office of Multicultural Students Services, Senior Citizen Visitor Program, and the Women’s Center. In addition, SEED has major grant-funded programs including: GEAR UP Mānoa Waipahu Complex, Manawa Kūpono, Mānoa Educational Talent Search, Nā Pua No‘eau, Program for Afterschool Literacy Support, PLACES (Place based Learning and Community Engagement in School) and the Sexual Violence Prevention Program.

### **Women’s Center**

Queen Lili‘uokalani Center for Student Services 211  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8059  
Fax: (808) 956-9314  
Web: www.hawaii.edu/womenscenter/

The Women’s Center functions as a safe gathering place for students. It offers study lounges and meeting space, crisis sup-



port and referrals to survivors of relationship violence, sexual assault, stalking, academic and personal development workshops, educational lectures and programs, a reading resource library, and a comprehensive community information center.

The programs housed at the Women’s Center are: the Bridge to Hope Program; Student Parents at Mānoa; the Lesbian, Gay, Bisexual, Transgender and Intersex Student Services Office; the Sexual Violence Prevention Project; and the PAU Violence Against Women Program.

### **Veterans Affairs**

Queen Lili‘uokalani Center for Student Services 010  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7737  
Fax: (808) 956-7830

The Veterans Affairs (VA) Certifying Official, located in the Office of the Registrar, assists military veterans and their dependents who are eligible for Montgomery GI Bill benefits. Every semester, after students meet with their academic advisors, the VA Certifying Official certifies that students are enrolled in courses that are applicable to their VA-approved degree programs. Once certified, students will receive monthly benefits from the Department of Veterans Affairs.

### **Visual and Performing Arts**

#### **University of Hawai‘i Art Gallery**

Art Building, first floor  
2535 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-6888  
Fax: (808) 956-9659  
Email: gallery@hawaii.edu  
Web: www.hawaii.edu/art/exhibitions/art\_gallery/

One of the finest temporary exhibitions spaces in the nation, the UH Art Gallery is in the center of the Art Building’s bamboo court. Besides student and faculty exhibits, a varied exhibition program plays a significant role in providing information about the visual arts in a contemporary context. To enhance a specific theme, the installation design is completely changed for each major exhibition. The gallery has received numerous awards for the excellence of its exhibitions and publications.

Gallery hours are Monday through Friday from 10 a.m. to 4 p.m. and Sunday from noon to 4 p.m. Admission is free.

### **Commons Gallery**

Art Building, first floor  
2535 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-6888  
Fax: (808) 956-9659  
Email: gallery@hawaii.edu  
Web: www.hawaii.edu/art/exhibitions/commons\_gallery/

The Commons Gallery serves an important role as a showcase for exhibitions of works by art faculty and students and visiting artists. The exhibits change bi-weekly.

Gallery hours are Monday through Friday from 10 a.m. to 4 p.m., and Sunday from noon to 4 p.m. Admission is free.

### **John Young Museum of Art**

Krauss Hall, first floor  
2500 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7198  
Email: mcadora@hawaii.edu  
Web: www.outreach.hawaii.edu/JYmuseum/default.asp

The purpose of the John Young Museum of Art (JYMA) is to enhance the knowledge and appreciation of art, to further art education at the university for the benefit of students and the community, and to serve as a research center for scholars. Its collection represents the University of Hawai'i's special interests in Asia and the Pacific region and was largely contributed by the late John Young, whose vision and inspiration for a museum on the campus became the university's first museum. The JYMA grounds include a courtyard with a water garden and reflecting pool. (JYMA is currently closed for roof and facility maintenance. Re-opening TBA.)

### **John F. Kennedy Theatre**

1770 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-7655 (box office) (Voice/Text)  
(808) 956-7677  
Web: www.hawaii.edu/kennedy/

The John F. Kennedy Theatre is home to the classes and productions of the Department of Theatre and Dance and hosts touring productions from around the globe whenever possible. This 600-seat facility is among the best in the world for presentations of Asian and Western theater and dance. The department is internationally known for its English language presentations of kabuki and Beijing opera. Kennedy Theatre serves as a laboratory for student technicians, actors, dancers, designers, musicians, choreographers, and directors.

A typical season at Kennedy Theatre might include the annual Dance Concert, a classic Western play, an Asian theater production, youth theatre, and a contemporary/experimental play. Auditions are open to all UH Mānoa students interested in learning about performance or production.

The Earle Ernst Lab Theatre, an intimate 100-seat house that serves as an adjunct performing space, features student productions, late-night theater, workshops, and experimental presentations.

UH Mānoa students are entitled to special discount prices on tickets for most productions at Kennedy Theatre through funding from their student activity fees. Students must present a validated UH Mānoa photo ID to obtain the specially priced

tickets. Tickets are available at the box office approximately two weeks prior to the opening of each production.

### **Mae Zenke Orvis Auditorium**

2411 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-8742 (recorded information)  
(808) 956-7756  
Fax: (808) 956-9657  
Email: uhmmusic@hawaii.edu  
Web: www.hawaii.edu/uhmmusic

With the best acoustics of any concert hall its size in the state, the Mae Zenke Orvis Auditorium is the site of numerous recitals and concerts. The auditorium seats 400, providing an intimate yet formal setting for soloists and small ensembles. The auditorium is used throughout the year for performances of both Western and ethnic music by the music department, the UH Mānoa community, and local and international artists.

Tickets for most music department events may be reserved by calling (808) 95-MUSIC (68742) or may be purchased in advance at the UH Mānoa Campus Center Information Desk. Remaining tickets will be available at the door one hour before each performance. Many events are free.

Call Music at Mānoa Events Information for recorded concert information, or visit the music department's website.

## **Recreation**

### **Intercollegiate Athletics**

Physical Education/Athletics Complex  
1337 Lower Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6580 (student affairs)  
(808) 956-3388 (student academic services for athletics)  
(808) 956-7523 (sports information)  
(808) 956-7301 (athletics director)  
(808) 956-6508 (football)  
(808) 956-6247 (baseball)  
(808) 956-6501 (men's basketball)  
(808) 956-4505 (men's volleyball)  
(808) 956-4498 (women's sports and other men's sports)  
Fax: (808) 956-4637

Intercollegiate sports at the NCAA Division I level provide the UH Rainbow Warriors and Rainbow Wahine the opportunity to compete against the nation's finest teams. The football team competes in the Mountain West Conference. The men's volleyball, men's and women's swimming and diving, and indoor track and field teams compete in the Mountain Pacific Sports Federation. All other men's and women's teams compete in the Big West Conference.

Men's sports include baseball, basketball, football, golf, swimming and diving, tennis, and volleyball. Women's sports include basketball, cross-country, golf, soccer, softball, swimming and diving, tennis, indoor and outdoor track and field, indoor volleyball, sand volleyball, and water polo. The sailing team and cheerleading squad are open to both men and women. Intercollegiate athletics operates under a policy of gender equity. See "Campus Policies and Information" for details.

## Student Recreation Services

Physical Education/Athletics Complex 200  
1337 Lower Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7694/6468  
Fax: (808) 956-4810  
Web: [www.manoa.hawaii.edu/studentrec](http://www.manoa.hawaii.edu/studentrec)

Student Recreation Services provides a variety of recreational activities and services.

**Informal Recreation (including the Warrior Recreation Center at the Campus Center, the University Fitness Center at Stan Sheriff Center, and the athletic facilities in the Lower Campus):** Athletic facilities are available for students to use for the following activities: basketball, volleyball, swimming, tennis, table tennis, badminton, and jogging. The Warrior Recreation Center and the University Fitness Center provide strength and cardiovascular equipment for student use. A schedule of hours is provided at the start of each semester.

**Intramural Sports:** Organized leagues and tournaments are scheduled for various team and individual sports. Sports include flag football, basketball, volleyball, soccer, and softball. Visit us at [www.imleague.com](http://www.imleague.com) for more information and registration.

**Warrior Fitness Program:** Non-credit classes and activities are available through the Warrior Fitness Program, which is designed to promote a healthy, balanced lifestyle. The fitness and wellness classes provide the perfect stress relief from school work. For more information, contact us at [cclp@hawaii.edu](mailto:cclp@hawaii.edu).

**Outdoor Education Program:** Non-credit classes and activities are available through this program. Classes include surfing, sailing, hiking, snorkeling, stand-up surfing, SCUBA, kayaking, and much more. Check out the activities/classes at [www.facebook.com/UHMRecServ](http://www.facebook.com/UHMRecServ).

**Outdoor Equipment/Sports Equipment Rental:** A check-out program at minimal cost is provided.

**Rec Sports Board Activities:** The Rec Sports Board provides weekly (usually Friday night) activities throughout the school year. These activities include many traditional sports as well as some less familiar albeit fun and entertaining ones. Check them out on [www.facebook.com/recsportsboard](http://www.facebook.com/recsportsboard).

## Campus Center Complex

Campus Center Ticket Information and ID Office  
Campus Center 212  
2465 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7235 (Information Hotline)  
(808) 956-7236  
Fax: (808) 956-3917  
Web: [www.hawaii.edu/campuscenter](http://www.hawaii.edu/campuscenter)

Campus Center Complex (CCC), the university's student union, includes Hemenway Hall and the Campus Center buildings and serves as the "community center" of UH Mānoa. It provides facilities for programs, services, and opportunities offered by the Campus Center Board (CCB) and other student organizations, resulting in a comprehensive plan for the community life of the campus.

The complex includes an information desk/ticket window, computer lab, dining rooms, ID card services, catering services, lounges, game room, banking facilities, barber shop, photocopying service, RIO center for student organizations, graphics

services, an open market, and meeting rooms of various sizes, including a ballroom.

Many student organizations are housed in the two buildings, providing opportunities for practical experience in leadership development and social responsibility through student-run programs, activities, and services. In addition to these volunteers, more than 70 part-time student assistants within the student union are employed in diverse and challenging jobs vital to the operation of the complex. These jobs offer valuable work experience to UH Mānoa students in a supportive atmosphere, encouraging and rewarding personal responsibility and growth while supporting the educational and developmental mission of UH Mānoa.

## Student Organizations

### Office of Student Life and Development

Campus Center 208  
2465 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8178  
Fax: (808) 956-4810  
Web: [www.manoa.hawaii.edu/studentlife/](http://www.manoa.hawaii.edu/studentlife/)

Learning and development take place in many ways on a college campus. Office of Student Life and Development (SLD) offers opportunities to make new friends, try new activities, test new ideas, and acquire new skills. SLD coordinates a variety of student-administered programs, activities, and services that make out-of-class time a positive educational experience. SLD also provides leadership training through a variety of credit and noncredit classes.

More than 200 student, faculty, and staff organizations are registered with SLD. Organizations that register with SLD have access to campus facilities and other resources. These organizations represent varied interests and activities including academic, professional, political, social, religious, recreational, and service groups. A complete list of organizations and detailed information on joining a Registered Independent Organization (RIO) is available from SLD.

SLD assists UH's six chartered student organizations in achieving their goals and objectives; provides administrative services for more than 200 RIOs; fosters educational, recreational, cultural, and social programs and activities; provides trained, experienced advisors who teach leadership and organizational skills; and promotes responsible citizenship.

### Associated Students of the University of Hawai'i

Campus Center 211A  
2465 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4822  
Fax: (808) 956-5360  
Web: [asuh.hawaii.edu](http://asuh.hawaii.edu)

The Associated Students of the University of Hawai'i (ASUH) is the chartered student organization whose membership includes all full-time (12 credit hours or more per semester) classified undergraduates. It is governed by the ASUH Senate, elected annually each spring. The senate is made up of four executive officers and 34 senators who represent students in the various academic colleges and students at large. Any ASUH member in good academic standing may seek elective office.

The senate works toward improving the quality of undergraduate student life and represents the needs, interests, and concerns of its constituents through participation in UH policy-making and advisory committees, research and lobbying action on campus and community issues, and the sponsorship and funding of a variety of programs and activities.

### **Board of Publications**

2445 Campus Road  
Hemenway 107  
Honolulu, HI 96822  
Tel: (808) 956-7043 (Ka Leo O Hawai'i - Editorial & Advertising)  
Fax: (808) 956-9962  
Web: [www.kaleo.org](http://www.kaleo.org) (Ka Leo O Hawai'i - Online)  
[www.kaleo.org/hawaii\\_review/](http://www.kaleo.org/hawaii_review/)

The Board of Publications (BOP) is the publisher for UH Mānoa student publications. This 14-member governing board consists of nine students, three faculty/staff, one alumni, and one professional member. BOP publishes the campus student newspaper, *Ka Leo O Hawai'i* and the student literary journal, *Hawai'i Review*.

Student publications offer student volunteers the opportunity for personal and pre-professional development experience, including personnel and business management, public contact, writing, journalism, marketing, and graphic arts.

### **Broadcast Communication Authority**

Hemenway 220B  
2445 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4841  
Fax: (808) 956-4810  
Email: [bca@hawaii.edu](mailto:bca@hawaii.edu)  
Web: [ktuh.org](http://ktuh.org) (KTUH online)

The Broadcast Communication Authority (BCA) consists of 9 voting members, including students, faculty, staff members, and community representatives. The board governs the student-run campus radio station, KTUH-90.3 FM, and the Student Video and Filmmakers' Association. By radio, video, film, and the World Wide Web, the BCA provides a variety of cultural, educational, informational, and musical programs for the university community. Through the operation of the 24-hour radio station and the production of locally televised video programs, BCA offers students opportunities to manage, produce, and engineer radio and video/filmmaking projects.

### **Campus Center Board**

Campus Center 313  
2465 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-9670  
Fax: (808) 956-4810  
Web: [www2.hawaii.edu/~ccbac/Activities\\_Council/Home.html](http://www2.hawaii.edu/~ccbac/Activities_Council/Home.html)

The Campus Center Board (CCB) is the governing, policy-making authority for the programs, services, and facilities of the Campus Center Complex, the college union facility on campus. The 17-member board represents various campus constituencies: students, faculty, staff, and alumni. CCB serves its constituents in two ways: a multifaceted activities program and a comprehensive array of services in Campus Center and Hemenway Hall.

CCB also sponsors programs through its Activities Council committees, which plan recreational activities, educational support programs, dances, personal wellness events, concerts, and cultural programs.

### **Graduate Student Organization**

Hemenway 212  
2445 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8776  
Fax: (808) 956-4810  
Web: [gso.hawaii.edu](http://gso.hawaii.edu)

The Graduate Student Organization (GSO) represents the academic interests of over 5,000 graduate students attending UH Mānoa, the flagship campus of the UH System.

The GSO places a particular emphasis on fostering excellence in research at both the PhD and master levels. As such, the GSO endeavors to facilitate research initiatives from graduate students through its Grants and Awards program.

The GSO also provides input on all issues affecting UH graduate students and the UH Mānoa campus. It has representatives sitting on over 40 university committees and participates in a wide variety of graduate student, campus, and community events.

### **Student Activity and Program Fee Board**

Hemenway 220C  
2445 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4842  
Fax: (808) 956-4810  
Web: [www.manoa.hawaii.edu/sapfb/](http://www.manoa.hawaii.edu/sapfb/)

The Student Activity and Program Fee Board (SAPFB) is an eleven-member board composed of students, faculty, and staff members that makes recommendations to the Mānoa Vice Chancellor for Students regarding the allocation of the student activity and program fee. This fee supports a variety of co-curricular activities, programs, and services. SAPFB solicits and reviews requests for funding from campus organizations, departments, and programs that are not funded by other chartered organizations.



# Tuition, Fees, and Financial Aid

## Tuition, Fees, and Expenses

Cashier's Office  
 Queen Lili'uokalani Center for Student Services 105  
 2600 Campus Road  
 Honolulu, HI 96822-2205  
 Tel: (808) 956-7554  
 Fax: (808) 956-2098

Tuition and fees are charged according to the number of credit hours carried by the student. For regular, Outreach College Continuing Education, and Summer Session tuition schedules, refer to the following page. Auditors (those enrolled in a course for no credit) must pay the same tuition and fees as students enrolled for credit. For tuition purposes only, a full-time student is any student enrolled for 12 or more credit hours.

The regular tuition to be charged is determined by the degree status of the student and not by the level of the courses taken. For example, students who have earned a baccalaureate degree will be charged graduate tuition, except for students admitted for a second baccalaureate degree. Students admitted to the law or medical school will be charged the stated tuition for that school.

Medical, law, graduate nursing, or graduate business students concurrently enrolled in the Graduate Division must pay the stated tuition for the medical school, law school, nursing school, or business college.

All tuition and fee charges at the UH campuses are subject to change in accordance with requirements of state law and/or action by the Board of Regents or the UH administration.

### Tuition Deposit

All new, transfer, and returning classified undergraduate students are required to make a tuition deposit of \$200. All new medical and law students are required to make a partial advance tuition payment of \$250. Scholarship/fellowship recipients are not exempt from this deposit, if applicable. This tuition deposit is applied at registration time toward tuition for that semester. The payment is nonrefundable and nontransferable if the student does not register (except when the student is denied further registration by UH Mānoa). Continuing classified students are not required to make the tuition deposit.

### Additional Fees and Expenses

#### Caps and Gowns

Caps, gowns, and master's and doctoral hoods are required for participation in commencement ceremonies. Caps and gowns are available for purchase from the UH Mānoa Bookstore.

#### Outreach College Fees

Students registered in courses offered by Outreach College pay additional tuition and fees. For information, see their website at [www.outreach.hawaii.edu](http://www.outreach.hawaii.edu) or contact Outreach College at [ochelp@hawaii.edu](mailto:ochelp@hawaii.edu).

#### Credit by Examination

A \$15-per-course fee is assessed at the time of application.

#### Diplomas and Certificates

A charge of \$30, payable at time of application, is assessed for each bachelor's degree, advanced degree, and professional certification.

#### Late Registration Fee

A \$30 late registration fee is assessed when a student registers during the late registration period.

#### Replacement of Laboratory Equipment

For broken or lost items, the cost of replacement is assessed.

#### Returned Checks

Payments tendered to UH Mānoa or any department therein, and returned from the maker's bank for any reason

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**Regular Tuition Schedule 2014–2015**

	Full-Time per semester	Part-Time per credit hour
<b>Undergraduate</b>		
Resident	\$4,920	\$410
Nonresident	\$14,316	\$1,193
150% Resident	\$7,380	\$615
<b>Graduate (including post baccalaureate unclassified students)</b>		
Resident	\$6,624	\$552
Nonresident	\$16,008	\$1,334
150% Resident	\$9,936	\$828
<b>Graduate Business (MBA, MHRM, MACC, MS-FE)</b>		
Resident	\$9,624	\$802
Nonresident	\$16,800	\$1,400
150% Resident	\$14,436	\$1,203
<b>Graduate Nursing</b>		
Resident	\$10,440	\$870
Nonresident	\$19,824	\$1,652
150% Resident	\$15,660	\$1,305
<b>Law (JD)</b>		
Resident	\$9,732	\$811
Nonresident	\$19,596	\$1,633
150% Resident	\$14,598	\$1,216.50
<b>Law (LLM)</b>		
Resident	\$19,464	\$1,622
Nonresident	\$19,464	\$1,622
<b>Medicine</b>		
Resident	\$16,608	\$1,384
Nonresident	\$33,600	\$2,800
150% Resident	\$24,912	\$2,076

**Additional Student Fees**

	Per Fall/Spring Semester
■ Board of Publications—all students	\$13
■ Student Health Fee—all students	\$88
■ Campus Center Board—all students	\$15
■ Campus Center Operations & Recreation—all students	\$175
■ Student Athletic Fee—all students	\$50
■ Student Activity and Program Fee	\$11
■ Broadcast Communication Authority—all students	\$3
■ UPASS Transportation Fee (does not include medical and law students)	\$30
■ Associated Students of the University of Hawai'i Classified Undergraduates carrying 12 or more credit hours per semester	\$5
■ Graduate Student Organization—all graduate students (does not include medical and law students)	\$15
<b>Professional Fees</b>	
Undergraduate Business	\$500
Undergraduate Engineering (Sophomore to Senior)	\$500
Undergraduate Nursing*	\$1,000
Undergraduate Dental Hygiene*	\$500
Undergraduate/Graduate Architecture	\$500
*Fee applies for no more than six semesters	
■ Applied Music Fee (Students enrolled in applied music)	
One credit	\$55
Two or more credits	\$90
■ Course and Lab Fee	varies
Students enrolled in <b>selected natural science</b> courses will be assessed a laboratory fee ranging from \$25 to \$100 per course (BIOL, BOT, CHEM, ICS, MICR, and ZOOL course(s)). See the Records and Registration website at <a href="http://manoa.hawaii.edu/records/tuition_fees/fees.html#sci">manoa.hawaii.edu/records/tuition_fees/fees.html#sci</a> .	
Students enrolled in <b>selected College of Tropical Agriculture and Human Resources (CTAHR)</b> courses will be assessed a laboratory fee ranging from \$25 to \$100 per course (ANSC, BE, FAMR, FDM, FSHN, MBBE, NREM, PEPS and TPSS). See the Records and Registration website at <a href="http://manoa.hawaii.edu/records/tuition_fees/fees.html#ctahr">manoa.hawaii.edu/records/tuition_fees/fees.html#ctahr</a> for the listing.	
■ Art Course and Lab Fee	varies
Students enrolled in studio art courses, regardless of the number of studio art courses will be charged a single \$35 flat fee per semester. Students enrolled in studio art courses will be assessed a laboratory fee ranging from \$35 to \$340 per course (Art Studio Core, Ceramics, Drawing/Painting,	

Digital Media, Fiber, Glass, Photography, Printmaking, and Sculpture). See the Records and Registration website at [manoa.hawaii.edu/records/tuition\\_fees/fees.html#art](http://manoa.hawaii.edu/records/tuition_fees/fees.html#art) for the listing.

**Outreach College (Outreach Online Courses) Tuition Schedule**

Please refer to the Outreach Online website at [www.outreach.hawaii.edu](http://www.outreach.hawaii.edu) for current charges.

**Outreach College–Summer Session Tuition Schedule (per credit hour)**

	2014
<b>Courses numbered 499 and below</b>	
Resident	\$381
Nonresident	\$381
<b>Courses numbered 500 and above</b>	
Resident	\$514
Nonresident	\$514
<b>Graduate Business (MBA, MHRM, MACC, MS-FE)</b>	
Resident	\$764
Nonresident	\$764
150% Resident	\$764
<b>Graduate Nursing</b>	
Resident	\$811
Nonresident	\$811
150% Resident	\$811
<b>Law (JD)</b>	
Resident	\$764
Nonresident	\$764
<b>Law (LLM)</b>	
Resident	\$1,529
Nonresident	\$1,529

*Additional Summer Session fees—such as course fees for applied music, institutes, and other special programs—are outlined on the Outreach College website: [www.outreach.hawaii.edu](http://www.outreach.hawaii.edu).*

**Outreach College–Credit Extension Tuition Schedule (per credit hour)**

	2014-15*
<b>Courses numbered 499 and below</b>	
Resident	\$410
Nonresident	\$1,193
150% Resident	\$615
<b>Courses numbered 500 and above</b>	
Resident	\$552
Nonresident	\$1,334
150% Resident	\$828
<b>Graduate Business (MBA, MHRM, MACC, MS-FE)</b>	
Resident	\$802
Nonresident	\$1,400
150% Resident	\$1,203
<b>Graduate Education (EdD)</b>	
Resident	\$608
Nonresident	\$1,390
150% Resident	\$912
<b>Graduate Nursing</b>	
Resident	\$870
Nonresident	\$1,652
150% Resident	\$1,305
<b>Graduate Law (JD)</b>	
Resident	\$811
Nonresident	\$1,633
150% Resident	\$1,216.50
<b>Graduate Law (LLM)</b>	
Resident	\$1,622
Nonresident	\$1,622

All tuition and fee charges at UH campuses are subject to change in accordance with requirements of state law and/or by the Board of Regents or the UH administration. See "Campus Policies" section for definition of resident, nonresident, and 150% resident.

(e.g., insufficient funds, closed bank account, incorrect bank information) will result in a \$25 charge and a hold will be placed on your account. DO NOT place a STOP PAYMENT on checks. A stop payment on a check is considered a returned check and is not acknowledged as an official drop from courses or withdrawal from UH Mānoa.

### Special Examination

Various fees are assessed. Refer to Testing Office at [www.manoa.hawaii.edu/counseling/testing\\_office/](http://www.manoa.hawaii.edu/counseling/testing_office/).

### Student Transcripts

Regular processing is \$5 per copy, and rush processing is \$15 per copy.

## Payment of Tuition and Fees

Full payment for tuition and fees must be made or be enrolled in the MyUH installment payment plan by the end of the 10<sup>th</sup> calendar day of the semester. You are responsible for payment of tuition and fees incurred because of registration.

UH Mānoa offers a 4 month, 3 month, or 2 month installment payment plan for the fall and spring terms only. The non-refundable enrollment fee is \$30 per student per semester per plan to participate. Detailed information is available at [myuh.hawaii.edu/myuh/IPP\\_FINAL.pdf](http://myuh.hawaii.edu/myuh/IPP_FINAL.pdf).

All checks or money orders should be made payable to University of Hawai'i for the exact amount due. The student's UH number should be written on the **memo section (bottom left)** of the check. Students who have their tuition being paid by a third party sponsoring agency (e.g., World Health Organization, East-West Center, Alu Like, Vocational Rehabilitation, U.S. Armed Forces Branch, State of Hawai'i Department of Education, etc.), **must** submit their letters of financial guarantee, purchase orders, or authorization letters from their sponsor to the UH Mānoa Cashier's Office by the payment deadline. University grants and scholarships will be posted to the student's account.

## Financial Obligations

Students who have not met their financial obligations (traffic fines, library fines, locker fees, lab breakage charges, transcript fees, loans, rental contracts, etc.) to the satisfaction of UH Mānoa may be denied a variety of enrollment services including registration, withdrawal, and transcripts. Notation of the financial obligation may appear on transcripts.

Enrollment at UH Mānoa signifies consent to, and acceptance of all policies and procedures governing enrollment, including financial liability. If student's third party sponsoring agency does not make payment for any reason after being billed by the university, the student will be responsible for paying any unpaid balances. Students who fail to remit payment when due, agree to pay UH Mānoa all reasonable costs for collection, to include collection agency, attorney's, and court fees.

Copies of the delinquent financial obligations policy and procedures are available for inspection at the Office of the Vice Chancellor for Students and the UH Mānoa Cashier's Office.

## Refunds of Tuition and Fees

### Regular Tuition and Fees

Tuition and special course fees are refunded as indicated below:

- A 100 percent refund of tuition for **complete withdrawal** or **decrease in credits** made on or before the 10<sup>th</sup> calendar day of the semester, unless otherwise stipulated by federal regulations.
- A 50 percent refund of tuition for **complete withdrawal** or **decrease in credits** made between the 11<sup>th</sup> to the 21<sup>st</sup> calendar days of the semester, unless otherwise stipulated by federal regulations.
- No refunds of tuition for **complete withdrawal** or **decrease in credits** from the 22<sup>nd</sup> calendar day of the semester (start of the 4<sup>th</sup> week of instruction), unless otherwise stipulated by federal regulations.

Student activity fees are only refundable **before** the first day of instruction, or if you **completely withdraw** from all UH campuses during the 100 percent period.

Penalties apply even if payment for tuition and fees has not been made at the time registration status is changed.

After students have secured all required approvals, the withdrawal or change in registration must be processed according to instructions in the online *Registration Guide* at [www.hawaii.edu/myuh/manoa/](http://www.hawaii.edu/myuh/manoa/). In no case shall a refund be made when a student fails to follow these instructions within two weeks of the date of change in registration (e.g., withdrawal, change in status, or change in tuition rate).

Refunds are made by the UH Mānoa Cashier's Office after the procedures for complete withdrawal from UH Mānoa have been followed. See the "Undergraduate Education" and "Graduate Education" sections of this *Catalog*.

Federal regulations mandate a refund policy for all students who are receiving federal financial aid and who process a complete withdrawal before 60% of the semester has elapsed. A detailed refund policy is available in the *Registration Guide*.

If you paid by credit card within the past 90 days, your credit card may be credited the refund amount in the order of credit card used. For payments older than 90 days, your refund will be deposited directly into your designated eRefund account or mailed to your current mailing address on file at UH Mānoa. If you paid by cash or check, your refund will be deposited directly into your designated eRefund account or mailed to your current address on file at UH Mānoa. Students should verify and update their mailing address and permanent address, as all refund checks will be mailed to their address in the following priority: 1) Mailing Address, and 2) Permanent Address (if mailing address is null or expired). Mailing address corrections can be made online through MyUH, and permanent address corrections made by mailing the Student Data Change Form at [manoa.hawaii.edu/records/pdf/data\\_change.pdf](http://manoa.hawaii.edu/records/pdf/data_change.pdf) or completing it in-person at the Office of the Registrar, Queen Lili'uokalani Center for Student Services, Room 010 (ground floor).

UH Mānoa offers students the option to have refunds direct deposited into a bank account. View information on eRefunds at [www.hawaii.edu/news/docs/eRefunds.pdf](http://www.hawaii.edu/news/docs/eRefunds.pdf).

### Outreach College Extension and Summer Sessions Tuition and Fees

See the Outreach College website at [www.outreach.hawaii.edu](http://www.outreach.hawaii.edu) for refund information.

## Residency for Tuition Purposes

Students who do not qualify on the first day of instruction as *bona fide* residents of the state of Hawai'i for tuition

purposes pay the nonresident tuition. An official determination of residency status is made at the time of application. Applicants may be required to provide documentation to verify residency status. Once classified as a nonresident, students continue to be so classified during their enrollment at UH Mānoa until they present satisfactory evidence to the residency officer that proves residency. For definition of Hawai'i residency for tuition purposes, statutory exemptions, etc., refer to the "Campus Policies" section.

## WICHE Programs

Bachman 109H  
2444 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-6625

UH Mānoa participates in three exchange programs of the Western Interstate Commission for Higher Education (WICHE).

Through the Western Undergraduate Exchange (WUE) program, a limited number of students from participating states who are not residents of Hawai'i may enroll at UH Mānoa in designated programs at a 150% resident tuition (plus other fees that are paid by all students). WUE students do not pay the higher charge for nonresident tuition. (Hawai'i residents may enroll under the same terms in designated institutions and programs in other participating states.) Hawai'i residents may obtain information about WUE programs in other states from the WICHE Certifying Officer for Hawai'i (see the location above); from participating institutions; or at [www.wiche.edu/wue](http://www.wiche.edu/wue).

The John A. Burns School of Medicine participates in the WICHE-administered Professional Student Exchange Program (PSEP). PSEP allows legal residents of the states of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Utah, Washington, and Wyoming (states without a public professional school in a health care field to enjoy Hawai'i-resident status for admission and tuition purposes at UH Mānoa. Students who are pursuing graduate degrees in Asian and Comparative Philosophy, Asian Theatre and Dance, Communication and Information Sciences, East Asian Languages and Literatures, Natural Resources and Environmental Management, Oceanography, Second Language Studies, Tropical Entomology, Tropical Medicine, Tropical Plant and Soil Sciences, and Urban and Regional Planning are eligible for resident tuition under the WICHE Program. Students who receive certification from their home states receive preferential admission consideration and, if accepted, are charged Hawai'i-resident tuition rates. To be certified for PSEP, students must apply to the WICHE certifying officer in their home state before **October 15** the year prior to admission. State eligibility requirements vary, and the number of students funded by each state depends upon appropriations by the state's legislature. For addresses of state certifying officers, visit [www.wiche.edu/psep](http://www.wiche.edu/psep).

UH Mānoa also participates in the WICHE Regional Graduate Program. Under this arrangement, legal residents of the other WICHE member states (AK, AZ, CA, CO, ID, MT, ND, NV, NM, OR, SD, UT, WA, WY) will be charged resident tuition if they are exceptional candidates for admission in specific graduate programs. Approved fields are Asian and Comparative Philosophy, Asian Theatre and Dance (MA and MFA, and PhD), Communications and Information Sciences (PhD), East Asian Languages and Literatures (MA and PhD),

Natural Resources and Environmental Management (MS and PhD), Oceanography (MS and PHD), Pacific Island Studies (MA), Second Language Studies (PhD), Tropical Entomology (MS and PhD), Tropical Medicine in the biomedical sciences (MS and PhD), Tropical Plant and Soil Sciences (MS and PhD), and Urban and Regional Planning (MA and PhD). For detailed information, contact the appropriate graduate chair or see the respective field of study listings at the Graduate Division Office or visit [wrgp.wiche.edu/](http://wrgp.wiche.edu/).

## Financial Aid

Financial Aid Services  
Queen Lili'uokalani Center for Student Services 112  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7251  
Fax: (808) 956-3985  
Email: [finaid@hawaii.edu](mailto:finaid@hawaii.edu)  
Web: [www.hawaii.edu/fas](http://www.hawaii.edu/fas)

Scholarships, grants, loans, and work-study programs are provided to eligible students by the federal and state governments and private donors. Some programs are based on merit or academic records, and others on demonstrated financial need.

UH Mānoa encourages students who believe they may not be able to enroll or continue their education because they lack financial resources to apply for financial aid through the Financial Aid Services office.

The federal government is a major source of grants, loans, and work-study funds to undergraduate and graduate students. With the enactment of the Higher Education Amendment of 1992, applicants are **required** to submit the Free Application for Federal Student Assistance (FAFSA) form to the federal processor for the determination of eligibility for federal, state, and some institutional program funds.

If you have been selected for verification, you must submit federal tax transcripts, a verification worksheet, and other forms as required by Financial Aid Services. Students interested in applying for financial aid may visit our website at [www.hawaii.edu/fas/](http://www.hawaii.edu/fas/) for financial aid information and forms.

The offer of aid may include funds from public and private sources, depending on the applicant's residency, degree of need, date of file completion, major, class level, and availability of funds. Recipients are advised to read their rights and responsibilities, including the description of the type of funds awarded and disbursement procedures on the financial aid website.

### Deadlines

The priority date is **March 1**; however, applications will be accepted after that date with awards offered contingent on available funds.

### Types of Financial Aid

#### Scholarships

Scholarships are awarded to exceptional UH Mānoa students on the basis of academic excellence and exceptional promise; students in specific majors, colleges, or schools; Hawai'i residents; students of a particular class standing; or students with demonstrated financial need. Noteworthy scholarships include the following among others:



### **B+ Scholarship**

Scholarships awarded to incoming freshmen and continuing students who complete a rigorous high school curriculum with a minimum overall GPA of 3.0 (4.0 scale) at a Hawai'i public school, and are residents of the state of Hawai'i with preference to those with financial need.

### **Manoa Merit Scholarships**

Scholarship awarded to high achieving incoming freshmen students with a 3.5 cumulative high school GPA and evidence of superior academic achievement or creative endeavor. These awards are renewable up to 8 consecutive semesters. Students must maintain an overall 3.0 GPA. For more information, visit [manoa.hawaii.edu/admissions/undergrad/financing/index.html](http://manoa.hawaii.edu/admissions/undergrad/financing/index.html).

### **Manoa Chancellor's Scholarship**

Scholarships awarded to incoming freshman students who have graduated from a Hawai'i high school with a minimum overall GPA of 3.5 (4.0 scale) and a 1600 SAT or 25 ACT score. Evidence of superior academic achievement or creative endeavor and record of academic, co-curricular, and community service activities. For more information, visit [manoa.hawaii.edu/admissions/undergrad/financing/chancellors\\_scholarship.html](http://manoa.hawaii.edu/admissions/undergrad/financing/chancellors_scholarship.html).

### **Regents Scholarship**

Sixteen scholarships for full tuition plus \$4,000 per year are awarded to entering first-year students who are residents of Hawai'i and have a combined SAT score of at least 1950 and a high school GPA of 3.5 or better. This scholarship is renewable for up to four years upon maintenance of eligibility and includes a one-time academic travel grant of up to \$2,000. For more information, visit [www.hawaii.edu/raps](http://www.hawaii.edu/raps).

### **Presidential Scholarship**

Seven scholarships for full tuition plus \$4,000 per year awarded to juniors who have a minimum cumulative GPA of 3.7, have demonstrated sustained academic progress, show superior academic achievement or creative endeavor, and are residents of Hawai'i. This scholarship is renewable for one year upon maintenance of eligibility and includes a one-time academic travel grant of up to \$2,000. For more information, visit [www.hawaii.edu/raps](http://www.hawaii.edu/raps).

### **ROTC Scholarships**

Scholarships are awarded for up to four years to qualified applicants by the UH Mānoa Army ROTC and Air Force ROTC programs. Scholarships cover tuition, books, laboratory fees, and a \$300-500 tax-free monthly allowance during the school year. Contact respective campus ROTC programs (see "ROTC Programs").

### **Other Scholarships**

Other tuition scholarships for residents and nonresidents are awarded to classified students who participate in special programs and/or meet criteria set by colleges or schools. Contact the specific department for details.

The tuition scholarship program is subject to change by the Board of Regents.

### **Grants**

A grant is a type of federal or state financial aid that does not have to be repaid. Usually, these awards are based on financial need.

### **UH Opportunity Grants**

UH Opportunity Grants are awarded annually to qualified undergraduate and graduate students who qualify on the basis of financial need as determined by the FAFSA available at the Financial Aid Services office.

### **Federal Pell Grant**

This award to undergraduate students is based solely on financial need as determined by congressional methodology. The amount received depends on the degree of need and schedule of awards as determined by the federal government. FAFSA required. Eligibility for the Pell Grant is limited to 12 full-time semesters. Contact the Financial Aid Services office for details.

### **Federal Supplemental Educational Opportunity Grant**

This award is provided to undergraduate students with exceptional financial need who are also eligible for the Federal Pell Grant. FAFSA required. Contact the Financial Aid Services office for details.

### **Teacher Education Assistance for College and Higher Education (TEACH) Grant**

For undergraduate and graduate students enrolled in the College of Education who intend to teach full-time in high need subject areas for at least four years at schools that serve students from low-income families. Must have a cumulative GPA of 3.25.

### **Other Grants**

Students are encouraged to contact a reference librarian at the nearest college for other publications listing grants for students. For additional information on these and other grants, check with the Financial Aid Services office or specific departments.

### **Loans**

A financial aid package based on demonstrated financial need may include a long-term, low-interest federal or state loan. Repayment of these loans begins after a student graduates, withdraws from school, or drops to less than half-time.

**Federal Perkins Loan.** This loan is available to students with financial need. FAFSA required. Contact the Financial Aid Services office for details.

**Federal Direct Loans.** These loans, the Federal Direct Loan (subsidized and unsubsidized), the Federal Direct PLUS Loans for parents of undergraduate dependent students, and the Federal Direct Graduate PLUS loan for graduate students are available through the U.S. Department of Education. Interest accrued may be subsidized by the federal government, depending on the degree of financial need. FAFSA required. Contact the Financial Aid Services office for details.

**State Higher Education Loan.** This loan is available to bona fide residents of the state of Hawai'i who demonstrate financial need. FAFSA required.

**Short-Term, Emergency Loans.** These institutional loans are designed to meet temporary or emergency financial needs of registered students. Contact the Financial Aid Services office, the Graduate Student Organization, or specific departments.

**Other Loans.** Students are encouraged to contact the reference librarian at the nearest library for other publications listing private loans for students. For additional information on these and other loan programs, check with the Financial Aid Services office, UH Foundation, or specific departments.

### Work-Study

The Federal Work-Study (FWS) Program enables students to meet part of their financial need through part-time employment. The program is funded by the federal government with matching funds from UH Mānoa. Employment may be on or off campus with nonprofit organizations. FWS earnings are not calculated as income when applying for financial aid.

Generally, students are provided the work-study program as a part of their financial aid package. The Center for Career Development and Student Employment coordinates the work-study program. Job opportunities are available in many fields and require skills ranging from entry-level to highly technical. Community service jobs are also available, including tutoring positions in the America Reads and Counts Challenge. For further information, see the "Student Life" section of this *Catalog*.

### Standards of Satisfactory Academic Progress for Recipients of Financial Aid

**Satisfactory Academic Progress.** To be eligible for federal, state, and specific institutional aid programs, you must meet all three Satisfactory Academic Progress (SAP) standards regardless of whether you have received financial aid previously. For more information, visit [www.hawaii.edu/fas/policies/sap.php](http://www.hawaii.edu/fas/policies/sap.php).

**GPA Standard.** Maintain minimum GPA standards. Undergraduate students must maintain a minimum cumulative grade point average of 2.0 or as required by the student's specific program of study. Graduate students must maintain a minimum cumulative grade point average of 3.0 or as required by the student's specific program of study. The cumulative grade point average includes all courses attempted by degree level at UH Mānoa. Students on academic suspension are not eligible for financial aid.

**Pass Rate Standard.** Students must pass at least 67% of all credit hours attempted during the academic year at UH Mānoa. Measurement of each student's pass rate will occur at the completion of each spring semester. Grades of W, F, I, NG and repeated courses are not considered to be adequate grades for completion.

**Maximum Credit Hour Standard.** Undergraduate students must complete their undergraduate degree with less than 180 attempted credit hours (e.g., 150% above the 120 minimum

credits for a baccalaureate degree). Master's program students must complete their degree within 4-10 semesters based on the minimum number of credits required. Doctoral students must complete their degree within 14 semesters (includes master's degree credits). All courses you register for or transfer to UH Mānoa are included in the maximum credit hour standard.

### Enrollment Status for Recipients of Financial Aid

Courses that do not count toward a student's degree cannot be used to determine enrollment status for financial aid purposes. Students may receive aid to repeat a previously passed course one additional time.

### Graduate Assistantships

UH Mānoa offers assistantships to graduates of accredited institutions of higher learning who have satisfactory scholastic records, an adequate undergraduate background in the major program, and evidence of a high level of English proficiency. Graduate assistants, chosen on a competitive basis, serve as part-time teaching or research assistants. A graduate assistant must be enrolled in a classified master's or doctoral graduate program (see Master's Degree programs and Doctor of Philosophy programs). Graduate certificate, PBU (post-baccalaureate unclassified), law, medicine, Shidler College of Business (master's only) students are not eligible for graduate assistantships. All graduate assistants must be registered for and must complete at least 6 credit hours of degree-related course work each semester, while holding the assistantship. Moreover, they must maintain at least a 3.0 GPA to continue in the position. The maximum course load typically is 9 credit hours. The period of service for each year for teaching assistants is typically from two weeks prior to the beginning of instruction through spring commencement; research assistants normally serve for 11 months. Graduate assistants are awarded tuition exemptions, but they are not exempt from the general fees, special course fees listed in the *Catalog*, and the Graduate Student Organization fee. Applications should be sent to the chair of the appropriate department before **February 1**. Each application must be accompanied by three letters of recommendation from former professors or employers.

Information on assistantships and application forms may be requested from the chair of the appropriate graduate program.

### Graduate Fellowships and Scholarships

Applicants are advised that UH Mānoa has joined the Council of Graduate Schools in approving the following resolution:

Acceptance of an offer of financial aid (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by an actual or prospective graduate student completes an agreement that both student and graduate school expect to honor. In those instances in which the student accepts the offer before **April 15** and subsequently desires to withdraw, the student may submit in writing a resignation of the appointment at any time through **April 15**. However, an acceptance given or left in force after **April 15** commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after **April 15** is conditional on presentation by the student of the written release from any previously accepted offer.

The Graduate Division has available general information on fellowship competitions open to American graduate students

and administered by outside foundations or agencies. For application purposes, it is important to distinguish between (1) those awards made directly by the sponsoring agency to individual students and administered by an institution, and (2) those awards made by the sponsoring agency to an institution to be awarded, in turn, to students for study at the specific institution.

Awards in the first category are generally made by national organizations and allow students to choose their institution of affiliation. Applications are submitted by students to the sponsor, usually in early fall preceding the year graduate study is to begin. The National Science Foundation Graduate Fellowships program is an example.

Awards in the second category, which vary in source from federal to local, include a large number of programs. At UH Mānoa, nominations for these awards are generally made by the graduate programs that are eligible. In some cases (e.g., Fulbright awards), the student may apply through the Graduate Division. Students are urged to exercise their initiative to explore the various possibilities. Initial inquiries should be directed to the chair of the program.

Information on fellowships is available by checking the following website: [manoa.hawaii.edu/graduate/content/fellowships-scholarships](http://manoa.hawaii.edu/graduate/content/fellowships-scholarships).

## UH Mānoa Scholarships

The scholarships listed below are only a selection of the more than one thousand scholarships, fellowships, and other awards available to UH students. More information is available from academic advisors, the UH Mānoa Library, Financial Aid Services, or the chairs of departments. Information is also available at [www.star.hawaii.edu](http://www.star.hawaii.edu).

### School of Architecture

Allen R. Johnson-Roy C. Kelley Architectural Research Travel Scholarship  
Construction Specifications Institute Scholarship Fund  
Hawai'i Architectural Foundation Scholarship  
HonBlue Architectural Grant  
American Institute of Architects Honolulu Chapter Scholarship  
School of Architecture Alumni Association Scholarship  
R. Richard Morris Memorial Scholarship  
Sam Chang Scholarship at the School of Architecture  
School of Architecture Practicum Fund  
Barry John Baker Scholarship  
Donald G. Deer Memorial Scholarship  
Leighton Liu Scholarship

### Colleges of Arts and Sciences

Arts and Sciences Advisory Council Awards  
Aspect Technology Fund Grants (open to all UH Mānoa students, administered by Arts and Sciences)  
K. S. Cheng Memorial Scholarship Fund  
Colleges of Arts and Sciences Alumni Association Scholarship  
Colleges of Arts and Sciences Alumni Association Study Abroad  
Richard and Mildred Kosaki Awards  
Anna Toy Ng Memorial Scholarship  
Rodney P. Santos Scholarship  
The John Young Scholarship in the Arts

### Academy for Creative Media

Grace Abernethy Screenwriting Award  
Ito-en Production Support Fund  
Cinema Italiano, Hawai'i Future Filmmaker Award  
HIFF SMART Exchange Award  
Roy & Hilda Takeyama Student Support Fund

### Department of American Studies

Brown-Denney Award  
Glen Grant Endowed Scholarship Fund  
Goto of Hiroshima Foundation Endowed "Fumiko Kaya" Scholarship  
Japanese Women's Society Foundation Endowed "Kokoro" Scholarship  
James M. McCutcheon Memorial Endowed Scholarship Fund

### Department of Anthropology

Jocelyn Armstrong Merit Award in Anthropology  
Carol Eastman Scholarship (undergraduates majoring in Anthropology)  
Richard W. Lieban Endowed Scholarship for Anthropology  
Mānoa Achievement (tuition) Scholarship Graduate Division

### Department of Art and Art History (for current majors only)

Jean Charlot Foundation Scholarship  
Geraldine P. Clark Memorial Fellowship  
David H. and Doris C. Crowell Award  
Stephen Doue Scholarship  
Helen Gilbert-Bushnell Memorial Award  
H. John Heide Fellowship in Art (graduate)  
Honolulu Printmakers Scholarship  
Shore Hodge Lipsch Memorial Award (undergraduate and graduate)  
Matt Smith Award  
Diane Sullivan Memorial Scholarship  
Yun T. and Chen Chuan Tu Student Travel Endowment in Art

### College of Arts and Humanities

Diamond Head Theatre's Burnett/Selleck Scholarship  
Danny Kaleikini/Kāhala Hilton Scholarship  
Hands of Hope

### Department of Botany

Isabella Aiona Abbott Undergraduate Botany Fund for Excellence  
Beatrice Krauss Fellowship Fund in Botany  
Charles H. Lamoureux Fellowship in Plant Conservation Fund  
Torrey-Degener-Rock Scholarship Endowed Fund  
Winona Pi'ilani Char Endowed Scholarship Fund

### Department of Chemistry

Giichi Fujimoto Scholarship  
Shigeo and Hatsu Iwamoto and Paul J. Scheuer Scholarship  
William W. Y. Young Fellowship in Chemistry

### School of Communications

Blom Journalism Book Award  
Pierre L. Bowman Memorial Scholarship  
Carol Burnett Fund for Responsible Journalism  
James H. Couey Jr. Memorial Scholarship  
Pat Pitzer Memorial Scholarship  
Eugene Tao Scholarship  
Louise Hess Miller Travel Fund  
Ed Sheehan Scholarship in Journalism  
McNeil Wilson Communications Fund  
Bonnie J. Wiley Memorial Fund  
John Luter Memorial Fund  
F. R. Moulton Memorial Fund  
Sharon Ishida/UH Journalism Alumni Award

### Department of Communicology (formerly speech)

Department of Communicology Service Award  
Joseph Fielding Smith Memorial Award  
Department of Communicology Outstanding Graduate Student Award  
Department of Communicology Outstanding Graduate Teaching Assistant Award

### Department of East Asian Languages and Literatures

The James T. Araki Endowed Scholarship in Japanese Literature  
Mānoa Achievement (tuition) Awards Undergraduate Majors  
Mānoa Achievement (tuition) Scholarship Graduate Division  
Red Mandarin and Lady Yi-suen Shen Tuition Scholarship in Chinese Language

**Department of Economics**

Burnham O. Campbell Dissertation Award in Economics (graduate)  
 Chris Grootaert Scholarship  
 Dolores Ann Sanchez Memorial Fund  
 The Hung Family Fellowship (graduate)  
 Professors Henry M. K. Mok and James Mak Endowed Scholarship (graduate)  
 Seiji Naya Student Awards Fund (graduate)

**Department of English**

Abernethy Scholarship in Creative Writing (graduate)  
 The Academy of American Poets Prize  
 James W. and Eleanor B. Frierson Endowed Scholarship  
 Ernest Hemingway Awards for Undergraduate Poetry and Fiction  
 Red Mandarin and Lady Yi-suen Shen Tuition Scholarship (graduate)  
 Patsy Sumie Saiki Award (short story)  
 Stephen C. Stryker and William H. Stryker Prize For Creative Writing  
 Yun T. Chen Chuan Tu Student Travel Endowment in English

**Department of Ethnic Studies**

Roland Kotani Scholarship  
 Sarah and Francis Sogi Smithsonian/Hawai'i Fellowship Scholarship

**Department of Geography**

Neal M. Bowers Memorial Award  
 Abraham Pi'ianai'a Graduate Scholarship  
 H. J. Wiens Memorial Award (graduate)

**Department of History**

Jerry H. Bentley Endowed Scholarship in World History (graduate)  
 Hung Family Endowed Fellowship (graduate)  
 John F. Kennedy Memorial Fellowship in History (doctorate)  
 Daniel W. Y. Kwok Endowed Fund (graduate)  
 Mānoa Achievement (tuition) Scholarship Graduate Division  
 James M. McCutcheon Memorial Endowed Scholarship for History (graduate)  
 Idus Newby Award (doctorate/junior faculty)  
 Barbara Bennett Peterson Graduate Student Support Fund (graduate)  
 Robert K. Sakai Award for East Asian History (doctorate)  
 Ishi Sakurai Scholarships (undergraduate)

**Department of Indo-Pacific Languages and Literatures**

Samuel H. Elbert Graduate Scholarship  
 Amos P. and Edna Lee Leib Scholarship for Graduate Study of Literature of the Pacific  
 Jack Haven Ward Graduate Scholarship

**Department of Information and Computer Sciences**

Fred and Annie Chan Scholarship

**College of Languages, Linguistics, and Literature**

Hands of Hope Foundation Scholarship

**Department of Languages and Literatures of Europe and the Americas**

(French)  
 Mira Baciú-Simian Memorial Fellowship  
 Anita Hecht Scholarship  
 Betsy Tan Scholarship  
 (Russian and Russian Area Studies)  
 Frederick and Ella Wiswell Scholarships  
 (Spanish)  
 Linda Rudoy Memorial Scholarship

**Library and Information Science Program**

Beta Phi Mu-Xi Chapter Scholarship  
 Robert and Rita Blair Memorial Award  
 Mary Edward Professional Award  
 Friends of the Hilo Library Scholarship  
 Friends of the Library (Hawai'i) Scholarships  
 LIS Professional Award  
 Ralph R. Shaw Memorial Award  
 H. W. Wilson Scholarship

**Department of Mathematics**

Kern-Clark Memorial Award Fund

**Spark M. Matsunaga Institute for Peace and Conflict Resolution**

Jacob Peace Memorial Award (UH system)  
 Nobumoto Tanahashi Peace Scholarship (UH Mānoa)  
 Nobumoto Tanahashi Peace Fellowship (UH Mānoa)

**Department of Music**

Louella Shipwright Buchenau Applied Music Scholarship (piano)  
 Ernest Chang Piano Studio Scholarship (piano)  
 Chancellor Virginia Hinshaw Hawaiian Music Scholarship  
 Chinese Music Scholarship  
 Cooke Chamber Music Endowed Scholarship  
 Cooke Piano Scholarship  
 Beau Gard Dixon Memorial Scholarship (ethnomusicology)  
 Friends of Music at Mānoa Scholarship  
 Reiko Fujimoto Scholarship (voice, piano)  
 Graduate Fellowship in Ethnomusicology  
 Gregory C. Goetz Music Scholarship (music education, choral)  
 Gregg Hagiwara Memorial Scholarship (percussion, gamelan)  
 Fritz Hart Foundation Scholarship (performance or composition)  
 Hawai'i Music Teachers Association Scholarship  
 Heide Student Assistance in Music  
 Honolulu Chinatown Lions Club Piano Scholarship (piano)  
 Honolulu Piano Teacher's Association Scholarship (piano)  
 Geoffrey Lloyd Memorial Scholarship (voice or musicology)  
 Ellen Masaki Endowed Piano Scholarship (piano)  
 Donald Matsumori Music Award (research)  
 Marianne Miyamura Piano Scholarship  
 Mary Fayeweather Montano Scholarship (Hawaiian music)  
 Music Department Scholarships  
 Musical Moments with June Chun Scholarship  
 Aya Noda Piano Scholarship (piano)  
 The Andrew Nyborg Fellowship in Music (graduate)  
 NESTA Obermer Chamber Music Scholarship (string instruments)  
 Orvis Endowed Scholarship (voice)  
 Orvis Vocal Student Grants (voice)  
 William Pfeiffer Memorial Scholarship (voice or ethnomusicology)  
 Presser Foundation Scholarship  
 Ho'oulu Richards Scholarship (hula and Hawaiian chant)  
 Ruth Small Memorial Scholarship (performance)  
 Stephenson Endowed Music Scholarship  
 Allen Trubitt Memorial Fund  
 Peter Coraggio Memorial Scholarship (piano)  
 UH Band Tuition Waivers  
 UH Symphony Orchestra Tuition Waivers  
 Richard Vine Scholarship (voice)

**Department of Philosophy**

David L. Hall Prize (undergraduate)  
 Ashok Kumar Malhotra "Seva" Award (undergraduate or graduate)  
 Uehiro Graduate Student Essay Award in East Asian Philosophy (graduate)  
 Wing-Tsit Chan Graduate Fellowship (graduate)

**Department of Physics and Astronomy**

Vincent Peterson Scholarship

**Department of Political Science**

Harry Friedman Memorial Award  
 Thomas Hale Hamilton Memorial Award  
 Carl Knobloch Award  
 Richard Kosaki Award  
 Norman Meller Award  
 Jorge Fernandes Memorial Fellowship  
 Glendon Schubert and James Neal Schubert Political Science Endowed Scholarship

**Public Administration Program**

Herman S. Doi Fellowship  
 D. William Wood Endowed Scholarship for Pacific Island Health Administrators

**Department of Religion**

Buddhist Studies Scholarship Fund  
Henry Gengo and Riu Wakai Memorial Scholarship

**Department of Second Language Studies**

Carr-Holmes Scholarship  
Craig Chaudron Memorial Fund  
Ruth Crymes Scholarship  
'Oihana Maika'i Fund for Professional Development  
Charlene Sato Memorial Fund

**Department of Sociology**

Gary Sakihara Scholarship (Graduate)  
Bernard Hormann Award (Graduate and Undergraduate)  
Joseph Seldin Travel Award (Graduate)

**Department of Theatre and Dance**

Department of Theatre and Dance Tuition Scholarships in Theatre and Dance

**Department of Urban and Regional Planning**

American Planning Association–Hawai'i Chapter Scholarship  
Kem Lowry Award  
SSFM International Graduate Scholarship in Planning

**Department of Zoology**

Edmondson Fellowships and Research Grants  
E. Alison Kay Scholarships  
Jessie D. Kay Memorial Fellowships

**Shidler College of Business**

Accounting Student Educational Support  
Association of Government Accountants of Hawai'i Endowed Scholarship Fund  
Roland Casamina and House of Finance, Inc. Endowed Scholarship  
T. C. and Angeli Chan Endowed Scholarship Fund  
Chew Jay Family Endowed Scholarship Fund  
Stanley and Sandy Lee Chin Endowed Scholarship Fund  
Dennis Ching Memorial/First Interstate Bank Foundation Program  
The T. N. Ching Scholarship Fund  
The City Mill Company, Ltd./C. K. Ai Foundation Scholarship  
CW Associates, CPAs Scholarship  
Deloitte & Touche Scholarship Endowment Fund  
Florence Hutson Driskel Endowed Scholarship Fund  
Darleen Morioka Dyer Scholarship Endowment  
Enterprise Rent-A-Car Foundation Shidler Scholarship Fund  
Ernst & Young LLP Accounting Scholarship  
Vance Fawcett Scholarship  
Financial Executives International-Hawai'i Chapter Scholarship  
First Insurance Company of Hawaii Endowed Scholarship for Excellence  
The Oscar and Rosetta Fish Fund for Excellence  
Eddie Flores, Jr. & Elaine Flores Endowed Scholarship  
Financial Planning Association of Hawai'i Scholarship  
Freeman Foundation Asian Study Abroad Program  
Fujii and Rodriguez Endowed Scholarship Fund  
Candes Meijide Gentry Endowed Scholarship  
Dick Gourley Scholarship  
Hawai'i Accounting Education Foundation Scholarship Endowment Fund  
Hawai'i Association of Public Accountants O'ahu Chapter Endowed Scholarship  
Hee Chew Family Endowed Scholarship  
Thomas W. S. Hee Endowed Scholarship at the Shidler College of Business  
Ralph and Joyce Hook, Jr. Endowed Scholarship Fund  
Hawaii Society of Certified Public Accountants Scholarship  
Institute of Internal Auditors Hawai'i Chapter Scholarship  
Ralph S. Inouye Co., LTD. Endowment in honor of Professor K. K. Seo  
William R. Johnson, Jr. Study Abroad Endowment  
Leonard and Rebecca Kamp Endowed Scholarship  
Kauai NIMBA 1 Scholarship

KPMG LLP Scholarship for Accounting Excellence  
Daniel B. T. & Evelyn Y. Q. Lau Shidler Graduate Fellowship Endowment  
Terry Lee Scholarship for Excellence  
Robert H. Y. Leong & Company Endowed Scholarship  
May and Richard Leung Endowed Scholarship Fund  
Master's of Accounting Endowed Scholarship Fund  
Todd Kiyo Matsuda Endowed Scholarship  
Barbara McKeever Scholarship  
The Marian Miccio Memorial Scholarship Fund  
Grace Mizuko Miyawaki Scholarship  
Jack and Zelig Myers Endowed Scholarship Fund  
Hideo Noguchi International Scholarship Fund in the Center for Japanese Global Investment & Finance  
Sandra T. Ohara Scholarship Honoring Phyllis Kawano Aoki  
Patrick Oki Endowed Scholarship Fund for Beta Alpha Psi  
The Hisaji Onoye Endowed Scholarship Fund  
Michael and Judy Pietsch Endowed Study Abroad Scholarship  
PKF Scholarship for Excellence in Accounting  
C. Dudley Pratt, Jr. Endowed Scholarship  
Saltchuck DL EMBA Scholarship (Young Brothers, Hawaiian Tug & Barge, Maui Petroleum, Hawaii Petroleum, Minit Stop, Aloha Air Cargo and Saltchuck Resources Scholarship Fund for the Distance Learning EMBA Program)  
Shidler College of Business Alumni Association Endowed Scholarship Fund  
Shidler College of Business Endowed Scholarship for Future Leaders  
Shidler College of Business Entrepreneurship Scholarship Fund  
Shidler CIMBA Scholarship  
Shidler Day MBA Scholarship  
Shidler College of Business General Scholarships and Awards  
Shidler VEMBA Scholarship  
The Society of Human Resources Management Scholarship Fund  
Ulrike and Toufiq Siddiqi Student Travel Endowment  
Sales & Marketing Executives International Honolulu Memorial Scholarship in Honor of Stephanie Lee Uyeda  
Sukanto Foundation Scholarship  
The Marge Sylvester Scholarship Fund  
Mamoru and Aiko Takitani Foundation Scholarship  
Howard and Vivian Todo Scholarship Fund  
The Kazuo and Akiyo Toroki Memorial Scholarship  
Keith Vieira Ho'owaiwai a Ho'ona'auao Endowed Scholarship  
The Mike and Deborah Washofsky Endowed Graduate Executive Education Scholarship  
Frank Watase Endowed Scholarship Fund  
J. Watumull Merit Scholarship Fund  
Jhamandas Watumull Business Scholarship  
J. Edwin Whitlow Endowment  
Eiro and Alice Yamada Endowed Scholarship

**College of Education**

Mitsuo Adachi Scholarship for Graduate Study in Education  
Toshiko and Shiro Amioka Scholarship  
Au and Hew Family Endowed Scholarship Fund  
Joseph and Sumie Kaneshiro Bishop Scholarship  
Gladys Ainoa Brandt and Bank of Hawai'i Scholarship  
Frank Brown Memorial Scholarship  
James and Abigail Campbell Foundation Scholarship in Teacher Education  
Robert L. and Brigitte M. Campbell Endowed Fund in Science Education  
Mary Tenney Castle Memorial Graduate Fellowship  
The Henry and Dorothy Castle Memorial Early Childhood Education Scholarship  
College of Education Alumni Scholarship  
Alice, Sumy, and Carl Daeufer Family Scholarship in Teacher Education  
Peter and Patricia A. Dunn-Rankin Scholarship  
Stephanie Feeney Scholarship in Early Childhood Education  
Evelyn Siu Foo Scholarship in Education  
Royal T. and Aurora A. Fruehling Fellowship for Graduate Study in Education  
Hawaiian Telcom Math and Science Scholarship

William Randolph Hearst Foundation Scholarship  
 Sibyl Nyborg Heide Scholarship  
 Teruo and Violet Ihara Scholarship  
 Andrew W. S. and Jennie L. In Scholarship for Graduate Studies  
 Stella Lau In Memorial Scholarship  
 Dorothy M. Kahananui Scholarship in Music Education  
 Alexander Poki Kali Memorial Scholarship  
 Arthur R. King, Jr. Scholarship Fund  
 Hirokai, Elaine and Lawrence Kono Memorial Endowed Scholarship  
 Mary Cho Lee Scholarship Fund  
 Patricia B. Lopes Memorial Scholarship Endowment in Elementary Education  
 Colonel Willys E. Lord and Sandina L. Lord Scholarship Fund in the COE  
 Edith Ling Louis and James Lun Louis Scholarship Fund  
 Yuriko K. and Cheong Lum Endowed Scholarship  
 McInerney Foundation Scholarships in Teacher Education  
 Kenneth and Laura Onomoto Miyoshi Endowed Scholarship  
 Yoshiaki and Asako Furuya Nakamoto Scholarship for Undergraduate Study  
 Takasuke and Tome Nomura Family Scholarship  
 Frances M. J. and Alexander L. Pickens Scholarship in Secondary Education  
 Elsie and Shiro Saito Student Assistance Fund  
 Cornelia F. and Roy Sakamoto Scholarship Endowment  
 Scholarship in Special Education  
 Kathryn Au Shen Endowed Fund  
 Esther M. Sato and Jean M. Sakihara Scholarship Endowment IMO  
 Loren I. Shishido  
 Yoshimitsu Takei Family Endowed Scholarship Fund  
 Ellen Tom and Chow Loy Tom Endowed Scholarship  
 James I. and Ella M. (Ohta) Tomita Endowed Scholarship  
 Hazel Van Allen Scholarship in Teacher Preparation  
 Harry C. and Nee-Chang Wong Foundation Scholarship  
 Pearl N. and Paul T. Yamashita Scholarship in Special Education  
 Ginny H. L. Young Education Scholarship

### **College of Engineering**

Actus Lend Lease Outstanding CEE Scholarship  
 Thomas Keola Ahsing Endowed Scholarship Fund  
 Ajitomi Family Scholarship  
 ARC Foundation Scholarship  
 BAE Systems First Scholarship  
 BAE Systems Scholarship for Excellence  
 Everett E. Black Scholarship  
 Beavers Heavy Construction Scholarship (graduate)  
 Bretzlaff Foundation ARCS Graduate Scholarship (doctoral)  
 CH2M Hill Scholarship  
 Fred & Annie Chan Scholarship  
 Chi Epsilon Alumni Association Scholarship  
 The Dr. Arthur N. L. Chiu Scholarship in Civil Engineering  
 Chris K. Davis Endowed Scholarship  
 Delta Construction Corporation  
 Engineering Alumni Association Scholarship  
 The John S. Farmer (CCPI) Scholarship  
 Lorenzo C. Fruto Memorial Scholarship (graduate)  
 Mateo L. P. Go Scholarship Fund  
 Hawai'i Pacific Steel Framing Alliance (graduate)  
 Hawaiian Telcom Fellowship (graduate)  
 Harold J. Heide Scholarship in Mechanical Engineering  
 Sam and Yukino Hirota Scholarship  
 Ronald N. S. Ho Fund—Electrical Engineering  
 Eric N. Jacobsen Memorial Scholarship  
 Douglas & Mary Kamiya Endowed Scholarship in Civil Engineering  
 Dennis & Marilyn Kanemura Scholarship  
 Regent Donald Chang Won Kim Scholarship  
 Frederick M. Kresser ARCS Scholarship (graduate)  
 Felix B. Limtiaco Engineering Scholarship  
 George W. T. Loo Scholarship  
 Walter & Jeane Lum Scholarship  
 Larry Matsuo Scholarship  
 Murabayashi Foundation Engineering Scholarship

Nan Chul Shin Foundation Scholarship  
 Native Hawaiian Science & Engineering Mentorship Program Alumni Scholarship  
 Oceanic Cable Endowed Scholarship  
 Sandford Oda Memorial Scholarship  
 Pacific Alliance—Siemens Building Technologies  
 Charles H. Sawa Scholarship  
 Clinton Shelton Memorial Scholarship in Civil Engineering  
 SSFM International, Inc. Scholarship  
 SSFM International, Inc. Freshman Scholarship Fund  
 Structural Engineers Association of Hawai'i Scholarship (graduate)  
 Richard M. Towill Scholarship  
 Roswell M. and Jeanie Towill Civil Engineering Scholarship  
 Roswell M. and Jeanie Towill Graduate Research Scholarship (graduate)  
 TRW Graduate Fellowship (graduate)

### **Hawai'inuiākea School of Hawaiian Knowledge**

AES Hawai'inuiākea Scholarship  
 Center for Hawaiian Studies Scholarship  
 Gladys 'Aiona Brandt Scholarship Fund  
 John Dominis Holt Scholarship  
 Dorothy M. Kahananui Scholarship  
 Red Mandarin and Lady Yi-suen Shen Tuition Scholarship  
 Nā Lei 'Oiwi Scholarship  
 Pacific Islands Institute Hawaiian Studies Graduate Scholarship  
 Lokomaika'iokalani Snakenberg Graduate Scholarship in Hawaiian Language

### **William S. Richardson School of Law**

Advocates for Public Interest Law Summer Grant  
 Alston Hunt Floyd & Ing Environmental Law Writing Award  
 Amy C. Richardson Award  
 Augusto Camara III Memorial Scholarship Endowment  
 Bendet Fidell Sakai & Lee Award  
 Bernard Levinson Endowed Memorial Fund  
 Betty Vitousek and Samuel P. King Family Court Fellowship  
 Bruce C. Bigelow Memorial Endowment Fund  
 Business Law Writing Award  
 C. Frederick Schutte Award—Hawai'i Women's Legal Foundation  
 C. Jepson Garland Memorial Scholarship Award  
 Cades Schutte Fleming & Wright Scholarship  
 Carl K. Mirikitani Memorial Prize  
 Carl K. Mirikitani Valedictory Prize  
 Carol Mon Lee Endowed Scholarship Fund  
 Chris Iijima Fellowship in Immigration Law  
 Chris Iijima Memorial Endowment  
 Class of 1977 Endowed Scholarship Fund  
 Clifford K. Mirikitani, Sr., Richard S. Mirikitani and Percy Mirikitani Memorial Scholarship Endowment Fund  
 Clinton R. Ashford & Marguerite K. Ashford Endowed Memorial Scholarship  
 Dean's Scholars  
 Hawai'i State Bar Association, Collection Law Section Award  
 John S. Edmunds Awards for Civility and Vigorous Advocacy  
 Edward H. Nakamura Endowed Memorial Scholarship  
 Filipino Law Students Association Scholarship  
 Francell Marbeth Mokihana Marquardt Scholarship for Pacific Island Students  
 Frank Boas Award  
 Frank D. Gibson, Jr. Award  
 Freeman Foundation Fellows  
 George C. Munro Award for Environmental Law  
 George M. Johnson and Evelyn W. Johnson Scholarship Fund  
 Gregory Conlan Memorial Prize  
 Hawai'i Legal Auxiliary Scholarship  
 Hawai'i State Bar Association Young Lawyers Division Award for Best Second Year Seminar Paper  
 Hawai'i State Bar Association, Real Property and Financial Services Section Award  
 Hawaiian Electric Company Inc.'s Excellence in Environmental Law Writing Award

Hiroaki, Elaine and Lawrence Kono Foundation Scholarship  
 Hyman M. and Betty D. Greenstein Memorial Scholarship  
 J. M. Weightman Memorial Endowment Scholarship Fund  
 Jackie Mahi and Bruce T. Erickson Endowed Fund  
 James Koshiha Law Review Scholarship  
 James Koshiha Public Service Award  
 James K. Hoenig Judicial Clerkship Scholarship for the Promotion of  
 Alternative Dispute Resolution in Family Law  
 Jarman Environmental Law Fellowship  
 John Zahaby Award  
 Judge Jon J. Chinen Award  
 Ka Huli Ao Center for Excellence in Native Hawaiian Law Post JD  
 Community Outreach Fellowship  
 Ka Huli Ao Center for Excellence in Native Hawaiian Law post JD  
 Research Fellowship  
 Ka Huli Ao Center for Excellence in Native Hawaiian Law Scholarships  
 Ka Huli Ao Center for Excellence in Native Hawaiian Law Summer  
 Fellowship  
 Lawrence H. Kono Memorial Award  
 Lawrence C. Foster Endowment for Pacific Asian Legal Studies  
 Legal Aid Society Awards  
 Linnel Nishioka Environmental Law Summer Fellowship  
 Margaret S. and John T. Ushijima Endowed Scholarship  
 McCorrison Miller Mukai MacKinnon Scholarship  
 Michael P. Porter Dean's Scholastic Award  
 Michiko and Kaoru Kashiwagi Fund for Japanese Studies Grants  
 Nancy J. Stivers Award—Hawai'i Women's Legal Foundation  
 Nathan Burkan Memorial Award  
 National Association of Women Lawyers Outstanding Law Student  
 Award  
 No Ke Ola O Ka 'āina Environmental Law Society Summer Fund  
 Pacific-Asian Law Student General Aid Fund  
 Pacific-Asian Scholarship Award  
 Patsy T. Mink Annual Legislative Fellowship  
 Ruddy F. Tongg Memorial Prize  
 Rush Moore LLP Awards  
 Sam L. Cohen Foundation International Human Rights Fellowship  
 Samuel Soifer Social Justice Award  
 Sidney Stern Memorial Trust Scholarship  
 Spirit of Alison K. Adams Award  
 Starn O'Toole Marcus and Fisher Scholarship  
 Susan McKay Memorial Fund  
 Wallace S. Fujiyama Memorial Scholarship Endowment Fund  
 Wendell and Susan Foo Endowed Pre-Admissions Scholarship  
 William P. and Mary B. Massey Scholarship  
 William S. Richardson School of Law Alumni Association Awards

### **John A. Burns School of Medicine**

Ronald and Carol Ayabe Endowed Scholarship  
 ARCS Foundation Scholarships  
 E. E. Black Scholarship  
 John A. Burns Scholarship for Entering JABSOM Students  
 Dr. Albert C. K. Chun-Hoon Award  
 Empowerment Fund at JABSOM  
 Elizabeth and Richard Grossman Scholarship  
 Ralph and Jane Hale Scholarship  
 Hawai'i Medical Alliance Association Community Service Award  
 Hawai'i Medical Association Medical Student Scholarship  
 Jane Takako Fujii Hong Scholarship  
 Dr. Kekuni Blaisdell Endowed Scholarship for Native Hawaiian Health  
 Dr. Laura Weldon Hoque Award  
 Dr. Shigeru Richard and Mrs. May Horio Memorial Scholarship  
 Samuro and Florence Ichinose Scholarship  
 Imi Ho'ola Alumni Scholarship  
 JABSOM MD Alumni Scholarship  
 Dr. David W. Jones Scholarship  
 Nadine Alexander Kahanamoku Scholarship  
 The Kokame Family Scholarship  
 Stella Lau In Memorial Scholarship  
 J. M. Long Foundation Scholarship  
 Colin C. McCorrison, MD and Helen D. McCorrison Scholarship

Medical School General Scholarship  
 Medical School Travel Scholarship  
 Pacific Medical Administrative Group Scholarship  
 Wanda Jane Pavela Scholarship  
 Physician's Anesthesia Endowed Award  
 Gerard and Colette Robinson Scholarship  
 Sakai Endowed Scholarship  
 Richard Sherbahn, MD Endowed Scholarship  
 Mansfield M. and Charlotte M. Snyder Scholarship  
 Yazawa Family Endowed Award

### **School of Nursing and Dental Hygiene**

Achievement Rewards for College Scientists Foundation Scholarship  
 for Nursing graduate students  
 Agnes C. Bickerton Endowed Scholarship in Dental Hygiene  
 Amy T. Ebesu Scholarship in Nursing  
 Claire B. & Mark L. Litchman Endowed Scholarship in Nursing  
 Damsker Nursing Scholarship  
 Dr. Alan S. T. Chang Endowed Memorial Scholarship in Dental  
 Hygiene  
 Dr. Allen and Mrs. Helen Ito Endowed Scholarship in Dental Hygiene  
 Dr. Graceann Ehlke Memorial Endowed Scholarship in Nursing  
 Dr. & Mrs. Lawrence K. W. (Bohing Chan) Tseu Scholarship in  
 Nursing  
 Edward and Sally Sheehan Scholarship in Nursing  
 Ewha Woman's University Alumnae Association in Hawai'i Nursing  
 Scholarship  
 Felicidad T. Yoro Memorial Scholarship in Nursing  
 Frances A. Matsuda Endowed Fellowship in Nursing  
 The Friendship Endowed Scholarship in Nursing  
 Hawai'i Family Dental Centers Scholarship for Dental Hygiene  
 Hawai'i Keiki Endowed Scholarship Fund for Nursing  
 Joan Lau Kamimoto Endowed Scholarship in Dental Hygiene  
 Kenneth Kenji Koga and Yoshi Tanji Koga Endowed Scholarship in  
 Dental Hygiene  
 Kunimitsu and Jessie Tamai Endowed Scholarship in Nursing  
 Leilani Kauai Scholarship in Nursing  
 Milton Lau Memorial and Nalani Makua Andresen Scholarship in  
 Nursing  
 Macfarlane Scholarship in Nursing  
 Murabayashi Foundation Scholarship in Nursing  
 Pauline Hirasuna Scholarship in Nursing  
 The Queen's Medical Center 'IKE AO PONO Fund  
 Signe Widen Nyborg Scholarship in Nursing  
 William Randolph Hearst Bachelor of Science Nursing Scholarship

### **School of Ocean and Earth Science and Technology**

Again Abbott Award  
 ARCS Foundation Scholarship (graduate)  
 Fred M. Bullard Endowed Graduate Fellowship (graduate)  
 Alan Church Environmental Steward SOEST Scholarship  
 Ricky Chi Kan Fong Memorial Scholarship  
 William T. Coulbourn Fellowship in Marine Geology  
 Wendell and Susan Foo Scholarship  
 Hawaii Space Grant Undergraduate Fellowship  
 Bernice C. Loui Scholarships and Fellowship  
 NOAA—Sea Grant Scholarships  
 Senior Thesis Research Award  
 Noel and Diane Henderson Scholarships in Science and Engineering  
 Sarp Kayan Scholarship  
 Fernando Gabriel Leonida Memorial Scholarship  
 Senior Thesis Research Award  
 Harold T. Stearns Fellowship  
 Undergraduate Summer Field Camp Award  
 J. Watumull Merit Scholarship (graduate)

### **School of Pacific and Asian Studies**

Ah Kin (Buck) Yee Graduate Fellowship in Chinese Studies  
 Center for Japanese Studies Graduate Fellowship  
 Center for Japanese Studies Sen Graduate Fellowship  
 Center for Korean Studies Graduate Scholarship  
 Center for Korean Studies Undergraduate Scholarship

Chung-Fong and Grace Ning Fund  
 Donald C. W. Kim Graduate Scholarship for Korean Studies  
 Dong Jae and Hyung Ja Lee Undergraduate Scholarship  
 Eu Tong Sen Memorial Fellowship  
 Hanayo Sasaki Graduate Merit Scholarship  
 Herbert H. Lee Graduate Scholarship  
 James Shigeta Scholarship  
 Japan Travel Bureau Scholarship  
 John Fee Embree Endowed Scholarship  
 Minae and Miki Kajiyama Graduate Merit Scholarship  
 Moscotti Fellowship for Graduate Studies of Southeast Asia  
 Murabayashi Urban Planning Scholarship  
 N. H. Paul Chung Endowed Graduate Scholarship  
 Starr Foundation Graduate Fellowship in Asian Studies  
 Takie Sugiyama Lebra Scholarship  
 Tasuku Harada Graduate Scholarship  
 Yong-Min Endowed Scholarship

### **Myron B. Thompson School of Social Work**

Betty Lyle Anderson Scholarship  
 Hoa Hana Scholarship  
 Ho‘ala‘ia O Na Kupuna ‘Ihi Scholarship  
 Gordon and June Ito Foundation Scholarship  
 Sentaro and Laurel Tomiko Takasaki Kaneda Endowed Scholarship  
 Oscar and Gaile M. Kurren Endowed Scholarship  
 Fred Markham Lampson Scholarship  
 Jensen Lampson Memorial Scholarship  
 Sally Kanehe Lampson Endowed Scholarship  
 Murabayashi Foundation Scholarship  
 NASW–Hawai‘i Chapter Student Scholarship  
 George K. Okazaki Memorial Scholarship and Grant Fund  
 Daniel S. Sanders Doctoral Award  
 SSW Alumni and Friends Scholarship  
 Richard S. and T. Rose Takasaki Endowed Scholarship  
 Elaine K. Tamashiro Endowed Fellowship  
 Myron B. Thompson Endowed Scholarship

### **School of Travel Industry Management**

Amadeus Revenue Integrity TIM Scholarship  
 Atlantis Submarines Hawai‘i TIM Scholarship  
 Ronald H. Brown Memorial Scholarship  
 Chuck Yim Gee Asia Pacific TIM Scholarship  
 Club Managers Association of America  
 Discover Hawai‘i Tours  
 Edward and Orpah Barnet Scholarship  
 Edwin M. Hastings Memorial Scholarship  
 Enterprise Rent-A-Car TIM Scholarship Fund  
 John Stewart Foote Scholarship  
 Halekulani  
 Hawai‘i Lodging and Tourism Association  
 Hawai‘i Travel Academy Scholarship  
 Hawai‘i Visitors & Convention Bureau  
 Hawaiian Airlines TIM Scholarship  
 H.I.S. Hawai‘i TIM Scholarship Endowment  
 Hichiro and Lily Kobayashi Endowment Scholarship  
 Hilton International Hotels Scholarship  
 Hospitality Advisors, LLC  
 Hotel & Travel Fellowship  
 Horizon Lines Scholarship  
 Hyatt Hotels Hawai‘i  
 Iwasaki Scholarships Foundation, Inc. Endowed Scholarship  
 J. Willard and Alice S. Marriott Foundation Scholarship Fund  
 Japan Travel Bureau International Hawai‘i Scholarship  
 Jeffery Kalima Loo Marriott Scholarship  
 Kenneth F. C. and Aileen K. Char Fellowship Fund  
 Mark B. Dunkerley Endowed Scholarship Fund  
 Marriott Foundation Scholarship  
 Marriott Resorts Hawai‘i TIM Scholarship  
 Marriott Vacations Worldwide  
 Martin Pray-IHRG Industry Scholarship  
 Meeting Professionals International–Aloha Chapter

Robert F. Mason Memorial Scholarship  
 Maui Hotel & Lodging Association Scholarship  
 MC&A, Inc., Scholarship in TIM  
 National Defense Transportation Association  
 Nolan and Jane Kramer Scholarship  
 Pacifico Service Grant  
 PATA Hawai‘i Chapter  
 Peter Fithian Endowed Scholarship at the University of Hawai‘i School of Travel Management  
 PRC Professional Training Fellowship  
 SKAL International Hawai‘i Scholarship  
 Starwood Hotels & Resorts TIM Scholarship  
 TIM Achievement Scholarships  
 TIM Alumni Hong Kong Chapter Professional Development Scholarship  
 TIM International Inc. Scholarship  
 TIM Scholarship for International Students  
 TIM Student Aid Fund  
 TIM Student Educational Opportunity Fund  
 Tourism Cares (National) Scholarship  
 Travel Weekly Educational Opportunity Fund  
 William J. Mullahey Scholarship Fund

### **College of Tropical Agriculture and Human Resources**

Aloun Farms Association  
 ARCS Foundation Scholarships  
 Harold and Eleanor Matsumoto Au Scholarship Program  
 Mary and Marie Blanco Scholarship  
 Elsie M. Boatman Scholarship  
 J. L. Brewbaker Endowed Scholarship  
 Robert L. & Brigitte M. Campbell Scholarship in Human Nutrition  
 Miles E. Carey Memorial Scholarship  
 Kenneth Cassman Scholarship  
 CTAHR Alumni & Friends Association Scholarship  
 CTAHR Centennial Scholarship  
 CTAHR New Student Scholarship  
 CTAHR Outstanding Achievement Scholarship  
 Dean’s Outstanding Achievement Scholarship  
 Edward M. Ehrhorn Entomology Scholarship  
 Fred Fujimoto Endowed Scholarship  
 Katherine Gruelle Scholarship  
 Richard Hamilton Scholarship  
 Elmo Hardy Scholarship  
 Andrew G. and Merle Hashimoto Scholarship  
 Hawai‘i Association of Family and Consumer Sciences Scholarships  
 Hawai‘i Association of Family and Consumer Sciences Apparel Product Design and Merchandising Centennial Scholarship  
 Hawai‘i Association of Family and Consumer Sciences Family Resources Centennial Scholarship  
 Hawai‘i Association of Nurserymen Scholarship  
 Hawai‘i County Farm Bureau Scholarship  
 Hawai‘i Dietetics Association Award  
 Hawai‘i Extension Association of Family and Consumer Sciences Scholarship  
 Hawai‘i Florists and Shippers Association Scholarship  
 Hawai‘i Fresh Milk Industry Scholarship  
 Hawai‘i 4-H Alumni/Weinberg Scholarship  
 Louis and Rachel Henke Award  
 Charles Hing Scholarships  
 Tadashi Higaki Scholarship  
 Mabel Inada Ito Scholarship  
 Hiroki Kaku Memorial Scholarship  
 Haruyuki Kamemoto Scholarship  
 Kaua‘i County Farm Bureau Scholarships  
 Noel P. Kefford Scholarship  
 Jiro Matsui Scholarship  
 Sachiyuki Masumoto Scholarship  
 Maui Master Gardener’s Association  
 Carey D. Miller Award  
 Wallace C. Mitchell Endowed Scholarship  
 Dr. Allen Y. Miyahara Scholarship  
 Monsanto Fellowship in Plant Science and Pathology

Monsato Scholarship  
 Alexander Napier Memorial Scholarship  
 National Federation of Garden Clubs Scholarship  
 Katherine Bazore Gruelle and Nobue Nishimura Scholarship  
 Patricia Sachi Ogawa Memorial Scholarship  
 Phi Upsilon Omicron Scholarship  
 Charles H. Reid, DVM Memorial Scholarship  
 Richard Shimabukuro Memorial Scholarship  
 Paul Singleton Scholarship  
 Minoru Tamashiro Endowed Scholarship  
 Dennis Y. and Brenda R. Teranishi Scholarship  
 Carolyn and Goro Uehara Scholarship for Women in Agriculture  
 Jhamandas Watamull CTAHR Scholarship  
 J. Watumull Merit Scholarship  
 George M. Yamane Scholarship

### **Intercollegiate Athletics**

'Ahahui Koa Anuenue Scholarship  
 Athletic General Scholarships

### **International Student Services**

Dai Ho Chun Scholarship  
 International Undergraduate Student Scholarship  
 June C. Naughton International Student Services Scholarship  
 Kenji Yamagumi Fund

### **KOKUA Program**

Masao and Michiko Okasako Scholarship  
 Walter Serikawa Scholarship

### **Kua'ana Native Hawaiian Student Development Services**

Operation Kua'ana Scholarship

### **National Student Exchange**

Edwin T. and Leilani Kam Scholarship

### **ROTC Programs**

#### **Aerospace Studies**

Airlift Tanker Association Scholarship  
 Armed Forces Communication and Electronics Association ROTC  
 Daedalean Award-Louis Gawens Senior Memorial Scholarships  
 Four, Three, and Two-Year National ROTC In-College Scholarships  
 Flagship Korean Language Program Scholarship  
 Military Officers Association of America-Hawai'i Chapter Scholarship  
 Scholarship Award  
 UH Foundation Giving Tree Scholarship  
 Wah Kau Kong Memorial Award Scholarship

#### **Military Science**

Armed Forces Benefits Association Scholarship  
 Armed Forces Communications and Electronics Association Scholarship  
 Leader's Training Course/Basic Camp Two-Year Scholarship  
 Four, Three, and Two-Year National ROTC Scholarships  
 Four, Three, and Two-Year Nursing Scholarships  
 Green To Gold Four, Three, and Two-Year Scholarships  
 National Guard/Army Reserve Scholarships  
 Tawani Award

#### **Study Abroad Center**

Anita Hecht Scholarship (French only)  
 Association of International Education-Japan  
 Betsy Tan Scholarship (French only)  
 Chancellor's International Opportunities Scholarship  
 Colleges of Arts & Sciences Alumni Association Study Abroad Grant  
 Shidler College of Business Scholarship (students taking courses in  
 business, area studies, and foreign languages)  
 Denmark's International Scholarship  
 Flinders University semester scholarship (Australia)  
 International College of Seville (Seville only)  
 Margaret Todd Scholarship (London only)  
 Mildred Towle Scholarship for Study Abroad  
 Mira Baciu-Simian Scholarship (French only)

# Degrees, Minors, and Certificates

UH Mānoa offers a wide range of undergraduate and graduate degrees, minors, and certificate programs. Changes in programs and degrees approved after December 2013 may not be reflected in this listing.

Field	Page #	College/School	Page #	Degree	Undergraduate Minor	Cert.	Master's	Graduate Doctorate	Cert.
Accounting	190	BUS	181	BBA			MAcc		x
Adapted Physical Activity	215	EDUC	195				MS <sup>3</sup>		
Aging	269	MED	255			x <sup>1</sup>			
American Studies	96	A&S	87	BA	x		MA	PhD	
Animal Sciences	336	CTAHR	331	BS			MS		
Anthropology	98	A&S	87	BA	x		MA	PhD	
Architecture	83	ARCH	83	BEnvD				DArch	
Art	101	A&S	87	BA, BFA	x		MFA		
Art History	101	A&S	87	BA <sup>2</sup>			MA		
Asian Studies	315	SPAS	312	BA	x		MA		
Astronomy	103	A&S	87				MS	PhD	
Athletic Training	215	EDUC	195				MS <sup>3</sup>		
Biochemistry	110	A&S	87	BA, BS					
Biological Engineering	344	CTAHR	331	BS			MS		
Biology	105	A&S	87	BA, BS	x				
Biomedical Sciences	274	MED	255				MS <sup>4</sup>	PhD <sup>4</sup>	
Botany	107	A&S	87	BA, BS	x		MS	PhD	
Business Administration	181	BUS	181		x		MBA		
Cell and Molecular Biology	240	IP	240				MS	PhD	
Chemistry	110	A&S	87	BA, BS	x		MS	PhD	
Chinese	115	A&S	87	BA	x	x	MA <sup>6</sup>	PhD <sup>6</sup>	
Chinese Studies	315	SPAS	312				MA <sup>7</sup>		x
Civil Engineering	223	ENGR	220	BS			MS	PhD	
Classics	134	A&S	87	BA		x			
Clinical Psychology	156	A&S	87						x
Communication	111	A&S	87	BA			MA		
Communication and Information Sciences	242	IP	240					PhD	
Communication Sciences and Disorders	260	MED	255				MS		
Communicology (formerly Speech)	113	A&S	87	BA	x		MA		
Computer Engineering	223	ENGR	220	BS					
Computer Science	130	A&S	87	BS	x		MS	PhD	
Conflict Resolution	148	A&S	87						x
Creative Media	95	A&S	87	BA					
Curriculum and Instruction	202	EDUC	195					PhD <sup>8</sup>	x
Curriculum Studies	202	EDUC	195				MEd		
Dance	168	A&S	87	BA, BFA	x		MA, MFA		
Dental Hygiene	276	NURS	276	BS					
Developmental and Reproductive Biology	258	MED	255				MS <sup>1</sup>	PhD <sup>1</sup>	
Disability and Diversity Studies	195	EDUC	195						x
Disaster Management and Humanitarian Assistance	172	A&S	87						x

Field	Page #	College/School	Page #	Undergraduate			Master's	Graduate	
				Degree	Minor	Cert.		Doctorate	Cert.
Early Childhood Education	202	EDUC	195				MEd		
East Asian Languages and Literatures	115	A&S	87				MA <sup>6</sup>	PhD <sup>6</sup>	
Economics	117	A&S	87	BA	x	x	MA	PhD	
Education	196	EDUC	195					PhD <sup>8</sup> , EdD	
Educational Administration	206	EDUC	195				MEd	PhD <sup>8</sup>	
Educational Foundations	207	EDUC	195				MEd	PhD <sup>8</sup>	
Educational Policy Studies	202	EDUC	195					PhD <sup>8</sup>	
Educational Psychology	208	EDUC	195				MEd	PhD	
Educational Technology	211	EDUC	195				MEd	PhD <sup>8</sup>	x
Electrical Engineering	225	ENGR	220	BS			MS	PhD	
Elementary Education	213	EDUC	195	BEd					
English	120	A&S	87	BA	x		MA	PhD	
English as a Second Language	165	A&S	87	BA <sup>10</sup>					
Entomology	358	CTAHR	331				MS	PhD	
Entrepreneurship	193	BUS	181	BBA					x
Environmental Design	83	ARCH	83	BEnvD					
Environmental Studies	123	A&S	87	BA <sup>10</sup>		x			
Epidemiology	260	MED	255					PhD	
Ethnic Studies	124	A&S	87	BA		x			
Ethnobotany	107	A&S	87	BS					
Exceptionalities	200	EDUC	195					PhD <sup>8</sup>	
Family Resources	335	CTAHR	331	BS					
Fashion Design and Merchandising	334	CTAHR	331	BS	x				
Filipino	128	A&S	87	BA <sup>11</sup>		x <sup>5</sup>			
Filipino Language and Culture	128	A&S	87		x				
Financial Engineering	192	BUS	181				MS		
Finance	192	BUS	181	BBA					
Food Science	336	CTAHR	331				MS		
Food Science and Human Nutrition	336	CTAHR	331	BS					
French	134	A&S	87	BA		x	MA		
Geography	125	A&S	87	BA	x		MA	PhD	
Geology	293	SOEST	290	BA					x <sup>12</sup>
Geology and Geophysics	293	SOEST	290	BS	x <sup>21</sup>		MS	PhD	
Geoscience for Professionals	293	SOEST	290				MGEO		
Gerontology	263	MED	255						x <sup>1</sup>
German	134	A&S	87	BA		x			
Global Environmental Science	298	SOEST	290	BS					
Global Health Protection and Security	244	IP	240						x
Hawaiian	233	SHK	234	BA	x	x	MA		
Hawaiian Language Immersion Education	233	SHK	234		x				
Hawaiian Studies	236	SHK	234	BA			MA		
Hindi	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Historic Preservation	96	A&S	87						x
History	127	A&S	87	BA	x		MA	PhD	
Human Resource Management	192	BUS	181	BBA			MHRM		
Ilokano	128	A&S	87	BA <sup>11</sup>		x <sup>5</sup>			
Ilokano Language and Culture	128	A&S	87		x				
Indonesian	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Indo-Pacific Languages	128	A&S	87			x <sup>5</sup>			
Information and Computer Sciences	130	A&S	87	BA					

Field	Page #	College/School	Page #	Degree	Undergraduate Minor	Cert.	Master's	Graduate Doctorate	Cert.
Interdisciplinary Studies	21	UED	8	BA <sup>10</sup>					
International Business	193	BUS	181	BBA					
International Cultural Studies	248	IP	240						x
International Management	193	BUS	181					PhD	
Islamic Studies	101, 127 150, 160	A&S	87			x			
Japanese	115	A&S	87	BA	x	x	MA <sup>6</sup>	PhD <sup>6</sup>	
Japanese Studies	315	SPAS	39				MA <sup>7</sup>		x
Journalism	135	A&S	87	BA					
Khmer (Cambodian)	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Kinesiology & Rehabilitation Science	215	EDUC	195	BS <sup>3</sup>			MS <sup>3</sup>	PhD <sup>8</sup>	
Korean	115	A&S	87	BA <sup>9</sup>	x	x	MA <sup>6</sup>	PhD <sup>8</sup>	
Korean Studies	315	SPAS	39				MA <sup>7</sup>		x
Latin America and Iberian Studies	134	A&S	87			x <sup>10</sup>			
Law	251	LAW	253				LLM	JD	
Law and Society	90	A&S	87			x			
Library and Information Science	136	A&S	87				MLISc		x
Linguistics	138	A&S	87	BA <sup>10</sup>			MA	PhD	
Malay	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Management	193	BUS	181	BBA					
Management Information Systems	192	BUS	181	BBA					
Marine Biology	105	A&S, SOEST	87, 290	BS			MS	PhD	
Marine Option Program	90	A&S	87			x			
Marketing	194	BUS	181	BBA					
Mathematical Biology	105, 140	A&S	87			x			
Mathematics	140	A&S	87	BA, BS	x		MA	PhD	
Mechanical Engineering	229	ENGR	220	BS			MS	PhD	
Medical Technology	263	MED	255	BS					x <sup>14</sup>
Medicine	264	MED	255					MD	
Merchandising	334	CTAHR	331		x				
Meteorology	301	SOEST	290	BS	x		MS	PhD	
Microbiology	142	A&S	87	BA, BS	x		MS	PhD	
Molecular Biosciences and Bioengineering	344	CTAHR	331				MS	PhD	
Molecular Biosciences and Biotechnology	348	CTAHR	331	BS					
Molecular Cell Biology	142	A&S	87	BS					
Museum Studies	98	A&S	87						x
Music	144	A&S	87	BA, BEd <sup>15</sup> , BMus	x	x	MA, MMus	PhD	
Natural Resources and Environmental Management	349	CTAHR	331	BS			MS	PhD	
Nursing	279	NURS	276	BS			MS	PhD, DNP	x
Nutritional Sciences	336	CTAHR	331				MS		
Nutrition	336	CTAHR	331					PhD	
Ocean and Resources Engineering	303	SOEST	290				MS	PhD	
Ocean Policy	125	A&S	87						x <sup>12</sup>
Oceanography	306	SOEST	290				MS	PhD	
Pacific Islands Studies	317	SPAS	312	BA			MA		x
Peace Studies	148	A&S	87	BA <sup>10</sup>		x			
Philippine Language and Literature	128	A&S	87	BA <sup>11</sup>					
Philippine Studies	315	SPAS	39				MA <sup>7</sup>		x
Philosophy	150	A&S	87	BA	x		MA	PhD	

Field	Page #	College/School	Page #	Degree	Undergraduate Minor	Cert.	Master's	Graduate Doctorate	Cert.
Physical Education	215	EDUC	195	BS <sup>3</sup>			MS <sup>3</sup>		
Physics	152	A&S	87	BA, BS	x		MS	PhD	
Planning Studies	172	A&S	87						x
Plant and Environmental Protection Sciences	354	CTAHR	331	BS					
Plant Production and Management	354	CTAHR	331		x				
Political Science	154	A&S	87	BA	x		MA	PhD	
Professional Educational Practice	195	EDUC	195					EdD	
Psychology	156	A&S	87	BA, BS			MA	PhD	
Public Administration	158	A&S	87				MPA		x
Public Health	269	MED	255	BA			MPH, MS	DrPH	
Public Policy	159	A&S	87						x
Rehabilitation Counseling	215	EDUC	181				MS <sup>3</sup>		
Religion	160	A&S	87	BA	x		MA		
Resource Management	250	IP	240						x
Russian	134	A&S	87	BA					
Russian Area Studies	161	A&S	87			x			
Samoan	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Sanskrit	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Second Language Studies	162	A&S	87	BA		x <sup>16</sup>	MA	PhD	x
Secondary Education	213	EDUC	195	BEEd		PBCSE <sup>18</sup>			
Social Sciences and Health	107, 156, 166	A&S	87			x			
Social Welfare	322	SW	324					PhD <sup>17</sup>	
Social Work	322	SW	324	BSW			MSW		
Sociology	166	A&S	87	BA	x		MA	PhD	
Sophomore Honors	21	UED	8			x			
South Asian Studies	315	SPAS	312						x
Southeast Asian Studies	315	SPAS	312				MA <sup>7</sup>		x
Spanish	134	A&S	87	BA		x	MA		
Special Education	217	EDUC	195			PBCSPED <sup>18</sup>	MEd		
Sustainable Tourism	325	TIM	327			x			
Tahitian	128	A&S	87			x <sup>5</sup>			
Teaching	213	EDUC	195				MEdT		
Telecommunications Information Resource Management	111	A&S	87						x
Thai	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Theatre	168	A&S	87	BA	x		MA, MFA	PhD	
Travel Industry Management	325	TIM	327	BS		x	MS		
Tropical Medicine	276	MED	255				MS <sup>4</sup>	PhD <sup>4</sup>	
Tropical Plant Pathology	358	CTAHR	331				MS	PhD	
Tropical Plant and Soil Sciences	358	CTAHR	331	BS	x	x <sup>20</sup>	MS	PhD	
Urban and Regional Planning	172	A&S	87				MURP	PhD	x
Vietnamese	128	A&S	87	BA <sup>13</sup>		x <sup>5</sup>			
Women's Studies	175	A&S	87	BA		x			x
Zoology	178	A&S	87	BA <sup>19</sup> , BS <sup>19</sup>	x		MS	PhD	

## Endnotes

- <sup>1</sup> The Undergraduate Certificate in Aging and the Advanced Certificate in Gerontology is offered by the Center on Aging.
- <sup>2</sup> The BA in Art is offered with a studio focus or an Art History focus.
- <sup>3</sup> The BS in kinesiology and rehabilitation science is offered in Health, Exercise Science and Lifestyle Management and in Health and Physical Education. The MS in kinesiology and rehabilitation science offers specializations in athletic training (entry level and post professional), physical activity, adapted physical activity, and rehabilitation counseling.
- <sup>4</sup> The MS and PhD in biomedical sciences is offered in tropical medicine.
- <sup>5</sup> The Undergraduate Certificate for Indo-Pacific Languages is offered in Filipino, Hindi, Ilokano, Indonesian, Khmer (Cambodian), Malay, Samoan, Sanskrit, Tahitian, Thai, and Vietnamese.
- <sup>6</sup> The MA and PhD in East Asian Languages and Literatures are offered in Chinese, Japanese, and Korean.
- <sup>7</sup> The MA in Asian Studies has concentrations in Chinese Studies, Japanese Studies, Korean Studies, Philippine Studies, and Southeast Asian Studies.
- <sup>8</sup> The PhD in Education is offered in the following specializations: curriculum and instruction, educational administration, educational foundations, educational policy studies, educational technology, exceptionalities, and kinesiology.
- <sup>9</sup> The BA in Korean in East Asian Languages and Literatures has a concentration in Korean for Professionals.
- <sup>10</sup> Students can receive a BA in interdisciplinary studies in a wide variety of individualized BA programs, including but not restricted to: astronomy, aquaculture, cognitive science, conflict resolution, criminology, developmental disabilities, environmental studies, gerontology, human relations in organizations, international studies, linguistics, peace studies, pre-law, pre-medicine, and pre-physical therapy.
- <sup>11</sup> The BA in Philippine Language and Literature has concentrations in Filipino or Ilokano.
- <sup>12</sup> The Graduate Certificate in Ocean Policy is coordinated by the Department of Geography.
- <sup>13</sup> The BA in interdisciplinary studies for Indo-Pacific languages has several concentrations: Hindi, Indonesian, Khmer (Cambodian), Samoan, Sanskrit, Thai, and Vietnamese.
- <sup>14</sup> A Post-baccalaureate Certificate for Clinical Training in Medical Technology is offered by the School of Medicine.
- <sup>15</sup> A BEd in elementary or secondary education with a major in music is offered in conjunction with the Department of Music and the College of Education.
- <sup>16</sup> The Department of Second Language Studies offers an Advanced Graduate Certificate in Second Language Studies.
- <sup>17</sup> The PhD in social welfare is offered by the School of Social Work.
- <sup>18</sup> The Post-baccalaureate Certificates in Secondary Education and Special Education are undergraduate professional certificates.
- <sup>19</sup> There is no admittance to the BA and BS in Zoology degrees effective Spring 2013.
- <sup>20</sup> The Agribusiness Management Certificate is offered in Tropical Plant and Soil Sciences.
- <sup>21</sup> The Department of Geology and Geophysics offers the Master s in Geology and Geophysics and the Professional Masters in Geoscience.

## Abbreviations Key

### Degrees

BA—bachelor of arts  
 BBA—bachelor of business administration  
 BEd—bachelor of education  
 BEnvD—bachelor of environmental design  
 BFA—bachelor of fine arts  
 BMus—bachelor of music  
 BS—bachelor of science  
 BSW—bachelor of social work  
 DArch—doctor of architecture  
 DNP—doctor of nursing practice  
 DrPH—doctor of public health  
 EdD—doctor of education  
 JD—juris doctor  
 LLM—master of laws  
 MA—master of arts  
 MAcc—master of accounting  
 MBA—master of business administration  
 MD—doctor of medicine

MEd—master of education  
 MEdT—master of education in teaching  
 MFA—master of fine arts  
 MGEO—master of geoscience for professionals  
 MHRM—master of human resource management  
 MLISc—master of library and information science  
 MMus—master of music  
 MPA—master of public administration  
 MPH—master of public health  
 MS—master of science  
 MSW—master of social work  
 MURP—master of urban and regional planning  
 PhD—doctor of philosophy  
 PBCSE—post-baccalaureate certificate in secondary education  
 PBCSPED—post-baccalaureate certificate in special education

### College/School/Unit

A&S—Colleges of Arts and Sciences  
 ARCH—School of Architecture  
 BUS—Shidler College of Business  
 EDUC—College of Education  
 ENGR—College of Engineering  
 SHK—Hawai'i inuiākea School of Hawaiian Knowledge  
 IP—Interdisciplinary Programs  
 LAW—School of Law  
 MED—School of Medicine  
 NURS—School of Nursing and Dental Hygiene  
 SOEST—School of Ocean and Earth Science and Technology  
 SPAS—School of Pacific and Asian Studies  
 SW—School of Social Work  
 TIM—Travel Industry Management  
 CTAHR—College of Tropical Agriculture and Human Resources  
 UED—Office of the Assistant Vice Chancellor for Undergraduate Education



# Campus Policies and Information

## Academic Rights and Freedoms of Students

UH Mānoa, like all state universities, embraces those aspects of academic freedom that guarantee the freedom to teach and the freedom to learn. Free inquiry and free expression for both students and faculty are indispensable and inseparable. Students, whether from the U.S. or from foreign countries, as members of the academic community are encouraged to develop a capacity for critical judgment and to engage in a sustained and independent search for truth.

For its part, UH Mānoa guarantees all students the freedom of silence. No student is required to engage in research on any topic or to make statements of any kind, unless it is the student's wish to do so.

## Student Conduct

It is a privilege to be a member of the UH Mānoa community. This privilege provides the student with the opportunity to learn and participate in the many programs that are offered on campus. Along with that privilege, the individual is expected to be responsible in relationships with others and to respect the special interests of the institution. These special interests are fully set forth in the UH System's Student Conduct Code.

Information, advice, or a copy of the code may be obtained from the Office of Judicial Affairs, Queen Lili'uokalani Center for Student Services 207 or explore [www.studentaffairs.manoa.hawaii.edu/policies/conduct\\_code/](http://www.studentaffairs.manoa.hawaii.edu/policies/conduct_code/).

## Confidentiality Policy for Student Employees

Student employees are governed by policies and procedures stated in APM 9.980. The following is an excerpt from those policies:

Student employees at UH Mānoa may have access to confidential information relating to other students, faculty, and staff and/or pertaining to UH Mānoa in the course of performing their duties and responsibilities as student employees.

Under FERPA, federal law and UH Mānoa policy, educational records are protected from disclosure to third parties unless pursuant to narrow exceptions and that other confidential records must not be disclosed.

As part of their duties and responsibilities, student employees shall maintain the confidentiality of all such records during and after their period(s) of employment at UH Mānoa. They shall not, directly or indirectly, disclose to any person other than their supervisor, or an individual approved by their supervisor, any information concerning such records. Any unauthorized disclosure may be grounds for immediate termination, prohibition of future employment and/or disciplinary action up to and including dismissal from UH Mānoa.

## Academic Integrity

The integrity of a university depends upon academic honesty, which consists of independent learning and research. Academic dishonesty includes cheating and plagiarism. The following are examples of violations of the Student Conduct Code that may result in suspension or expulsion from UH Mānoa.

### Cheating

Cheating includes, but is not limited to, giving unauthorized help during an examination, obtaining unauthorized information about an examination before it is administered, using inappropriate sources of information during an examination, altering the record of any grade, altering an answer after an examination has been submitted, falsifying any official UH Mānoa record, and misrepresenting the facts in order to obtain exemptions from course requirements.

### Plagiarism

Plagiarism includes, but is not limited to, submitting, to satisfy an academic requirement, any document that has been copied in whole or in part from another individual's work without identifying that individual; neglecting to identify as a quotation a documented idea that has not been assimilated into the student's language and style; paraphrasing a passage so closely that the reader is misled as to the source; submitting the same written or oral material in more than one course without obtaining authorization from the instructors involved; and

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“dry-labbing,” which includes obtaining and using experimental data from other students without the express consent of the instructor, utilizing experimental data and laboratory write-ups from other sections of the course or from previous terms, and fabricating data to fit the expected results.

### Disciplinary Action

The faculty member must notify the student of the alleged academic misconduct and discuss the incident in question. The faculty member may take academic action against the student as the faculty member deems appropriate. These actions may be appealed through the *Academic Grievance Procedure*, available in the Office of Judicial Affairs. In instances in which the faculty member believes that additional action (i.e., disciplinary sanctions and a UH Mānoa record) should be established, the case should be forwarded to the Office of Judicial Affairs.

### Academic Grievance

A student who believes that a faculty member has failed to meet specific responsibilities outlined in “Responsibilities of Faculty and Students and Academic Grievance Procedures for Students, UH Mānoa” may register a grievance. Students and faculty are encouraged to resolve their differences through consultation and mediation. Where these efforts are ineffective, the policy sets forth the process that is available to the student grievant. The decisions of the Academic Grievance Committee are final within UH Mānoa. Information, advice, or a copy of the relevant policies and procedures may be obtained from the Office of Judicial Affairs, Queen Lili‘uokalani Center for Student Services Center 207 or explore [www.studentaffairs.manoa.hawaii.edu/policies/academic\\_grievance/](http://www.studentaffairs.manoa.hawaii.edu/policies/academic_grievance/).

### Class Attendance

Regular attendance at class and laboratory sessions is expected for all courses in which a student enrolls. Unavoidable absences should be explained to the instructor.

### Excused Student Absences for Official University-Sponsored Events

Faculty members will make all reasonable attempts to accommodate student absences from class due to their participation in a university-sponsored event, such as an intercollegiate athletic competition or academic event at which the student represents his or her department or UH Mānoa.

For regularly-scheduled events, students are to notify instructors within the first two weeks of the semester. For special events or tournaments, students are to notify their instructors as soon as they learn of the anticipated absence. In both cases, students who must miss class for such events will be responsible for completing all assigned work as expeditiously as possible.

### Nondiscrimination Policy

UH Mānoa is an equal opportunity/affirmative action institution and is committed to a policy of nondiscrimination on the basis of race, sex, gender identity and expression, age, religion, color, national origin, ancestry, citizenship, disability, genetic information, marital status, breastfeeding, income assignment for child support, arrest and court record (except as permissible under State law), sexual orientation, national guard absence, status as a covered veteran, and domestic or sexual violence victim status. This policy covers admission and access to, and participation, treatment, and employment in UH Mānoa’s programs, activities, and services. With regard to employment, UH Mānoa is committed to equal opportunity in all personnel actions such as recruitment, hiring, promotion, and compen-

sation. Sexual harassment and other forms of discriminatory harassment are prohibited under UH Mānoa policy.

UH Mānoa strives to promote full realization of equal opportunity through a positive, continuing affirmative action program in compliance with federal Executive Order 11246. The program includes measuring performance against specific annual hiring goals, monitoring progress, and reporting on good faith efforts and results in annual affirmative action plan reports. As a government contractor, UH Mānoa is committed to an affirmative policy of hiring and advancing in employment qualified persons with disabilities and covered veterans. For information on equal opportunity policies or complaint procedures for the UH Mānoa campus, contact:

- **Students:** Lori Ideta, Assistant Vice Chancellor and Dean of Students and Title IX and ADA Coordinator, QLCSS 409, phone (808) 956-3290 (Voice/Text)
- **Students with Disabilities:** Ann Ito, Director, KOKUA Program, QLCSS 013, phone (808) 956-7511 (Voice/Text) or (808) 956-7612 (Voice/Text)
- **Employees (and Affirmative Action Plan):** Mie Watanabe, Director of EEO/AA, Title IX and ADA Coordinator, Administrative Services Building 1, Room 102, phone (808) 956-7077, [www.hawaii.edu/eeo](http://www.hawaii.edu/eeo)
- **Sexual Harassment/Gender Equity:** Jennifer Rose, Gender Equity Counselor, QLCSS 210, phone (808) 956-9977
- **Civil Rights Counselor:** Jill Nunokawa, Civil Rights Counselor, QLCSS 210, phone (808) 956-4431

UH Mānoa recognizes its obligation to provide equal access to programs, services, and activities to students with disabilities. Contact the KOKUA (disabled student services) program for accessibility information and services.

### Gender Equity in Intercollegiate Athletics

Gender equity in athletics extends the doctrine of fairness to all areas of athletic activity at the university level. It is activated by a sense of moral obligation that exceeds any specific duty to comply with legal requirements, although it also recognizes the necessity of observing the tenets of Title IX. Its desired effect is to offer women and men equal opportunities to participate in sports for which there is demonstrated interest among athletes in Hawai‘i and to provide equitable levels of support for coaching, travel, scholarships, operating expenses, and facilities used. Beyond these specific goals, gender equity also fosters an attitude and establishes an environment in which men’s and women’s sports are encouraged in comparable ways. Those who support gender equity are willing to cooperate in frequent self-evaluations and to implement change so that all student-athletes can have the same opportunity to realize the highest level of their abilities.

### Student Records

Pursuant to Section 99.6 of the rules and regulations implementing the Family Educational Rights and Privacy Act of 1974 (hereinafter the Act), students in attendance at UH Mānoa are hereby notified of the following:

1. It is the policy of UH Mānoa to subscribe to the requirements of Section 438 of the General Education Provisions Act, Title IV, of Public Law 90-247, as amended, and to the rules and regulations implementing the Act, which protect the privacy rights of students.
2. The rights of students under the Act include the following, subject to conditions and limitations specified in the Act:
  - (a) the right to inspect and review education records, (b) the

right to request to amend education records, (c) the right of protection from disclosure by UH Mānoa of personally identifiable information contained in education records without permission of the student involved, (d) the right to waive certain rights under the Act, and (e) the right to file complaints concerning alleged failure by UH Mānoa to comply with the Act.

3. Students are advised that institutional policy and procedures required under the Act have been published as Administrative Procedure A7.022, "Procedures Relating to Protection of the Educational Rights and Privacy of Students." Copies of APA7.022 may be obtained from the Office of the Vice Chancellor for Students.
4. Directory Information. Students are advised that certain personally identifiable information is considered by UH Mānoa to be directory information and, in response to public inquiry, may be disclosed in conformance with state law, at UH Mānoa's discretion, without prior consent of the student unless the student requests that UH Mānoa not disclose such information. This includes (a) name of student, (b) current address and ZIP code, (c) telephone number, (d) email address, (e) major field of study, (f) educational level (e.g., freshman, sophomore, etc.), (g) dates of attendance, (h) enrollment status (full-time or part-time), (i) participation in officially recognized activities and sports, (j) weight and height of members of athletic teams, (k) most recent educational institution attended, and (l) degrees and awards received. A student has the right to request that any or all of the above items not be designated directory information with respect to that student. Should a student wish to exercise this right, he or she must in person and in writing, not earlier than the first day of instruction, nor later than 14 calendar days from the first day of instruction for the academic term or semester, or the fourth day of a summer session, inform the campus registrar which of the above items are not to be disclosed without the prior consent of that student.
5. A parent or spouse of a student is advised that information contained in educational records, except as may be determined to be directory information, will not be disclosed to him/her without the prior written consent of the student.

## Student Graduation Rates

### Graduation and Persistence of First-time Full-time Degree-seeking Undergraduates

The information in this graph provides a partial description of the graduation and enrollment patterns of students and describes averages for groups of students. It should not be used to infer or predict individual graduation or enrollment behavior.

This information is provided for the Student Right-to-Know Act, Public Law 101-542 published in the Federal Register, December 1, 1995.

### Residency Requirements for Tuition Purposes

Students who do not qualify on the first day of instruction as bona fide residents of the state of Hawai'i, according to UH Mānoa rules and regulations, must pay the nonresident tuition. An official determination of residency status will be made at the time of application. Applicants may be required to provide documentation to verify residency status. Once classified as a nonresident, a student continues to be so classified during his or her enrollment at UH Mānoa until he or she can present satisfactory evidence to the residency officer that proves otherwise.

### UH Mānoa Graduation and Persistence Rates First-Time, Full-Time, Degree-Seeking Undergraduates

	Fall 2007 Cohort
GRADUATION RATE—Graduated within 6 years.....	57%
Gender	
Men.....	54%
Women.....	59%
IPEDS Race/Ethnicity	
Nonresident Alien.....	71%
Hispanic/Latino.....	40%
American Indian or Alaska Native.....#	
Asian.....	69%
Black or African American.....	44%
Native Hawaiian or Other Pacific Islander.....	53%
White.....	39%
Two or more races.....	52%
Race and ethnicity unknown.....	41%
Federal Grant/Loan Recipient	
Recipient of a Federal Pell Grant.....	57%
Recipient of a subsidized Stafford Loan who did not receive a Pell Grant..	38%
Student who did not receive Pell Grant or subsidized Stafford Loan.....	58%
Persistence Rate—Still enrolled 6 years after entry.....	6%

A pound sign (#) denotes any cohort/subcohort with fewer than ten students.  
This information is provided for the Student Right-to-Know Act, Public Law 101-542. It provides a partial description of the graduation and enrollment patterns of students. It should not be used to infer or predict individual behavior.  
Institutional Research and Analysis Office, University of Hawai'i February 2014

Some of the more pertinent UH Mānoa residency regulations follow. For additional information or clarification, contact the residency officer in the Office of Admissions.

### Definition of Hawai'i Residency

A student is deemed a resident of the state of Hawai'i for *tuition purposes* if the student (19 years old or older) or the student (under 19 years old) and the student's parents or legal guardians have done the following:

1. *Demonstrated intent to establish domicile* in Hawai'i (see below for indicia);
2. Been *physically present in Hawai'i* for 12 consecutive months prior to the first day of instruction and subsequent to the demonstration of intent to establish domicile in Hawai'i; and
3. The student, whether adult or minor, *has not been claimed as a dependent for tax purposes* for at least 12 consecutive months prior to the first day of instruction by his or her parents or legal guardians who are not residents of Hawai'i.

To demonstrate the intent to make Hawai'i a person's domicile, the following indicia apply, but no single act is sufficient to establish residency for tuition purposes:

1. Filing Hawai'i resident personal income tax return;
2. Voting/registering to vote in the state of Hawai'i; and
3. Other indicia, such as permanent employment and ownership or continuous leasing of a dwelling in Hawai'i.

### Other Legal Factors

Other legal factors involved in making a residency determination include the following:

1. The age of majority is 18 years. However, a person between the ages of 18 and 19, unless emancipated, cannot claim residency solely on the basis of himself or herself because he or she does not have the minimum 12 months residency, which commences on his or her 18th birthday. Therefore, the applicant must claim a portion of the required 12 months on the basis of his or her parents or legal guardian;
2. The 12 months of continuous residence in Hawai'i shall begin on the date upon which the first overt action (see indicia above) is taken to make Hawai'i one's domicile. Residency status will be lost if it is interrupted during the 12 months immediately preceding the first day of instruction;

3. Residency in Hawai'i and residency in another place cannot be held simultaneously;
4. Presence in Hawai'i primarily to attend an institution of higher learning does not create resident status, regardless of the length of stay. A student cannot establish residency by simply being enrolled in school. If a student is a nonresident, it is presumed that he or she is living in Hawai'i primarily to attend school and his or her presence is temporary even if the student lives in Hawai'i during vacation and other breaks from study. For example, the student may be presumed to live in Hawai'i primarily to attend school if he or she is enrolled in school half-time or more, appears to be receiving significant financial support from family members who reside outside Hawai'i, is absent from the state for more than 30 days per year during school vacation period, or receives student financial assistance based on residency in another state or jurisdiction;
5. The residency of unmarried students who are minors follows that of the parents or legal guardian. Marriage emancipates a minor;
6. Resident status, once acquired, will be lost by future voluntary action of the resident inconsistent with such status. However, Hawai'i residency will not be lost solely because of absence from the state while a member of the U.S. Armed Forces, while engaged in navigation, or while a student at any institution of learning.

### Exemptions

Nonresidents may be allowed to pay resident tuition if they qualify as one of the following:

1. U.S. military personnel and their authorized dependents (as defined by the armed services) during the period such personnel are stationed in Hawai'i on active duty;
2. Members of the Hawai'i National Guard or Hawai'i-based Reserves;
3. Full-time employees of UH Mānoa and their spouses and legal dependents (as defined under Internal Revenue Service rules);
4. East-West Center student grantees pursuing baccalaureate or advanced degrees; or
5. Hawaiians, descendants of the aboriginal peoples that inhabited the Hawaiian Islands and exercised sovereignty in the Hawaiian Islands in 1778.

Citizens of an eligible Hawai'i Pacific island district, commonwealth, territory, or insular jurisdiction, state, or nation which does not provide public institutions that grant baccalaureate degrees may be allowed to pay 150% of the resident tuition. These currently include the following: American Samoa, Commonwealth of the Northern Marianas, Cook Islands, Federated States of Micronesia, Futuna, Kiribati, Nauru, New Caledonia, Niue, Republic of Palau, Republic of Marshall Islands, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis.

### Misrepresentation

A student or prospective student who provides incorrect information on any form or document intended for use in determining residency status for tuition purposes will be subject to the requirements and/or disciplinary measures provided for in the rules and regulations governing residency status.

### Appeal Process

Residency decisions may be appealed. Contact the residency officer for information on how to initiate an appeal before the Committee on Resident Status.

### Compliance with Federal Guidelines Concerning Research

There are a number of offices and committees at UH Mānoa that play key roles in overseeing and developing policy for various aspects of the research process. Federal, state, and UH Mānoa regulations require that certain proposed research projects are reviewed and approved to ensure that the proposed research complies with protective standards.

UH Mānoa students who intend to conduct the following types of research should check with their respective academic offices and the committees and office below for guidance and information pertaining to their research project.

1. Research funded by non-UH Mānoa funds.
2. Research sponsored by UH Mānoa.
3. Research conducted by or under the direction of any employee or agent of UH Mānoa in connection with his or her institutional responsibilities.
4. Research conducted by or under the direction of any employee or agent of this institution using any property or facility of this institution.
5. Research involving the use of UH Mānoa's non-public information to conduct research or identify research subjects.

General information regarding standards applicable to research activities can be obtained from the Office of Research Services, 2425 Campus Road, Sinclair Library Room 1, Honolulu, HI 96822, (808) 956-8658 or visit their website at [www.ors.hawaii.edu/](http://www.ors.hawaii.edu/).

### Institutional Animal Care and Use Committee

UH Mānoa employees and students who intend to conduct research involving nonhuman, vertebrate animals are required to submit an application to the Institutional Animal Care and Use Committee (IACUC) for review and approval prior to any such use of animals. Applications and information may be obtained from the Animal and Veterinary Service Program or visit the website at [www.hawaii.edu/LAS](http://www.hawaii.edu/LAS). Students should check with their departments or course instructors for further guidance.

### Human Studies Program

UH Mānoa employees and students who will conduct research involving human subjects are required to submit an application to the Human Studies Program for review and approval prior to the involvement of human subjects in the research project. This includes biomedical, behavioral, humanities, and social science projects whether funded or not. Applications and information may be obtained from the Human Studies Program at [www.hawaii.edu/irb](http://www.hawaii.edu/irb) or by calling (808) 956-5007. Students also should check with their departments or course instructors for further guidance.

### Environmental Health and Safety Office

Employees and students whose research projects may involve radioactive materials, SCUBA diving, or hazardous materials should contact the Environmental Health and Safety Office at (808) 956-8660 or visit their website at [www.hawaii.edu/ehso](http://www.hawaii.edu/ehso) for information and guidance. For more details, go to the "Instructional Support and Research Units" section.

# School of Architecture



## Administration

Architecture 201  
2410 Campus Road  
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Fax: (808) 956-7778  
Email: arch@hawaii.edu  
Web: www.arch.hawaii.edu/

Interim Dean: Thomas R. Bingham

## Faculty

R. Akiona, MS—construction management  
A. C. Anderson, MArch—design, history/theory, urban studies  
K. Ashraf, PhD—design, history and theory  
C. Bergum, MArch, PhD—design, technology  
S. Carr, MArch, MLA, PhD—public health, landscape architecture  
M. Despang, MArch—structures  
M. Kim-Johnson, BArch, Dip Arch, RIBSA, ARB—design, professional practice  
S. Leineweber, BArch, MA, FAIA—design, history of architecture, historic preservation  
C. Llewellyn, MArch, FAIA—design, global practice  
S. Meder, ArchD—design, environmental systems  
W. Meguro, LEED AP—sustainable buildings/community design  
P. Miao, PhD—architectural/urban design, Chinese architecture  
L. Mitchell, PhD—design, visual rhetoric, theory  
J. M. Noe, MDesS, FAIA—design, professional practice  
K. Palagi, MArch—design, design-build  
H. J. Park, PhD—morphological transformation and digital design  
D. Rockwood, MArch—design, construction materials and processes  
S. M. Sarvimaeki, DSc—design, history of architecture  
M. Simon, MArch, NCARB—architectural representation, design  
J. Stilgenbauer, MLA—landscape architecture  
L. Walters, MArch—design, digital fabrication  
H. Zhou, PhD, MFA, MS—basic design, furniture design and fabrication, sculpture installation, global China focus

## Affiliate Faculty

W. R. Chapman, PhD—American studies  
J. A. Dator, PhD—political science  
A. J. Kaufman, PhD—landscape specialist  
K. E. Kim, PhD—planning  
L. Minerbi, MCD, Dott Arch, MUP—planning

## Adjunct Faculty

R. Altoon, FAIA, LEED AP BD+C, SCDP—professional practice  
B. A. Berkus, AIA—professional practice  
B. S. Cho, MArch, AIA—professional practice  
J. S. Clifford, PhD, AIA—professional practice  
S. F. Crowell, Jr., MArch, FAIA—professional practice  
C. Davis, AB Arch, FAIA—professional practice  
S. Dunlap, BArch—professional practice  
S. Ehrlich, FAIA, RIBA—professional practice  
J. Ferraro, BFA—professional practice  
D. L. Gray, MArch, FAIA—professional practice  
R. P. Gronowsky, BSArch—professional practice  
K. Heinly, MArch, AIA—professional practice  
M. B. Hulst, MArch—professional practice  
A. J. Hyland, BSArch—professional practice  
C. P. Johnson, Dip Arch RIBA—professional practice  
L. Johnson, MArch, AIA—professional practice  
J. S. Kilbourn, MArch—professional practice  
M. B. Lehrer, MArch, FAIA—professional practice  
T. D. Lindblom, Dip Arch, MArch, AIA—professional practice  
J. Logan, MArch—professional practice  
L. Longhi, RA, MArch, MFA—design, global practice, integration of the arts  
R. Lu, PhD—professional practice  
L. Matsunaga, MArch—professional practice  
L. T. May, BLA, FASLA—professional practice  
C. McBean, BSc, BArch, RIBA—professional practice  
K. H. Mitchell, BArch—professional practice  
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J. Tollit, Dip Arch, ARB, FRSA—professional practice  
C. M. Torigoe, BArch—professional practice

## General Information

### Introduction

The study of architecture develops intellectual, professional, and creative knowledge and skill. Architectural studies allow students to generate physical solutions to complex

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environmental design problems that often have competing economic, social, and political parameters. The profession of architecture attracts those who have a wide range of interests and skills and wish to make a unique contribution to society.

### **Vision: Global Connections**

The School of Architecture inspires transformative design at the global scale with preeminence in the Asia-Pacific region.

### **Mission Statement: Building for the 21st Century**

The School of Architecture responds to our unique location in the Asia-Pacific region and recognizes the privilege and responsibility to address cultural, environmental, and social diversity. We commit to passionate and engaging community participation through teaching, learning, research, professional practice, and service.

### **Accreditation Notice**

*In the U.S., most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.*

*Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.*

The School of Architecture offers the following NAAB-accredited degree program:

#### **Doctor of Architecture**

- Track I: (preprofessional degree in architecture [126/120 credits] + 90 graduate credits)
- Track II: (non-professional degree [120 credits min.] + 108 graduate credits)

Next accreditation visit: 2018

### **Admissions Overview**

All applicants for admission to the school must complete a UH System Application Form by the stated deadline for the semester in which initial enrollment is sought. For information on the application process, see [arch.hawaii.edu/admissions](http://arch.hawaii.edu/admissions).

Acceptance to UH Mānoa and the school is based on various criteria, including previous academic performance, types of courses previously taken, and the quality of prior experiences.

### **Placement**

The Office of Admissions will complete an undergraduate transfer credit evaluation for prior completed post-secondary level coursework or approved Advanced Placement (AP) high school coursework. The School of Architecture will complete a transfer credit evaluation for prior completed post-secondary level coursework taken in architecture or related subjects after an applicant is accepted by UH Mānoa. Architecture course requirements will be waived only for transfer credits that are



deemed equivalent to courses offered by the school. No graduate credit is transferable to the DArch degree, if it has been counted for another graduate degree.

Students entering the pre-professional undergraduate program directly from high school may potentially complete the program in four years of full-time study. The time to complete the program by transfer students is based on a case-by-case evaluation of transfer credit.

Students entering the program holding a baccalaureate degree in a field unrelated to architecture enter the 108 credit professional DArch program. They may complete the program in approximately three or four years of full-time study dependent on evaluation of previous coursework of undergraduate equivalence.

Students entering the program holding a four-year pre-professional baccalaureate degree (e.g., BS architecture studies, BA architecture studies, BA environmental design) enter the 90 credit professional DArch program. Evaluation of previous coursework on a case by case basis is also undertaken for undergraduate equivalence.

### **Application Procedures**

#### **Undergraduate Application Procedures**

All applicants for admission to the pre-professional undergraduate bachelor degree must complete a UH System Application at [www.manoa.hawaii.edu/apply/](http://www.manoa.hawaii.edu/apply/).

#### **Graduate Application Procedures**

All applicants for admissions to the professional program (DArch) must hold a baccalaureate degree or higher and must apply online at our school's website at [www.arch.hawaii.edu](http://www.arch.hawaii.edu) using a UH Mānoa systems application. Applicants must also submit a School of Architecture Supplemental Information for Admission form and the required documents by the stated deadline directly to the School of Architecture.

We encourage you to visit the UH Mānoa campus and the School of Architecture. Please contact our student services office to arrange appointments or tours of the school.

### **Application Deadlines**

#### **Undergraduate Application Deadlines**

Fall priority deadline is **January 5** and final deadline is **March 1**. Spring priority deadline is **September 1** and final deadline is **October 1**.

## Graduate Application Deadline

Fall priority deadline is **January 5** and final deadline is **March 1**. Spring priority deadline is **September 1** and final deadline is **October 1**.

The School Admissions Committee reviews completed applications in the order in which they are received. Early application is therefore advisable. All required application materials listed above must be received by the above listed deadlines to be eligible for consideration for admission. Applicants should advise the school immediately of any changes of address. The school assumes no responsibility for missed deadlines resulting from a failure to notify the school of a change of address.

## Deferred Admission

The school and UH Mānoa do not grant deferred admission. Applicants wishing to defer admission must reapply to UH Mānoa and the school.

## Ownership of Supplemental Documents

Supplemental documents submitted by applicants become the property of the school and will not be retained after the admissions decisions of the School of Architecture have been made.

## Advising

Informal academic advising may be requested by prospective students by contacting the school's Student Services Office. Students who have been accepted to the school should contact the Student Services Office for information regarding orientation and required advising before registration.

## Program Requirements

Students enrolled in the pre-professional Bachelor of Environmental Design (BEnvD) must meet UH Mānoa General Education Core Requirements and maintain UH Mānoa academic standards. Enrolled students wishing to enter the 90 credit professional DArch program must maintain a minimum 3.0 GPA at the graduate level and successfully complete a portfolio review process before taking any graduate coursework.

Students in the 108 credit professional DArch program must attain a minimum cumulative GPA of 3.0 at the graduate level and make reasonable academic progress. All graduate students whose cumulative GPA falls below 3.0 are placed on academic probation. Upon completion of the probationary semester if the cumulative GPA is not raised to 3.0, or if special conditions established by the dean are not met, the student may be dismissed or suspended from the program.

## Undergraduate Program

### Bachelor of Environmental Design (BEnvD)

The pre-professional 4-year undergraduate degree program at UH Mānoa, the Bachelor of Environmental Design (BEnvD), emphasizes the interdisciplinary nature of architecture and provides a liberal arts and sciences education that takes full advantage of the greater university setting. An entering undergraduate student interested in architecture may choose from one of the six undergraduate concentrations leading to the BEnvD; construction management, historic preservation, interior design, landscape design, urban design, and architecture design. Each of these concentrations requires a minimum of 45 semester hours of general (non-architecture) studies.

## Graduate Program

### Doctor of Architecture (D.Arch.)

The School of Architecture offers the only NAAB accredited Doctor of Architecture degree. The primary activities in the D.Arch. program include: Framing architectural inquiries within social, cultural, and interdisciplinary studies with emphasis on Asia and the Pacific; investigating local/global relations evidenced in theory and practice with an emphasis on the quality of the built and natural environment; critically testing and expanding the definitions of, and relationships between the academy and the profession; using research as a basis for the grounding of design and as a primary means to expand knowledge in the discipline; and participating with local and international partners in applied design research and community.

### Global Track/China Focus

In partnership with Tongji University College of Architecture and Urban Planning (Shanghai, China), the UH Mānoa School of Architecture has implemented a Global Track/China Focus as a part of its Doctor of Architecture degree. Students who successfully complete this track will have the option to obtain Tongji University's College of Architecture and Urban Planning NBAA accredited Masters of Architecture degree along with the School of Architecture NAAB accredited Doctor of Architecture degree. Nowhere else in the world can a student enroll in a single track and graduate with two accredited architecture degrees from the world's two largest construction economies.

### Special Requirements

All students are required to have their own personal computer for completion of required coursework. A laptop computer is strongly recommended. Software may be required to be purchased by students for the successful completion of courses and to use the school's advanced graphic and digital fabrication equipment.

### Additional Information

For information about the school or degree programs, contact the Student Services Office.

For information regarding student loans and scholarships, contact the Financial Aid Services Office.

### Professional Fee

All school students are assessed a professional fee each semester at the time tuition is paid. The professional fee for the 2014-2015 academic year is \$500 per semester.

### Other Requirements

Waiver or substitution of any required course must be approved by the appropriate undergraduate or graduate chair.

### Executive Education Program: Global [EX:ED]

The Executive Education Program at the School of Architecture connects the world's industry leaders with the most distinguished award-winning architects and experts together at the midway between Asia and North America. This program is an exceptional opportunity for talented architects and leaders to gain new insights toward sustainability, cultural and political factors that significantly impact the architecture field. It also creates a high speed rail for top level collaborations among the

highest level respected participants to succeed in today's highly competitive marketplace.

### Alternative Campus of the Future Research Group

The Alternative Campus of the Future Research Group has been established since August 2008. Students and faculty affiliated with the Hawai'i Research Center for Futures Studies, and students and faculty affiliated with the School of Architecture of UH Mānoa have been engaged in a project called "Campuses 2060." The project explores the history, present situation, and alternative futures of institutions of higher education worldwide according to the overall "future" these institutions find themselves in, and the specific mission, participants, resources, pedagogy, and physical campus that they develop in response to each future. There have been three public presentations of their ongoing work so far. While the initial focus has been on UH Mānoa, it is the intention of the project, still ongoing, to become a global resource for ideas and information about the futures of higher education anywhere.

### Environmental Research & Design Lab

The Environmental Research and Design Laboratory, an inter-disciplinary research laboratory located in the School of Architecture, was formed to advance sustainable design through research, education, and community outreach, with the aim of improving the dynamic interaction among the built, natural, and human environments. The laboratory not only directly supports the teaching mission of the school, but regularly provides exceptional research and design assistance to the university, the local community, the State of Hawai'i, and the greater professional community. The lab, which supports student assistantships, has undertaken evaluation of the classroom space and energy audit throughout the campus and the Design Futures Lab has participated in long range planning for the university.

### Heritage Center

The Heritage Center of the School of Architecture promotes the preservation of cultural and architectural heritage in Hawai'i and the Asia-Pacific Region by providing expertise, research, documentation, and training opportunities; by disseminating heritage information to the general public; and by increasing interaction and cooperation on heritage issues within the Asia-Pacific area between government agencies, non-profits, and the general public. The Heritage Center wrote the Getty-funded Campus Heritage Plan for the Chancellor's Office and designed the HUD-funded Ka Papa Loi o Kanewai Community Center for the School of Hawaiian Knowledge.

### Student Organizations

The school houses a chapter of the American Institute of Architecture Students (AIAS). The organization engages in a number of social and community service activities and has won numerous national awards.

The Gamma Mu Chapter of the Tau Sigma Delta Honor Society is open to DArch students who maintain a 3.0 or higher GPA and are at the top twenty percent of their class at the end of year two.

### Scholarships and Awards

ARCC King Student Medal for Excellence in Architectural + Environmental Design Research

Alpha Rho Chi Medal, National Professional Architectural Fraternity Award

Henry Adams Medal, American Institute of Architects Award

Henry Adams Certificate, American Institute of Architects Award

Bergum Scholarship

Gilman Hu Honolulu Chapter CSI Endowed Scholarship

Allen R. Johnson-Roy C. Kelley Architectural Research Travel Scholarship

Construction Specifications Institute Scholarship Fund

HonBlue Architectural Grant

American Institute of Architects Honolulu Chapter Scholarship

School of Architecture Alumni Association Scholarship

R. Richard Morris Memorial Scholarship

School of Architecture Practicum Fund

Barry John Baker Scholarship

Donald G. Deer Memorial Scholarship

Leighton Liu Scholarship



# Colleges of Arts and Sciences

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# Degrees, Minors, and Certificates

The Colleges of Arts and Sciences offer undergraduate and graduate degrees, minors, and certificate programs in the following areas. Changes in programs and degrees approved after December 2013 may not be reflected in this listing.

Field	Degree or Certificate
American Studies (p. 96)	Min, BA, MA, PhD
Anthropology (p. 98)	Min, BA, MA, PhD
Art and Art History (p. 101)	Min, BA, BFA, MA, MFA
Astronomy (p. 103)	MS, PhD
Biology (p. 105)	Min, BA, BS
Botany (p. 107)	Min, BA, BS, MS <sup>1</sup> , PhD <sup>1</sup>
Burmese (p. 128)	U Cert <sup>6</sup>
Chemistry (p. 110)	Min, BA, BS, MS, PhD
Chinese (p. 115)	U Cert, Min, BA, MA <sup>2</sup> , PhD <sup>2</sup>
Classics (p. 134)	U Cert, BA
Clinical Psychology (p. 156)	G Cert
Communication (p. 111)	BA, MA, G Cert, PhD
Communicology (formerly Speech) (p. 113)	Min, BA, MA
Computer Science (p. 130)	Min, BS, MS, PhD
Conflict Resolution (p. 148)	G Cert
Creative Media (p. 95)	BA
Dance (p. 168)	Min, BA, BFA, MA, MFA
Disaster Management and Humanitarian Assistance (p. 172)	G Cert
East Asian Languages and Literatures (p. 115)	MA <sup>2</sup> , PhD <sup>2</sup>
Economics (p. 116)	U Cert, Min, BA, MA, PhD
English (p. 120)	Min, BA, MA, PhD
English as a Second Language (p. 161)	BA <sup>4</sup> , MA, PhD
Environmental Studies (p. 123)	U Cert, BA <sup>4</sup>
Ethnic Studies (p. 124)	U Cert, BA
Ethnobotany (p. 107)	BS
Filipino (p. 128)	U Cert <sup>6</sup> , Min, BA <sup>7</sup>
French (p. 134)	U Cert, BA, MA <sup>3</sup>
Geography (p. 125)	Min, BA, G Cert., MA, PhD
German (p. 134)	U Cert, BA
Hindi (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Historic Preservation (p. 98)	G Cert
History (p. 127)	Min, BA, MA, PhD
Ilokano (p. 128)	U Cert <sup>6</sup> , Min, BA <sup>7</sup>
Indonesian (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Indo-Pacific Languages (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Information and Computer Sciences (p. 130)	BA
Islamic Studies (p. 101, 127, 150, 160)	U Cert
Japanese (p. 115)	U Cert, Min, BA, MA <sup>2</sup> , PhD <sup>2</sup>
Journalism (p. 134)	BA
Khmer (Cambodian) (p. 128)	U Cert
Korean (p. 115)	U Cert, Min, BA <sup>9</sup> , MA <sup>2</sup> , PhD <sup>2</sup>

- 1 The MS and PhD in botanical sciences are offered in botany.
- 2 The MA and PhD in East Asian languages and literatures are offered in Chinese, Japanese, and Korean.
- 3 The MA in Languages and Literatures of Europe and the Americas is offered in French and Spanish.
- 4 Students can receive a BA in interdisciplinary studies in environmental studies, European cultural studies, Indo-Pacific languages, linguistics, and peace studies. In addition, students can design their own majors utilizing this program.
- 5 The BA in interdisciplinary studies for Indo-Pacific languages has several concentrations: Hindi, Indonesian, Samoan, Sanskrit, Thai, and Vietnamese.
- 6 The Certificate in Indo-Pacific Languages is offered in Burmese, Filipino, Hindi, Ilokano, Indonesian, Khmer, Samoan, Sanskrit, Tahitian, Thai, and Vietnamese.
- 7 BA in Philippine Language and Literature with concentration in Filipino or Ilokano
- 8 The Department of Geography coordinates the Graduate Certificate in Ocean Policy.
- 9 The BA in Korean in East Asian Languages and Literatures has a concentration in Korean for Professionals.
- 10 There is no admittance to the BA and BS in Zoology degrees effective Spring 2013.

Field	Degree or Certificate
Languages and Literatures of Europe and the Americas (p. 134)	MA <sup>3</sup>
Latin America and Iberian Studies (p. 134)	U Cert
Law and Society (p. 89)	U Cert
Library and Information Science (p. 136)	G Cert, MLISc
Linguistics (p. 138)	BA <sup>4</sup> , MA, PhD
Marine Biology (p. 104)	BS, MS <sup>11</sup> , PhD <sup>11</sup>
Marine Option Program (p. 90)	U Cert
Mathematical Biology (p. 105, 140)	U Cert
Mathematics (p. 140)	Min, BA, BS, MA, PhD
Microbiology (p. 142)	Min, BA, BS, MS, PhD
Molecular Cell Biology (p. 142)	BS
Museum Studies (p. 98)	G Cert
Music (p. 144)	U Cert, Min, BA, BEd, BMus, MA, MMus, PhD
Ocean Policy (p. 125)	G Cert <sup>8</sup>
Peace Studies (p. 148)	U Cert, BA <sup>4</sup> , G Cert
Philosophy (p. 150)	Min, BA, MA, PhD
Philippine Language and Literature (p. 128)	BA
Physics (p. 152)	Min, BA, BS, MS, PhD
Planning Studies (p. 172)	G Cert
Political Science (p. 154)	Min, BA, MA, PhD
Psychology (p. 156)	BA, BS, MA, PhD
Public Administration (p. 158)	G Cert, MPA
Public Policy (p. 159)	G Cert
Religion (p. 160)	Min, BA, MA
Russian (p. 134)	U Cert, BA
Russian Area Studies (p. 161)	U Cert
Samoan (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Sanskrit (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Second Language Studies (p. 162)	BA, MA, G Cert, PhD
Social Sciences & Health (p. 116, 154, 166)	U Cert
Sociology (p. 166)	Min, BA, MA, G Cert, PhD
Spanish (p. 134)	U Cert, BA, MA <sup>3</sup>
Tahitian (p. 128)	U Cert <sup>6</sup>
Telecommunications Information Resource Management (p. 111)	G Cert
Thai (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Theatre (p. 168)	Min, BA, MA, MFA, PhD
Urban and Regional Planning (p. 172)	G Cert, MURP, PhD
Vietnamese (p. 128)	U Cert <sup>6</sup> , BA <sup>5</sup>
Women's Studies (p. 175)	U Cert, BA, G Cert
Zoology (p. 178)	Min, BA <sup>10</sup> , BS <sup>10</sup> , MS, PhD

11. The MS and PhD in marine biology are offered in the Marine Biology Graduate Program (College of Natural Science/SOEST).

BA—bachelor of arts  
 BFA—bachelor of fine arts  
 BMus—bachelor of music  
 BS—bachelor of science  
 G Cert—graduate certificate  
 MA—master of arts  
 MFA—master of fine arts  
 Min—minor  
 MLISc—master of library and information science  
 MMus—master of music  
 MPA—master of public administration  
 MS—master of science  
 MURP—master of urban and regional planning  
 PhD—doctor of philosophy  
 U Cert—undergraduate certificate

# Administration

## College of Arts and Humanities

Hawai'i Hall 314  
2500 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6460  
Fax: (808) 956-9085  
Web: [www.hawaii.edu/arthur/](http://www.hawaii.edu/arthur/)

Dean: Peter J. Arnade  
Interim Associate Dean: Thomas Brislin

Departments and programs: Academy for Creative Media, American Studies, Art and Art History, Communicology (formerly Speech), Historic Preservation, History, Museum Studies, Music, Philosophy, Religion, Theatre and Dance

## College of Languages, Linguistics, and Literature

Bilger 101  
2545 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-8516  
(808) 956-9071  
Fax: (808) 956-9919  
Web: [www.lll.hawaii.edu/](http://www.lll.hawaii.edu/)

Dean: Robert Bley-Vroman  
Interim Associate Dean: Kimi Kondo-Brown

Departments: East Asian Languages and Literatures, English, Indo-Pacific Languages and Literatures, Languages and Literatures of Europe and the Americas, Linguistics, Second Language Studies

## College of Natural Sciences

Bilger 102  
2545 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-6451  
Fax: (808) 956-9111  
Web: [www.hawaii.edu/natsci/](http://www.hawaii.edu/natsci/)

Dean: William L. Ditto  
Associate Dean:

Departments and programs: Biology, Botany, Chemistry, Information and Computer Sciences, Library and Information Science, Marine Option Program, Mathematics, Microbiology, Physics and Astronomy, Zoology

## College of Social Sciences

Hawai'i Hall 310  
2500 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6570  
Fax: (808) 956-2340  
Web: [socialsciences.hawaii.edu/](http://socialsciences.hawaii.edu/)

Dean: Denise E. Konan  
Interim Associate Dean: Ross A. Sutherland

Departments, schools, and programs: Anthropology, Communications, Economics, Ethnic Studies, Geography, Journalism, Peace Studies, Political Science, Psychology, Public

Administration, Public Policy Center, Social Science Research Institute, Sociology, Urban and Regional Planning, Women's Studies

# General Information

The Colleges of Arts and Sciences (A&S) are comprised of four colleges that offer an integrated curriculum leading to baccalaureate and graduate degrees, minors, and certificates in their respective colleges. Each college includes an administrative unit and a number of academic departments and programs.

An excellent education is the primary mission of UH Mānoa, and the Colleges of Arts and Sciences is at the heart of this mission, providing students with a comprehensive learning experience in a vibrant academic climate.

UH Mānoa undergraduates take many of their first UH Mānoa courses in the Colleges of Arts and Sciences as they undertake the General Education Core curriculum that is part of all the bachelor degrees offered on the campus. This liberal arts curriculum stresses the integration of knowledge to enhance students' understanding of life, the human condition, and the world in which we live. The core curriculum also entails critical thinking, which enables students to evaluate arguments, ideas, and theories, and to develop creative and meaningful applications of what they learn. The core gives students the tools of inquiry, enabling them first to identify important questions and then to seek, analyze, and interpret possible answers to issues of their lives, world, and universe. The curriculum also provides opportunities to develop students' artistic and creative imaginations and their oral and written communication skills so that they can effectively present their ideas, thoughts, and feelings. Since values guide human actions, the core curriculum allows students to examine their own values and learn about those of others in order to help the students understand themselves and others around the world.

Students who earn their degrees in one of the Colleges of Arts and Sciences will find that the programs of the colleges are designed with the conviction that, beyond the core curriculum, liberally educated persons should have both broad exposure to and an intensive knowledge of at least one field of the arts, the humanities, the languages, the natural sciences, or the social sciences. An ideal education, based in the liberal arts, prepares students for productive lives and careers, enlightened citizenship, and lifelong learning. The colleges strive to enhance excellent learning opportunities by promoting active student participation.

## Accreditations and Affiliations

All academic programs are reviewed and evaluated regularly by campus and external faculty committees. Some academic programs, because of the nature of the discipline, are accredited or certified also by national organizations. Check with individual academic departments and programs for their accreditation status or affiliation with national or international organizations.

## Degrees, Minors and Certificates

For a listing of the degrees, minors, and certificates offered by the Colleges of Arts and Sciences, see table on p. 88.

**Bachelor's Degrees:** Bachelor of Arts (BA), Bachelor of Fine Arts (BFA), Bachelor of Music (BMus), Bachelor of Science (BS)

**Master's Degrees:** Master of Arts (MA), Master of Fine Arts (MFA), Master of Library and Information Science (MLISc), Master of Music (MMus), Master of Public Administration (MPA), Master of Science (MS), Master of Urban and Regional Planning (MURP)

**Doctoral Degrees:** Doctor of Philosophy (PhD) degrees in various disciplines

## Certificate Programs

In addition to the major concentrations that are part of every bachelor's degree, students may choose to pursue a certificate in an area of personal interest. Certificates signify that a student has completed a defined body of work in a particular department or program. Certificates can be conferred as soon as the student completes the program's requirements. The right to confer certificates has been granted to certain programs and departments by the Board of Regents; some certificates are only for graduate students. Certificates entail a minimum of 15 credit hours of non-introductory course work (including all upper division courses and those at the 200 level that have college-level course prerequisites), completed with a grade of C (not C-) or better and an overall GPA of 2.5 or better for those courses. Information on specific certificates can be obtained from the appropriate department or program office. See page 88 for a complete listing of certificate programs offered by the Colleges of Arts and Sciences.

## Marine Option Program

The Marine Option Program (MOP) is a unique opportunity for undergraduates with an interest in the ocean. It is open to students in all fields and provides a clearinghouse for marine-oriented experiential education as well as a chance for students with common interests to meet. MOP sponsors a wide variety of marine activities, including field trips, workshops, seminars, symposia, and noncredit courses.

A certificate is awarded to undergraduates who successfully complete at least 12 credit hours of marine-related courses (including OCN 201, ORE 202, ZOOL 200, or an equivalent survey course; one 3-credit interdisciplinary ocean course; 6 credit hours of marine electives). In addition, students must complete the MOP Seminar (IS 100/BIOL 104) followed by the MOP skill project. The unique MOP skill project (worth 3 or more credits, e.g. IS 400/BIOL 400) allows students to design and conduct a personal marine or aquatic project related to their educational goals. Past projects have run from scientific research to endeavors in the arts. Classified and unclassified graduate students are also eligible to enroll in MOP and earn a certificate.

Students interested in MOP or in marine careers and curricula should visit the Marine Option Program offices in Dean Hall, room 105A; tel. (808) 956-8433; Email [manoamop@hawaii.edu](mailto:manoamop@hawaii.edu); [www.hawaii.edu/mop/](http://www.hawaii.edu/mop/); Facebook ID: [uhm mop](#).

## Advising

Student Academic Services Office

QLCSS 113

Honolulu, HI 96822

Tel: (808) 956-9155

Fax: (808) 956-9796

Web: [www.advising.hawaii.edu/artsci/](http://www.advising.hawaii.edu/artsci/)

Within the context of a liberal arts education, the Colleges of Arts and Sciences Student Academic Services (CASSAS) assist students to clarify their life and career goals, develop meaningful educational plans, and prepare for productive lives, enlightened citizenship, and life-long learning.

Students at UH Mānoa have an exceptional amount of freedom in crafting their college experience. Students are able to explore connections between fields, engage in co-curricular activities, and develop unique combinations of majors, minors, and certificates. Students are expected to be active partners in the advising process by initiating contact with both their major department and CASSAS and should come to all advising sessions prepared.

CASSAS has developed learning outcomes for Arts and Sciences majors based on current programs and services. The level of achievement for each of these outcomes becomes increasingly more complex throughout a student's college career. As an active participant in the CASSAS advising partnership:

- Throughout their academic career, students can identify and explain their interests, strengths, values, and career/life goals.
- Students can develop and implement an academic and educational plan.
- Students understand how the A&S degree prepares them for success in their personal, academic, and professional lives.

Besides meeting all mandatory advising initiatives required by their major departments, declared Arts and Sciences majors can meet with their college advisors for clarification of degree requirements and for resolution of complex academic issues and individual concerns throughout their career at UH Mānoa.

## Incoming Students and Freshmen

Through group advising at New Student Orientation and individual appointments during their first year, new students will have the opportunity to begin the educational planning process with CASSAS advisors. Freshmen should also meet with an advisor in their major department (see department listing).

## Sophomores

Sophomores should continue to seek the advice of both major and college-level advisors in order to clarify their goals, interests, and strengths. Students should reflect upon their academic and co-curricular activities to ensure that they have chosen the appropriate major and are making progress toward graduation. The educational planning begun in their first year should continue and, if possible, include curricular and co-curricular courses and events established on a timeline.

## Juniors

Juniors should research the prerequisites for their future academic and/or professional lives (i.e., application materials, essential skills). Juniors should prepare for graduation by filing

for graduation and creating an educational plan that reflects remaining course work and activities applicable toward their degree and future goals.

## Seniors

Seniors should refine their educational plan to account for all academic and co-curricular components necessary for graduation. Students should be able to reflect on the meaning of their undergraduate education in the context of their goals, interests and strengths. Seniors should use this understanding to identify and take concrete steps towards planning for post-graduation life.

## Undergraduate Programs

The Colleges of Arts and Sciences offer Bachelor of Arts (BA), Bachelor of Fine Arts (BFA), Bachelor of Music (BMus), and Bachelor of Science (BS) degrees in 52 different majors. In addition, the Colleges of Arts and Sciences offer 27 minors and 33 different certificates. Detailed program information is available at the Student Academic Services office (QLCSS 113) or at [www.advising.hawaii.edu/artsci](http://www.advising.hawaii.edu/artsci).

During their first year at UH Mānoa, A&S students should meet with their college and major advisors to discuss their educational plans.

Students interested in an A&S major should declare their major at least by the end of their sophomore year by submitting a Declaration of Major form to the A&S Student Academic Services office. Some majors, such as those in the performing arts and the sciences, should be declared as soon as possible, preferably during the freshman year, because they require courses that must be taken in a specific order. Information on specific majors, minors, and certificates is available through the respective academic departments and their websites.

## Admission Requirements

Admission requirements for the Colleges of Arts and Sciences are the same as those for UH Mānoa.

Some majors, however, have specific admission requirements (see departments' sections).

## Steps to Graduation

1. **Complete the four requirement areas for undergraduate degrees** as described in the following section and remain in good academic standing (see "UH Mānoa Graduation Requirements" under "GPA").
2. **File for graduation one to two semesters in advance** by completing an Online Grad session available on the CASSAS website.
3. **Pay the UH Mānoa diploma fee** in order to receive a diploma.

## Requirements for Undergraduate Degrees from the Colleges of Arts and Sciences

A&S degrees and a liberal arts education offer a broad-based and integrated perspective on the world and human experiences; better self-understanding; societal, civic, and global knowledge; an independent and inquiring mind; a desire and capacity for life-long learning; and valuable transferable skills.

Students are encouraged to explore connections between disciplinary fields, engage in co-curricular activities, and develop unique combinations of majors, minors, certificates, and electives.

A&S students must fulfill the following four requirement areas: UH Mānoa General Education Core, UH Mānoa Graduation, A&S Degree, and A&S Major. Students should refer to their respective "Program Requirement Sheets" on the CASSAS website to assist them in selecting courses that incorporate UH Mānoa General Education requirements with A&S requirements.

### UH Mānoa General Education Core Requirements

A&S students must fulfill the UH Mānoa General Education Core, which consists of **Foundations** and **Diversification** requirements. Some of the courses that fulfill these Core requirements may be double dipped with other requirements (see "General Education").

The minimum course grade to fulfill Core requirements is a D (not D-). These requirements must be taken for a letter grade, unless the course is offered only with the CR/NC grade option.

### UH Mānoa Graduation Requirements

A&S students must fulfill the UH Mānoa Graduation requirements, which consist of **Focus** and **Hawaiian or Second Language** (HSL), **credit**, and **grade point average** (GPA) requirements (see "General Education" and "Undergraduate Education").

The minimum course grade to fulfill Focus and HSL requirements is a D (not D-). These requirements must be taken for a letter grade, unless the course is offered only with the CR/NC grade option.

BMus students concentrating in voice may fulfill the HSL requirement by completing the first year of study in two languages. This substitution must be approved by the department chair. All other A&S students must meet the stated HSL requirement.

### Credits

- Students must earn a minimum of 120 total applicable credits, of which 45 credits must be upper division (300-level and above) and at least 30 credits must be completed in residence at UH Mānoa. Natural Sciences majors should contact CASSAS for exceptions to the upper division credit limit.
- Students must complete their academic work and apply for a degree in a timely manner (see "Excess Credit Policy").

## REQUIREMENTS THAT MAY BE DOUBLE-DIPPED

This double-dip chart applies only to A&S degrees/majors on a 2002-2003 core year or later.

/Requirements	Foundations	Diversification	Hawaiian or Second Language	Focus	Major*	Second Major*	Minor	Certificate
Foundations	--	NO	NO	NO	YES	YES	NO	NO
Diversification	NO	--	NO	YES	YES	YES	NO	NO
Hawaiian/Second Language	NO	NO	--	YES	NO	NO	NO	NO
Focus	NO	YES	YES	--	YES	YES	YES	YES
Major*	YES	YES	NO	YES	--	NO	NO	NO
Second Major*	YES	YES	NO	YES	NO	--	NO	NO
Minor	NO	NO	NO	YES	NO	NO	--	NO
Certificate	NO	NO	NO	YES	NO	NO	NO	--

\*\*Assumes A&S majors

### Grade Point Average (GPA)

- Students must be earn at least a 2.0 GPA (C average) for all UH Mānoa registered credits and must not be on academic action (i.e., not on probation, suspension, dismissal). Some majors or programs have specific GPA requirements (see department's sections).

### A&S Degree Requirements

The Colleges of Arts and Sciences offer Bachelor of Arts (BA), Bachelor of Fine Arts (BFA), Bachelor of Music (BMus), and Bachelor of Science (BS) degrees, each of which has specific requirements as listed below. Courses used to fulfill these requirements can double dip with UH Mānoa General Education Core, UH Mānoa Graduation, and A&S Major requirements.

#### Bachelor of Arts (BA), Bachelor of Fine Arts (BFA) and Bachelor of Music (BMus)

- One of the following (these courses may also satisfy the UH Mānoa General Education Core "FS" requirement when they are designated as "FS" courses):  
BUS 250, ICS 141, 241, MATH 100, 112, 140, 161, 203, 215, 241, 251A, NREM 203, PHIL 110, 110A, 111, or SOCS 150

#### Bachelor of Science (BS)

- Calculus I: MATH 215, 241, or 251A (these courses also satisfy the UH Mānoa General Education Core "FS" requirement)
- Calculus II: MATH 216, 242, or 252A
- Chemistry: CHEM 161/161L and 162/162L or 171/171L or 181A/181L
- Physics: PHYS 151/151L and 152/152L or 170/170L and 272/272L

(These Chemistry and Physics lecture courses also satisfy the UH Mānoa General Education Core "DP" requirement. These lab courses also satisfy the UH Mānoa General Education Core "DY" requirement.)

**Note:** Many introductory science and mathematics courses require an assessment examination to determine appropriate placement. Information about assessment exams appears each semester in UH Mānoa's *Registration Guide* or on the website at [www.hawaii.edu/myuh/manoa/](http://www.hawaii.edu/myuh/manoa/).

### A&S Major Requirements

A&S major requirements offer students specialization in an academic field of study and develop liberal arts skills. Major requirements contribute to the ideal liberal arts education, which prepares students for productive lives and careers, enlightened citizenship, and lifelong learning.

Major requirements are explained in each department's sections in this *Catalog*, in the online *Catalog*, and on the department's websites.

The minimum course grade to fulfill major requirements is a C (not C-). These requirements must be taken for a letter grade, unless the course is offered only with the CR/NC grade option.

A&S students should meet regularly with both their major advisor at their respective department office and with an A&S college advisor in the Student Academic Services office (QLCSS 113).

### Second or Multiple Majors and Minors

A&S students are encouraged to consider applying for a second major or a minor or a combination of both. Pursuing additional academic fields of study in the form of a second major, or with the addition of a minor, can benefit students in several ways, including the opportunity to discover relation-

ships across disciplines, develop diverse perspectives, strengthen one's appreciation for the acquisition of knowledge in more than one academic field and enhance one's ability to problem-solve and communicate in a variety of settings. Applicants for multiple majors/minors need to:

- be enrolled as a classified Arts and Sciences student,
- be in good academic standing,
- be seeking majors under one degree program (e.g. BA/psychology and communicology, or BS/physics and mathematics),
- be able to complete degree requirements within the maximum total credits as specified by UH Mānoa's excess credit policy (see "Undergraduate Education").

The Colleges offer minors in 27 disciplines. Most minors require a minimum of 15 credits of non-introductory and upper division level course work, completed with a grade of C (not C-) or better.

Academic advisors are available to discuss with students the way that a second major or minor can complement the first major to help students formulate an academic plan so that adding a second major or a minor does not delay graduation unnecessarily.

Holders of a first baccalaureate degree who wish to pursue a second major rather than a complete second baccalaureate degree should pursue their academic major as an unclassified post-baccalaureate candidate. Students interested in pursuing the post baccalaureate second major option should meet with the undergraduate advisor in the second major in order to request permission to pursue a post baccalaureate second major and to identify the major requirements they need to fulfill. During a student's last semester, a "Colleges of Arts and Sciences Graduation Worksheet Major Requirements" (goldenrod) form must be submitted to the Colleges of Arts and Sciences Student Academic Services.

## Second Baccalaureate Degree

Priority for admission into any Arts and Sciences baccalaureate program is given to students seeking their first undergraduate degree. Applications must be received by the Office of Admissions by the established deadlines.

All applicants must meet admissions requirements for the degree program to which they are applying. Applications for a second baccalaureate degree will be considered only if there is a demonstrable difference in curricula and objectives between the two degrees and majors. Course work used towards a major/minor/certificate in the first degree cannot be used to satisfy major/minor/certificate requirements in the second degree, unless specific courses are required in the second degree. Second degree students must earn a minimum of 30 credits in courses taken at UH Mānoa **upon admission as a second baccalaureate degree candidate** while continuously enrolled in the colleges, and must satisfy all program requirements current at the time of official admission into the program. For more information, see the Arts and Sciences Student Academic Services website, [www.advising.hawaii.edu/artsci/](http://www.advising.hawaii.edu/artsci/).

The colleges may approve concurrent multiple baccalaureate degrees for exceptional students. Students should speak with an advisor in the Arts and Sciences Student Academic Services office for further information.

## Professional Programs

Pre-professional students, i.e., students who plan to pursue careers such as Education, Engineering, Law, Medicine, Social Work, etc., often need extra course work and preparation and should seek academic advising as early as possible.

For almost all professional schools, a liberal arts education such as that offered in the Colleges of Arts and Sciences provides an essential foundation. Some professional schools admit undergraduate students in transfer; others require that students complete a baccalaureate degree before being admitted. Most professional schools also have specific prerequisites that students must complete before applying.

Pre-professional students should consult both the recommendations set by the appropriate national organization and the specific prerequisites of the professional schools they hope to attend.

Students interested in health and law careers should visit the Pre-Health/Pre-Law Advising Center (PAC), a walk-in resource center located in QLCSS 101. PAC is staffed by trained peer advisors who assist students in clarifying career goals, choosing a major, planning appropriate course work, finding opportunities to gain experience, and applying to schools.

## Graduate Programs

Information regarding graduate programs and admission is in the "Graduate Education" section of the *Catalog*. Each department also includes information in its description about their specific program(s). Check specific departments for program requirements.

## Student Organizations

Societies and clubs associated with many departments within the Colleges of Arts and Sciences give students opportunities to explore a field from an informal perspective, get acquainted with other students with similar interests, and learn of the options available upon graduation. The Colleges of Arts and Sciences highly recommend active student involvement in these associations for the academic and professional enhancements they provide. Check with your departmental advisor for information.

## Honors and Awards

### Scholarships and Awards

The Colleges of Arts and Sciences and their departments provide scholarships and awards to exceptional students. For a selective list of scholarships, see "Tuition, Fees, and Financial Aid." If you wish specific information on prizes or scholarships offered through the Colleges of Arts and Sciences, contact the appropriate department.

### Honor Societies

Honor societies at UH Mānoa in the Colleges of Arts and Sciences include Alpha Kappa Delta (sociology), Beta Phi Mu (library science), Delta Phi Alpha (German), Golden Key National Honor Society (undergraduate), Kappa Tau Alpha (journalism), Lambda Delta (freshmen), Mortar Board (seniors),

Omicron Delta Epsilon (economics), Phi Alpha Theta (history), Phi Beta Kappa (liberal arts and sciences), Phi Eta Sigma (freshmen), Phi Kappa Phi (general scholarship), Pi Delta Phi (French), Pi Kappa Lambda (music), Pi Sigma Alpha (political science), Psi Chi (psychology), Sigma Delta Pi (Spanish), Sigma Pi Sigma (physics), and Sigma Xi The Scientific Research Society (sciences).

## Instructional and Research Facilities

### Center for Biographical Research

The Center for Biographical Research (CBR) is dedicated to the interdisciplinary and multicultural study of life writing. CBR programs include teaching, publication, and outreach activities.

In conjunction with the Department of English, CBR offers thesis advising for PhD and MA projects, and awards the Biography Prize annually for work in life writing by a UH Mānoa graduate student. The Department of English also offers a number of graduate and undergraduate courses in life writing. A BA program in biography is offered through the Interdisciplinary Studies Program.

CBR publishes *Biography: An Interdisciplinary Quarterly*, the premier scholarly journal in the field. Appearing continuously since 1968, *Biography* explores the theoretical, historical, generic, and cultural dimensions of life writing. CBR also sponsors the Biography Monograph series, a book publishing enterprise designed to further the study and practice of life writing in all its forms.

CBR maintains a library and resource collection and has hosted, since 1988, the public lecture series Brown Bag Biography, part of the center's commitment to supporting and publicizing contributions to life writing. CBR is a founding partner of *Biography Hawai'i*, a television documentary series that focuses on residents whose lives have had a lasting impact on these islands. The center also hosts [iaba-l@hawaii.edu](mailto:iaba-l@hawaii.edu), the listserv and discussion forum for the International Auto/Biography Association.

### Center for Language and Technology Moore Hall (formerly Language Learning Center)

Web: [clt.manoa.hawaii.edu](http://clt.manoa.hawaii.edu)

The mission of the Center for Language & Technology (CLT) is to support the informed use and integration of technology into instruction and research in the curriculum of the College of Languages, Linguistics and Literature.

The CLT fulfills its kuleana by: a) supporting the research and development of technology-based materials for language teaching and learning; b) providing faculty development opportunities for technology integration into the curricular areas of the college; c) providing professional enrichment opportunities to teaching assistants; d) providing expertise in media design, production and delivery; e) researching and supporting innovative technology tools and pedagogical approaches that are specific to the curricular areas of the College; and f) providing technology resources and services that are specific to the curricular areas of the college.



The CLT additionally provides leadership and guidance in the creation of online learning experiences. In the last few years, activities in this area have included the creation and implementation of a review process to assist online-teaching faculty in the development and maintenance of quality online courses. The CLT also supports faculty by providing expert feedback throughout the process as well as numerous opportunities for professional development in this area, with a particular emphasis on the academic areas of the college.

To fulfill its mission to support informed use of technology in instruction, the CLT provides flexible, technology-rich physical spaces that are designed with consideration of the specific academic areas of the college. Faculty can avail themselves of facilities such as broadcast-standard video and audio production suites, a state-of-the-art project development room, a high-end theater projection room, web-conferencing meeting rooms, and a smart classroom primarily intended for instructional research and special projects. Technologies available to instructors include physical and virtual technology tools. The former includes a variety of audio-visual equipment available for check out; the latter includes specialized technologies developed in-house.

The CLT regularly hosts local, national, and international events sponsored by various units in the college, collaborates with several campus units, and also conducts outreach activities to support Hawai'i's language-teaching community.

### Second Language Teaching and Curriculum Center

The Second Language Teaching and Curriculum Center was established in 1988 with the broad mission of improving language instruction in the College of Languages, Linguistics and Literature, and facilitating cooperative efforts among departments. The center coordinates professional development programs, provides curriculum and materials development services to departments, supports faculty research and development projects, and conducts outreach activities to support Hawai'i's language-teaching community.

## National Foreign Language Resource Center

Web: [nflrc.hawaii.edu](http://nflrc.hawaii.edu)

The National Foreign Language Resource Center (NFLRC) is one of the first three Language Resource Centers established by the U.S. Department of Education in 1990. The ultimate mission of the NFLRC is to improve the learning and teaching of world languages while focusing primarily on the underserved populations of both teachers and students of the less commonly taught languages of Asia and the Pacific.

Taking advantage of Hawai'i's geographic location and drawing on the rich expertise of the College of Languages, Linguistics and Literature, the NFLRC works to improve teaching through the production and dissemination of a broad range of resources, including instructional materials, scholarly books, and edited collections. Online resources include three e-journals, video and audio archives, and bibliographic databases.

NFLRC works closely with the Center for Language & Technology on a number of initiatives, for example, developing and researching instructional models that combine distance and face-to-face instruction and collaborating in the design and development of technologies that support those models. Throughout the year, the NFLRC hosts and co-hosts local, national, and international conferences and workshops.

## Academy for Creative Media

College of Arts and Humanities  
Crawford 210

2550 Campus Road

Honolulu, HI 96822

Tel: (808) 956-7736

Fax: (808) 956-6662

Email: [acm@hawaii.edu](mailto:acm@hawaii.edu)

Web: [www.hawaii.edu/acm/](http://www.hawaii.edu/acm/)

### Faculty

A. Misawa, MFA (Chair)—cinematic and digital production

M. Booth, MFA—documentary, critical studies

D. Boulos, MFA—animation

T. Brislin, PhD—media ethics; critical studies

L. Flanary, MFA—screenwriting, indigenous filmmaking

V. Hereniko, PhD—critical studies, cinematic and digital productions, screenwriting

V. Mih, MFA—animation

J. Moffett, MFA—screenwriting, cinematic & digital production

K. Ng, PhD—critical studies

G. Wang, MFA—post production

**Degree Offered:** BA in creative media

### The Academic Program

The Academy for Creative Media (ACM) emphasizes narrative, or storytelling, theories, skills, and application across multiple platforms of digital media and within a context of cultural and aesthetic values. More than just a “film school,” ACM seeks to empower students to tell their own original and authentic stories of Hawai'i, the Pacific, and Asia rather than have those stories told for them through a different cultural lens that is distant and often distorted.

ACM offers a core curriculum and specialized courses in three tracks: Digital Cinema, Computer Animation, and Critical Studies. A catalog of courses, academic planning guidelines, and program information can be found on the Academy's website at: [www.hawaii.edu/acm](http://www.hawaii.edu/acm).

## Undergraduate Study

### Bachelor's Degree

Students have the flexibility to design an academic program around a core of ACM courses and electives including a variety of UH Mānoa departments offering courses in film and media studies. Students work in close consultation with faculty to develop a program that reflects the development of academic, writing, creative, and critical thinking skills.

### Requirements

To declare a major in Creative Media, students must:

- Have completed or be enrolled in Cinema and Digital Media (ACM 255), and have completed 12 or more credit hours with an overall 2.75 GPA;
- Be enrolled in the Colleges of Arts and Sciences.

To complete the creative studies major, students must design a detailed and acceptable academic plan, under the guidance of an ACM faculty advisor, consisting of 36 credit hours that emphasizes one of the three ACM tracks, includes the required core of ACM courses, and is supplemented with elective courses. Six credit hours of electives may be taken from departments outside of ACM.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Required Courses

- ACM 255
- ACM 310 or 316
- ACM 350 or 355
- 9 credits from any of the following: ACM 352, 360, 380, 382, 385, 460, 480, 482, 485, and 490
- 12 credit hours from one of three ACM degree tracks

### Computer Hardware and Software Requirements

The curriculum of the Academy for Creative Media requires students to have access to a laptop computer. Hardware and software specifications can be found at [www.hawaii.edu/acm/computer](http://www.hawaii.edu/acm/computer).

### Advising

Introductory information on the academy, including guidelines for academic planning, can be found at [www.hawaii.edu/acm](http://www.hawaii.edu/acm). All students accepted for the major are assigned a faculty advisor. Advising is mandatory to design the student's academic plan, and for any subsequent changes.

# American Studies

College of Arts and Humanities  
 Moore 324  
 1890 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-8570  
 Fax: (808) 956-4733  
 Email: amstuh@hawaii.edu  
 Web: manoa.hawaii.edu/amst/

## Faculty

- \*D. Stannard, PhD (Chair)—social and cultural history, race and racism, colonialism and genocide
- \*W. Chapman, PhD—historic preservation
- \*E. Colwill, PhD—gender, slavery, and Revolution in the Atlantic world
- \*J. Eagle, PhD—film/media, gender studies, U.S. cultural history
- \*V. Gonzalez, PhD—American empire, tourism and militarism, gender and sexuality, ethnic and cultural studies
- \*N. Kahanu, JD—public humanities and Native Hawaiian programs
- \*K. Kosasa, PhD—visual and cultural studies, museum studies, critical pedagogy
- \*L. J. Mariano, PhD—Filipino American studies, diaspora studies, Asian American studies
- \*B. McDougall, PhD—indigenous studies, literary studies
- \*D. Ogawa, PhD—intercultural and Japanese American studies
- \*R. Perkinson, PhD—southern and western history, race and class, crime and punishment, American empire
- \*K. Sands, PhD—religion in America, religion and law, women in religion, Christian history, theory of religion
- \*J. Stanton, PhD—culture and arts
- \*M. Yoshihara, PhD—U.S. cultural history, U.S.-Asian relations, Asian American studies, literary and cultural studies, gender studies

## Cooperating Graduate Faculty

K. Ng, PhD—religion in America, religion and law, Christian history, theory of religion

## Affiliate Graduate Faculty

A. Kikumura-Yano, PhD—Japanese-American studies, Asian American studies, museum studies  
 K. Yamazato, PhD—American literature and culture

**Degrees and Certificates Offered:** BA (including minor) in American studies, MA in American studies (including dual AMST/MLISc MA), PhD in American studies, Graduate Certificate in Historic Preservation, Graduate Certificate in Museum Studies

## The Academic Program

Since its inception in the 1930s, American Studies (AMST) has offered an integrated multidisciplinary exploration of the historical and contemporary American experience. This involves the study of American popular and high culture; environmental issues; institutional structures, including political and economic institutions; systems of thought and belief; and gender, ethnic, racial, and cross-cultural relationships. A combination of historical, literary, social-scientific, and other methodological approaches is used. In addition to such traditional aims, American studies at UH Mānoa also explores the role of Hawai'i, the Pacific, Asia, and, to a lesser extent, other parts of the world

within the American experience, an objective that imparts a cross-cultural dimension to its program and differentiates it significantly from most other programs in the field.

At the undergraduate level, American studies offers a balanced general education experience, as well as excellent preparation for both advanced study in the field and professional studies ranging from law to travel industry management. Advanced degrees are intended primarily as preparation for college and university-level teaching, but recipients are also engaged in such activities as journalism, library management, business administration, and government service. A dual MA can be taken in cooperation with the Library and Information Science Program. In addition to regular degrees, graduate certificates are offered in historic preservation and museum studies.

## Affiliations

The department is affiliated with the American Studies Association, American Association of Museums, Hawai'i Museums Association, National Council of Preservation Education, and National Trust for Historic Preservation.

## Advising

The undergraduate advisor advises all undergraduate majors, and the graduate chair advises all graduate students.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 30 credit hours, including:

- 21 credit hours of AMST upper division courses, including AMST 381, 382, 480, and 481 or 482 (one lower division course may now be counted)
- 9 remaining credit hours may include upper division courses in either AMST courses and/or allied humanities and social sciences courses (no more than 3 credit hours of 499 may be counted). These courses must be approved by the undergraduate advisor or be listed in the “pre-approved” allied course list on the department website.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

#### Minor Requirements

Students must complete 15 credit hours, including:

- AMST 381 and 382
- 9 credit hours of 300- or 400-level American studies electives

## Graduate Study

### Application Requirements

Applicants for graduate programs should present an academic record indicating a broad range of study in the humanities and the social sciences with an emphasis on American culture. In addition to the admission requirements of the Graduate Division, the applicant should have a copy of his or her latest GRE scores, Graduate Program Supplemental Information form, Statement of Objectives, and at least two letters of recommendation sent directly to the department. Each letter of recommendation should have the “Waiver of Access to Confidential Letters/Statements” form attached to it. PhD applicants are also required to submit a writing sample, preferably a paper that was writ-

ten for a graduate course. Applications for graduate admission are considered for either fall (September-December) or spring (January-May) semester. Application deadlines for local and mainland applicants are: **February 1** for fall; **September 1** for spring. Application deadlines for foreign applicants are: **January 15** for fall; **August 1** for spring. There is no summer admission to advanced degree programs in the Graduate Division. There is an application fee.

Proficiency in a foreign language is not required unless it is necessary for dissertation research. Students having a special career interest in Asia may select courses offered in the Asian studies program to satisfy some degree requirements in American studies.

Courses for the graduate program are to be selected from among the courses listed in the back of the *Catalog*, from appropriate American studies graduate courses and upper division and graduate courses in related fields. Consent of the departmental graduate chair is required for enrollment in all undergraduate courses and all graduate courses in other fields. The courses listed in the back of the *Catalog* are numbered and grouped as follows: 500, Master's Plan B/C Studies; 600-609, introductory courses; 610-689, fields of study courses; 690-699, special topics courses; and 700-800, thesis and dissertation research. AMST 500V, 699V, 700V, and 800V are offered each semester; AMST 600, 601 and 602 are offered annually, and most other 600-level courses are offered once every three years.

### **Master's Degree**

MA candidates are expected to possess the BA degree and have a background knowledge of American culture.

#### **Requirements**

MA students may select either the Plan A or Plan B program. Students must complete 33 credit hours as follows:

#### **Plan A (Thesis)**

- 6 credit hours of AMST 700
- 18 credit hours in courses numbered 600 and above, including AMST 600, 601, 602 and a graduate seminar course
- 9 credit hours in a chosen field of specialization
- oral examination

#### **Plan B (Non-thesis)**

- 18 credit hours in courses numbered 600 and above, including AMST 600, 601, 602 and a graduate seminar course
- 15 credit hours in a chosen field of specialization
- written and oral examinations

More specific requirements are detailed on the American studies website at: [manoa.hawaii.edu/amst](http://manoa.hawaii.edu/amst).

### **Doctoral Degree**

PhD candidates are expected to possess the MA degree in American studies or its equivalent and should have a scholarly attainment of a high order and widespread intellectual interests. In most instances, admission to the PhD program requires applicants to possess an MA degree. However, occasionally an applicant with a BA and exceptionally strong credentials may be admitted directly into the doctoral program.

### **Requirements**

Students must complete 48 credit hours including:

- 18 credit hours in courses numbered 600 and above, including AMST 600, 601 and 602 and a graduate seminar course
- 30 credit hours in a chosen field of specialization

### **Students must also complete:**

- A qualifying examination consisting of two written parts covering the two areas of specialized fields of student's choice and an advanced graduate syllabus followed by an oral examination dealing with all three areas
- An oral comprehensive examination administered by the dissertation committee
- A dissertation of high quality and its successful oral defense

### **Certificate**

#### **Graduate Certificate in Historic Preservation**

Candidates for the Certificate in Historic Preservation must possess a BA degree. The Certificate in Historic Preservation combines course work and applied experience.

#### **Requirements**

Students must complete 15 credit hours of graduate course work:

- 3 credit hours of ANTH 645, Historic Preservation
- 3 credit hours of AMST 675, Preservation: Theory and Practice
- 3 credit hours of AMST 695, Historic Preservation Practicum
- 6 credit hours in field of specialization

A maximum of 6 credit hours may be applied simultaneously to the historic preservation certificate and to another degree. Internships are usually undertaken with local firms and organizations that have a preservation interest or with individuals who are qualified to direct independent work in preservation. The program concludes with a formal colloquium presentation. More information is available on the Historic Preservation Program's website at [manoa.hawaii.edu/amst/historic-preservation/the-field/](http://manoa.hawaii.edu/amst/historic-preservation/the-field/).

#### **Graduate Certificate in Museum Studies**

Candidates for the Certificate in Museum Studies must possess a BA degree. The Museum Studies Graduate Certificate Program provides an opportunity to learn about museums, acquire professional experience, and develop research skills.

#### **Requirements**

Students must complete 18 credit hours of graduate course work:

- 3 credit hours of AMST 683, Museums: Theory, History, Practice
- 3 credit hours of AMST 684, Museums and Collections
- 3 credit hours of AMST 685, Museums and Education
- 3 credit hours of AMST 690, Research Seminar
- 6 credit hours of electives

A maximum of 6 credit hours may be applied simultaneously to the Museum Studies Certificate and to another degree. Internships are usually undertaken with local museums and related institutions or organizations and under the direction of a supervisor qualified to direct independent work in a museum related project. The program concludes with a formal colloquium presentation. For more information, see [manoa.hawaii.edu/amst/museum-studies/about-museum-studies/](http://manoa.hawaii.edu/amst/museum-studies/about-museum-studies/).

# Anthropology

College of Social Sciences  
Saunders Hall 346  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8415  
Fax: (808) 956-4893  
Email: anthprog@hawaii.edu  
Web: www.anthropology.hawaii.edu

## Faculty

- \*C. J. Bae, PhD (Graduate Chair)—biological anthropology, paleoanthropology, vertebrate taphonomy, Out of Africa I, modern human origins; China, Korea, Japan
- \*A. Golub, PhD (Undergraduate Advisor)—cultural anthropology, kinship and identity, governance, indigenous land tenure, mining and natural resources, common and intellectual property, semiotic technologies, Papua New Guinea, Melanesia, massively multiplayer online video games
- \*J. M. Bayman, PhD—archaeology, craft economies; North America, U.S. Southwest, Hawai'i
- \*C. F. Blake, PhD—critical and interpretive theory, ethnography and biography, popular ideologies, social movements and entrepreneurship in the modern world economy; China, U.S.
- \*J. Brunson, PhD—medical anthropology, fertility and reproduction, maternal health, new medical technologies, structural and interpersonal violence, gender, family; Nepal
- \*J. Padwe, PhD—environmental anthropology; agro-ecology; war and the environment; ethnicity; Southeast Asia (Cambodia), South America (Paraguay, Bolivia)
- \*C. E. Peterson, PhD—archaeology, comparative study, early complex societies, regional settlement patterns, household archaeology, quantitative methods; China
- \*M. Pietrusewsky, PhD—physical anthropology, skeletal biology, forensic anthropology; Oceania, SE and East Asia, Australia
- \*B. V. Rolett, PhD—archaeology; Pacific Islands, Southeast China
- \*E. J. Saethre, PhD—medical anthropology, indigenous health, HIV/AIDS, biomedical interventions; Aboriginal Australia, South Africa
- A. M. Sakaguchi, PhD—medical anthropology, public health, medical malpractice, globalization and its impact on emerging and re-emerging diseases, health disparities, health care disparities, Japanese literature and history
- \*M. Stark, PhD—archaeology ecology, early village economics, ceramics, ethnoarchaeology; Southeast Asia, U.S. Southwest
- \*T. P. K. Tengan, PhD—cultural anthropology, indigenous theory and methodology, colonialism, nationalism, identity, gender, cultural politics; Pacific, Hawai'i
- \*G. M. White, PhD—cultural anthropology, history and memory, self and emotion, ethnographic methods; Pacific Islands, America
- \*C. Yano, PhD—cultural anthropology, popular culture, ethnomusicology, cultural nationalism, emotions; Japan, Japanese Americans

## Cooperating Graduate Faculty

- C. Beaulé, PhD—Andean/Latin American archaeology, household organization, origins of complexity, Colonialism
- D. Brown, PhD—physical anthropology, medical anthropology; Polynesia
- R. Cann, PhD—physical anthropology, anthropological genetics, human populations

- W. Chapman, PhD—historic preservation, historical archaeology, history of anthropology
- C. Clayton, PhD—cultural anthropology; sovereignty and colonialism; nationalisms and transnationalisms; history, memory and place-making; China and East Asia
- E. Drechsel, PhD—historical sociolinguistics, ethnohistory, North American Indians; North America
- S. Falgout, PhD—cultural and historic anthropology; Micronesia
- M. Hamnett, PhD—applied policy research, economic development, research management; Oceania
- G. G. Maskarinec, PhD—anthropology of language (Nepalese oral texts), western biomedical clinical medicine, medical education and indigenous medical systems of S. Asia; religions (belief systems, ritual and performance)
- P. Mills, PhD—archaeology, culture contact, lithic analysis, ethnohistory; Polynesia, North Pacific, North America
- W. Nishimoto, PhD—oral history, ethnographic interviewing; Hawai'i
- J. Y. Okamura, PhD—ethnicity and ethnic relations, Asian American studies; Philippines, Hawai'i
- M. Sharma, PhD—political economy, development, class formation and gender relations, radical feminist theory; India

## Affiliate Graduate Faculty

- M. S. Allen, PhD—prehistory of Oceania, evolutionary, ecological, and biological theory, zooarchaeology, human paleoecology, subsistence change, prehistoric environments, exchange and interaction, Polynesian fishing technologies; Oceania, Polynesia
- A. R. Arno, PhD—legal anthropology, ethnography of communication, kinship and social organization; Pacific
- J. S. Athens, PhD—evolutionary and agricultural ecology, origin of agriculture, development of complex societies, tropical paleoenvironmental (Ecuador, Oceania), archaeology of Ecuador, Micronesia, and Hawai'i, CRM issues, management and administration
- N. Barker, PhD—cultural anthropology, religious self-mortification, culture concept, theory of ritual, self-sacrifice and the body; Philippines, Asia
- R. A. Bentley, PhD—complexity theory, the prehistoric spread of agriculture into Europe and the effects of human interaction on cultural evolution
- K. Brown, PhD—cultural anthropology; family histories; farmer production decision; religious syncretism; ethnicity and the Emperor; globalization and food, family and car culture; Japan
- E. Cochrane, PhD—evolutionary theory, cultural transmission, archaeological science, Oceania, Fiji, ceramics
- S. Collins, PhD—archaeology, human and faunal osteology, historic preservation compliance and practice; Hawai'i and the Pacific
- M. T. Douglas, PhD—physical anthropology, skeletal biology, bioarchaeology, paleopathology; Oceania, Southeast Asia
- T. Dye, PhD—archaeology; Hawai'i and the Pacific
- J. Fox, PhD—land use, forest resources and management GIS and spatial information technology; South Asia, SE Asia
- T. D. Holland, PhD—physical and forensic anthropology, skeletal biology; U.S. Midwest, Southeast Asia
- T. Jiao, PhD—transition from hunting-gathering to farming, maritime adaptation, complex society, early state formation; China, southeast Asia
- J. Kahn, PhD—archaeology, lithic technology, household archaeology, monumental architecture and landscapes; Hawai'i, French Polynesia, and the Pacific
- G. Marten, PhD—population dynamics, ecosystem ecology, animal behavior, statistics, mathematical modeling, population genetics

- L. Lindstrom, PhD—cultural anthropology, sociolinguistics, ethnohistory, social theory; Oceania, Vanuatu
- J. A. Peterson, PhD—archaeology, historical ecology, landscapes, historical archaeology; Hawai'i-Pacific, Philippines, American Southwest
- J. Silverstein, PhD—archaeology, militarism; the evolution, rise and fall of complex societies; hydraulic constructions; GIS; survey; modern military archaeology in Asia and Europe; urban archaeology; Mesoamerican; and Greco-Roman Egypt
- M. Tomlinson, PhD—cultural and linguistic anthropology, religion and ritual, discourse analysis, Christianity; Fiji, Oceania
- E. Wittersheim, PhD—political and urban anthropology and documentary filmmaking, nationhood and state-building; Vanuatu, Melanesia, Oceania
- D. Y. H. Wu, PhD—cultural anthropology, ethnicity, anthropology of food; China and Chinese diaspora
- D. Yen, PhD—ethnobotany; Oceania, Southeast Asia
- H. Young Leslie, PhD—cultural construction of health, medical professionals and medical systems (across time and space), midwifery, gender, the body, development, qualitative methodologies, and women's material culture

### Adjunct Faculty

- J. Baker, PhD—medical and nutritional anthropology, anthropology of food, ethnopharmacology, science and technology studies; Oceania
- N. I. Cooper, PhD—socio-cultural anthropology, performance, gender, expressive culture, ritual and religion; Southeast Asia, Indonesia, Java, Singapore
- L. Gollin, PhD—edical anthropology, ethnobotany and ethnobiology, local ecological knowledge, cultural resource management, oral histories; Indonesia and Hawai'i
- J. Jin, PhD—zooarchaeology, vertebrate taphonomy, human skeletal biology, forensic anthropology, paleoanthropology; China, Korea
- G. Pigliasco, PhD—cultural and legal anthropology, visual anthropology, ritual and performance commodification and tourism; Oceania, Fiji
- J. Rensel, PhD—socioeconomic history, housing change, migrant communities; Polynesia
- P. J. Ross, MA—quantitative methods, nutritional and medical anthropology, human ecology, medical systems, field methods in cultural anthropology; West Africa

**Degrees Offered:** BA (including minor) in anthropology, MA in anthropology, PhD in anthropology

### The Academic Program

Anthropology (ANTH) is the comparative study of human societies, of the origin and evolution of our species, and of the ways of life of ancient and modern people. It is divided into four main subdisciplines: archaeology, cultural anthropology, linguistic anthropology, and physical anthropology. While physical anthropologists focus upon our biological nature, cultural anthropologists deal with ways of life past and present. Anthropological linguists look at language as a part of human behavior, while archaeologists study the remains of past cultures to reconstruct former lifestyles.

Students of anthropology gain a basic understanding of the cultural basis of human society, and of the origin and development of humanity useful both for understanding the human condition and as a preparation for work in many fields, not just in anthropology. For example, the department offers a uniquely broad range of courses on the cultures of Asia and the Pacific, as well as on aspects of American society, that provide

students with a fund of cultural knowledge and insights upon which to build a career in law, medicine, public health, teaching, business, and other professions. While some BA graduates in anthropology find employment in anthropology, normally an MA or PhD is required to work as an anthropologist in a university, museum, or other institution. The department has a long-standing graduate program, which trains students in all aspects of anthropology, focusing especially on Asia and the Pacific. The training emphasizes field research; in any one year students are engaged in such projects as excavating an ancient religious temple on Tahiti, recording ritual life in rural Java, or analyzing the social system of a Japanese factory.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 31 credit hours, including these required courses:

- ANTH 152, 210, 215, 215L and 490
- Six 300- and 400-level courses

Three of the 300- and 400-level courses may be from related disciplines with prior approval of the student's advisor.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

Students must complete 15 credits of upper division anthropology courses which include one theory course and one methods course. It is highly recommended that students take ANTH 300 (Study of Contemporary Problems) to complete the theory requirement. Alternatively, they may take any 400 level course designated as a theory course by the Department of Anthropology. Students must also take one upper division course designated as a methods course by the Department of Anthropology. Courses will be chosen by the student, in consultation with the undergraduate advisor, to suit the student's needs and interests. Courses must be completed with a grade of C (not C-) or better.

## Graduate Study

Intended candidates for the MA or PhD need not have an undergraduate background in anthropology. All applicants must submit to the department GRE General Test scores and three letters of recommendation at the time of application. Lack of previous training in anthropology may result, however, in study to fill gaps in knowledge. All incoming students are required to attend the Anthropology Colloquium Series in the first two semesters. Applications for admission will be considered for the fall semester only. The deadline for submission of applications, including international students, is **December 1**.

The MA program ensures that graduates grasp fundamentals in their elected subfields, while the PhD program provides an opportunity for further specialization.

### Master's Degree

Admission to MA candidacy is based upon a candidacy conference with the student and his or her three-person committee held sometime prior to the end of the student's second semester

in residence. At that time the student submits in writing, a proposed program of study that the committee must accept before the student is admitted to candidacy.

### Requirements

A candidate for the MA must take three out of four core courses (archaeology, linguistic anthropology, physical anthropology, and cultural anthropology). A core course may be repeated once. A student may take additional core courses to fulfill other course requirements.

An MA candidate must also pass two courses in each of the following categories: method or technique, theory or topic, and culture area. If a candidate needs a course from one of the three categories in his or her program of study and that course is not offered by the department on a timely basis, he or she may petition the graduate chair to substitute a course from outside the department, provided petition is made prior to registration for the course in question. A candidate is required to earn 30 credit hours. A minimum of 18 credit hours must be taken in the department. Graduate students must maintain at least a B (3.0) average. All courses taken for degree credit must be taken for a letter grade.

### Plan A

- 24 credit hours of course work
- Thesis (6 credit hours)
- Minimum of 12 credits in graduate level courses numbered 600 and above

### Plan B

- 30 credit hours
- Three papers on anthropological topics, one of which shall be a research proposal to the committee as evidence of scholarly ability
- Minimum of 18 credits in graduate level courses numbered 600 and above

### MA Track in Applied Archaeology

Please consult departmental and graduate college guidelines for application instructions. Applicants to our Applied Archaeology MA program should explicitly note in their statement of purpose and other correspondence that they are applying to the MA Track in Applied Archaeology, which is a Plan B program. Students who are admitted to the applied program will be assigned an interim advisor upon their acceptance. By the end of the second semester, a student must select a committee of three anthropology faculty, one of whom will serve as her or his committee chair. A student must complete a report on original research, or three publishable papers.

Students who wish to enter the doctoral program, upon completion of the MA Track in Applied Archaeology, must re-apply for admission to the anthropology program.

### Doctoral Degree

A student completing the requirements for the MA may request admission to the PhD program by filling out a Petition for Admission to a Doctorate in Same Discipline (found on the Graduate Division website) and submitting the form to the departmental Academic Specialist. This form will be forwarded to Graduate Division based upon the approval of the graduate chair.

Before the graduate chair can formalize his recommendation, a meeting must be convened consisting of all Anthropology

faculty members with whom the student has taken graduate-level courses. They will evaluate the MA thesis or three papers and review the quality of previous graduate work. The faculty will then make their recommendations to the graduate chair to admit or not to admit the student to the doctoral program.

Admission to the PhD program requires a two-thirds majority of favorable versus unfavorable recommendations from the Anthropology faculty members. The student will receive written notification from the Graduate Dean.

### Requirements

PhD candidates must fulfill the requirements for an MA degree in anthropology as a prerequisite. Requirements for obtaining a PhD include submitting an acceptable program plan at a candidacy conference, passing a comprehensive examination, formulating an acceptable dissertation proposal, writing an acceptable dissertation, and successfully defending this dissertation.

A student entering the PhD program with an MA degree from another department of anthropology must pass the core course in his or her area of specialization with a grade of B (3.0 GPA) or better. This course may be challenged by examination in lieu of taking it for credit. All students are required to take graduate courses (other than reading courses) from at least four different members of the anthropology department.

After admission to the PhD program, the student will form a five-member PhD committee. More members may be added if deemed desirable and consistent with a candidate's interest. At least one person must be a graduate faculty member of another department, but the majority of members must be from the Department of Anthropology. Substitutions may be made at any time if a member of the committee is unavailable.

All students entering the PhD program, including those obtaining an MA from the department, are strongly advised to hold a candidacy conference and gain written approval of their five-member committee for the projected program of study by the second semester.

Approximately one semester prior to the comprehensive examination, the student shall submit a detailed description of the areas to be covered, complete with bibliography. The candidate is expected to have read the items contained in the bibliography and be prepared to discuss them in some depth. It is the responsibility of each committee member to suggest additional readings for the bibliography and to suggest any other changes in the proposed agreement. After all committee members have been duly consulted, the student will prepare a final description to be signed by all concerned, including the student, and to be filed with the graduate chair.

The comprehensive examination shall be administered in two parts: (a) a written examination, and (b) an oral exam, at which the student will be given the opportunity to clarify and amplify answers to the written component. The written exam will consist of one essay question submitted by each member of the student's committee. It will be closed-book; students will not be permitted to use notes or other aids. An allotment of three hours per question will be given. Scheduling will be flexible, but the total exam must be taken within a two week period.

The oral examination is expected to be scheduled not less than one week and no more than two weeks after the written examination. All members of the committee must be present at the examination. At the oral exam the student will be asked to

explain and/or defend answers to the written component. Two hours are to be allotted for this exercise.

If a student fails the comprehensive examination, he or she may be allowed to repeat it. If this examination is failed a second time, the student will be dropped from the graduate program. The committee will provide each student with a written statement detailing the reasons for a negative decision.

After successfully completing the comprehensive examination, the student is required to submit a research proposal for review by the degree committee. A meeting of the committee will be scheduled within two weeks of submission of a final draft of the proposal; the committee will determine whether or not the student is adequately prepared for the fieldwork proposed. A candidate whose field research proposal is approved and who has completed all other requirements is eligible to receive a university ABD certificate.

A student conducting dissertation research among people who do not speak the student's native language will be required, before leaving for the field, to show evidence of oral competence in the most useful field language or training in linguistic field techniques.

Following the student's submission of a final draft of the dissertation, an oral defense will be scheduled. It is the student's responsibility to see that each member of the committee has a copy of the complete final draft of the dissertation at least four weeks before the scheduled date of the oral defense. All members must be present at the oral defense. Procedures for determining final acceptance of the dissertation and awarding the PhD degree are set forth by the Graduate Division. A candidate must complete all the requirements within seven years after admission to the doctoral program. A student unable to meet this deadline may request an extension by written petition to the graduate chair describing reasons for the delay. If approved, the request will be sent to the graduate dean for a final decision.

## Art and Art History

College of Arts and Humanities  
Art 142  
2535 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-8251  
Fax: (808) 956-9043  
Email: uhart@hawaii.edu  
Web: www.hawaii.edu/art/

### Faculty

- \*G. Chan, MFA (Chair)—photography
- \*K. Lingley, PhD (Associate Chair)—Chinese art history
- \*L. Andrews, PhD—Western art history
- \*M. Babcock, MFA, PhD—fiber
- \*R. Bengston, MFA—gallery director
- \*A. Bush, MFA—graphic design
- \*P. Chamberlain, MFA—electronic arts
- \*C. Cohan, MFA—printmaking
- \*D. Drexler, MFA—drawing and painting
- \*S. Groeniger, MFA—digital imaging
- \*J. Hamilton, PhD—contemporary art history and theory
- \*W. Kawabata, MFA—drawing and painting
- \*P. Lavy, PhD—South and Southeast Asian art history
- \*C. Lee, MFA—graphic design
- \*R. Mills, MFA—glass, sculpture
- \*F. Roster, MFA—sculpture
- S. Spangler, MFA—ceramics
- \*J. Stanton, PhD—Western art history
- \*J. Szostak, PhD—Japanese art history
- \*B. Taylor, MFA—ceramics
- \*D. Waite, PhD—Pacific art history

### Affiliate Graduate Faculty

J. Feldman, PhD—Pacific art history

**Degrees Offered:** Undergraduate Certificate in Islamic Studies, BA in art with either a studio or Art History focus (including minor), BFA in art, MA in art history, MFA in art

### The Academic Program

The Department of Art and Art History (ART) offers two separate but interrelated programs. Art history, leading to the BA, affords the opportunity to study the arts of Asia, the Pacific, and the West in a historical and cultural context. The art studio programs provide students either with a broad-based, liberal arts approach via the BA or with a more focused studio specialization leading to the BFA. The latter is considered more appropriate for students intending to pursue the MFA at the graduate level.

The department is housed in an excellent three-story facility with painting studios, photography and computer labs (Macintosh equipped for graphic design, PCs for electronic arts), and fully equipped printmaking, sculpture, ceramics, fiber, and glass facilities. The UH Art Gallery is a prominent feature of the department's programs. Six or seven major exhibitions are presented each year, many of which have received national recognition. Visiting artist programs supplement the regular course offerings.



## Advising

Advising is mandatory for all art and art history majors. For advising, see the associate chair, Kate Lingley, in Art 142A, email: [lingley@hawaii.edu](mailto:lingley@hawaii.edu).

## Undergraduate Study

### BA Degree

This broad-based art degree provides students with a choice of a studio focus, where a wide range of visual arts media can be explored, or an art history focus, where the visual arts are studied in a historical context.

### Requirements

#### Studio Focus

Students must complete 42 credit hours, including:

- 6 credits of art studio core: ART 113 and 116
- 12 credits of art history: ART 175, 176, and 6 credits at the upper division level
- 24 credits of art studio: 12 credits must be upper division

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

#### Art History Focus

Students must complete 42 credit hours, including:

- 11 art history courses (33 credit hours), including ART 175, 176, and 395
- Three studio classes (9 credit hours), selected in consultation with advisor

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BFA Degree

The BFA degree in art is designed for those students who desire a focused preparation in the visual arts or who intend to pursue an advanced degree or career in art. Areas of specialization include: ceramics, digital imaging, drawing, electronic arts, fiber, glass, graphic design, painting, photography, printmaking, and sculpture. Students are encouraged to cross media boundaries, and qualified students may opt to construct an individualized inter-media plan of study with faculty guidance and approval.

Students seeking admission to candidacy for the BFA must be a BA Art major and pass a portfolio review, which can take place only after the following requirements have been met.

1. Completion of art studio core requirements: 113 and 116.
2. Completion of art history core requirements: ART 175 and 176.
3. Completion of one 200-level studio elective not in student's chosen area.
4. Completion of a minimum of 9 credit hours in chosen area with an average of B (not B-) or better.
5. Completion of 18 credits in UH Mānoa core requirements exclusive of art department courses.

All studio areas will hold an annual BFA Portfolio Review in late spring, at least one week prior to registration.

### Requirements

Students must complete 63 credit hours, including:

- Seven courses in one of the 11 program areas as indicated at the time of declaration (last 9 credit hours must be completed at UH Mānoa)
- Two art studio core courses (6 credit hours): ART 113, 116
- Three art history core courses (9 credit hours): ART 175, 176, 302
- Four art history elective courses (12 credit hours)
- Five art elective courses (15 credit hours)

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

- 21 credits in art, 15 of which must be from non-introductory courses

Courses used to meet General Education Core requirements cannot be credited toward the minor.

Students interested in pursuing a teaching career in elementary and secondary art education should seek advisement from the College of Education.

### Undergraduate Certificate in Islamic Studies

The purpose of this certificate is to increase understanding of Islam as a world religion through critical analysis of primary and secondary materials, to foster knowledge about the complexity among Islamic societies and their diverse cultural expressions, and to explore the role of Islam and Muslims in present and past world affairs.

This certificate is housed within the College of Arts and Humanities. The participating departments are Art and Art History, History, Philosophy, and Religion. Minimum prerequisites for acceptance into the program for undergraduates are sophomore or higher standing with a minimum GPA of 2.5 and the completion of at least one introductory course within one of the four participating departments with a grade of B or better.

A more complete description and the requirements are described under the Department of Philosophy.

### Graduate Study

The Department of Art and Art History offers two master's degrees, the MA in art history—Plan A (thesis) or Plan B (non-thesis), and the MFA in studio—Plan A only.

#### MA in Art History

The MA in art history emphasizes the arts of Asia and the Pacific. Applicants for the degree must hold a bachelor's degree from an accredited U.S. college or university or its equivalent from a recognized foreign institution. An undergraduate major in art history is desirable, but not necessary. In support of the application for admission, all applicants are required to send three original letters of recommendation, a sample of written work (preferably an art history seminar or term paper), and General Test scores from the GRE directly to the art department prior to the application deadline. The application form for graduate admission should be sent under separate cover to the Graduate Division.

**Plan A Requirements:**

Students must complete 36 credit hours, including:

- ART 670 Art Historical Methodology
- 9 credit hours of seminars in Asian and Pacific art history
- 6 credit hours of ART 700 or thesis

Students intending to engage in studies leading to the PhD are strongly encouraged to complete course work beyond the minimum MA Plan A requirements.

**Plan B Requirements:**

The non-thesis program is for students wishing to teach in community colleges or at the high school level. Required are 36 credit hours of which 18 must be taken in courses numbered above 600 including:

- ART 670 Art Historical Methodology
- 9 credit hours of seminars in Asian and Pacific art history

In either plan, up to 9 credits, with advisor's approval, may be earned in appropriate advanced courses in other UH Mānoa departments.

The more suitable plan will be mutually determined by the faculty and the student.

Students must also demonstrate a reading knowledge in a foreign language appropriate to their field of specialization, chosen in consultation with the area advisor. For more information on the MA in art history, contact Paul Lavy, PhD, email: paullavy@hawaii.edu.

**MFA Degree**

The MFA is the terminal degree in studio art. The normal period of study is three years in residence. Areas of specialization include ceramics, electronic arts, fiber, glass, painting, photography, printmaking, and sculpture. Although most MFA applicants apply to one of the above media specializations for admission, students may take electives in more than one medium and are encouraged to investigate new genres.

Applicants for the MFA must present evidence of a BFA or a BA with a strong studio art and art history background. The Department of Art and Art History acknowledges that some MFA applicants may not fit traditional criteria and will thus consider exceptional bachelor's degree recipients that exhibit relevant backgrounds, strong commitment, and distinct potential in the visual arts. An applicant with a transcript of 25% or more nontraditionally graded undergraduate or graduate credit hours must submit GRE scores and course performance report forms.

Supporting material of 20 samples of original work should be submitted on a cd (still images in jpeg format, no more than 1.5 mb each and video samples in .mov format) that illustrates abilities in an area of specialization, as well as potential for development within the scope of the department's facilities and personnel. This visual material and three letters of recommendation should be sent to the Department of Art and Art History. The application form for graduate admission should be sent under separate cover to the Graduate Division.

Deficient or incompatible undergraduate preparation may result in admission on a conditional basis and will require, at the discretion of the graduate faculty, additional course work.

After acceptance into the graduate program, admission to candidacy for the MFA degree will be based upon results of the graduate evaluation and a positive review of course work. Those failing must successfully pass on their second attempt or they will be dismissed from the program.

Failure to meet the requirements for continued registration or to show progress in course work will lead to probation and/or dismissal from the graduate program.

**Requirements**

Students must complete 60 credit hours, including:

- 24 credit hours with 6 credits each in ART 611, 612, 613, 614. Conditional or unclassified graduate students may enroll only in ART 611 for a maximum of 6 credits. Consent of instructor is required.
- 15 credits of electives, including ART 699 (not more than 9 credits)
- 6 credits of two art history courses (numbered 300 or above)
- 3 credits of ART 690
- 12 credits of ART 700 thesis, including an exhibition and written documentation

As part of the 60-credit degree requirement, ART 699 Directed Work may be taken for a maximum of 9 credits. Art courses numbered 300 and above and not required at the undergraduate level in the area of specialization are acceptable for graduate credit. Elective courses also may be selected from any other UH Mānoa department, provided such study is deemed useful and pertinent to the student's degree plan. All elective courses require appropriate preparation and the consent of the instructor and graduate student's advisor. For more information on the MFA program, contact gradart@hawaii.edu.

**Astronomy**

College of Natural Sciences  
Watanabe 416  
2505 Correa Road  
Honolulu, HI 96822  
Tel: (808) 956-7091  
Fax: (808) 956-7107  
Email: grad-chair@ifa.hawaii.edu  
Web: www.ifa.hawaii.edu/gradprog

**Faculty**

- \*D. B. Sanders, PhD (Graduate Chair)—infrared and millimeter astronomy
- \*C. Aspin, PhD—star formation
- \*C. Baranec, PhD—exoplanets
- \*J. Barnes, PhD—theoretical astronomy
- \*F. Bresolin, PhD—stellar astronomy
- \*K. Chambers, PhD—extragalactic astronomy
- \*M. R. Chun, PhD—adaptive optics
- \*P. Coleman, PhD—cosmology
- \*A. S. Cowie, PhD—interstellar matter
- \*L. L. Cowie, PhD—extragalactic astronomy
- \*S. R. Habbal, PhD—solar and heliospheric physics
- \*D. N. B. Hall, PhD—infrared astronomy
- \*G. Hasinger, PhD—X-ray astronomy
- \*K. Hodapp, PhD—infrared astronomy
- \*A. W. Howard, PhD—exoplanets
- \*E. M. Hu, PhD—extragalactic astronomy
- \*R. Jedicke, PhD—asteroids
- \*R. Joseph, PhD—infrared astronomy
- \*N. Kaiser, PhD—theoretical astronomy
- \*R-P. Kudritzki, PhD—stellar astronomy

- \*J. R. Kuhn, PhD—solar astrophysics
- \*H. Lin, PhD—solar physics
- \*M. Liu, PhD—stellar astronomy
- \*J. Lu, PhD—star formation
- \*K. Meech, PhD—planetary astronomy
- \*R. Mendez, PhD—star formation
- \*B. Reipurth, PhD—star formation
- \*I. Szapudi, PhD—cosmology
- \*D. Tholen, PhD—planetary science
- \*A. T. Tokunaga, PhD—infrared astronomy
- \*J. Tonry, PhD—extragalactic astronomy
- \*R. B. Tully, PhD—galaxies and cosmology
- \*R. Wainscoat, PhD—asteroids
- \*J. Williams, PhD—submillimeter astronomy

**Degrees Offered:** MS in astronomy, PhD in astronomy

## The Academic Program

Astronomy (ASTR) is the branch of science that studies the structure and development of the physical world beyond Earth. It includes the study of planets and other objects of the solar system; the sun and stars and their evolution; the interstellar medium; the nature and dynamics of star clusters, galaxies, and clusters of galaxies; and the study of the nature and history of the universe itself—of the physical world taken in its largest extent in space and time.

Incomparable facilities for ground-based observational astronomy in the optical, infrared, and submillimeter regions of the spectrum reside in Hawai‘i. UH Mānoa’s facilities are located on Haleakalā on the island of Maui at an elevation of 3,000 meters and on Mauna Kea on the Big Island of Hawai‘i at an elevation of 4,200 meters. The summit of Mauna Kea is internationally recognized as the best observing site in the world. As a consequence, the major telescopes of 11 nations are located there, and UH Mānoa is guaranteed access to them. The Institute for Astronomy of UH Mānoa has major programs in the study of galaxies and cosmology, stellar and interstellar astronomy, solar astronomy, infrared and submillimeter astronomy, and planetary astronomy.

## Graduate Study

Most students entering the astronomy graduate program do so with the goal of achieving the PhD degree, but they must first obtain an MS degree unless they already have a closely related master’s degree from another university.

Applicants to the Astronomy Graduate Program should normally have a bachelor’s degree in physics, astronomy, or a related field. Requirements for admission include a minimum of 35 undergraduate credit hours in physics or astronomy, some of which must be in atomic and nuclear physics, electromagnetism, mechanics, optics, and thermodynamics. We require the GRE General Test, and the subject test in physics.

In selecting applications for entry to the astronomy program, we pay attention to high academic achievement, especially in physics, and to the letters of recommendation. Research experience at the undergraduate level is extremely valuable.

## Master’s Degree

The program offers both the Plan A (thesis) and Plan B (non-thesis) MS degrees, but almost all students opt for the Plan B program as it dovetails better with the requirements of qualification for PhD candidacy. The only real advantage of the Plan A master’s is that it can be completed within four semesters; it is therefore of interest only to those students who want to get a terminal master’s degree in the minimum time.

### Requirements

All MS students must take 30 credits of graduate level astronomy courses unless substitution is approved by the graduate chair. They must include ASTR 633 (Astrophysical Techniques) and at least three credits of ASTR 734-736. Plan A students must complete a thesis in accordance with UH Mānoa regulations, while Plan B students must pass the final examination (which is also the PhD qualifying examination) and satisfactorily complete at least one directed research project as judged by the qualifying exam committee.

## Doctoral Degree

Besides the course work required for the MS degree, PhD students are expected to undertake two directed research projects during their first two years, and present the results to the faculty both as a written report and an oral presentation. Students must pass the Qualifying Exam Assessment (which also serves as the Plan B MS degree final exam) by the end of their 5th semester in the astronomy graduate program.

### Requirements

Students who bypass the MS degree (because they already have an MS degree) must register for at least 3 credits of astronomy course work in each semester prior to the semester in which they will take the qualifying exam assessment; they must also take at least three credits of ASTR 734-736.

Students must pass the comprehensive exam, which takes the form of an in-depth review of the dissertation proposal, and achieve PhD candidacy by the end of their 6th semester in the astronomy graduate program. Finally, students must research, write, and defend a dissertation on a subject approved by their committee.

# Biology

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Advising Email: [bioadvise@hawaii.edu](mailto:bioadvise@hawaii.edu)  
Web: [manoa.hawaii.edu/biology/](http://manoa.hawaii.edu/biology/)

## Faculty

- \*S. Robinow, PhD (Chair)—neurogenetics
- \*J. H. Bailey-Brock, PhD—invertebrate zoology, reef ecology, Polychaetes
- K. M. Bennett, PhD—neuroscience and nephrology utilizing magnetic resonance imaging
- \*M. Butler, PhD—evolution ecology, adaptive radiation, functional morphology, biomechanics
- \*D. Carlson, PhD—evolution population biology, invertebrate biology
- \*K. Cole, PhD—ichthyology, behavioral ecology, reproductive biology, morphology and morphogenesis, microgravity biology
- \*H. G. de Couet, PhD—molecular cell biology, development biology, evolution
- \*L. A. Freed, PhD—evolutionary and behavioral ecology, ornithology, conservation biology
- M. A. Hixon, PhD—marine ecology and conservation biology
- \*C. L. Hunter, PhD—conservation biology, coral reef ecology, biology and ecology of marine invertebrates
- S. D. Kraft-Terry, PhD—academic advising and assessment
- P. B. J. Marko, PhD—biogeography, evolution and conservation
- A. L. Moran, PhD—marine ecology and evolution
- \*F. A. Reed, PhD—population genetics
- \*A. D. Taylor, PhD—population, theoretical, and insect ecology
- \*R. Thomson, PhD—evolutionary biology and phylogenetics
- \*T. Tricas, PhD—marine animal behavior
- \*L. Watling, PhD—impacts of humans on benthic environments; crustacean biology
- \*C. Z. Womersley, PhD—environmental physiology, biochemical adaptation, parasitology

## Cooperating Graduate Faculty

- W. W. L. Au, PhD—marine bioacoustics and echolocation
- B. Bowen, PhD—molecular genetics of marine vertebrates
- R. Cowie, PhD—evolutionary biology, biogeography, ecological genetics, snails, termites
- M. J. Donahue, PhD—spatial ecology of marine systems
- D. Duffy, PhD—conservation biology, sea birds
- R. Gates, PhD—molecular biology, developmental genetics, cell biology, physiology and ecology of corals
- E. G. Grau, PhD—comparative endocrinology, environmental physiology
- D. K. Hartline, PhD—quantitative neurophysiology and simulation of simple networks
- B. S. Holland, PhD—conservation biology of Native Hawaiian tree snails
- K. N. Holland, PhD—physiology, behavior, ecology of aquatic organisms
- T. D. Humphreys, PhD—cellular, molecular, biochemical, developmental biology in marine organisms
- P. J. Jokiel, PhD—coral reef biology, biogeography and ecology

- K. Y. Kaneshiro, PhD—systematics, evolution, insect behavior
- S. A. Karl, PhD—molecular ecology, systematics, and phylogeography of marine animals
- P. Lenz, PhD—neuroecology of zooplankton sensory systems
- P. E. Nachtigall, PhD—behavior and sensory processes of marine mammals
- R. Richmond, PhD—invertebrate zoology, conservation biology
- F. I. Thomas, PhD—marine ecology, biology of larvae
- R. Toonen, PhD—molecular genetics of marine organisms

## Affiliate Graduate Faculty

- G. Aeby, PhD—coral reef ecology
- R. Allison, PhD—systematics, biogeography and ecology
- C. Birkeland, PhD—conservation biology regarding coral
- A. Friedlander, PhD—marine ecology, marine conservation biology
- S. Miller, PhD—ecosystem and population conservation biology
- K. Rodgers, PhD—coral reef ecology

**Degrees Offered:** Undergraduate Certificate in Mathematical Biology, BA (including minor) in biology, BS in biology, BS in marine biology, minor in zoology, MS in zoology, PhD in zoology

## The Academic Program

The Department of Biology (BIOL) provides an academic home to students who wish to pursue a broad training in the biological sciences. It offers a BA degree, a BS degree in biology, a BS degree in marine biology, a minor in biology, an MS in zoology, and a PhD in zoology.

Biology is of fundamental importance in a science or liberal arts education, as it provides students with a keener insight into and a deeper appreciation of the many facets of living systems. Most students plan to use their training as preparation for professional work, such as aquaculture, biotechnology, biological research, dentistry, marine biology, medicine, optometry, park services, pharmacy, and teaching. Our graduates have an outstanding record of acceptance in advanced degree programs at dental, medical, pharmacy, and graduate schools. Many of our graduates also become teachers after obtaining a post-baccalaureate teaching certificate at the College of Education.

The biology curricula are designed to provide students with a strong background in the principles of biology and with rigorous upper division instruction in a number of basic areas. This combination of breadth and in-depth instruction allows students to develop the intellectual foundations and the skills necessary to deal with the specific biological concerns of today and the flexibility to meet the needs of the various professions. From this base, our graduates can pursue future specialization with confidence.

## Advising

Undergraduate student advising is mandatory. Prospective majors should come to Edmondson 216 for advising immediately, to design a curriculum that satisfies program requirements.

## Undergraduate Study

### BA Degree in Biology

#### Requirements (C [not C-] grade minimum)

- BIOL 171, 172, 265, 275, and 375 plus laboratories
- 20 credit hours in approved courses, including one each from microbiology and physiology, and one or more laboratory courses at the 300 level or above

#### Related Requirements (C [not C-] grade minimum)

- CHEM 161, 162, 272 plus laboratories and 273
- PHYS 151 and 152 or 170 and 272 plus laboratories
- MATH 215 or 241 or 251A

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree in Biology

#### Requirements (C [not C-] grade minimum)

- BIOL 171, 172, 265, 275, and 375 plus laboratories
- One course and laboratory from morphology/systematics
- One course from the approved list of physiology courses
- BIOC 441 or BIOL 402
- 16 credit hours in approved courses, including one or more laboratory courses at the 300 level or above: no more than 6 credits of BIOL/ZOOL 499 can apply to this requirement
- The above courses to include one or more courses at the 300 level or above from microbiology

#### Related Requirements (C [not C-] grade minimum)

- CHEM 161, 162, 272 plus laboratories and 273
- PHYS 151 and 152 or 170 and 272 plus laboratories
- MATH 215 and 216 or 241 and 242 or 251A and 252A
- ECON 321 or NREM 310 or SOCS 225 or MATH 243 or 304 or 373 or 472

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree in Marine Biology

#### Requirements (major of 2.5 GPA or higher)

- BIOL 171, 172, 265, 275, and 375 plus laboratories
- OCN 201
- BIOL 301 plus laboratory
- BOT 480
- ZOOL 475 plus laboratory
- BIOL 402 or BIOC 441
- MICR 401 plus laboratory
- 4 credits of directed research in approved disciplines or BIOL 403
- BIOL 404
- 6 credit hours in approved courses

#### Related Requirements (major of 2.5 GPA or higher)

- CHEM 161, 162, and 272 plus laboratories and 273
- PHYS 151 and 152 or 170 and 272 plus laboratories
- MATH 215 and 216 or 241 and 242 or 251A and 252A
- ECON 321 or NREM 310 or SOCS 225 or MATH 373 or MATH 472

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor in Biology

#### Requirements (C [not C-] grade minimum)

- Students must complete BIOL 265/265L, 275/275L, and 375/375L; and a minimum of 3 credits from the following:
- BIOL 301/301L, 331, 363, 390, 395, 401, 402, 407, 408/408L, 425, and 499
  - Approved upper level botany, biochemistry, microbiology, physiology, and zoology courses

### Minor in Zoology

Please go to page 179 for more information on this degree.

### Undergraduate Certificate in Mathematical Biology

The purpose of the certificate is to induce students to pursue the interdisciplinary study of biology and mathematics together with research. The course work will be similar to, but less than, that required to receive a minor in mathematics or biology. However, the students will also have to do a substantial amount of research in addition to the course work. The emphasis in the certificate is different, however, in that the majority of the work is interdisciplinary.

Students will be considered accepted into the Mathematical Biology Certificate Program upon formal request for acceptance and completion of either MATH 304 or 305 with a grade of C or better. To receive the certificate, students must complete 15 credits of approved course work with no grade below a C and attain a GPA of 2.5 in the collection of courses used to satisfy the certificate requirements. Due to the interdisciplinary nature of the certificate, 6 credits of required electives will differ depending on a student's major. Courses used towards the certificate can only be double-dipped with focus requirements.

#### Prerequisites to the Certificate

- BIOL 171 (lab not required)
- CHEM 161 or 171 (lab not required)
- year of calculus (MATH 215/216, MATH 241/242, MATH 251A/252A)
- electives may have additional prerequisites

#### Requirements for the Certificate (15 credits)

- required courses (9 credits): MATH 304, 305, MATH/BIOL 490 (capstone)
- math majors (6 credits): BIOL 172, and 265 or 275 (lab not required)
- life science majors (6 credits): two courses selected from MATH 243/253A, 301, 302, 303, 307, 311, 371, 373, 402, 403, 407, 414, 416, 471, 472
- other majors: completion of above required courses, and at least 6 credits of electives approved by the Committee

Participation in an interdisciplinary Mathematical Biology research project is required. These projects must be substantial, requiring at least the effort of a 5 credit 400-level course; examples include a senior honors research project, summer Research Experiences for Undergraduate programs, and the Undergraduate Biology and Mathematics Research Program; students are advised to discuss their projects with an advisor from the Mathematical Biology Certificate Coordinating Committee before commencing. A research paper based on this research project must be submitted to and approved by the Committee. Students are expected to present their research to an approved symposium or conference.

## Graduate Study in Zoology

Please see page 180 for more information.

## Botany

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### Faculty

- \*T. A. Ranker, PhD (Chair)—systematics and evolution
- \*A. R. Sherwood, PhD (Graduate Chair)—systematics, evolution and biogeography of algae
- \*A. S. Amend, PhD—evolutionary ecology
- \*K. A. Barton, PhD—evolutionary ecology
- \*C. C. Daehler, PhD—population biology, invasive plants, plant-herbivore interactions
- \*D. R. Drake, PhD—ecology and conservation
- \*D. C. Duffy, PhD—conservation, restoration ecology
- \*O. G. Gaoue, PhD—quantitative ecology and ethnoecology
- \*N. A. Hynson, PhD—community ecology
- \*S. C. Keeley, PhD—molecular systematics, evolution in island systems
- \*M. Merlin, PhD—biogeography, ethnobotany, natural history of the Pacific
- \*C. W. Morden, PhD—molecular systematics and evolution of plants and algae
- \*C. M. Smith, PhD—physiological ecology of marine macrophytes, marine ecology, cell biology
- \*A. H. Teramura, PhD—global climate change, ozone depletion, physiological ecology
- \*T. B. Ticktin, PhD—ethnoecology, conservation
- \*G. J. Wong, PhD—mating systems and biosystematics of basidiomycetes

### Cooperating Graduate Faculty

- D. Borthakur, PhD—plant molecular genetics
- D. A. Christopher, PhD—gene regulation of photosynthesis, uv effects
- C. L. Hunter, PhD—reef ecology
- R. Ostertag, PhD—ecology

### Affiliate Graduate Faculty

- C. Dunn, PhD—conservation, habitat restoration
- S. James, PhD—plant ecology, systematics, phycology
- L. Loope, PhD—ecology and conservation
- D. H. Lorence, PhD—systematics of flowering plants (Kaua'i)

### Adjunct Faculty

- A. K. Chock, MS—Hawaiian ethnobotany
- D. R. Herbst, PhD—endangered and threatened Pacific flora, plant morphology

### Retired Faculty In Residence

- K. W. Bridges, PhD—systems ecology, ethnobotany
- D. Mueller-Dombois, PhD—ecology
- C. Smith, PhD—conservation, Hawaiian lichens

**Degrees Offered:** BA (including minor) in botany, BS in botany, BS in ethnobotany, MS in botany, PhD in botany

## The Academic Program

The Department of Botany (BOT) trains students to understand and appreciate the diversity of plants, algae, and fungi that sustain the world's terrestrial, freshwater, and marine ecosystems. The curriculum provides broad-based training, from traditional field methods to the latest molecular techniques, and the program offers excellent opportunities for research experience for undergraduates and graduate students.

The department's programs take advantage of Hawai'i's unique location by offering students unparalleled opportunities to explore the botanical diversity of tropical freshwater, marine, and terrestrial ecosystems through a wide range of field and laboratory experiences. Students may focus on topics ranging from the ecology, evolution, and conservation of Hawai'i's unique ecosystems and flora, to the threats posed by invasive species, to the uses of plants by humans.

At the undergraduate level, the department offers a BA, BS, and minor degree in botany and a BS in ethnobotany. The MS and PhD in botany are offered at the graduate level. All botany faculty members, regardless of rank, teach courses at both the undergraduate and graduate levels. Financial support for undergraduates is available via competitive tuition waivers and scholarships. Tuition waivers and teaching and research assistantships are available to graduate students. Undergraduate majors will be prepared for careers as naturalists, environmental planners, policy makers, conservation biologists, teachers, researchers, and museum or organizational directors. Recipients of advanced degrees commonly follow careers with government agencies, conservation organizations, and colleges and universities in the U.S. and abroad.

The department's website at [www.botany.hawaii.edu](http://www.botany.hawaii.edu) provides glimpses into the many environments and special plants in Hawai'i, and provides further information about faculty interests and research.

### Affiliations

Botanical studies are enhanced by cooperative working relationships between the department and Hawai'i Institute of Marine Biology, Harold L. Lyon Arboretum, Kewalo Marine Laboratory of the Pacific Biomedical Research Center, Pacific Cooperative Studies Unit of the National Park Service, The Nature Conservancy, State of Hawai'i Department of Land and Natural Resources, U.S. Fish and Wildlife Service, National Tropical Botanical Garden, Honolulu Botanical Garden, Herbarium Pacificum and the Department of Botany of the B.P. Bishop Museum, Hawai'i Agriculture Research Center (formerly Hawaiian Sugar Planters' Association), and Waikiki Aquarium.

### Advising

An undergraduate advisor guides undergraduates through the academic program and is available to talk with prospective majors about their interests. Graduate students entering the department are assigned an interim committee of three faculty members who provide general advice. The student's committee and the graduate program chair oversee requirements and provide a link between the Graduate Division and the student. Graduate students are encouraged to interact with each faculty to become acquainted with various research approaches and areas of expertise. Once a research topic has been identified, a permanent committee will be established to provide specific assistance.

## Undergraduate Study

### BA Degree in Botany

The BA degree provides students flexibility to pursue a broad liberal arts education and still gain a sound foundation in botany with an area of particular interest. Courses are available in conservation, ecology, ethnobotany, evolution, physiology, structural botany, systematics, and selected faculty research specialties. The courses applied toward the botany major may be selected with the student's interest area in mind.

#### Requirements

- Students must earn a grade of C (not C-) or higher in each course applied to the major, including required courses in Chemistry, Physics, and Math
- 4 credits required seminars: BOT 100, 200, 300, 400
- 42 credits of the following:
  - BOT 101/101L
  - BOT 201/201L
  - BOT 202/202L
  - BOT 301/301L
  - BOT 302
  - BOT 303
  - BOT 420
  - BOT 462
  - BIOL 171/171L
  - BIOL 275/275L
  - BIOL 375/375L
- Minimum 9 credits of electives
  - Two of either BOT 401, 450, or 499
  - One of BOT 430/430L, 461, or 480
  - Any of the following to fulfill minimum total credit requirement of 55 credits of Botany and Biology: BOT 350, 430/430L, 444, 453, 454, 456, 461, or 480
- 19 credits other required courses: CHEM 161/161L, 162/162L, 272/272L, PHYS 100/100L, and MATH 100

Prospective majors should consult the department promptly to design a curriculum that satisfies these requirements.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree in Botany

The BS degree is designed for those students who plan a career in science with an emphasis on plants, especially those intending to do graduate studies. A full complement of basic courses in biology, chemistry, math, and physics is required in addition to botany courses. As with the BA degree, students may choose among a variety of courses to fulfill requirements for the major.

#### Requirements

- Students must earn a grade of C (not C-) or higher in each course applied to the major, including required courses in Chemistry, Physics, and Math
- 4 credits required seminars: BOT 100, 200, 300, 400
- 42 credits of the following:
  - BOT 101/101L
  - BOT 201/201L
  - BOT 202/202L
  - BOT 301/301L

- BOT 302
- BOT 303
- BOT 420
- BOT 462
- BIOL 171/171L
- BIOL 275/275L
- BIOL 375/375L
- Minimum 9 credits of electives
  - Two of either BOT 401, 450, or 499
  - One of BOT 430/430L, 461, or 480
  - Any of the following to fulfill minimum total credit requirement of 55 credits of Botany and Biology: BOT 350, 430/430L, 444, 453, 454, 456, 461, or 480
  - 27 credits of other required courses: CHEM 161/161L, 162/162L, 272/272L, PHYS 151/151L, 152/152L, MATH 215 (or higher), and MATH 216 (or higher)

Prospective majors should consult the department promptly to design a curriculum that satisfies these requirements. BOT 135 and 160 do not fulfill major requirements.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree in Ethnobotany

The BS in ethnobotany provides a unique learning environment in which biological and social science theories are integrated. Study in ethnobotany will enable students to work in areas related to the conservation of biological and cultural diversity, work in natural health care businesses and practices, enter graduate school programs in ethnobotany, botany, anthropology, and related fields or enter advanced medical training programs.

#### Requirements

- 4 credits required seminars: BOT 100, 200, 300, 400
- 42 credits of the following:
  - BOT 101/101L
  - BOT 105
  - BOT 201/201L
  - BOT 202/202L
  - BOT 301/301L
  - BOT 399/499
  - BOT 420
  - BOT440
  - BOT 461
  - BIOL 171/171L
  - ANTH 152
- 9 credits of electives
  - Two of either: BOT 442, 444, 446, or BIOL 440
  - One other 400 level BOT course
- 12 credits other elective courses
  - Two 400-level social science courses in ANTH, GEOG, HWST, or other culture-focused courses not applied to other requirements in the Ethnobotany degree program
  - Biogeography: two of either: BIOL 320, 360, 410, GEOG 309, 408, 409, 422, 426 or other biogeography course
- Other required courses: CHEM 161/161L, 162/162L, 272/272L, PHYS 151/151L, PHYS 152/152L, MATH 215, and MATH 216

Prospective majors should consult the department promptly to design a curriculum that satisfies these requirements. BOT 135 and 160 do not fulfill major requirements.

## Minor

### Requirements

Students must complete 15 credit hours in non-introductory courses with a grade of C (not C-) or higher.

#### For Ethnobotany:

- BOT 440 and 461
- Two of: BOT 442, 444, or 446
- One 400 level Social Science course that forms part of an ethnobotany theme with the other courses

#### For Evolutionary Botany:

- BOT 201/201L and 462
- Electives: BOT 420, 430, 450, 461, or 480

#### For Tropical Field Botany:

- BOT 453
- Electives: BOT 201/201L, 450, 454, and 461

Individual programs may be designed by the student and advisor for approval by the faculty.

## Graduate Study

The department offers programs leading to MS and PhD degrees. Hawaii's location offers unique opportunities to study the patterns and processes of evolution, ecology, and morphological and physiological variations within a geographically variable yet isolated setting. Abundant opportunities are available for research in marine, aquatic, and terrestrial environments, and faculty expertise spans a phylogenetically diverse set of organisms including land plants, algae, and fungi. The faculty is composed of a number of nationally and internationally recognized scientists in conservation, ecology, ethnobotany, and systematics.

Recipients of the MS degree often teach at the high school level, pursue careers with state or federal government agencies, or work with environmental organizations and consultancies. Those with a PhD may teach and/or conduct research in colleges and universities, work as environmental consultants, and pursue careers with environmental organizations or the government.

A listing of faculty members and their research areas and publications is available on the department website: [www.botany.hawaii.edu](http://www.botany.hawaii.edu). Applications for admission and opportunities for financial aid and support are available upon request.

At the time of application, three letters of recommendation from persons who can appraise the student's aptitude for advanced work are required. In their statement of objectives; applicants should identify a specific area of study within botany: conservation, ecology, ethnobotany, general botany, marine botany, systematics/evolution, or whole plant biology. Minimum curriculum requirements for each track are available at the department website. Applicants will be evaluated for their level of preparation and potential to successfully complete their proposed plan of study. Application deadlines are **January 15** for fall semester. Normally, teaching assistantships are available for the beginning of fall semester, but openings may occur mid-year.

MS and PhD students are admitted to candidacy when they have successfully completed any requirements and pre-program deficiencies identified by their committee and after they have demonstrated the ability to collect, analyze, integrate, and communicate scientific information effectively in the English language.

Because scientific findings are typically presented orally as well as in writing, all students must gain and demonstrate proficiency in the presentation of seminars. Students must complete BOT 610 to satisfy this requirement. In addition, MS Plan A and PhD students must present two public seminars: first, outlining the background of a research problem and the student's proposed research program; and second, at the conclusion of their program, describing the research results and conclusions. The latter seminar also includes a final examination by the thesis or dissertation committee. The final examination for the MS Plan B students includes the presentation of a public seminar summarizing the results of one of their directed research studies.

## Master's Degree

Plan A (thesis) and Plan B (non-thesis) are separate MS programs with distinct purposes. Before admission to candidacy, the plan that a candidate intends to follow must be declared and approved. Plan A is the usual program to be taken by candidates intending a research-related career. Plan B is for students who do not intend to make research in botanical sciences their profession. Both plans require students to take a comprehensive written exam in general botany.

### Plan A (Thesis) Requirements

For Plan A, a minimum of 30 credit hours is required. Of that, a total of 12 credit hours shall be for thesis and a minimum of 18 additional credit hours for courses approved by the candidate's committee.

### Plan B (Non-thesis) Requirements

For Plan B, a minimum of 30 credit hours is required. Of that, a total of 18 credit hours shall be earned in the major field or an approved related field in courses numbered 600 and above (excluding BOT 699 and BOT 700). Of these credits, at least 6 (but not more than 9) must be for directed research in aspects of botanical sciences chosen by the candidate in consultation with his or her committee.

## Doctoral Degree

The PhD program includes gaining a working knowledge in an approved foreign language or other research-tool subject, as well as passing a comprehensive examination and writing a dissertation. Suitability of the language or tool subject is determined by the graduate faculty according to the student's area of specialization, and proficiency is ordinarily determined by examination or satisfactory completion of a specific course of study.

### Requirements

The comprehensive examination is a combination of oral and written parts. The former is conducted by the candidate's committee, plus any members of the graduate faculty who wish to attend. In addition to general botany, the candidate is examined in-depth in areas of related disciplines that have been previously agreed upon by the student and the committee.

The dissertation is expected to be an original contribution based on independent research. It is initiated by the preparation

of a critical review of the literature that becomes the basis for a dissertation proposal. Dissertation research for the PhD degree is carried out in an aspect of botanical sciences for which a member of the graduate faculty of the field will accept responsibility as committee chair.

## Chemistry

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 Web: www.manoa.hawaii.edu/chem

### Faculty

- \*K. K. Kumashiro, PhD (Chair)—physical chemistry, solid-state nuclear magnetic resonance of proteins and peptides
- \*P. G. Williams, PhD (Associate Chair)—organic and natural products chemistry
- \*W. J. Chain, PhD—organic chemistry, synthesis of natural products
- \*J. D. Head, PhD—theoretical chemistry, electronic structure determination of large molecules and clusters
- \*T. K. Hemscheidt, PhD—organic and bioorganic chemistry, biosynthesis of natural products
- \*J. T. Jarrett, PhD—biochemistry, enzymology, structure and function of metalloenzymes
- \*C. M. Jensen, PhD—inorganic and organometallic chemistry, polyhydride and dihydrogen metal complexes, homogeneous catalysts, hydrogen storage materials
- \*R. I. Kaiser, PhD—physical chemistry, reaction dynamics, chemistry in extraterrestrial environments
- \*H. L. Ng, PhD—membrane protein crystallography
- \*M. A. Tius, PhD—organic chemistry, synthesis of natural products

### Cooperating Graduate Faculty

- T. Apple, PhD—physical chemistry, solid-state NMR
- D. M. Jameson, PhD—fluorescence spectroscopy, protein interactions
- C. J. Simmons, PhD—inorganic chemistry, metal-dioxygen and Jahn-Teller copper complexes, structure determination by X-ray crystallography

**Degrees Offered:** BA (including minor) in chemistry, BA in biochemistry, BS in chemistry, BS in biochemistry, MS in chemistry, PhD in chemistry

### The Academic Program

Chemistry (CHEM) stands at the crossroads between physics and biology. As biological processes are examined in ever finer detail, chemistry is increasingly called upon to provide the insights, techniques, and materials needed to understand the workings of living organisms, including ourselves. Chemistry is thus a popular major for those interested in biomedical careers. In another direction, chemistry is also essential to the search for solutions to the ecological problems created by the ever-expanding range of human activities. Chemists create new substances with new properties that find application throughout our civilization.

As a major, chemistry provides a solid foundation of scientific knowledge and experimental skills that enables one to specialize in many directions toward careers in research, teaching, business, or professional practice. Also, because virtually all constructed things we see and use in our daily lives involve chemistry, there is a huge pool of jobs for chemists in the manufacturing industries.

## Undergraduate Study

### BA in Chemistry Degree

#### Requirements

- 27 credit hours in CHEM courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, 351, 352/352L, and either 425/425L or 445/445L
- MATH 243 (Calculus III) or 253A
- PHYS 170/170L, and 272/272L
- Recommended languages: German, French, Russian, or Japanese

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS in Chemistry Degree

#### Requirements

- 41 credit hours in CHEM courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, 351, 352/352L, 372 or BIOL/MBBE/PEPS 402 or BIOC 441, 425/425L, 427, and 445/445L
- A minimum of three credits from CHEM 399, 601, 602, 622, 641, 642, 643, 651, 653, or 657
- MATH 243 (Calculus III) or 253A
- PHYS 170/170L and 272/272L
- Recommended electives: MATH 244 and PHYS 274
- Recommended languages: German or French

To view a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in Biochemistry Degree

#### Requirements

- 24 credit hours or more in CHEM courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, 361 or 351/352, and 372
- BIOL 171/171L, 172/172L, 275/275L, and 402
- MATH 215 or 241 or 251A and 242 or 252A
- PHYS 170/170L and 272/272L
- Three elective lecture courses and one accompanying laboratory course from select CHEM, BIOL, MBBE, or MICR courses numbered 300 or higher\*.

\*Upon approval of a Chemistry Department Advisor and the Chair, the elective requirements may be modified to accommodate a special emphasis or interdisciplinary program that is appropriate for a major in Biochemistry.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## **BS in Biochemistry Degree**

### **Requirements**

- 30 credit hours or more in CHEM courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, 361 or 351/352, 372, 462, 463L.
- BIOL 171/171L, 172/172L, 275/275L, and 402.
- MATH 215 or 241 or 251A and 242 or 252A
- PHYS 170/170L and 272/272L
- 14 credit hours or more, which must include two laboratory courses, from the following:
  - At least one course from CHEM 352L, 399, 425/425L, 427, 445/445L
  - At least two courses from MICR 351/351L, BIOL 375/375L, BIOL/MBBE 401, BIOL/MBBE 407, BIOL 408, BIOL/MBBE 483, MBBE 412, MBBE 480, MICR 431/431L, MICR 461/461L, MICR 463/463L, MICR 475/475L, MICR 490/490L, ZOOL 430/430L\*.

\*Upon approval of a Chemistry Department Advisor and the Chair, the elective requirements may be modified to accommodate a special emphasis or interdisciplinary program that is appropriate for a major in Biochemistry.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### **Minor**

#### **Requirements**

- 17 credit hours in CHEM courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, and 351

### **Graduate Study**

The department offers MS and PhD research and study opportunities in inorganic, organic, and physical chemistry, with specialized research opportunities in geochemistry and marine-related chemistry.

Intended candidates for the MS or PhD must present the minimum undergraduate preparation in general, organic, analytical, and physical chemistry courses. Foreign applicants for the MS and the PhD must take the GRE General Test.

Graduate study in chemistry consists of course work, independent study, teaching, and research. A thesis or dissertation based on original research is the most important part of the master's or doctoral degree respectively. Candidates for advanced degrees are required to serve as teaching assistants for a portion of their program.

Additional details concerning MS and PhD degree requirements, as well as assistantships available to prospective students, are outlined in brochures available upon request from the department.

### **Master's Degree**

#### **Requirements**

The candidate for the MS in chemistry (Plan A only) is granted 12 credit hours for an acceptable thesis. The remaining 18 credit hours must be selected from acceptable graduate courses in chemistry (listed in this *Catalog*) or from graduate offerings in mathematics and the natural sciences. Required courses are CHEM 691 or 692, and 700.

## **Doctoral Degree**

### **Requirements**

Doctoral candidates must complete a minimum of six semesters of graduate study of which at least three semesters must be in residence at UH Mānoa. Courses are selected from acceptable graduate courses in chemistry listed in this *Catalog* and from graduate offerings in related disciplines as directed by the faculty. Candidates must demonstrate mastery of core material in graduate courses in their chosen areas. Each candidate must pass a comprehensive oral examination consisting of the defense of an original research proposal written by the candidate and a résumé of the candidate's dissertation research and its current status.

The most important requirement for the PhD degree is the research project that culminates in the dissertation. Prior to beginning the second semester of study, each candidate selects one member of the chemistry graduate faculty to serve as his or her research director. The research director works with the candidate throughout his or her program and chairs the candidate's dissertation committee.

More information about the chemistry department and its programs can be found on its website.

## **Communication**

School of Communications  
College of Social Sciences  
Crawford 320  
2550 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8715  
Fax: (808) 956-5396  
Email: [comm@hawaii.edu](mailto:comm@hawaii.edu)  
Web: [www.communications.hawaii.edu](http://www.communications.hawaii.edu)

### **Faculty**

- \*A. Auman, PhD (Chair)—journalism, media ethics
- \*J. Winter, PhD (Graduate Chair)—emerging communication technology and policy
- \*W. Buente, PhD (Undergraduate Chair)—information and communication technologies
- \*P. Buskirk, MFA—multimedia, visual media
- \*F. Dalisay, PhD—mass communication
- G. Kato, MA—broadcast news, law, reporting
- \*T. Kelleher, PhD—public relations, social media
- \*H. Kramer, PhD—intercultural communication
- \*M. Moody, MFA—video and film production

### **Cooperating Journalism Graduate Faculty**

J. C. Ady, PhD—organizational communication  
T. Brislin, PhD—mass communication, ethics  
C. Ho, PhD—communication technologies  
D. Lassner, PhD—telecommunication, public relations  
N. Okamura, PhD—telecommunication  
M. Shapiro, PhD—political science

### **Affiliate Graduate Faculty**

C. Clarke, MA—intercultural organizational intervention  
W. Dissanayake, PhD—intercultural counseling  
R. Halverson, PhD—telecom, political communication, software development

K. Kawamoto, PhD—digital media, health communication  
S. Wu-Bott, PhD—mediated interpersonal communication

**Degrees Offered:** BA in communication, MA in communication, PhD in communication and information sciences (interdisciplinary), Graduate Certificate in Telecommunications Information Resource Management

## The Academic Program

Communication (COM) study provides undergraduate and graduate students an academic climate consistent with the mission of the College of Social Sciences. The program focuses on active learning and inquiry in fundamental communication processes with specific emphasis on media arts (digital cinema and multimedia), communication in communities (local, global, organizational, and intercultural), and information and communication technologies (ICTs) as preparation for fruitful careers, enlightened citizenship, and lifelong learning.

In addition to the faculty and staff, resources include both a state-of-the-art media laboratory and computer-communication laboratories. The internship program facilitates the merging of academic knowledge with applied experience in students' fields of interest.

### Affiliations

The East-West Center, Pacific Telecommunications Council, Telecommunications and Social Informatics Research Program (TASI), and the many international conferences dealing with Asian/Pacific affairs provide a stimulating environment for international and intercultural communication.

### Advising

Each undergraduate major is assigned a faculty advisor. In addition, an undergraduate chair provides a general point of contact for aspiring and declared majors. The graduate program parallels the undergraduate advising structure. However, once a student is admitted to candidacy, the student chooses a permanent advisor for the remainder of his or her program.

## Undergraduate Study

The undergraduate program offers courses that provide students with a sound understanding of fundamental communication processes in contexts ranging from small groups to formal organizations, the community, and society at large. The program also provides students the opportunity to select courses that allow them to specialize in one or more of three areas of concentration: media arts, communication and communities, and ICTs and policy.

### Bachelor's Degree

#### Requirements

Students must complete 33 credit hours of communication courses, including the following:

- Introduction to Communication (COM 201)
- three foundation courses (COM 310, 320, and 330)
- one capstone course (COM 476, 477, 478, or 479)

To declare a major in communication, students must be enrolled in, or have completed with a B (3.0) or better in COM 201, Introduction to Communication, and have completed at least 12 credit hours with a 2.5 GPA. Upon declaration of their major, students are assigned a personal faculty advisor

to assist them in their progress through the program. Students select the remaining number of credit hours from courses that will support their personal and career interests. Students are also responsible for meeting the prerequisite requirements for at least one of the capstone courses in order to graduate in a timely manner. Students must earn a C (2.0) or better in every course counted toward the major degree requirements.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### Master's Degree

The School of Communications offers a graduate program leading to the MA degree in communication. The program areas of specialization reflect the expertise of our graduate faculty in intercultural communication, global communication, information and communication technologies, social media, public relations, and communication policy and planning. Both individual faculty members and the program as a whole work within sociocultural and sociotechnical perspectives. The goal of our program in terms of student learning is to help our students build and exchange knowledge in areas relevant to the broad field of communication and to our specific areas of specialization.

Qualified applicants are admitted to the program in the fall semester only. Applicants are not required to have an undergraduate communication degree. All applicants must fulfill the UH Mānoa Graduate Division's admission requirements. Applicants to the program must submit to the school a statement of academic objectives and the planned role of our program in helping meet those objectives. Applicants must also arrange for three letters of recommendation to be sent to the school. These letters should be written by persons who are familiar with the student's academic accomplishments. Letters from former professors are preferred. Students applying from non-English-speaking countries must have a minimum TOEFL score of 600 (paper-based) or 250 (computer-based). Applicants whose academic objectives match our program specializations will be admitted as classified students on a space-available basis.

Each classified student admitted into our program is assigned an interim advisor who assists the student in the initial planning of his or her degree program. The student may, at any time, change that advisor by informing the program staff of the change. Once the student has selected a thesis or practicum committee chair (see below) that faculty member becomes his or her permanent advisor. The student remains, however, primarily responsible to ascertain that all program requirements are met in a timely fashion.

Each student must complete a minimum of 33 credits with at least a 3.0 grade point average. These credits are to be distributed by taking:

- Both foundation courses 611 Communication Theories and 612 Communication Inquiry (6 credits).
- Two core courses (6 credits) from our specializations in Organizational and Intercultural Communication (623 and 643), Telecommunication and New Media (633 and 634), or Global Communication and Journalism (644).
- One seminar 691 (3 credits) (repeatable up to 6 credits).
- One capstone activity (6 credits) selected from 700 (Plan A-Thesis) or 695 (Plan B-Practicum).

- The remaining 12 credits are selected from: additional core courses, advanced courses 646 and 660; courses from the school's Graduate Certificate Program in Telecommunication and Information Resource Management (TIRM) 680, 681, 682, 683, 684; Directed Research 699; 400-level augmented undergraduate courses, or graduate courses outside the program (both the latter require approval of committee chair; maximum 6 credits).

Each student is expected to take at least one 3-credit course or seminar each semester. All substitutions, exceptions, and/or courses external to the program must be approved by the thesis or practicum committee chair and noted in the student's official records. If students are not enrolled for courses during a semester they must apply for an official leave of absence. In pursuit of their academic goals students often earn more than the minimum 33 credits. The program can be compressed into 15 months or stretched out over 60 months. Typically, however, students complete the program in 18 to 24 months.

On completing 611 and achieving a 3.0 grade average in all completed course work, each classified student is eligible for admission to candidacy allowing him or her to formally identify a degree plan from the two options available. These options are to complete either a thesis (Plan A) or practicum (Plan B) as his or her capstone activity. At the same time the student selects the chair and members of the thesis or practicum committee. That committee is responsible for supervising and evaluating the student's thesis or practicum activity. The committee must be comprised of at least three members of the graduate faculty from the university with at least two of those members, including the chair, from our program. Both the committee members and the topic of the activity must be approved by the Graduate Division and research to be conducted approved by the university's Institutional Review Board (IRB). At the completion of the student's program, he or she must take a two-hour oral exam on their knowledge of the field and defense of their thesis or practicum report.

For further information please visit our website at [www.communications.hawaii.edu/com/graduate/](http://www.communications.hawaii.edu/com/graduate/).

### **Doctoral Degree in Communication and Information Sciences**

The School of Communications is one of the academic programs that participates in an interdisciplinary doctoral program in Communication and Information Sciences (CIS). See the "Interdisciplinary Program" section for more information on that program.

## **Communicology** (formerly Speech)

College of Arts and Humanities  
George 326  
2560 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8202  
Fax: (808) 956-3947  
Email: [COMG@hawaii.edu](mailto:COMG@hawaii.edu)  
Web: [manoa.hawaii.edu/communicology](http://manoa.hawaii.edu/communicology)

### **Faculty**

- \*R. K. Aune, PhD (Chair)—message and information processing, natural language processing, research methods
- \*A. S. E. Hubbard, PhD (Graduate Chair)—nonverbal communication, conflict and relational management, deception
- \*W. F. Sharkey, PhD (Undergraduate Chair)—family communication, interpersonal, conflict management, interviewing and interrogation
- \*K. S. Aune, PhD—relational management, emotion
- \*R. Boller, EdD—argumentation and debate, public speaking, interpersonal and intercultural communication, leadership
- \*R. E. Cambra, PhD—interpersonal and instructional strategies, negotiation, intercultural
- \*J. Gasiorek, PhD—social cognition, intergroup & intergenerational communication, research methods
- \*M. S. Kim, PhD—intercultural communication, persuasion and social influence
- \*H-R. Lee, PhD—health communication, campaigns, persuasion and social influence
- \*H. E. Lee, PhD—research methods, intercultural communication, interpersonal communication in business settings
- J. Matayoshi, MA—public presentations, interpersonal and persuasive communication
- \*R. Tokunaga, PhD—communication technology in human relations, media selection and effects; statistical methods
- \*J. Zhang, PhD—interpersonal/intergroup communication, evolutionary theory and communication, research methods

**Degrees Offered:** BA (including minor) in communicology, MA in communicology

### **The Academic Program**

The Department of Communicology (formerly Speech) (COMG) has as its primary objectives the development of knowledge in and instruction concerning the process of communication. This involves three fundamental areas of emphasis. The first area is human message processing, which involves understanding the function and structure of the various codes, verbal and nonverbal, used to form messages in communication as well as examining the encoding and decoding processes involved in communication. The second area is relational communication, which focuses on factors that influence growth, maintenance, and termination of relationships. The third area, social influence, deals with the processing of beliefs, attitudes, and behavioral modification, including gaining compliance, conflict resolution, persuasive campaigns, and propaganda.

Communicology is predominantly a discipline of systematic, purposeful thinking and communicating. Students obtain a liberal education of considerable breadth and depth in regard to communication theory. Furthermore, they are afforded ample opportunity to develop their communicative skills by applying

theory in such diverse activities as interviewing, persuasion, group discussion, organizational communication, conflict management, intercultural communication, public speaking, relational communication, deceptive communication, and health communication. Indeed, the basic philosophy of this department—and it is stressed in every course and co-curricular program offered—is that there is no surer preparation for professional life and participation in society than an education that enhances the ability of the individual to maintain lifelong learning and the skills to communicate effectively.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 33 credit hours, including:

- COMG 251, 301, 302, 364, 371, and 381
- 5 upper division elective courses

COMG 301 and 302 should be taken no later than the semester after the major is declared. In residence policy: A minimum of 15 credit hours which includes COMG 302, must be taken in the Department of Communicology at UH Mānoa. Introductory courses do not count as electives. Electives must have a prerequisite or be numbered 300 or above and only three (3) credit hours of COMG 399 or COMG 499 (or a combination of the two classes), and/or up to three (3) credit hours of COMG 453 may be applied to the communicology major degree.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

Students must complete 15 credit hours of communicology, including:

- COMG 364, 371, and 381
- 2 upper division elective courses
- Introductory courses, COMG 399, and COMG 499 *do not* count toward the minor. Electives must have a prerequisite or be numbered 300 or above and cover a specific content area.

## Graduate Study

### Master's Degree

The Department of Communicology offers an innovative MA program emphasizing the central processes and functions of human communication. To that end, course work, seminars, and student research develop a cross-situational understanding

of theory and research in the three areas central to the discipline: message processing, relational communication, and social influence. In addition, given our cultural and geographical advantages at UH Mānoa, the Department of Communicology excels in teaching and research in intercultural communication.

All applicants for the MA program in communicology must supplement the application and transcripts required by the Graduate Division with three letters of recommendation (preferably from professors with whom the applicant has worked), a one-page statement of goals, and the GRE General Test scores. These supplementary items should be sent directly to the department.

Intended candidates for the MA should have a strong undergraduate preparation in communication or a closely allied discipline. Students who lack this preparation must make up deficiencies either before or during graduate study. In the latter case, the student will be admitted conditionally, pending removal of the deficiencies. Applicants may be interviewed as well.

Further details on the program may be requested from the graduate chair.

#### Requirements

The department offers both Plan A (thesis) and Plan B/C (non-thesis: applied project or comprehensive exams) programs. The Plan A thesis program requires a minimum of 33 credit hours of graduate work, at least 27 of which must be in communicology courses numbered 600 and above, including 6 credit hours of COMG 700 Thesis Research. The Plan B applied project program requires a minimum of 33 credit hours of graduate work in courses numbered 600 and above, which includes at least 3 credit hours of COMG 500 Master's Plan B. The comprehensive exam program requires a minimum of 33 credit hours of graduate work in courses numbered 600 and above and one credit of COMG 500. Communicology courses numbered 400 to 499 and courses from allied disciplines may be counted toward the degree only with prior consent of the graduate chair. COMG 601 and 602 are required for both Plan A and Plan B programs. Plan A also requires COMG 702 (COMG 620 does not count towards the degree).

Successful completion of Plan A requires each candidate to present an acceptable thesis and pass a final oral examination based on the thesis. Plan B requires each student either complete an applied research project or pass written comprehensive exams. Plan B candidates must also pass a final oral examination based on either the research project or the comprehensive exams.

# East Asian Languages and Literatures

College of Languages, Linguistics and Literature  
Moore 382  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-8940  
Fax: (808) 956-9515  
Web: [www.hawaii.edu/eall/](http://www.hawaii.edu/eall/)

## Faculty

- \*R. N. Huey, PhD (Chair)—classical Japanese literature (especially *waka*)
- S. Chang, MA—Korean language teaching
- \*S.-Y. Cheon, PhD—Korean phonology and phonetics, second language phonology, content-based instruction (CBI), and media-based instruction
- \*H. M. Cook, PhD—Japanese linguistics, sociolinguistics, discourse analysis and pragmatics; language socialization
- S. A. Curry, PhD—Japanese language teaching
- \*S. Fukuda, PhD—syntax, lexical semantics and their interface phenomena in Japanese, experimental approaches to syntax and lexical semantics, syntax of understudied Asian languages (Vietnamese and Burmese), first language acquisition of syntax-lexical semantics interface phenomena in Japanese and Korean
- S. H. Hirate, MA—Japanese language teaching
- C. I. Hitosugi, PhD—Japanese language teaching
- \*H.-I. Hsieh, PhD—Chinese language, linguistics, and culture; mathematical linguistics; semantics; cognitive grammar
- \*K. K. Ito, PhD—modern Japanese literature, particularly fiction of the Meiji period (1908-1912); cultural studies, narratology, and reception studies
- T. Iwai, PhD—Japanese language teaching
- \*S. Iwasaki, PhD—Japanese linguistics, Ryukyuan linguistics, Thai linguistics, language documentation, functional linguistics, discourse analysis
- \*L. Jiang, PhD—syntax, semantics, syntax-semantics interface, language universals and variation, comparative linguistics, Chinese linguistics (Chinese dialects, minority languages and sign languages), language acquisition
- \*S. Jiang, PhD—Chinese language and linguistics, cognitive linguistics, Chinese historical syntax, Chinese dialects, language acquisition and pedagogy, technology-assisted language learning
- \*K. Kanno, PhD—Japanese linguistics, syntax, second language acquisition, parsing
- \*M. S. Kim, PhD—discourse-functional linguistics, conversation analysis, vocabulary acquisition, Korean language pedagogy
- \*Y.-H. Kim, PhD—modern Korean women writers; modern Korean literature; Korean culture; East Asian women writers and society
- \*K. Kondo-Brown, EdD—Japanese language pedagogy, second language assessment, heritage language development
- \*D.-K. Kong, PhD—Korean language and linguistics, language acquisition, pedagogy, assessment
- M. Lachmann, MA—Japanese language teaching
- J.-Y. Lu-Chen, PhD—Chinese language teaching, translation and interpretation
- K. A. Masunaga, MA—Japanese language teaching
- \*D. R. McCraw, PhD—classical Chinese literature, especially poetry, particularly *Tang shi*, *Song shi* and *ci*, and *Qing ci*

- N. T. McPherson, MA—Japanese language teaching
- E. Murayama, PhD—Japanese language teaching
- G. E. Nakahara, PhD—Japanese language teaching
- M. Ogasawara, MA—Japanese language teaching
- D. T. Ogawa, MA—Japanese language teaching
- \*M. J. Park, PhD—Korean language and linguistics, pedagogy, pragmatics
- \*Y. Peng, PhD—20th century Chinese literature and visual culture, Chinese film, critical theory
- G. E. Ray, MA—Japanese language teaching
- \*K. A. Reynolds, PhD—Japanese socio-historical linguistics, and sociolinguistics (gender and class)
- \*S. Shibayama, PhD—Classical Japanese literature, especially poetry and prose from the twelfth-century; commentary culture of medieval Japan; comparative study of the European Middle Ages and medieval Japan
- \*H.-M. Sohn, PhD—Korean language and linguistics, Korean-Japanese comparative syntax, general linguistics
- \*Y. Tateyama, PhD—pragmatics, Japanese language pedagogy, discourse analysis, translation and interpretation
- \*A. H. Thornhill, PhD—medieval Japanese literature and religion
- H. Uchida, MA—Japanese language teaching
- \*A. V. Vovin, PhD—Japanese, Korean and Tungusic historical and descriptive linguistics; Central Asian linguistics; the Ainu language
- Y. Wada, MA—Japanese language teaching
- \*H. Wang, PhD—Chinese syntax, semantics, and phonology; Chinese language pedagogy; teaching Chinese for professionals
- P. C.-K. Woo, MA—Japanese language teaching
- \*D. R. Yoshimi, PhD—Japanese second language acquisition and pedagogy; discourse analysis, pragmatics and sociolinguistics
- \*M.-B. Yue, PhD—20th century Chinese literary and cultural studies, visual culture and media studies, transnational Chinese writings, constructions of Chineseness and diasporic consciousness in Asian-American, exile, and immigrant writings, theories of ideology and representation, feminism, psychoanalysis, film criticism, [Inter-Asia] cultural studies
- S. M. Zeng, PhD—Chinese language teaching, translation and interpretation

## Cooperating Graduate Faculty

- G. Kasper, PhD—second-language discourse analysis, conversation analysis, pragmatics, qualitative research methods

**Degrees and Certificates Offered:** Certificate in Chinese, Certificate in Japanese, Certificate in Korean, Certificate in Korean for Professionals, Minor in Chinese, Minor in Japanese, Minor in Korean, BA in Chinese, BA in Japanese, BA in Korean, BA in Korean for Professionals, MA in East Asian Languages and Literatures, PhD in East Asian Languages and Literatures

## The Academic Program

The Department of East Asian Languages and Literatures (EALL) is the largest department of its kind in the country and offers a curriculum unparalleled in its breadth, depth, and variety of courses in Chinese, Japanese, and Korean language, linguistics, and literature.

At the undergraduate level, language skill courses help students develop a high level of proficiency in both the spoken and written aspects of the languages. There are separate BA and Certificate programs to prepare American students to function in Korean in given professional fields. Other courses provide both introductory survey coverage and advanced, theme-specific

investigations of the literary cultures of East Asia and the linguistic analysis of Chinese, Japanese, and Korean. Cultural awareness as well as language proficiency are further promoted through extra-curricular activities such as student clubs, video/film showings, lectures, and study abroad programs. Our students have the opportunity to participate in study abroad programs in Hainan, China; Kobe and Machida, Japan; and Seoul, Korea. The graduate programs are designed to provide students with advanced professional training in two tracks: 1) language/linguistics, and 2) literary studies.

While most students enroll in language courses to fulfill the general education core requirement for foreign languages, there are many who plan to use Chinese, Japanese, or Korean in research or graduate studies. Those who plan to enter the work force immediately upon completing their undergraduate studies find that their language proficiency opens doors to employment in the local travel industry and other internationally oriented businesses.

## Undergraduate Study

### BA in Chinese

#### Requirements

Students must complete a minimum of 34 credit hours, including the following upper division courses:

- CHN 301, 302 or 303, 401, 402 or 404, and 461
- 6 credit hours from the following, at least one course must be taken from each of the following group:
  - (a) CHN 451, 452, 455, 456, 457, 470
  - (b) EALL 361, 362, 363B, 363C
- 9 credit hours of approved courses in Chinese language and literature

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in Japanese

#### Requirements

Students must complete a minimum of 36 credit hours, including:

- JPN 350, 370, 401 or 403, 402 or 404, and 407E
- JPN 407B, 407C, or 407D
- EALL 271 and 272
- 12 credit hours in approved courses

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in Korean

#### Requirements

Students must complete a minimum of 36 credit hours, including:

- KOR 301, 302, 401, 402, 451, 452, and 470
- EALL 281 or 282
- 12 credit hours in approved courses

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Korean for Professionals Track

### Requirements

Students must complete a minimum of 36 credit hours, including:

- KOR 401, 402, 403, and 404 [KOR 307, 308 may replace exempted KOR 401, 402]
- KOR 421, 422, 425 (6 credits), 470, 480, 485, and
- 1-year overseas program year at Korea University

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

Students planning to declare a minor should have completed successfully four semesters of language skill courses or their equivalent and must have a GPA of 2.0 or higher. A minimum of 15-17 credits from five courses in one of the three languages (Chinese, Japanese, Korean) will be required. At least 9 credits will be from non-language skills courses with a focus on linguistics or literature. In the case of native speakers, they will be required to take five non-language skill courses. All courses selected must have the approval of advisors in both the student's major department and the EALL Department. Only courses with a C (not C-) or above will be counted. All courses must be taken within the UH system, with minimum of at least three courses taken at UH Mānoa. A detailed description of program requirements is available at the department office in Moore Hall 382.

### Certificate

Certificates in Chinese, Japanese, Korean, and Korean for Professionals are offered to eligible students. A minimum of 15 credit hours from 301 or above in the language of choice must be earned with a minimum GPA of 2.5. A detailed description of the program requirements is available from the department office in Moore 382.

## Graduate Study

Complete details on the graduate programs are available from the department office in Moore Hall 382 and on the department's webpage. All of our graduate degree programs are academic in nature, and focus on the disciplines of linguistic and literary study.

MA graduates of the programs have obtained positions as instructors in private schools, two- and four-year colleges and universities; as translators; and in various capacities in private firms and government service. PhD graduates have obtained teaching positions at universities in the U.S. mainland, Canada, and in several Asian countries.

The MA and PhD are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming are eligible, upon admission with a GPA of 3.50 or higher, to enroll at Hawai'i-resident tuition rates. See the "Tuition, Fees, and Financial Aid" section of this *Catalog* for more information on WICHE programs.

The MA degree is offered in the fields of Chinese language, Chinese literature, Japanese language, Japanese literature, Korean language, Korean literature, and Korean for Profession-

als. The PhD degree is offered with concentrations in the same fields, but not in Korean for Professionals. All applicants for the MA program must have a BA in the language of their concentration or equivalent preparation and must submit three letters of recommendation and GRE General Test scores. All applicants for the PhD program must have a BA, must have earned with distinction an MA in the language or literature of their concentration, must submit three letters of recommendation, GRE General Test scores, and a sample of their scholarly writing in English. Normally, each newly-admitted MA student is required to undergo a diagnostic evaluation and each PhD student is required to undergo an assessment, differing according to subfield, as well as fulfill any language requirement, in order to be eligible for advancement to candidacy. Students emphasizing Japanese Language/Linguistics and Korean Language/Linguistics must also fulfill a publishable paper requirement in order to be eligible for advancement to candidacy.

The MA candidate may select either the Plan A (thesis) or Plan B (non-thesis) program; Plan A must have the approval of the graduate chair. The MA in Korean for Professionals is a Plan B program only.

## **Master's Degree**

### **Requirements**

For Plan A, students must complete a minimum of 30 credit hours, including at least 18 credit hours in the major field and 6 credit hours of thesis research. A minimum of 12 credit hours in the major field must be earned in courses numbered 600 or higher, including a 700-level seminar and excluding 699V.

For Plan B, students must complete a minimum of 30 credit hours, including at least 21 credit hours in the major field. A minimum of 18 credit hours in the major field must be earned in courses numbered 600 or higher, including a 700-level seminar and excluding 699V.

## **Doctoral Degree**

### **Requirements**

In order to be advanced to candidacy, PhD students are expected to master four fields, at least one of which will be outside the students' areas of specialization and must pass a comprehensive examination covering the four fields. PhD students in Japanese and Korean Language/Linguistics must master three fields and a comprehensive examination covering these three fields and produce a scholarly paper. After being advanced to candidacy, all PhD candidates must complete an original dissertation, and pass a final oral examination in defense of the dissertation. Apart from having a command of English and their language of concentration, candidates must have knowledge of a second East Asian language equivalent to two years of study; in some cases a third East Asian language or an additional European language may be required.

## **Economics**

College of Social Sciences  
Saunders Hall 542  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8496  
Fax: (808) 956-4347  
Email: econ@hawaii.edu  
Web: www.economics.hawaii.edu

### **Faculty**

- \*B. Gangnes, PhD (Chair)—international macroeconomics, econometric modeling
- \*C. Bonham, PhD—applied macroeconomics, monetary theory
- \*P. Fuleky, PhD—time series econometrics, economic forecasting
- \*T. Greaney, PhD—international economics, industrial organization
- \*T. Halliday, PhD—health economics, economic development, econometrics
- \*R. Juarez, PhD—microeconomic theory
- \*B. Karacaovali, PhD—international trade, political economy of trade policy, development economics
- \*D. E. Konan, PhD—international trade
- \*S. La Croix, PhD—economic history, development economics, industrial organization
- \*S. H. Lee, PhD—population economics, labor economics
- \*I. Love, PhD—development economics, finance
- \*J. Lynham, PhD—environmental and resource economics, experimental economics, marine ecology, behavioral economics
- \*A. Mason, PhD—population economics, macroeconomics
- \*M. Roberts, PhD—environmental and resource economics, agricultural economics
- \*J. Roumasset, PhD—development economics, public resource allocation, resource economics
- \*K. V. Sherstyuk, PhD—experimental economics, game theory
- \*N. Tarui, PhD—environmental and resource economics, applied microeconomics, applied game theory
- \*J. R. Traczynski, PhD—economics of education, law and economics
- \*L. Wang, PhD—monetary economics, macroeconomics, search and matching theory
- \*X. Wang, PhD—macroeconomics, monetary economics, econometrics, applied microeconomics, labor economics

### **Cooperating Graduate Faculty**

- K. Burnett, PhD—environmental and resource economics
- I. Cintina, PhD—labor economics, health economics
- P. Garrod, PhD—marketing and production economics
- E. Im, PhD—econometrics, statistical theory
- P. S. Leung, PhD—production economics, quantitative methods
- S. G. Rhee, PhD—Asia-Pacific financial markets
- T. B. Vu, PhD—development economics, international economics

### **Affiliate Graduate Faculty**

- L. Cho, PhD—population economics
- L. Endress, PhD—growth theory
- F. Fesharaki, PhD—energy economics
- H. He, PhD—macroeconomics, health economics
- B. Kaiser, PhD—environmental economics, microeconomics
- I Noy, PhD—international finance

**Degrees Offered:** Undergraduate Certificate in Social Sciences and Health; BA (including minor) in economics; MA in economics; PhD in economics

## The Academic Program

Economics (ECON) is the social science that deals with the allocation and use of human and material resources under conditions of scarcity and uncertainty. It examines this subject matter at the micro level (the consumer, the household, the firm, and the industry) and the macro level (the region, the labor force, the government, the nation, and the world). Courses in these topics are complemented by instruction in the statistical and mathematical tools necessary for modeling, data collection and analysis, and hypothesis testing. Students of economics will learn a body of knowledge that is essential to understanding many aspects of the modern world and contemporary public policy issues, including such vital matters as international trade, economic development, the environment, Hawai'i's economic challenges, regulation, business cycles, and consumer behavior. A BA in economics is an excellent background for demanding analytical and policy positions in the public and private sectors; it is also a highly regarded preparation for graduate work in law, business, and public policy, as well as economics.

Economics at UH Mānoa is consciously directed toward policy challenges in the Asia Pacific region, which comprises the nations of the Pacific rim and the Pacific Islands, as well as Hawai'i. Geographic and subject matter interests of students and faculty contribute to a regional specialization in accord with UH's overall mission.

## Exchange Programs

The Department of Economics participates in academic and educational exchanges with Nihon University, Tokyo, Japan; Yonsei University, Seoul, South Korea; and Thammasat University, Bangkok, Thailand.

## Advising

Advising is mandatory for all graduate and undergraduate economics majors. Contact the department office for specific information.

## Undergraduate Study

### Interdisciplinary Certificate in Social Science and Health

The purpose of this certificate is to supplement the disciplinary major of students who wish to pursue careers in the field of health and health care by enhancing the breadth, quality, and coherence of their education through taking health-related courses in a variety of different academic disciplines. A more complete description and the requirements are described under the Department of Sociology.

### Bachelor's Degree

The BA in economics provides students with an intensive knowledge of the theory and practice of economics, with an emphasis on the analysis of contemporary policy challenges of Hawai'i and the U.S. in the Asia Pacific region. Majors study a wide range of current economic policy issues and learn a powerful framework for analyzing these issues. They also develop reasoning and communication skills that are useful across disciplines. As a result, the BA program has been successful in preparing graduates for advanced study in economics, business,

law, and other social sciences, as well as challenging careers in business management, technical analysis, policy evaluation, and education.

## Requirements

Majors must complete 24 credit hours of upper division courses including ECON 300, 301, and 321. At least six credit hours must be earned by completing Upper Division II ECON courses, and students must earn a C (not C-) or better in all courses designated as counting toward the major.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Minor

### Requirements

Students must complete 15 credit hours of approved upper division courses, including ECON 300 and 301.

## Graduate Study

The department offers a graduate program leading to the MA and PhD degrees. Graduate alumni are successful economists, entrepreneurs, and government policy experts in a variety of settings and institutions, especially in Hawai'i, Asia, and the Pacific region. Faculty research interests facilitate graduate field specializations with regional emphasis on Hawai'i, Asia, and the Pacific. Student and faculty research focuses on analyses of policy issues of importance to countries in Asia and the Pacific.

The MA program prepares students for policy analysis in government, international agencies, and the private sector, emphasizing application of theory to economic decision-making. The PhD program provides state-of-the-art theoretical and empirical training for high level academic, government, and private-sector careers.

The department maintains strong links with the East-West Center, particularly with the center's programs on population, economics, and energy. Relationships also exist with various country centers located in the School of Pacific and Asian Studies and with other programs in the College of Social Sciences. In conjunction with the Shidler College of Business, the department also offers a program leading to a PhD in economics and business.

Entering graduate students are expected to have a bachelor's degree, not necessarily in economics, and to have completed courses in intermediate micro-and macroeconomics theory, elementary statistics, and a mathematics background that includes at least two 3-credit semester courses in calculus. For the PhD program, we recommend the completion of two additional courses prior to entry in any of the following subjects: advanced calculus, linear algebra, differential equations, real analysis, or related areas. Students with deficiencies must make them up prior to entering the program or within the first year of study.

TOEFL scores (for all applicants from foreign countries where English is not the primary means of communication) and two letters of recommendation must be submitted by applicants. Students applying for the graduate program must submit official GRE General Test scores.

## Master's Degree

An MA student must be in residence for at least two semesters, and all work must be completed within seven years of admission. A student following normal progress should be able to earn the MA degree within two years.

## Requirements

A student must earn 30 credit hours in economics, including at least 21 hours of 600- or 700-level courses. Up to 9 credit hours of 400-level courses may apply to the 30 credit hour requirement. Graduate credit will not be granted for 300-level courses. A student must have a B average (3.0 GPA) for all courses completed at UH Mānoa applied toward the degree, and a B average for all 600-level and 700-level courses.

The MA requires completion of the following:

- A four-course common core comprising ECON 606, 607, 627, and 628, with a B average;
- A two-course area of concentration; and
- An individual research project, constituting the capstone experience for the degree.

A student may also choose to write a master's thesis in lieu of the individual research project. Students who complete the PhD core may substitute a passing grade on either of the PhD qualifying exams for the individual research project requirement for a master's degree.

A student who completes the MA degree may apply to the PhD program. By taking appropriate courses, a student may be able to earn both MA and PhD degrees within five years.

## Doctoral Degree

A PhD student must be in residence for at least three semesters and complete all requirements within seven years of admission to the graduate program. A student following normal progress should be able to earn the PhD degree within five years.

## Requirements

The PhD in economics requires successful completion of

- seven core courses comprising ECON 606, 607, 608, 609, 627, 628, and 629 with a grade of B- or better in each course;
- qualifying examinations in microeconomic theory and macroeconomic theory;
- seven 600-level and 700-level courses in economics (including ECON 730) beyond the core;
- two fields;
- a research paper;
- an oral comprehensive exam, administered jointly with the defense of the dissertation proposal;
- a final oral exam, including defense of the final dissertation; and
- submission of the final dissertation manuscript to the Graduate Division.

Normal progress requires students to take and pass both theory qualifying exams at the end of the first two semesters of study, and to complete all core courses in the first three semesters of enrollment. Students failing a qualifying examination may retake it only once.

Students choose two fields, each consisting of two courses, from among the following five fields offered by the department:

1. Economic development (ECON 610 and 611)
2. International economics (two of ECON 660, 662, and 664)
3. Public economics (ECON 650 and 651)
4. Resource and environmental economics (ECON 637 and 638)
5. Human resources (two of ECON 670, 672, and 674)

Some field courses are offered annually, others less frequently. Students may petition to substitute a field in another discipline or another field in economics for one of the five fields listed above.

Before the end of their fourth semester, students should, in consultation with the graduate chair, reach agreement with a UH Mānoa economics faculty member to serve as their research paper advisor. Any member of the economics graduate faculty may serve as your paper advisory, and the arrangement is by mutual agreement. You then invite two other faculty members to serve as readers of your paper. Have your paper advisor and readers indicate their willingness to serve by having them sign the research paper form, which can be obtained from the staff in the economics department office. Submit the form to the graduate chair for approval before or during the fall semester of your third year of graduate study. During that semester, you are required to register for ECON 730, Research Seminar, and make substantial progress on your research paper. You are encouraged to consult with your paper advisor periodically as you work on your research paper. You may also consult with your second and third readers. Upon completion of the paper, submit it to your advisor and readers, who will evaluate the paper and assign a grade of "pass," "high pass," or "fail." Students who receive a grade of "fail" will have one opportunity to revise the paper provided they meet the appropriate deadlines. The deadline for submitting your paper is **May 1** of your third year of graduate studies and the deadline for resubmissions is **August 1**.

The comprehensive examination—of which the written qualifying examinations are a part—will include a broad probing of the candidate's general economic knowledge. The oral part of the PhD comprehensive examination will be administered jointly with the defense of the dissertation proposal, before a dissertation committee chosen by the student and approved by the graduate chair and the Graduate Division. A student who fails the comprehensive examination may repeat it once. A student who fails a second time is dismissed from the program. Students who pass the oral exam are advanced to candidacy for the PhD.

The final examination, which is oral, covers the candidate's defense of the final dissertation draft. It is administered orally and is open to the public. Candidates failing the final examination may be allowed to repeat it once upon petition approved by the graduate faculty concerned and the dean of the Graduate Division. Those failing it twice are dismissed from the program.

Finally, a dissertation accepted by the dissertation committee is submitted to the Graduate Division. The final dissertation must also conform to UH Mānoa standards in content and format.

## English

College of Languages, Linguistics and Literature  
Kuykendall 402  
1733 Donaghho Road  
Honolulu, HI 96822  
Tel: (808) 956-7619  
Fax: (808) 956-3083  
Email: enghi@hawaii.edu; see list of contacts on webpage  
Web: www.english.hawaii.edu

### Faculty

- \*J. Carroll, PhD (Chair)—rhetoric and composition, American novel, fiction
- \*C. Bacchilega, PhD—folklore, narrative, fairy-tale studies, 20th-century fiction, feminist criticism, literary theory, translation studies
- \*K. Beautner, PhD—fiction and creative nonfiction
- \*S. Canham, PhD—Victorian and juvenile literature, the novel
- \*J. Caron, PhD—19th-century American literature, Mark Twain, comic art and literature, popular culture
- \*U. Chakravarty, PhD—early modern literatures
- \*R. W. Dasenbrock, PhD—modernism, literary theory, post-colonial literature, comparative literature
- \*D. Desser, PhD—20th-century rhetorics, writing and difference, composition studies
- \*C. Franklin, PhD—contemporary women's literature, ethnic American literatures, feminist theory
- \*M. Fuchs, PhD—modern American literature, autobiography, women writers
- \*C. Fujikane, PhD—literatures of Hawai'i, Asian American literatures, feminist/nationalist critical theory and practice
- \*S. Goldsberry, PhD—creative writing
- \*M. Heberle, PhD—Renaissance literature, American Vietnam literature
- \*J. Henry, PhD—workplace writing and subjectivity, composition studies, technical communication and its rhetorics
- \*K. Ho'omanawanui, PhD—Native Hawaiian literature, literatures of Hawai'i, folklore and mythology, children's literature, translation studies
- \*C. Howes, PhD—life writing, literary theory, research methods, 19th-century literature
- \*R. Hsu, PhD—modernism, ethnic literature, Asian American literature, feminist criticism
- \*J. Kellogg, PhD—medieval English and French literature, comparative literature, medieval women writers, Arthurian tradition
- \*J. Lew, PhD—late 18th-century literature, English and European romanticism, Gothic
- \*L. Lyons, PhD—post-colonial literatures and theory, Irish literature, cultural studies
- \*P. Lyons, PhD—19th- and 20th-century U.S. literatures, literary and cultural theory, regional and settler literatures in Oceania
- \*G. Man, PhD—film, narrative, 19th-century British literature
- \*K. McAndrews, PhD—folklore, oral narrative, American Literature (1905-present), cultural studies in relationship to gender, humor and tourism
- \*R. McHenry, PhD—Restoration and 18th-century literature, Shakespeare, literature and art

- \*L. Middleton, PhD—19th-century British literature, women's literature, psychology and literature
- \*R. Morales, MA—creative writing, Pacific literature, American ethnic literature
- \*J. Morse, PhD—American literature, literary history
- \*R. Nettell, PhD—20th-century drama, applied linguistics, history of the language, literary and cultural theory
- \*P. Nicholson, PhD—Old English, Chaucer, medieval literature, English language
- \*G. Nordstrom, PhD—composition and rhetoric
- \*G. Pak, PhD—creative writing, literature of Hawai'i and the Pacific, Asian American literature, ethnic American literature
- \*D. Payne, PhD—composition and rhetoric, computer-mediated writing, collaborative learning
- \*J. Peters, PhD—modern British and American literature, narratology, the British novel (1700-1945)
- \*P. Quigley, PhD—environmental literature, ecocriticism, critical theory, 19th century American and British literature, cyber literature
- \*J. Rieder, PhD—literary and cultural theory, science fiction, British Romanticism
- \*T. Sammons, PhD—Renaissance and 17th-century literature, Milton, science fiction, rhetoric
- \*C. Santos Perez, MA—creative writing, international poetry, indigenous literature and theory, Pacific and Chamorro studies
- \*S. Schultz, PhD—20th-century poetry in English, American literature, creative writing
- \*S. Shankar, PhD—postcolonial literature and theory, South Asian literatures, translation and translation studies
- \*C. Sinavaiana, PhD—Pacific literature and drama, ethnic literatures, folklore, feminist criticism
- \*F. Stewart, MA—creative writing, modern and contemporary poetry and poetics, American nature writing
- J. Taylor, PhD—African American literature, visual culture, critical theory
- \*A. Te Punga Somerville, PhD—Maori, Pacific and Indigenous literatures and cultural production, Maori studies, Pacific studies, Indigenous studies, Maori and Pacific history, Maori diasporas, postcolonial and gender studies, Indigenous research methodologies
- \*C. Ward, PhD—critical theory, post-colonial literature, popular culture, oral and performance theory, the novel
- \*S. Yang Ryan, MA—creative writing, Asian American literature, speculative and social protest fiction
- \*J. Zuern, PhD—computer-mediated communication, comparative literature

**Degrees Offered:** BA (including minor) in English, MA in English, PhD in English

### The Academic Program

The Department of English encourages students to develop their critical reading, writing, and creative skills through study of a variety of literatures in English, composition and rhetoric, and creative writing. The department recognizes the unique diversity of cultures in Hawai'i and employs a variety of approaches, including multicultural and Asia Pacific perspectives, to address this uniqueness. Students work directly with faculty in relatively small classes. The department participates actively in UH Mānoa's Honors Program and its Study Abroad Semester and offers professional internships for interested students in the senior year.

The goals of the undergraduate English program are: (a) to offer a comprehensive range of courses in literary and cultural studies, composition, rhetoric, and creative writing; (b) to develop students' critical thinking and reading skills; and (c) to develop students' interests and abilities in rhetoric and writing across a variety of genres. Many of our courses recognize Hawai'i's geographical and cultural location in the Pacific.

The graduate program enriches students' knowledge of literature, composition and rhetoric, creative writing, and cultural studies. MA students are asked to take approximately half of their course work in a specific concentration so that they begin to develop an area of expertise while broadening their understanding of other areas of study. The MA thesis or final project at the end of the program gives them the opportunity to do extended research and writing on a topic of their own choosing.

The doctoral program prepares students to become professionals in the field. Required courses are not its focus; rather, it offers students considerable latitude in course selection and requires disciplined, independent work on examinations and the dissertation. Candidates completing the program should have the skills and experience to function as critics, scholars, and writers in an area associated with the profession of English.

## Undergraduate Study

### Bachelor's Degree

The Department of English offers the BA degree with informal emphases in American, British, and Pacific literatures; composition and rhetoric; and creative writing.

### Requirements

For Arts and Sciences students, one FW and one ENG DL course are prerequisites for the English major and minor. Students enrolled in colleges other than Arts and Sciences may elect ENG DL courses (as per current policy). Students must complete 33 credit hours of upper division courses, as follows:

### Level Requirements

- at the 300 level:
    - A. ENG 320, Introduction to English Studies; this course is foundational and should be taken in the student's first or second semester of upper division English work; 3 credits
    - B. 5 300-level courses are recommended in addition to ENG 320; 15 credits. Several of these courses should be in areas prerequisite to/preparatory for specific courses at the 400 level
  - at the 400 level (ENG 320 and one 300-level course are prerequisite to *Studies* courses):
    - C. Single Author (440 Single Author; 442 Chaucer; 445 Shakespeare; or 447 Milton); 3 credits
    - D. 2 additional elective courses; 6 credits. At least one 400-level course must be a designated *Studies* course
  - at the 300 or 400 level:
    - E. 2 elective courses; 6 credits
  - No more than two upper division English large enrollment courses may be counted toward the major
- Total: 33 credits

### Breadth Requirements

Breadth of Field: the five 300-level courses in addition to ENG 320 must come from at least two different categories:

- Composition/Language/Rhetoric (300-308, 311)
- Creative Writing (311, 313)

- Genre (360-65)
- Literature and Culture (370-85)

Historical Breadth: of the nine courses in addition to Introduction to English Studies and Single Author, one must be pre-1700, one 1700-1900, and one after 1900.

Only courses in which a student receives a C or better may be counted toward the major.

For a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Non-English Department Course

With the consent of the student's advisor or the director of the undergraduate program, one appropriate three-credit upper division course from outside English may be counted as a major elective.

### Advising

Advising is mandatory for majors; new majors will be assigned an advisor when they meet with the director of the undergraduate programs for their required orientation session. Call (808) 956-7619 for an appointment.

### Minor

English offers a fifteen-credit minor for students who wish to emphasize a specific aspect of English studies without completing the actual major. Beyond the two required courses, the minor may focus on literary studies, creative writing, cultural studies, or rhetoric and composition. The student may also take electives from any of these areas.

For Arts and Sciences students, one FW and one ENG DL course are prerequisites for the English major and minor. Students enrolled in colleges other than Arts and Sciences may elect ENG DL courses (as per current policy). All UH Mānoa courses applied to the English minor will come from the Department of English or cross-listed courses. Appropriate upper division transfer credits may apply toward the minor.

The minor consists of:

1. ENG 320, Introduction to English Studies. This course is foundational and should be taken in the student's first or second semester of upper division English work; 3 credits
2. Single author course (440 Single Author; 442 Chaucer; 445 Shakespeare; or 447 Milton); 3 credits
3. 300-level ENG elective; 3 credits
4. 400-level ENG elective; 3 credits
5. 300- or 400-level ENG elective; 3 credits

No more than one upper division English large enrollment course may be counted toward the minor. Only courses in which a student receives a C or better may be counted toward the minor.

### Graduate Study

The department offers the MA in English with four concentrations: literary studies in English, composition and rhetoric, creative writing, and cultural studies in Asia/Pacific. It offers the PhD in these and other areas, for the doctoral program is sufficiently flexible to allow students to develop individualized courses of study. Students applying for the MA are expected to have acquired between 24 and 30 upper division undergraduate credit hours in English or closely related subjects. PhD applicants normally will have completed the MA in English. In addition to the application and transcripts required by the Graduate

Division, all applicants must submit directly to the department three letters of recommendation and the GRE General Test scores. Applicants must also submit a comprehensive statement of professional goals and objectives; PhD students must submit a representative sample of their writing (scholarly paper or MA thesis); those interested in a dissertation with a creative emphasis must also submit examples of their creative work. The completed application should be sent to the Graduate Division by **December 1** for the PhD program and **January 1** for the MA program. Complete information on the graduate program is provided on the department's website.

Courses for the MA and PhD are to be selected from the list of English (ENG) courses, although advanced courses in other disciplines may be substituted with the prior approval of the graduate director. The consent of the instructor is required for ENG 691, 699, 700, and 800; the consent of the graduate director is required for all graduate courses. The following courses may be repeated for credit, since content differs from semester to semester: ENG 613, 625, 691, 699, 705, 709, 727, 730, 735, 740, 760, 780, and 790.

### Master's Degree

Graduates of the MA program in English have taught in secondary schools, junior and community colleges, four-year colleges, and universities. Some have pursued doctoral work; others have combined their work in English with another professional field (e.g., business, law, library studies). Still others have found employment in writing, editing, or research-related fields.

MA candidates are required to select a concentration by the end of their first semester in the program. Plan A (thesis) applies only to those admitted into the concentration in creative writing. Plan B (non-thesis) applies to those who have selected the concentrations in literary studies in English, composition and rhetoric, or cultural studies in Asia/Pacific.

### Plan A (Thesis) Requirements

- Applicable only to those students admitted to the concentration in creative writing. Students should submit a writing sample during the admission process or apply to the chair of creative writing for admission to the concentration during their first semester in the program
- 27 credit hours of course work, including 21 credit hours of courses numbered 600 and above
- 6 additional credit hours of work on the MA thesis
- ENG 625D—plus an additional 625, both taken during the first semester
- Final oral examination on the thesis
- A minimum of 12 credit hours of course work in creative writing and 12 credit hours of course work outside of that concentration. Courses listed in different concentrations may be applied to either area.
- One graduate course in a subject area before 1900. In exceptional cases, the graduate director may approve the use of a 400-level course to meet this requirement.
- One course with substantial content in Asia/Pacific at the 400-, 600- or 700-level, in or out of the English department while in residence at UH Mānoa
- Reading knowledge of one foreign language

### Plan B (Non-thesis) Requirements

- 33 credit hours of course work, including 27 credit hours in courses numbered 600 and above. Applies to all students except those in creative writing
- Two courses taken from the 625 sequence, to be taken in the first semester, 6 credits
- ENG 691—a minimum of 3 credit hours and a maximum of 6 credit hours required for work on the MA final project
- Final oral examination on the MA project
- One course in the English language (ENG 402, 403, 404, 601 or equivalent)—taken prior to entering the program. Students may meet this requirement within the program by taking an undergraduate course in the English language in addition to the total of 33 credit hours required for the MA degree or by taking an appropriate graduate course, such as 601, which will count towards the MA degree but may not also be used to fulfill the pre-1700 or pre-1900 course requirement.
- One course with substantial content in Asia/Pacific, at the 400-, 600-, or 700-level, in or out of the English department, while in residence at UH Mānoa.
- Reading knowledge of one foreign language
- Requirements for those in literary studies: between 12 and 24 credit hours of course work in the student's concentration, including ENG 625B; one graduate course in a subject area before 1700.
- Requirements for those in composition and rhetoric: ENG 605, 625C, 705 and 709; a minimum of 12 credit hours of course work outside the concentration; one graduate course in a subject area before 1900. Courses listed in different concentrations may be applied to either area.
- Requirements for those in cultural studies in Asia/Pacific: a minimum of 12 credit hours of course work in the concentration, including ENG 625E and 3 credit hours in Hawai'i's local literature, Asian American literature, or Pacific literature; a minimum of 12 credit hours of course work outside the concentration; one graduate course in a subject area before 1900. Courses listed in different concentrations may be applied to either area. Students in cultural studies will be allowed to meet 3 credit hours of work in their concentration with a course outside of the English department with permission of their concentration advisor.

### Doctoral Degree

Since the PhD program offers diverse courses and the opportunity to specialize in a range of different areas, graduates may pursue careers from among several professions, including teaching, research, and writing.

### Requirements

PhD candidates must fulfill the residency requirement and are required to take seven graduate-level courses in the Department of English; two courses, normally at the 400 level or above, in a field outside of English but related to the student's research interests; one course with substantial content in Asia/Pacific at the 400-, 600-, or 700-level, in or out of the English department, while in residence at UH Mānoa. They must pass three area examinations and a comprehensive examination and demonstrate competence in two languages other than English (one of which, if appropriate to the candidate's research, may

be a computer language) or in one language at an advanced level of proficiency. Candidates will be required to complete an original scholarly or creative dissertation representing a substantial contribution to the discipline of English, suitable for publication, and a final oral examination on the dissertation.

## Environmental Studies

Colleges of Arts and Sciences  
Krauss Annex 19, 2500 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7362 or (808) 956-7164  
Fax: (808) 956-3980  
Email: [jcusick@hawaii.edu](mailto:jcusick@hawaii.edu)  
Web: [www.hawaii.edu/envctr/evs/](http://www.hawaii.edu/envctr/evs/)

### Faculty

J. Cusick, PhD (Advisor)—environmental studies, education for sustainability, ecotourism, political ecology, protected areas, Pacific Basin

### Affiliate Faculty

C. L. Andrade, PhD—traditional navigation, Malama‘aina: traditional resource management, indigenous geography, Hawaiian music  
L. J. Cox, PhD—community economic development  
E. P. Dashiell, MA—environmental and facilities planner, environmental impact statements, environmental investigations  
E. H. DeCarlo, PhD—aquatic and environmental geochemistry, oceanography, freshwater  
D. Duffy, PhD—conservation, restoration ecology  
D. R. Drake, PhD—botany, ecology, Polynesian plants  
S. Meder, ArchD—architecture, design, environmental systems  
M. D. Merlin, PhD—biogeography, natural history of Hawai‘i  
J. K. Odin, PhD—Interdisciplinary Studies advisor, cultural studies of science and technology, literary and political ecology, new technologies and their impact on higher education  
T. Radovich, PhD—vegetables, sustainable farming  
J. E. Schoonmaker, PhD—Global Environmental Sciences advisor, oceanography  
B. Szuster, PhD—geography, coastal resource management, environmental impacts assessment

**Degree and Certificate Offered:** Certificate in Environmental Studies, BA in interdisciplinary studies (major equivalent in environmental studies)

### The Academic Program

Environmental studies (EVS) is an individually designed, interdisciplinary program established in 1965 and coordinated by the Environmental Center. Students wishing to earn a BA degree with a major equivalent in environmental studies may do so under the Interdisciplinary Studies Program. The program encourages a great deal of self direction to accommodate the student's individual goals and interests.

Environmental studies students may focus their curriculum on either the social or natural/physical sciences and find employment in both the public and private sectors as environmental resource managers, environmental specialists, hazardous waste managers, or any number of related fields. Others pursue graduate studies in environmental sciences, law, chemistry, biology, public health, planning, geography, resource manage-

ment, etc. A unique feature of the program is the ability to undertake an internship with a local agency or organization chosen by the student. In this internship (IS 489), students design and carry out an environmental research project complete with proposal, progress and final reports, and formal oral presentation to the internship sponsors. The EVS program has enjoyed the consistent cooperation and enthusiasm of more than 40 federal, state, and county agencies and departments and many private organizations as sponsors of EVS students.

### Undergraduate Study

#### Bachelor's Degree

The equivalent of an undergraduate major in environmental studies is available in the BA in interdisciplinary studies program. For information, contact the Environmental Center or Interdisciplinary Studies Program. Interested students should refer to "Interdisciplinary Studies" within the Undergraduate Education section.

#### Requirements

- Introductory courses:
  - BIOL 101/101L or BIOL 171/171L
  - CHEM 151/151L or 161/161L or 171/171L
  - ECON 120 or 130
- Major courses: Students must complete a minimum of 36 credit hours, including:
  - BIOL 310 or OCN/OEST/MET 310
  - BOT 454 or ZOOL 200/200L
  - GEOG 404
  - OCN 320
  - IS 489
- 20 to 24 credit hours in courses specific to the student's area of environmental studies specialization

Students must maintain a 2.5 GPA in the major course work. For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

#### Certificate in Environmental Studies

A Certificate in Environmental Studies signifies that a student has completed substantial environmental course work in addition to the requirements of his or her regular major. Certificate candidates are required to submit a proposal and complete 15 credit hours of course work, including two required courses and three electives from an approved list of courses. The required courses are BIOL 310 or OCN/OEST/MET 310, and IS 489. Electives for social science or humanities majors are two courses in the natural sciences and one from the social sciences. Natural science majors must select two courses from the social sciences and one from the natural sciences.

- Electives for the natural science courses include the following:
  - BIOL 360, 410, 425
  - BOT 450, 453, 454, 455
  - GEOG 300, 305, 309, 401, 404, 405, 410
  - GG 455
  - OCN 320, 330, 331
  - ZOOL 439/439L, 450, 485
- Electives for the social science courses include the following:
  - AMST 320, 420
  - ANTH 415, 435

- ARCH 341
- ECON 358
- GEOG 330, 335, 380
- IS 361
- NREM 302
- PLAN 310, 399
- SOC 412

## Ethnic Studies

College of Social Sciences  
2560 Campus Road, George Hall 301  
Honolulu, HI 96822  
Tel: (808) 956-8090  
Fax: (808) 956-9494  
Email: esdept@hawaii.edu  
Web: www.ethnicstudies.hawaii.edu

### Faculty

- T. Tengan, PhD (Chair)—identity, gender, indigenous theory and methodology, Hawai'i and the Pacific
- I. G. Aoudé, PhD—Hawai'i political economy, Middle East politics, social movements in Hawai'i and the South Pacific
- B. Chung, PhD—Chinese diaspora, transnationalism, Chinese Americans, popular culture and music
- M. Das Gupta, PhD—South Asians in America, race and gender politics, U.S. immigration policies
- U. Hasager, PhD—associate specialist in civic engagement
- N. Kent, PhD—political economy in Hawai'i and the Pacific, American ethnic relations
- R. Labrador, PhD—Filipino culture, history and politics in Hawai'i and the U.S., culture, race, ethnicity, class, diaspora
- D. McGregor, PhD—Hawaiian history, social movements in Hawai'i and the Pacific
- J. Y. Okamura, PhD—race and ethnicity, minority access to higher education, ethnic relations in Hawai'i, Japanese in Hawai'i, Filipinos in Hawai'i, Asian Americans
- F. L. Uperesa, PhD—American ethnic and race relations, racism and ethnicity in Hawai'i

### Affiliate Faculty

- A. Castanha, PhD—political science (indigenous cultures)
- W. Nishimoto, PhD—education (oral history)
- L. Petranek, PhD—political science (political economy)
- L. Wang, PhD—American studies (immigration law and critical race theory, Asian American politics and public policy, feminist ethnography)

**Degree and Certificate Offered:** Certificate in Ethnic Studies, BA in ethnic studies

### The Academic Program

The Department of Ethnic Studies (ES) is an interdisciplinary program with emphasis on undergraduate education. Initiated in 1970, ethnic studies combines traditional and contemporary methodologies with new perspectives on issues of race, ethnicity, and class. The focus is Hawai'i with its rich legacy of multiethnic heritages, but the research, teaching, and service components also involve the U.S. as a whole and comparative studies of societies around the globe.

Ethnic studies provides introductory and advanced courses on theories and practices of ethnicity, race, class, and gender. The program also offers courses on the history and experiences of specific groups, including African Americans and Native Americans. Among groups in Hawai'i, Chinese, Filipinos, Hawaiians, and Japanese are subjects of separate courses. There are also courses dealing with critical topics such as ethnic identity, land tenure, social movements, and labor history.

Students may earn a BA or the Certificate in Ethnic Studies. Graduates have gone on to successful work in public service, social service, business, law, labor organization, education, and other fields that require sensitivity to people and their backgrounds.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 30 credit hours, including:

- ES 101 and 380
- 12 credit hours on the history and social dynamics of ethnic groups from ES 221, 305, 306, 330, 331, 333, 338, and 339
- 12 credit hours on the history, theories, and problems of ethnic groups and ethnicity in the framework of social, economic, and political change from ES 301, 310, 318, 320, 340, 350, 360, 365, 370, 372, 373, 375, 381, 390, 392, 397, 399, 410, 418, 420, 443, 455, 456, 460, 480, 492, 493, 495, and 496
- A 2.0 GPA in ethnic studies and the 6 credit hours of related courses must be approved by a departmental advisor

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Certificate

#### Requirements

- Complete 18 credit hours in ethnic studies with a 3.0 GPA
- ES 101 (301 may be substituted)
- 6 credit-hours on the history and dynamics of ethnic groups from ES 221, 305, 306, 330, 331, 333, 338, and 339
- 9 credit-hours on the history, theory, and problems of ethnic groups and ethnicity in the framework of social, economic, and political change from ES 301, 310, 318, 320, 340, 350, 360, 365, 370, 372, 373, 375, 380, 381, 390, 392, 397, 399, 410, 418, 420, 440, 443, 455, 456, 460, 480, 492, 493, 495, and 496

# Geography

College of Social Sciences  
Saunders Hall 445  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8465  
Fax: (808) 956-3512  
Email: uhmgeog@hawaii.edu  
Web: www.geography.hawaii.edu

## Faculty

- \*E. A. Wingert, PhD (Chair)—cartography, remote sensing
- \*D. Beilman, PhD—biogeography, long-term ecology, terrestrial carbon accumulation, paleoenvironmental change
- \*Q. Chen, PhD—remote sensing, geographic information systems, geostatistics, spatially-explicit modeling
- \*T. W. Giambelluca, PhD—climatology, hydrology
- \*H. Jiang, PhD—cultural geography, environment, perception of nature, China
- \*R. Jones, PhD—political geography, globalization, borders, sovereign state system, nationalism, South Asia
- \*S. M. Jorgensen, PhD—evolutionary biogeography, landscape and ecological genetics, conservation
- \*M. G. McDonald, PhD—agricultural change, social theory, political geography, Japan
- \*M. McGranaghan, PhD—computer cartography, geographic information systems
- C. Mora, PhD—interlinks between biodiversity patterns, processes, threats and human welfare
- M. Mostafanezhad, PhD—cultural politics of tourism, politics of consumption, Thailand
- \*A. Rieser, J.D., LL.M.—marine environmental governance; marine science and policy; political geography of the oceans; ocean policy and climate change
- \*K. Suryanata, PhD—political ecology, agricultural geography, natural resource management, Third World
- \*R. A. Sutherland, PhD (Associate Dean)—geomorphology, soil erosion, water quality
- \*B. Szuster, PhD—coastal resource management, environmental impacts assessment, marine recreation, Thailand

## Cooperating Graduate Faculty

M. D. Merlin, PhD—biogeography, natural history of Hawai'i

## Affiliate Graduate Faculty

M. Finucane, PhD—environmental perception  
J. Fox, PhD—social forestry  
N. Lewis, PhD—medical geography  
J. Maragos, PhD—coastal and marine resources  
T. A. Siddiqi, PhD—energy technology, environmental policy

**Degrees Offered:** BA (including minor) in geography, MA in geography, PhD in geography, Graduate Certificate in Ocean Policy

## The Academic Program

Geography (GEOG) provides a broad and flexible academic program that explores the human and environmental systems that shape the surface of the Earth. The discipline investigates the interaction of culture, society, ecology and physical environ-

ments that characterize particular places and studies how these relationships vary across space. The undergraduate program at UH Mānoa focuses on three interlocking subdisciplines: human geography, environmental geography, and geographic technologies. Human geography investigates the cultural, economic, and political processes that shape human experiences on the Earth; the relationship between the environment, society, and culture; and the nature of place in the Asia-Pacific region. Environmental geography engages in a systematic study of the Earth's physical environment (atmosphere, biosphere, hydrosphere, and lithosphere) and considers the challenges associated with natural resource management and global environmental change. Geographic technologies include the study of cartography, geographic information systems (GIS), and remote sensing science.

Students who study geography obtain a holistic understanding of the world and a set of methodological tools that can be applied to a wide range of domestic and international career opportunities. Geographers are involved in environmental planning, natural resource management and social policy development with all levels of government, private firms, non-profit organizations, educational institutions, and international agencies. Hawai'i's unique historical, socio-cultural and environmental context also provides a fascinating setting for geographical investigations into the wider Asia-Pacific region.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 16 core credit hours including:

- GEOG 101/101L, 104, 151, 380, and 493

In addition to the core requirements, each student must elect one of three of the following streams and complete at least 21 credit hours in the upper division courses specific to each stream.

- Environmental stream:
  - two environmental geography courses
    - GEOG 300, 302, 303, or 309
  - one geotechnical course
    - GEOG 370, 376, 391, or 388
  - one human geography course
    - GEOG 322, 325, 330, or 335
  - three upper division environmental geography courses (two from the list below)
    - GEOG 400, 401, 402, 403, 404, 405, 408, 409, 410, 411, 412, or 413
- Geotechnical stream:
  - two geotechnical courses
    - GEOG 370, 376, 391, or 388
  - one environmental geography course
    - GEOG 300, 302, 303, or 309
  - one human geography course
    - GEOG 322, 325, 330, or 335
  - one intern or research topic course
    - GEOG 468 or 492
  - two upper division courses from the list below
    - GEOG 470, 472, 476, or 489

- Human stream:
  - two human geography courses
    - GEOG 322, 325, 330, or 335
  - one environmental geography course
    - GEOG 300, 302, 303, or 309
  - one geotechnical course
    - GEOG 370, 376, 391, or 388
  - three upper division human geography courses (two from the list below)
    - GEOG 421, 422, 423, 424, 425, 426, 435, or 436

Individual programs are designed in consultation with the undergraduate advisor.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Minor

### Requirements

The minor in geography requires 15 credits of upper division course work in geography, which should include at least one course in each of the three areas: human geography; environmental geography; and geotechnology.

## Graduate Study

The department offers programs of graduate study and research leading to the MA and PhD degrees. Faculty interests and supporting strengths of UH Mānoa provide advantages for study of the following general topics: (a) environmental studies and policies; (b) resource management and systems; (c) conservation, urbanization, and regional development; (d) cartography, remote sensing, and geographic information systems; and (e) Pacific and Asian regional problems.

Applicants are expected to have a broad-based undergraduate education encompassing basic courses in the physical sciences, social sciences, and humanities. They should have a firm grasp of the fundamentals of environmental and human geography and of basic cartographic and quantitative techniques. Intended candidates for the MA or PhD need not have an undergraduate major in geography; students from related fields are welcome, but any subject-area weakness must be remedied by course work.

Holders of graduate degrees in geography are employed in research and administrative positions in county, state, federal, and international agencies; research positions in private business, especially consulting firms; and teaching positions in secondary schools, community colleges, colleges, and universities.

## Master's Degree

Applicants for admission to the MA program in geography must provide two transcripts, GRE scores (General Test only), completed application forms (available from the department, the Graduate Division, and the Web), and three letters of reference.

### Requirements

The department offers a Plan A (thesis) program. In consultation with an advisory committee, the candidate plans a coherent program of study drawn from departmental offerings and pertinent courses from other UH Mānoa departments and programs. Each MA student must complete a minimum 31-credit program, including:

- 7 credit hours of core classes (GEOG 692, 695, 696)
- 15 credit hours in the chosen field of specialization
- 3 credit hours in advanced research skills
- 6 credit hours in GEOG 700 Thesis Research

## Global Ocean Policy Certificate Program

Guiding state governance and community stewardship of the oceans requires an interdisciplinary approach grounded in both theory and empirical study of the human-marine environment relationship. The Global Ocean Policy Certificate Program is designed as a concurrent program for classified graduate students and law students in good standing. Community professionals and practitioners who meet minimum admissions requirements are eligible also to build their skills in coastal conflict resolution, maritime boundaries and marine GIS, species recovery, and ecosystem-based management of marine resources. An advisor assists each student in custom-designing a 15 credit program that draws on marine-related courses at UH in geography, law, history, marine science, environmental and resource economics, public policy, conflict resolution, and planning. A major paper or internship project and participation in an interdisciplinary seminar are required. For further information and applications, see the department's web page.

## Doctoral Degree

The PhD program is highly selective, and admission is based upon demonstrated competence in previous work and promise of research ability. In addition to the materials required for MA admission, PhD applicants must submit representative samples of research writing and a comprehensive statement of professional goals and objectives. Students who have completed MA degrees in fields other than geography may be considered for admission to the PhD program. If admitted, however, they must undertake any remedial course work recommended by the department.

### Requirements

The PhD program consists of advanced courses and research seminars in the department, independent reading and research, and work in related disciplines. Each candidate will be expected to have taken the core program required for MA candidates or its equivalent. In addition, the following are common elements of all geography PhD programs:

1. Attendance and participation, while in residence, in the geography colloquium;
2. Familiarity with the general development of geographic thought (GEOG 695);
3. Minimum of 15 credit hours in graduate courses in a departmental field of specialization (course work taken at the MA/MS level may be used in partial fulfillment of this requirement);
4. Minimum of 6 credit hours in research methods or techniques (statistics, cartography, remote sensing, GIS, quantitative or qualitative methods, computer applications, field methods, experimental methods, laboratory techniques or bibliographic techniques);
5. Passing of written and oral comprehensive examinations; and
6. Submission and defense of a satisfactory dissertation.

# History

College of Arts and Humanities  
Sakamaki A-203  
2530 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-8486, 956-8358  
Fax: (808) 956-9600  
Web: [manoa.hawaii.edu/history](http://manoa.hawaii.edu/history)

## Faculty

- \*D. L. Hanlon, PhD (Chair)—Pacific Islands, Micronesia, ethnography
- \*L. Y. Andaya, PhD—traditional Southeast Asia, Indonesia
- \*D. N. Arista, PhD—Hawaiian Islands, 19th century U.S., Pacific world
- \*E. O. Bertz, PhD—South Asia, Indian ocean, Africa
- \*S. J. Brown, PhD—modern China, intellectual and cultural
- \*D. A. Chappell, PhD—Pacific Islands, world history, Africa
- \*M. L. Daniel, PhD—U.S. early American Republic, politics and race
- \*E. L. Davis, PhD—middle China, religion
- \*W. W. Farris, PhD—pre-modern Japan, social and economic
- \*M. A. Henriksen, PhD—U.S., recent America, popular culture
- \*P. H. Hoffenberg, PhD—modern Europe, England, British Empire
- \*K. L. Jolly, PhD—medieval Europe, Anglo-Saxon England, medieval Christianity
- \*L. C. Kelley, PhD—modern Southeast Asia, Vietnam
- \*J. P. Kraft, PhD (Associate Chair)—U.S., business and labor
- \*M. V. Lanzona, PhD—modern Southeast Asia, Philippines, women
- \*M. J. Lauzon, PhD—early modern Europe, European intellectual
- \*F. Lopez-Lazaro, PhD—world, Mediterranean, maritime history
- \*C. K. Matteson, PhD—modern Europe, France, environmental history
- \*M. T. McNally, PhD—Tokugawa Japan, social and intellectual
- \*N. Njoroge, PhD—U.S., Caribbean and Latin America, race and critical theory
- \*R. L. Rapson, PhD—U.S., cultural and intellectual
- \*R. C. Rath, PhD—U.S., early America, Atlantic world, Native American, sensory
- \*S. J. Reiss, PhD—U.S. foreign relations, Latin America and Caribbean, African
- \*M. P. Romaniello, PhD—early modern Europe, Russia, Soviet Union, gender
- \*J. P. Rosa, PhD—Hawaiian Islands, 20th century Hawai'i, U.S. social and cultural
- \*S. Schwartz, PhD—ancient Europe, classical history, gender, law
- \*M. P. Speidel, PhD—ancient Europe, Greece and Rome, Roman military, epigraphy
- \*Y. Totani, PhD—modern Japan, Pacific
- \*W. Wang, PhD—classical China, Ming/Qing China, politics and culture
- \*T. J. Yoo, PhD—modern Korea, colonialism, gender and cultural studies
- \*H. F. Ziegler, PhD—modern Europe, Germany, Holocaust, world history

## Cooperating Graduate Faculty

B. Andaya, PhD—Southeast Asia

**Degrees Offered:** Undergraduate Certificate in Islamic Studies, BA (including minor) in history, MA in history, PhD in history

## The Academic Program

History (HIST) is the study of change and continuity in human society over time. Drawing upon concepts and methods of many disciplines, history provides perspective on the human condition, past and present. The discipline of history develops skills in evaluating evidence, organizing information, clarifying and structuring concepts, and writing narratives and expositions. History is a core around which liberal education can be structured. The study of history lays a foundation upon which one can develop a cultural, social, and intellectual life that enriches an understanding of the wider world.

Majoring in history is an excellent way to move into specialized study in such areas as teaching, library and information science, foreign service, medicine, law, and business. Those who plan to pursue a career as professional historians will want to continue their education and obtain the MA and PhD degrees. The Department of History of UH Mānoa offers a full range of courses in American, Asian, European, Pacific, and world history.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete eleven courses (33 credit hours) in history with a grade of C (not C-) or better, distributed as follows:

- Minimum of five courses (15 credit hours) in one of the following four fields (U.S., Europe, Asia/Pacific, Europe, or Comparative/World)
- One upper division course (3 credit hours) in each of the other three fields
- HIST 396 and 496
- One additional history course

No more than two 200-level courses (6 credits) may be used toward the history major, and no 100-level course may be counted.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

For a student to minor in history, the declaration of intent should be made as early as possible after matriculation. The student must contact the undergraduate advisor of the department and complete the appropriate forms. The minor requires the successful completion with a grade of C (not C-) or better of 15 credit hours of upper division history courses. It is possible to concentrate in a particular area of history, but it is not necessary to do so. No one specific course is required for the minor.

### Undergraduate Certificate in Islamic Studies

The purpose of this certificate is to increase understanding of Islam as a world religion through critical analysis of primary and secondary materials, to foster knowledge about the complexity among Islamic societies and their diverse cultural expressions, and to explore the role of Islam and Muslims in present and past world affairs.

This certificate is housed within the College of Arts and Humanities. The participating departments are Art and Art

History, History, Philosophy, and Religion. Minimum prerequisites for acceptance into the program for undergraduates are sophomore or higher standing with a minimum GPA of 2.5 and the completion of at least one introductory course within one of the four participating departments with a grade of B or better.

A more complete description and the requirements are described under the Department of Philosophy.

## Graduate Study

The Department of History offers the MA and PhD degrees in the American, Asian, European, and Pacific fields. A field of world history is offered at the PhD level only. All applicants for advanced degree programs in history are requested to supplement the application and transcripts required by the Graduate Division with letters of recommendation (two for the MA, three for the PhD), preferably from professors with whom the applicant has worked; a sample of written work such as a term paper, seminar paper, or MA thesis; and the General Test scores from the GRE. These supplementary items should be sent directly to the department.

Complete details on all graduate programs in history, as well as financial aid available to prospective students, are outlined in the departmental website, [www.manoa.hawaii.edu/history](http://www.manoa.hawaii.edu/history) or by email at [gradhist@hawaii.edu](mailto:gradhist@hawaii.edu).

Recipients of advanced degrees in history have undertaken careers as teachers of history and social studies in secondary schools, community colleges, colleges, and universities. In addition, the study of history provides an excellent background for alternative careers in museology, library and archival work, government service, historical preservation, business and marketing research, and allied research fields. The department has a placement officer to assist graduates with career choices and in locating employment opportunities.

Courses for the graduate programs are to be selected from among the history courses listed in back of the *Catalog* and from graduate offerings in related disciplines as directed by the student's supervisory committee. The consent of the instructor is required for admission to all courses numbered 600 and above. Courses numbered over 600, except HIST 602 and 790, may be repeated *once* for credit.

## Master's Degree

Intended candidates for the MA degree must present a minimum undergraduate preparation of 18 upper division credit hours in history or some closely allied field such as Asian studies or American studies. Students who lack this preparation or who wish to undertake study in an area of history other than that of their undergraduate preparation must make up deficiencies either before or during graduate study. In the latter case, the student will be admitted only conditionally, pending removal of the deficiencies.

The prospective MA candidate may select either Plan A (thesis) or Plan B (non-thesis). Both plans require the intended candidate to give evidence of competence in a foreign language appropriate to the field of major interest. In addition, students in the U.S. or East Asia history areas in either Plan A or Plan B must also meet seminar distribution requirements, which raise the minimum required 600-level work to 18 credit hours.

## Plan A (Thesis) Requirements

Plan A requires a minimum of 24 credit hours of graduate work, at least 15 of which must be in courses numbered 600 and above (including HIST 602), plus 6 credit hours of HIST 700 Thesis Research, a written thesis, and a final oral examination, which is a defense of the thesis.

## Plan B (Non-thesis) Requirements

Plan B requires a minimum of 30 credit hours of graduate work, at least 18 of which must be in courses numbered 600 and above (including HIST 602), comprehensive examinations in two fields of history (a major and a minor), a final oral examination covering those two fields of history, and submission of two major research papers from graduate seminars, one in the major field and the other in the minor field.

## Doctoral Degree

Intended candidates for the PhD degree are expected to possess the MA degree in history or its equivalent. The PhD candidate must demonstrate the capability of pursuing a successful career as a professional historian by showing initiative in historical research and by giving evidence of the ability to present findings both orally and in writing.

## Requirements

The candidate must prove competence by the acquisition of a broad background in general history, passing four comprehensive examinations in two broad geographic areas of history and completing an original dissertation and a final oral examination. The candidate must also demonstrate a knowledge of at least two foreign languages related to the dissertation topic; for students of American or Hawaiian history an alternative requirement may, at the discretion of the doctoral committee, be substituted for one of the languages.

## Indo-Pacific Languages and Literatures

College of Languages, Linguistics and Literature  
Spalding 255  
2540 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8672  
(808) 956-7452  
Fax: (808) 956-5978  
Email: [hip@hawaii.edu](mailto:hip@hawaii.edu)  
Web: [www.manoa.hawaii.edu/ipll/](http://www.manoa.hawaii.edu/ipll/)

## Faculty

- J. F. Mayer, PhD (Chair)—language learning and teaching, language in society, Samoan
- A. S. Agcaoili, PhD—Philippine literature and culture, creative writing: poetry, fiction, drama, Ilokano language and literature, philosophy of language, literary relations, literatures of exile and diaspora
- P. C. Arboleda, PhD—Philippine literature, creative writing, Ifalig orature and Philippine folklore, gender studies, literary theory, and Southeast Asian traditional culture
- \*S. Bhatawadekar, PhD—Hindi, Urdu language, foreign and heritage language teaching, pedagogy, curriculum and material development and program building; South Asian cinema and culture; film

adaptation of literature, Hindi and Buddhist religious philosophies and their reception in the West; German-Indian comparative philosophy

- M. T. Boyce, PhD—applied linguistics, Corpus linguistics, lexicography; Maori language learning and teaching; immersion education; children’s productive reo Maori, resources for literacy; literature in Maori for adults and children, traditional song poetry; language maintenance and shift, language and power
- S. T. Chailloux, MA—linguistic anthropology, the power’s dimension of the Tahitian language in the political and religious area; anthropology of Christianity, syncretism and contextual theology in the Tahitian Protestant Church; contemporary history of Tahiti; Tahitian oratory art (traditional speech)
- I. Gasmen, MA—Filipino (Tagalog) language learning and teaching; language and multimedia; educational communication, distance education
- L. Hamedani, PhD—linguistics, Persian language syntax, testing, translation, Persian culture, and modern and classical Persian literature as well as pedagogy and second language acquisition
- Y. Hoonchamlong, PhD—Thai linguistics, language learning and teaching, information technology in language research and language learning
- J. R. Knutson, PhD—Assistant Professor of Sanskrit and Bengali, Sanskrit literature and literary theory, ancient and early medieval history and literary history of South Asia, Early Middle Bengali poetry, comparative premodern poetry and poetics
- U. Kozok, PhD—Indonesian language and literature, prehistory and paleography of Island Southeast Asia, Sumatran philology
- F. Lesa, PhD—language learning and teaching, Samoan
- R. E. S. Mabanglo, PhD—Philippine literature, poetry, drama, creative writing, Filipino language
- S. D. O’Harrow, Doceo—Vietnamese language, philology and civilization, Sino-Vietnamese
- L. C. Pagkalinawan, PhD—Filipino (Tagalog) language learning and teaching, Filipino linguistics; Philippine literature, creative writing, sociolinguistics
- C. Sak-Humphry, PhD—Khmer language, linguistics and literature; development of Khmer language teaching materials, linguistics research on Old Khmer inscriptions (Pre-Angkor to Angkor period)
- L. Q. Santiago, PhD—Philippine studies, Philippine literatures, Ilokano and Filipino (Tagalog) languages and literatures, poetry, fiction, creative writing and critical writing, comparative literature, women and feminist literatures, and translation studies
- M. F. Simanu-Klutz, PhD—Samoan language learning and teaching, pedagogy, traditional literature and forms of entertainment, intersections of oral traditions and cultural history, creative writing
- J. Soria, PhD—Ilokano language, second/foreign, and heritage language teaching and learning, curriculum development and evaluation, media literacy and electronic portfolio

**Degrees and Certificates Offered:** Undergraduate Certificate in Indo-Pacific languages (Filipino, Hindi, Ilokano, Indonesian, Khmer, Samoan, Sanskrit, Tahitian, Thai, or Vietnamese); BA in Philippine Language and Literature; BA in interdisciplinary studies (concentration in Hindi, Indonesian, Samoan, Sanskrit, Thai, or Vietnamese); minor in Filipino and Ilokano Language and Culture

## The Academic Program

Indo-Pacific Languages and Literatures (IPLL) provides instruction in the languages of the Indo-Pacific area to a broad spectrum of students at UH Mānoa. The department’s coverage

of these languages is unique in the U.S.: This department is the only one to offer programs of study in four Polynesian languages, most of the national languages of Southeast Asia, as well as classical and modern Indian languages as well as Arabic, Urdu, and Persian. Beyond language, the department offers courses in the literatures and cultures of the area, including literature in translation of South and Southeast Asia, Polynesia, and the Philippines. Opportunities are available for study abroad in certain areas. The department at UH Mānoa provides an opportunity without parallel elsewhere in the country for students to acquire an in-depth knowledge of the languages and cultures of that part of the world that encompasses more than 25 percent of the Earth’s population and an unusual diversity of peoples.

All the department’s elementary- and intermediate-level language courses may be used to fulfill the Hawaiian or second language requirement for all bachelor’s degrees at UH Mānoa. Students of Indo-Pacific languages and cultures can also enhance their opportunities to find a career in international relations; provide service to the community in such fields as social work, public health, nursing, medicine, and law; perform research on Asia and the Pacific; and develop cross-cultural awareness and understanding in Hawai‘i’s multicultural environment.

Language offerings include Arabic, Cambodian (Khmer), Chamorro, Filipino, Hindi, Ilokano, Indonesian, Maori, Marshallese, Persian, Samoan, Sanskrit, Tahitian, Thai, Tongan, Urdu, and Vietnamese. For additional languages and topics, see Indo-Pacific languages (IP) courses listed at the back of the *Catalog*.

## Undergraduate Study

### Certificates

On recommendation of the Department of Indo-Pacific Languages and Literatures, UH Mānoa confers certification of achievement in Filipino, Hindi, Ilokano, Indonesian, Khmer, Samoan, Sanskrit, Tahitian, Thai, and Vietnamese.

### Requirements

15 credit hours beyond the intermediate level in the language of choice, including:

- 6 credit hours in continuing language study
- 9 credit hours in language, literature, or structure courses selected to complement the major field of study

A 3.0 GPA in courses leading to the certificate is required.

### BA Degree in Philippine Language and Literature (with concentration in Filipino or Ilokano)

The program has the following objectives: prepare students for future careers in community service and education; prepare students for advanced research and/or graduate studies in various fields in the humanities and social sciences; and ultimately, serve students of Filipino ancestry by providing them with a better understanding of Philippine culture and proficiency in a Philippine language.

To view the Bachelor Degree Program Sheets with Filipino and Ilokano concentrations, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Requirements

A minimum of 36 credit hours, made up of 24 credits in required language and literature courses in Filipino or Ilokano

- 12 credits language skill courses: 301-402
- 12 credits literature and culture courses
- and 12 credits upper division and outside electives

### **Minor in Filipino**

Students completing the program would have both oral and written competence in Filipino as well as cultural content sufficient for use in professional careers, graduate work or research, and field work.

#### **Requirements**

A minimum of 15 credit hours from five non-introductory courses in Filipino and Philippine culture is required.

- at least 9 credits culture and literature courses
- 6 credits language skill courses

### **Minor in Ilokano**

Students completing the program would have both oral and written competence in Ilokano as well as cultural content sufficient for use in professional careers, graduate work or research, and field work.

#### **Requirements**

A minimum of 15 credit hours from five non-introductory courses in Ilokano language and culture is required.

- at least 9 credits culture and literature courses
- 6 credits language skill courses

## **Honors and Awards**

### **Samuel H. Elbert Graduate Scholarship**

Offered to encourage graduate-level research and study for students specializing in Pacific Island language and related fields, this scholarship provides an award of up to \$5,000 per semester to students registered in graduate programs at UH Mānoa.

### **Amos P. and Edna Lee Leib Scholarship for Graduate Study of Literature of the Pacific**

Offered to support graduate students pursuing the study of literature of the Pacific.

### **Ilokano BA Scholarship**

The scholarship provides academic recognition to an undergraduate student in the College of Arts and Sciences pursuing a Bachelor of Arts in Philippine Language and Literature with Concentration in Ilokano.

### **Roshan Institute Graduate Fellowship for Persian Linguistics, Language Acquisition and Applied Linguistics**

Offered to support graduate students pursuing the study of Persian, Roshan Cultural Heritage Institute provides two renewable Graduate Fellowships for outstanding PhD students in Persian Linguistics, Language Acquisition, and Applied Linguistics.

### **Roshan Institute Graduate Student Fellowship for Persian**

Offered to support graduate students pursuing the study of Persian, Roshan Cultural Heritage Institute provides two annual non-renewable fellowships of \$5,000 for graduate students.

### **Jack Haven Ward Graduate Scholarship**

Promoting the study of Tahitian (first priority) and any other language of French Polynesia or Balinese.

## **Information and Computer Sciences**

College of Natural Sciences

POST 317

1680 East-West Road

Honolulu, HI 96822

Tel: (808) 956-7420

Fax: (808) 956-3548

Web: [www.ics.hawaii.edu](http://www.ics.hawaii.edu)

### **Faculty**

- \*D. Chin, PhD (Chair)—artificial intelligence, natural language processing, user modeling
- \*K. Baek, PhD—computer vision, neural computation, machine learning
- \*E. Biagioni, PhD—networks, systems, languages
- \*K. Binsted, PhD—artificial intelligence, human-computer interaction, cognitive science, natural language processing
- \*H. Casanova, PhD—high performance computing, distributed systems
- \*M. E. Crosby, PhD—human-computer interaction, cognitive science
- \*R. Gazan, PhD—social aspects of information technology
- \*P. Johnson, PhD—software engineering, artificial intelligence
- G. Lau, MS—educational specialist
- \*J. Leigh, PhD—big data visualization, virtual reality, high performance networking, human augmentics, video game design
- \*D. Li, PhD—security, privacy and performance in systems, software, networks and databases
- \*L. Lim, PhD—database systems
- \*M. B. Ogawa, PhD—educational specialist
- \*J. Patriarche, PhD—applications of computers to medicine
- \*D. Pavlovic, PhD—security, software, search and networks, quantum computation
- \*G. Poisson, PhD—cognitive informatics, bioinformatics, machine learning
- \*L. Quiroga, PhD—information retrieval, databases, library systems, website design
- \*N. Reed, PhD—artificial intelligence, autonomous agents
- \*S. P. Robertson, PhD—human-computer interaction, digital government and digital democracy
- \*P-M. Seidel, DrEng habil—formal methods, computer arithmetic, computer architecture, algorithms
- \*N. Sitchinava, PhD—algorithms and data structures, parallel and distributed computation, I/O- and cache-efficient computation
- \*J. Stelovsky, DrTechSc—computer-hypermedia, human-computer interaction
- \*S. Still, PhD—bioinformatics/theoretical biology, information theory, machine learning
- \*K. Sugihara, DrEng—algorithms, distributed computing, visual languages
- \*D. Suthers, PhD—human-computer interaction, computer-supported collaborative learning, technology for education, socio-technical networks and online communities

## Affiliate Graduate Faculty

D. R. Stoutemyer, PhD—computer algebra, mathematical software

\*D. Streveler, PhD—medical informatics

**Degrees Offered:** BA in information and computer sciences, BS (including minor) in computer science, MS in computer science, MLISc in library and information science, PhD in computer science, and PhD in communication and information sciences (interdisciplinary)

## The Academic Program

Information and computer sciences (ICS) is the study of the description and representation of information and the theory, design, analysis, implementation, and application of algorithmic processes that transform information. Students majoring in ICS will learn to use computer systems, a valuable skill which can be applied in all fields of study. Students will also learn the scientific principles and technology required to develop new computer systems and applications. The curriculum covers all major areas of computer science with special emphasis on software engineering, computer networks, artificial intelligence, human-computer interaction and bioinformatics, and areas uniquely suited to Hawai'i's role as a multicultural and geographical center of the Pacific.

## Undergraduate Study

### Bachelor's Degree

To be admitted into the program, first-year students entering UH Mānoa directly from high school must first be admitted into the Colleges of Arts and Sciences. For continuing students, a cumulative GPA of at least 2.0 is required for admission.

### BA in Information and Computer Sciences

#### Requirements

Students pursuing this degree are required to submit a short proposal listing the courses they intend to take to complete their ICS major. An ICS faculty advisor must approve this proposal in writing. Samples of course proposals are available at the ICS department office. Students must complete the following courses (49 credits):

- ICS 111, 141, 211, 212 or 215, 241, 311, 312 or 331, 313 or 361, 321, and 332
- At least three ICS courses at the 400-level or above,
- Four upper division (300-level or above) courses in some area of concentration. The area of concentration courses do NOT have to be from the same department.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS in Computer Science

#### Requirements

- Students must complete the following courses (47 credits):
- ICS 111, 141, 211, 212 or 215, 241, 311, 312 or 331, 313 or 361, 314, 321, and 332
  - At least five ICS or other approved courses at the 400 level or above

Substitutions are permitted with the written approval of an ICS faculty advisor.

Waiver of certain requirements, such as by Advanced Placement CS Exam, must be approved by the ICS faculty advisor.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

A cumulative GPA of at least 2.0 and a grade of B (not B-) or higher in ICS 111 in computer science are required for admission.

### Requirements

Students must complete ICS 211 with a grade of B (not B-) or higher, 212, and 241 and their prerequisites, 111 and 141, and three ICS courses at the 300 level and above with a grade of C (not C-) or better.

## Graduate Study

The department offers the MS degree in computer science, the MLISc degree in library and information science (see the "Library and Information Science" section within the Colleges of Arts and Sciences for more information), and the PhD degree in computer science. The department is one of four academic programs that cooperate in an interdisciplinary doctoral program in communication and information sciences (see the "Communication and Information Sciences" section within the Colleges of Arts and Sciences for more information).

Applicants for the MS and the PhD in computer science are required to take the GRE General Test. The subject area examination in computer science is highly recommended. Applicants from foreign countries must be academically qualified, proficient in English (TOEFL or IETLS with scores above the minimum required by the Graduate Division, with the additional requirement that TOEFL scores be 580/237/92 or above for admission to the MS program, and 600/250/100 or above for admission to the PhD program, where scores are listed as paper/computer/internet), and sufficiently financially supported.

The department offers three forms of financial aid: teaching assistantships, research assistantships, and tuition waivers. The department offers a limited number of assistantships each semester, most of which are teaching assistantships. Teaching and research assistants work approximately 20 hours per week under the supervision of a faculty member and receive a stipend as well as a tuition waiver. Teaching assistants support instruction and research assistants support extramurally funded research projects. Teaching assistantships are awarded to those applicants who can best support the instructional program. Similarly, research assistantships are awarded to those applicants who can best assist faculty with their research projects. Applicants accepted for admission may be eligible for partial financial aid in the form of a tuition waiver from the Graduate Division and foreign applicants from Pacific or Asian countries may be eligible for Pacific-Asian Scholarships. Prior to submitting a tuition waiver application form, foreign applicants must submit TOEFL/IETLS scores and documentation of financial support for expenses other than tuition to the Graduate Division Admissions Office. To apply for any of these forms of support, students should submit the ICS Graduate Assistantship Application along with three letters of recommendation using the Graduate Assistantship Evaluation Form. Because we can offer assistance to only a small fraction of applicants, we highly

encourage students to also seek other forms of support, such as the East-West Center or computer-assisted databases.

### **Master's Degree**

The master's program is intended for students planning to specialize in computer science or to apply computer science to another field. Applicants who do not possess an undergraduate degree in computer science from an accredited institution will need to complete equivalent course work.

#### **Requirements**

Plan A (thesis) and Plan B (non-thesis) are available. A minimum of 31 credit hours is required under both plans. A minimum B average must be maintained in all courses.

#### **Plan A (Thesis) Requirements**

1. At least six ICS graduate courses, i.e. courses with numbers between ICS 600 and ICS 692, with the exception of ICS 690. At least one course must be taken from each of four areas of concentration in the program to ensure breadth of knowledge. 3 credits of ICS 700 may be substituted for one of these six courses;
2. Two additional elective 600-level courses must be taken either from the ICS department or some related discipline (such as LIS, EE, MIS, etc.) on a topic related to computer science. Elective courses must have prior approval from the ICS graduate chair as to the suitability prior to enrollment in the courses;
3. Thesis research taken as 6 credits of ICS 700 is required for the degree. These credits are typically taken close to or during the final semester in the program consist of six credits of ICS 700; and
4. ICS 690 (taken for CR/NC) for one semester.

#### **Plan B (Non-thesis) Requirements**

1. At least six ICS graduate courses, i.e. courses with numbers between ICS 600 and ICS 691, with the exception of ICS 690. At least one course must be taken from each of four areas of concentration in the program to ensure breath of knowledge;
2. Two additional elective 600-level courses must be taken either from the ICS department or some related discipline (such as LIS, EE, MIS, etc.) on a topic related to computer science. Elective courses must have prior approval from the ICS graduate chair as to the suitability prior to enrollment in the courses;
3. A final project taken as ICS 699 (a maximum of six credits is counted toward the degree) under the supervision of a faculty member with a written report of the final project is required at the end of the student's program of study; and
4. ICS 690 (taken for CR/NC) for one semester.

The administrative procedures for the program include the following rules:

1. The student must meet with the graduate program chair during the first semester;
2. Upon completion of a least 12 credit hours of courses applicable to the degree, students are encouraged to propose a degree plan by selecting Plan A (Thesis) or Plan B (Non-Thesis) options;
3. Plan A students are encouraged to choose a thesis topic and committee upon completion of 18 credit hours of applicable courses; and

4. All requests for changes in degree plan must be submitted in writing by the student and approved by the graduate program chair before the diploma application is filed.

### **PhD in Computer Science**

The department offers a PhD in computer science that prepares students for creative research, teaching, and service. There are two programs leading to the PhD degree, one designed for the applicant entering with bachelor's degrees, and the other for those who already have master's degrees. Students may begin their program either in the fall or spring semesters.

Applicants with bachelor's degrees must first satisfy the admission and degree requirements of the master's degree in computer science. Advantages to this route are (1) students are admitted at an early stage to the PhD program; (2) they will, in practice, usually take a year LESS to obtain their PhD since the MS portion of the program will prepare them for their qualifying examination; and (3) students who have completed the MS requirements will have the option of obtaining a master's degree even if they do not continue with the PhD program.

Applicants with master's degrees in areas other than computer science may be admitted to the program, but will be required to fulfill their program deficiencies with additional course work.

Requirements for students to complete the PhD program are:

1. Passing a qualifying examination demonstrating core competency in computer science no later than the end of the first year of their PhD studies;
2. Preparing a portfolio showing research readiness by the end of the second year of their PhD studies;
3. Defend their PhD proposal;
4. Final defense of PhD dissertation.

In addition, students must continue to pass a seminar course(s), ICS 690, during the "PhD portion" of their program. After passing the oral examination covering their general preparation for the research involved, students must write a dissertation that must be approved by the doctoral committee.

### **Interdisciplinary Doctoral Degree Program**

The ICS department participates in an interdisciplinary program in Communications and Information Sciences (CIS) that integrates computer science, library science, communication and management information systems. Due to the broad knowledge base required to support the program, it draws on a variety of majors such as behavioral science, economics, engineering, and political science. The computer science program is one of four academic programs (COM, ICS, ITM, and LIS) that support this degree. See the "Interdisciplinary Program" section for more information on this program.

## Interpretation and Translation Studies

College of Languages, Linguistics and Literature  
Center for Interpretation and Translation Studies  
TP 104 (Temporary Portable)  
1859 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-6233  
Fax: (808) 956-2078  
Email: [cits@hawaii.edu](mailto:cits@hawaii.edu)  
Web: [cits.hawaii.edu](http://cits.hawaii.edu)

### Faculty

- \*L. Aranda, PhD (Director)—translation studies, U.S. Latino literature, Spanish  
J. Y. Lu-Chen, PhD, CerT—translation and technology, translation pedagogy, Mandarin  
S. Zeng, PhD, CerT—translation and interpretation theory, consecutive and simultaneous interpretation, community, medical and court interpretation, Mandarin

### The Academic Program

The Center for Interpretation and Translation Studies (CITS) was established in 1988 at UH Mānoa within the College of Languages, Linguistics and Literature. The center's primary goal is to provide basic training in translation and interpretation. Emphasis is on the sociolinguistic and communication skills and techniques needed to facilitate cultural, scientific, and technical exchanges in cross-cultural and multi-national settings. These skills can be used at international conferences, as well as in medical, legal, and social service settings. Given our commitment to the community, a number of CITS courses are made available to non-UH Mānoa students through Outreach College. Generic courses are conducted in English, and any language speaker is welcome. Language-specific courses may require proof of language proficiency before enrollment. Currently interested students can receive a BA in Translation and/or Interpretation through Interdisciplinary Studies.

The center offers a six-week Summer Intensive Interpreter Training program (SIIT) every other year. This high-level certificate training program is offered in English in combination with Japanese, Mandarin, Spanish, and Korean. Certificate programs for other languages will also be offered if demand is sufficient.



## Journalism

School of Communications  
College of Social Sciences  
Crawford 320  
2550 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8881  
Fax: (808) 956-5396  
Email: [jour@hawaii.edu](mailto:jour@hawaii.edu)  
Web: [www.communications.hawaii.edu](http://www.communications.hawaii.edu)

### Faculty

- A. Auman, PhD—multimedia reporting, editing, media ethics, publication design, race, ethnicity, gender and media  
G. Y. Kato, MA—broadcast news, law, reporting

**Degree Offered:** BA in journalism

### The Academic Program

Journalism (JOUR) education develops students' critical thinking skills and ability to gather, analyze, and organize information and to communicate it clearly, effectively, and responsibly using multiple media platforms such as print, broadcast, online, and other new media. Journalism education embraces the social, cultural, and historic contexts of reporting on public and social institutions as well as on individuals and groups. It stresses the importance of a free, vigorous and responsible press to the maintenance of an informed citizenry in order to exercise the rights of self-governance in a democracy.

The journalism degree program is professional in its orientation. Admission to the major requires sophomore standing with a minimum 2.5 GPA after completion of JOUR 250 with a B or better. Majors should follow the recommended course sequencing. All students wishing to enroll in JOUR 250 and above must have earned a C or better in ENG 100. All students must take either ICS 101 or 110 or 111 before enrolling in JOUR 401 or 402.

Students are encouraged to work for campus media such as *Ka Leo O Hawai'i* or KTUH-FM news and to participate in an extensive program of professional internships and the UH Mānoa chapter of the Society of Professional Journalists (SPJ).

### Advising

Advising is mandatory for all journalism majors.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

- Admission to the major is restricted to students with sophomore standing and at least a 2.5 GPA after completion of JOUR 250 with a B or better.
- Students are required to take ICS 101 or 110 or 111 or equivalent before taking 400-level courses.
- 33 credit hours minimum in journalism courses.
- All students enrolled in journalism classes requiring off-campus assignments must sign a UH Waiver Form—Assumption of Risk and Release.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

#### Required Courses

- JOUR 250, 300, 320, 330, 365, 460, each 3 credits
- JOUR 401 and 402, each 6 credits
- 3 credits of electives or internship

## Languages and Literatures of Europe and the Americas

College of Languages, Linguistics and Literature  
Moore 483  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-8520  
Fax: (808) 956-9536  
Email: [ilea464@hawaii.edu](mailto:ilea464@hawaii.edu)  
Web: [manoa.hawaii.edu/ilea](http://manoa.hawaii.edu/ilea)

### Faculty

- \*P. M. Chandler, PhD (Chair)—second language acquisition, applied Spanish linguistics, Portuguese language
- \*L. V. Aranda, PhD—U.S. Latino literature, translation
- \*A. Ascunce, PhD—19th, 20th, and 21st-century Spanish literature and cultural studies
- \*C. D. Beaulé, PhD—Latin American (Andean) anthropology, household archaeology
- \*V. H. Bennett, PhD—Russian language and literature, 19th-century Russian literature, Russian symbolism, modernism and literature of the 1920s
- \*L. Bousquet, PhD—20th and 21st century French literature and culture, French Oceania, history of the novel
- J. M. Debrah, MA—French language instruction
- \*M.-J. Fassiotto, PhD—18th-century French literature, 19th-century poetry
- K. A. Galante, MA—Spanish language instruction
- \*M.-C. Garneau, PhD—19th- and 20th-century French literature, oral genres, Italian
- \*C. R. Gerhardt, PhD—20th-century German literature, culture, and film
- \*M. González-Lloret, PhD—second language acquisition, technology and language instruction, Spanish linguistics, pragmatics
- L. N. Hamasaki, MA—classical language instruction

- D. Harris-McCoy, PhD—Greek and Latin literature, intellectual history, magic and divination
- A. B. Hawajska-Waters, MA—German language instruction
- \*K. A. Hoffmann, PhD—17th-century French literature, critical theory, theatre, interdisciplinary studies
- J. M. Huss, MA—French language instruction
- K. T. Inada, MA—classical language instruction
- A. Kostetskaya, PhD—Russian *fin-de-siècle* literature and culture, conceptual integration and blending theories, Russian and German war film
- L. E. Kou, MA—Spanish language instruction
- H. M. Kurano, MA—Spanish language instruction
- \*R. J. Littman, PhD—Greek literature, ancient history, ancient medicine, Biblical studies, Egyptian archaeology
- \*J. L. Logan, PhD—Spanish American literature and cultural studies, women's studies
- R. H. Mamiya Hernandez, MA—Spanish and Portuguese language instruction
- D. Mansilla Hermann, MA—Spanish language instruction
- R. H. Nylen, MA—Spanish language instruction
- \*M. E. Overstreet, PhD—pragmatics, discourse analysis, sociolinguistics, psycho-sociolinguistic perspectives on categorization
- \*B. J. Quintana, PhD—Spanish classical theater, colonial and post-colonial studies, Mexican culture
- S. C. Reemelin, MA—Spanish and Portuguese language instruction
- \*N. R. Schweizer, PhD—18th-century German classicism, Germans in Hawai'i, Europeans in the Pacific
- \*N. Ségeral, PhD—French and Francophone women's studies, translation theory and practice, 20th- and 21st-century trauma narratives
- \*E. M. Thau, PhD—contemporary Spanish literature, film, cultural studies
- J. C. Tomé, MA—Spanish language instruction

**Degrees and Certificate Offered:** BA in Classics, BA in French, BA in German, BA in Russian, and BA in Spanish; MA in French, MA in Spanish; Certificate in Classics, Certificate in French, Certificate in German, Certificate in Russian, Certificate in Russian Studies, Certificate in Spanish, Certificate in Latin American and Iberian Studies

### The Academic Program

The Department of Languages and Literatures of Europe and the Americas (LLEA) is divided into five divisions: Classics (ancient Greek and Latin), French/Italian, German, Russian, and Spanish/Portuguese/Latin American and Iberian Studies. Language instruction at the beginning and intermediate levels is offered in French, German, Greek, Italian, Latin, Portuguese, Russian, and Spanish. Advanced courses in composition, conversation and linguistics are offered in French, German, Russian and Spanish. Courses in the literatures of France, the Francophone world, German-speaking countries, Italy, Latin America, Russia, Spain, and Wales are offered in the original language, as are courses in the literatures of ancient Greece and Rome. Cultural studies courses that use a strong interdisciplinary approach and critical interpretive perspectives to consider the politics of representation, culture, and identity include Hispanic Cultural Studies, U.S. Latino Culture and Literature, Indigenous Peoples of Latin America, Latin American Cultural Perspectives, Spanish Cultural Perspectives, Freaks and Monsters, the Ethics of Otherness, French Civilizations, French Culture for Americans, French and Italian Literature as Film. Courses designed

to acquaint students from other fields with the traditions and cultures of Europe and the Americas are also available, both in English and in the target language and in advanced courses in specialized topics: Europeans in the Pacific, French and German Civilization, and Russian Arts and Culture.

LLEA believes that the study of film allows for an array of interdisciplinary considerations ranging from the aesthetics and politics of representation to the socioeconomics of production and distribution. It enriches students' literacy concerning visual arts, narrative, sound, movement and space, at the same time that it provokes their questioning of ethical, critical, social, and moral assumptions. LLEA offers a wide range of courses focusing on the aesthetic and historical development of film in Europe and Latin America: History of World Film, International Film Criticism, Francophone, German, Italian, Latin American, Russian, and Spanish Film.

The department promotes language proficiency and cultural awareness through its sponsorship of student organizations, films, lectures, scholarships, and Study Abroad programs. Currently, the department supports programs in France (Angers, Annecy, Paris); Florence, Italy; Berlin, Germany; Vladivostok, Russia; and several sites in the Spanish-speaking World.

## Undergraduate Study

### Bachelor's Degree

A minimum GPA of 2.5 in courses counted toward the major is required of all students earning their major in this department. At least half the credits required for the major must be taken at UH Mānoa.

### BA in Classics

- 30 credit hours of coursework
  - 3 credit hours from LLEA 122, 123, GRK 101, 102, LATN 101, 102
  - 6 credit hours from either Option A LLEA 327 and 328, or Option B LATN 201 and 202, or Option C GRK 201 and 202
  - 18 credit hours from following list of elective courses
    - Of these 18 credits, 15 must be at the 300-level or above
    - 12 of the 18 credits can be substituted with GRK or LATN courses at the 300-level or above
- ANTH 381, ART 373, HIST 331, 332, 333, 334, 335, 362, 431, 434, LLEA 301, 302, 305, 306, PHIL 211, 212, 414B, 414C, REL 200, 201
- 3 credit hours of LLEA 499

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in French

- 33 credit hours of FR courses above the 200 level
  - FR 311, 312, 331, and 332
  - Four French 400-level courses, including three on literature<sup>†</sup>

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

<sup>†</sup>Six credits of FR 458-459 or 460 and FR 405 may be counted as one literature course. FR 499 may be counted as literature with advisor approval if course content is appropriate.

### BA in German

- 30 credit hours of GER courses above the 200 level
- 6 credit hours from LLEA 338, 340, or 342 may be taken

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in Russian

For a language emphasis:

- 24 credit hours of RUS courses above 202
- 9 credit hours from LLEA (or other approved department) Russian-related courses

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in Spanish

- 33 credit hours of SPAN courses above the 200 level
  - SPAN 301<sup>†</sup> or 310, 302<sup>†</sup>, 303<sup>†</sup>, 351<sup>††</sup>, 352<sup>††</sup>
  - SPAN 361 or 362
  - SPAN 371 or 372
  - Two 400-level courses<sup>††</sup>
  - Two electives<sup>††</sup>

<sup>†</sup>Language skill courses (SPAN 301 to 303) are normally limited to nonnative speakers of Spanish. Native and near-native speakers should consult a department advisor to determine what courses they may take.

<sup>††</sup>Recommended courses for prospective teachers: SPAN 330, 400, 403, 451, and 452

<sup>††</sup>Recommended courses for prospective graduate students: SPAN 330, 351, 352, 451, 452, and two 400-level literature courses

Approved study abroad in a Spanish-speaking country is recommended for all students completing the major and the certificate.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Certificate

A minimum GPA of 2.5 in courses counted toward the certificate is required of all students earning their certificate in this department. At least half the credits required for the certificate must be taken at UH Mānoa.

### Certificate in Classics, French, German, Russian, or Spanish

Upon recommendation of the appropriate division chair of the Department of Languages and Literatures of Europe and the Americas, UH Mānoa confers Certificates in Classics, French, German, Russian, Russian Studies, and Spanish. Students must complete 15 credit hours of courses numbered 300 and above. For the Certificate in Classics, students may complete 12 credit hours of Greek or Latin courses numbered 300 and above, plus GRK 101-102 for those emphasizing Latin and LATN 101-102 for those emphasizing Greek. For the Certificate in German, one course may be taken from LLEA 338, 340, or 342.

### Certificate in Latin American and Iberian Studies

The Certificate in Latin American and Iberian Studies provides a systematic program of study in English for students interested in the arts, traditions, values, histories, religions, socioeconomic systems, and mythologies of Latin America and the Iberian Peninsula. It combines studies on literature, history, anthropology, film, and cultural studies for a richer and more comprehensive understanding of the peoples and heritage of Latin America and Iberia. Its interdisciplinary nature treats issues of colonization, imperialism, race, ethnicity, class, neoliberalism,

eral practices, aesthetics, popular culture, and globalization as they have been played out within the Spanish, Portuguese, and Latin American context.

The requirements for the certificate in Latin American and Iberian Studies are:

- sophomore standing or consent
- 15 credit hours
- LAIS 360 (Alpha) Studies in Culture: (B) Latin America, or (C) Iberian Peninsula (should be taken the first semester in the program; it may be taken concurrently with one of the electives)
- at least one from LAIS 360B, 362, 363, 366, 368/ANTH 368, 372, 478/ANTH 478, 468/HIST 478, HIST 390, HIST 479
- at least one from LAIS 360C, 361, 365, 380, 495, HIST 350, 448

## Graduate Study

### Master's Degree

LLEA has designed MA programs that combine the study of language and literature with other forms of expressive culture in their permutations in the specific geographic regions of Europe, the U.S., Latin America, the Pacific Basin, and Africa. Graduate students are offered the following opportunities: an MA degree in French or Spanish; graduate teaching assistantships on a competitive basis; preparation for a PhD program and a career in teaching. Former students have found careers in government and foreign service; editing, publishing, and translation; law, business, and international banking; fashion, the arts, and travel industry.

### Admission Requirements

In addition to meeting the requirements of the Graduate Division, applicants must have the following:

1. A major or its equivalent in French or Spanish with a minimum GPA of 3.0 (B); applicants in French should also have taken a course in French phonetics;
2. For Spanish, the competence equivalent to two years of study at the college level in a second foreign language; applicants in French who plan to go on to a doctoral program are strongly encouraged to develop reading competence in an additional language;
3. For French and Spanish, an acceptable accent and fluency.

Applicants with minor deficiencies may be accepted provisionally, but course work taken to make up deficiencies may not be counted toward satisfaction of the degree requirements. Applicants accepted provisionally are expected to complete any deficiencies by the end of the first year of study.

### Additional Requirements

All students are required to satisfy the remaining specific requirements and to pass the comprehensive examinations in their area of concentration.

Students who select Plan A (thesis) in their area of concentration must present a thesis proposal, including justification of the topic and a bibliography, for approval by the thesis director and two members of the thesis committee before the end of the second semester of work. The completed thesis must be presented to the thesis committee at least four weeks before the Graduate Division deadline. The Graduate Division requires all theses to be written in English.

### French Requirements

Candidates in French may select Plan A (thesis) or Plan B (non-thesis). Candidates in both plans are required to take 30 credit hours. A minimum of 18 credits must be earned in courses numbered 600 and above, including 15 credits in French and at least one graduate seminar. All candidates must take either FR 409 or FR 661. Up to 6 credit hours of LLEA 600-level courses may also be included, in which candidates in French are expected, whenever possible, to read French language texts in the original. Candidates selecting Plan A (thesis) must complete 6 credit hours of LLEA 700 (Thesis Research). All candidates must pass a final comprehensive examination, covering the major periods and genres of French literature and including the history of the language.

### Spanish Requirements

Candidates in Spanish may select Plan A (thesis) or Plan B (non-thesis). Candidates in both plans are required to take 30 credit hours. A minimum of 18 of these credits must be numbered 600 and above, including at least one graduate seminar. Candidates selecting Plan A (thesis) must complete 6 credit hours of LLEA 700 (Thesis Research). Spanish graduate assistants are also required to take a course in language teaching methodology approved by the Spanish graduate faculty (e.g., SPAN 658 [Seminar in Spanish Applied Linguistics] or LLL 455 [Second Language Learning and Teaching Methodology]). Candidates of both plans must pass a final comprehensive examination in literature (Peninsular and Latin American) and in one additional area (language, film studies, U.S. Latino Studies, or cultural studies). The examination is based on the minimum reading list and is tailored to fit the background and course work of the individual candidates.

## Library and Information Science

College of Natural Sciences  
Hamilton Library, Ground Floor  
2550 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-7321  
Fax: (808) 956-5835  
Email: [slis@hawaii.edu](mailto:slis@hawaii.edu)  
Web: [www.hawaii.edu/lis/](http://www.hawaii.edu/lis/)

### Faculty

- \*A. Wertheimer, PhD (Chair)—history of libraries, print culture and professional education
- \*N. Asato, PhD—Japanese librarianship, research methods
- D. Bair-Mundy, PhD—information systems
- \*R. Gazan, PhD—social aspects of information technology
- \*P. Jacsó, PhD—online technology, computer system analysis, databases
- \*R. Knuth, PhD—history of libraries, international librarianship
- R-A. Montague, PhD—school librarianship and community informatics
- \*D. Nahl, PhD—information services, human-system interaction
- \*L. Quiroga, PhD—information retrieval, databases, library systems

## Adjunct Faculty

- L. Bell, CASIT, MLS—lecturer, San Jose State University
- J. Campbell-Meier, PhD—assistant professor, University of Alabama
- M. Chohey, MLS—cataloging, Hamilton Library
- S. Dawrs, MLIS—librarian, Hamilton Library
- D. Dunn, MLIS—preservation educational specialist, Conservation, Hamilton Library Treatment, Hamilton Library
- N. Fujii-Babb, MLS—librarian, Salt Lake/Moanalua Public Library, retired
- G. Geary, MLS—Interim University Librarian, Hamilton Library
- J. Hori, MLS—curator, Hawaiian Collection, Hamilton Library
- J. Kamiya, MLISc—young adult librarian, Mānoa Public Library
- C. Kellett, MLIS—systems librarian, Library Information Technology, Hamilton Library
- E. Kleiber, MLIS, MAS—librarian, Hamilton Library
- M. Kowalsky, EdD—librarian, Rowan University
- D. Minatodani, MLIS—librarian, Hawaiian Collection, Hamilton Library
- S. N. Naluai, MLIS—librarian, Kamehameha Elementary Division
- A. Olden, PhD—senior lecturer, University of West London
- R. Pagell, MBA, MS(LIS), MAT—former University Librarian, Singapore Management University
- R. Paseng, MA, MLIS—Southeast Asia specialist, Hamilton Library
- J. Quirante, MLISc—Head Archivist, ‘Ulu ‘Ulu, Henry Ku‘ualoha Giugni Moving Image Archive of Hawai‘i
- B. Richardson, PhD—Dean of Academic Affairs, Windward Community College
- L. Roy, PhD, MLS—Professor, University of Texas
- G. Sinclair, MLIS—librarian, Government Documents, Hamilton Library
- D. Skeem, MLSc, CA—archivist, Hamilton Library
- M. Trafford, MLS—Medical Library, Tripler Army Medical Center

## The Academic Program

Founded in 1965, the Library and Information Science (LIS) Program prepares professionals for work in libraries, archives, and other types of information-handling agencies. It currently offers a master's in library and information science (MLISc) and a Certificate in Advanced Library and Information Science and participates in an interdisciplinary doctoral program in Communication and Information Sciences. The LIS program is aware of the opportunities and the responsibilities inherent in its Pacific setting and the unique cultural amalgam of Hawai‘i. Its major goals are:

1. To furnish students with the knowledge, skills, and attitudes that are basic to professional competence and career-long professional growth in the field of library and information services;
2. To expand the knowledge base of the profession through research; and
3. To share its resources by extending services to the UH and its academic units and to the people of Hawai‘i and beyond.

## Graduate Study

### Master's Degree

The MLISc degree program was first accredited by the American Library Association in 1967 and was reaccredited in 1964, 1980, 1990, 1996, 2000, and 2009. The curriculum is subject to continuous review and modification, and every effort is made in academic advising to ensure that students plan

programs of study suited to their individual goals. Entering students are expected to be computer literate. Graduate standing is the normal prerequisite for all courses.

### Degree Requirements

Students are required to take the following courses:

- LIS 601 Introduction to Reference & Information Services
- LIS 605 Metadata Creation for Information Organization
- LIS 610 Foundations of the Information Professions
- LIS 615 Collection Management
- LIS 663 Database Searching

In addition, they must take one of the following:

- LIS 650 Management of Libraries & Information Centers
- LIS 684 Administration of School Library Media Centers

In addition, the student's LIS faculty advisor must approve one course selected to meet the ICT requirement.

### Plan A (Thesis)

The normal requirement for the MLISc degree under the thesis option is a minimum of 39 credit hours of approved graduate study. At least 27 credits must be taken in LIS courses or a combination of LIS and approved information and computer sciences courses. The student must also take 6 credit hours in LIS 700 Thesis Research and 3 credit hours in a research methods course.

To advance to candidacy and become eligible to enroll in LIS 700 Thesis Research, students must complete at least 15 credits of course work, and defend a thesis proposal in a private meeting with their thesis committee. While it is strongly suggested that all committee members physically attend the thesis proposal defense meeting, remote participation is permitted. Upon approval of the committee, students advance to candidacy, conduct their research, and present their results at a public defense.

### Plan B (Non-thesis)

The normal requirement for the MLISc degree under the non-thesis option is a minimum of 39 credit hours of approved graduate study. At least 30 credits must be taken in LIS courses or in a combination of LIS and approved ICS courses. Up to 9 credits may be taken in other schools or colleges when the courses are relevant to the individual student's specialization and approved by the LIS program chair and the Graduate Division.

The maximum course load is 15 credit hours per term. Therefore, 39 credit hours would require at least two terms and a summer. A full load is a minimum of 8 credit hours per term. The program may be undertaken on a part-time basis but must be completed within five years (a two-year extension is allowed by the Graduate Division for a total of seven years).

Students who were in MLISc-degree programs from other ALA-accredited library programs may, in special circumstances, transfer up to 21 credit hours toward their MLISc degree at UH Mānoa, provided the work to be credited has been completed within the time limit previously cited. Such requests must be included in the application.

### Comprehensive Examination

All Plan B students are required to take an oral comprehensive examination as a requirement for the MLISc degree. The examination is taken during the semester the student expects to graduate.

## Distance Education

The MLISc program uses different formats for course delivery. It offers a few courses each year online. Students at remote sites may also request the use of Adobe Connect (Halawai) to participate synchronously in courses being taught at UH Mānoa. In addition, several courses are offered asynchronously throughout the year.

## Dual Master's Degree Programs

Students may pursue the MLISc degree and a second master's concurrently, cooperating with the following departments and fields of study: information and computer sciences (MS), history (MA), Pacific Islands studies (MA), American studies (MA), Asian studies (MA), educational technology (MEd), and Law (JD). For more information on these programs, contact the LIS program chair or the other respective departments.

## Doctoral Degree

### Interdisciplinary Doctoral Degree Program

LIS participates in an interdisciplinary PhD program in Communication and Information Sciences (CIS) integrating computer science, communication, library science, and management information systems. Because of the broad knowledge base required to support the interdisciplinary approach, the program also draws on political science, economics, engineering, operations research, and behavioral sciences. This unique program is sponsored by four academic faculties: communication, information technology management, information and computer sciences, and library and information science.

For information on admission and requirements, refer to the "Communication and Information Sciences" in the Interdisciplinary Programs section.

### School Library Media Specialist Licensure

The LIS program recommends graduates to the Hawai'i Department of Education for certification as school library media specialists. To be eligible, graduates must meet the MLISc degree program requirements and the course requirements approved for certification by the Hawai'i Department of Education. The National Council for Accreditation of Teacher Education (NCATE) is used in conducting periodic reviews of the program.

A student who enters the LIS program to earn this certification must also complete a state-approved teacher education program. For more specific and current information on prerequisites and required as well as recommended LIS courses, contact the LIS program chair.

### Certificate Program

The Certificate in Advanced Library and Information Science (CALIS) offers two options. Option A is available for those who complete a successful, coherent program of specialized study and research beyond the MLISc degree. The program allows for specialization in 1) applying computer and information technologies to information environments; and 2) extending information management skills in information system design, evaluation, and the development of user services.

Option B focuses on school librarianship. It allows for specialization in 1) applying computer and information science technologies in elementary and secondary school libraries, and 2) extending curriculum planning skills in information literacy and general literacy instruction.

For both options, students must complete a research paper that meets the approval of the CALIS committee and give an oral presentation of their research to students and faculty. Students are expected to remain enrolled each semester until the requirements are completed. If it is necessary to withdraw temporarily, students must reapply for admission within application deadlines before returning. Credits more than five years old cannot be applied to the certificate requirements; thus, the program must be completed in five years. For more specific information on prerequisite and elective courses, contact the LIS program chair.

## Linguistics

College of Languages, Linguistics and Literature  
Moore 569  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-9002  
Fax: (808) 956-9165  
Email: linguist@hawaii.edu  
Web: www.ling.hawaii.edu

### Faculty

- \*P. J. Donegan, PhD (Chair)—phonology and phonetics; vowel systems; acquisition; variation and change; typology; Austroasiatic languages, language documentation
- \*K. Deen, PhD (Graduate Chair)—language acquisition, morphosyntax, Bantu languages; second language acquisition
- \*V. B. Anderson, PhD—phonetics-phonology interface, phonetic and phonological universals, prosody, Austronesian and Australian languages, endangered languages, speech technology
- \*A. L. Berez, PhD—language documentation; language technology; Athabaskan languages; geography and language; discourse; intonation; language change; functional approaches to grammar
- \*R. A. Blust, PhD—historical linguistics; Austronesian linguistics and culture history; field methods; lexicography; endangered and underdocumented languages
- \*L. R. Campbell, PhD—language documentation, historical linguistics, endangered languages and language revitalization, typology, field methods, American Indian languages
- \*K. K. Drager, PhD—language variation and change; sociophonetics; language and identity; language in contact; laboratory phonology
- \*W. D. O'Grady, PhD—syntactic theory and description, language acquisition, Korean, assessment of language strength
- \*Y. Otsuka, DPhil—syntax; Minimalist Program; Tongan and Polynesian languages; endangered and underdocumented languages and language planning in Polynesia
- \*K. L. Reh, PhD—phonology; Micronesian linguistics; lexicography; endangered and underdocumented languages; language contact; language planning; vernacular language education
- \*A. J. Schafer, PhD—sentence comprehension and production across languages (including Korean, Japanese, and Austronesian languages); sentence prosody; information structure; psycholinguistic approaches to language documentation and conservation
- J. Terrell, MA—language documentation; case and voice systems; tones; typology; sociolinguistics; language planning and policy; economics; North Korea; Southeast Asia

## Linguists in Other Departments

- \*R. Bley-Vroman, PhD—applied linguistics; syntax; second language acquisition theory; computational linguistics; natural language processing; corpus linguistics, and machine translation
- \*H. M. Cook, PhD—Japanese linguistics, sociolinguistics, discourse analysis and pragmatics
- \*B. Schwartz, PhD—linguistics theory and second-language acquisition and analysis, Universal Grammar, child second-language acquisition
- \*H. M. Sohn, PhD—Korean linguistics; grammaticalization
- \*A. Vovin, PhD—East Asian and Central Asian historical comparative and descriptive linguistics; Japanese, Korean, Ainu, and Manchu-Tungusic

## Emeritus Faculty—In Residence

- B. W. Bender, PhD—general linguistics, morphology, Micronesian linguistics
- D. Bickerton, PhD—language variation, pidgins and creoles, language and literature
- M. L. Forman, PhD—general linguistics, ethnographic linguistics, Philippine studies
- G. W. Grace, PhD—historical linguistics, Austronesian
- A. V. Lyovin, PhD—typology, Sino-Tibetan, historical linguistics
- A. M. Peters, PhD—language acquisition: prosody, emergence of grammatical morphemes, crosslinguistic issues
- A. J. Schütz, PhD—descriptive linguistics, field methods, lexicography, Fijian and other Melanesian languages; history of linguistics in the Pacific
- D. L. Stampe, PhD—computational linguistics, phonology and prosody, holistic typology and drift, Munda languages

## Cooperating Graduate Faculty

- J. D. Brown, PhD—language learning and teaching, language testing
- E. Drechsel, PhD—ethnolinguistics; American Indian languages
- C. Higgins, PhD—macro- and micro-sociolinguistics, qualitative research methods, conversational analysis, code-switching
- Y. Hoonchamlong, PhD—Thai linguistics (syntax, discourse, semantics), Tai/Thai dialectology, language learning and teaching, internet technology in language research and language instruction, translation
- G. Kasper, PhD—second language curriculum, discourse analysis, interlanguage, pragmatics
- C. Sak-Humphry, PhD—Khmer language, linguistics and literature
- N. Silva, PhD—Hawaiian politics, indigenous politics
- S. Warner, PhD—Hawaiian language, Hawaiian language immersion education, curriculum development and second language acquisition, educational psychology

**Degrees Offered:** BA in interdisciplinary studies (linguistics), MA in linguistics, PhD in linguistics

## The Academic Program

Linguistics (LING), also called linguistic science or the science of language, is the study of how language works—how it is acquired, how it is used, how it is represented in the brain, how it changes over time, and so on. Major subfields are phonetics, phonology, morphology, syntax, semantics, discourse analysis, pragmatics, historical linguistics, sociolinguistics, psycholinguistics (including developmental psycholinguistics), neuro-linguistics, mathematical and computational linguistics, and ethnographic linguistics.

Linguistics is relevant to many endeavors, including cognitive science, language planning, language teaching, speech synthesis and recognition, treatment of language disorders, repair

of communication breakdowns, and information technology. Our program presents unique opportunities for the study of Austronesian (Malayo-Polynesian) and Asian languages. It also has special strengths in language acquisition, psycholinguistics, sociolinguistics, and language documentation and conservation.

Our program is recognized as being among the top twenty-five in the U.S.

## Advising

All faculty in the department participate in the advising of students majoring in linguistics. Undergraduates majoring in linguistics under the Interdisciplinary Studies program are advised initially by the undergraduate advisor. Graduate majors are advised by the chair of the graduate field of study or by one of the language documentation faculty. Students are later assigned to specific faculty members for advising according to their special interests.

## Undergraduate Study

### Bachelor's Degree

Students may obtain a BA degree with a linguistics major at UH Mānoa through the Interdisciplinary Studies program. See [www.hawaii.edu/is/genInfo/applying.htm](http://www.hawaii.edu/is/genInfo/applying.htm). In this program, with the guidance of a faculty advisor, students create for themselves a major that may combine the study of linguistics with related disciplines, such as anthropology, second language studies, or psychology, or with the study of one or more foreign languages. Students majoring in linguistics in this way may include some or all of the MA core of courses in their BA program, and are thus able to do more advanced work, should they continue with an MA.

### Graduate Study

The faculty represents a variety of theoretical viewpoints. The various faculty members are especially well qualified to direct research on languages of the Pacific and parts of Asia. Fields of special competence include descriptive and comparative linguistics, general linguistic theory, language contact and variation, ethnolinguistics, language development, experimental phonetics, psycholinguistics, sociolinguistics, and cognitive linguistics.

Students admitted to graduate programs in linguistics normally have a background in at least one foreign language. Some background in mathematics or one of the sciences may also be useful. Students entering without a course equivalent to LING 320 are required to take this course to make up for this deficiency in their preparation for graduate work.

The GRE General Test is required of all applicants. Both the MA and the PhD degrees are offered.

The MA program provides a basic introduction to the subject matter and skills of the discipline. The PhD program provides full professional training for careers in research and teaching. Employment opportunities for graduates of both programs today often require additional knowledge of one or more related disciplines. Students are therefore encouraged to broaden their training in linguistics by including work in other disciplines. Such programs, and those that include many of the specializations listed above, will involve the inclusion of faculty members from other fields of study on students' program committees. Students should make known their interests to the graduate chair as early as possible so that appropriate advisors

can be chosen to direct students to courses, and any key prerequisite courses, that will help them explore their interests further. It is also possible for students to include concentrations in linguistics in their programs for the MA degree in Asian studies or Pacific Islands studies.

The guidelines listed below are offered to guide students in their preparation for the various examinations, although individual study must be done in areas not covered by course offerings. Courses bearing the 700-level numbers are seminars, and various sections of these seminars are typically offered in a given semester, depending on the interests of the resident faculty and students. Each semester there are normally a number of seminars dealing with geographical areas, particular language families, the structures of individual languages, and particular theoretical problems. A major portion of the work done beyond the MA level is in seminars and in directed research.

### Master's Degree

#### Requirements

The department offers MA Plan A and Plan B programs. In addition to the university-wide residence requirements of a minimum of two semesters of full-time work, the programs require that students demonstrate competence in one language other than their native language.

**Plan A** requires a thesis (9 credit hours) and a minimum of 21 credit hours of course work. A final oral examination covering the thesis and related areas is also required.

**Plan B** requires a minimum of 30 credit hours plus a final project near the end of course work.

The required 30 hours of course work must be taken for a letter grade (not CR/NCR or Audit), of which 18 hours must be at the 600-level or above, including 3 hours of a 700-level seminar. Students may choose between three "streams": Linguistic Analysis, Experimental Linguistics, and Language Documentation and Conservation. For all streams there is a core list from which different numbers of courses are to be selected. For details, see our MA manual, via [www.ling.hawaii.edu/graduate-program-overview](http://www.ling.hawaii.edu/graduate-program-overview).

### Doctoral Degree

#### Requirements

All students in the PhD program are required to complete a minimum of 33 credit hours of course and seminar work at UH Mānoa (exclusive of LING 800) beyond those counted towards the MA degree. Courses in phonology (LING 621), grammar (LING 622), and a Methods course are required of all PhD students. Methods courses include LING 630 Field Methods; LING 632 Laboratory Research; LING 750F Phonology and Phonetics; LING 750Q Language Acquisition; and LING 750Y Psycholinguistics. Students interested in experimental research are strongly advised to take one or more courses in statistical analysis as well (e.g., EDEP 429, SLS 490 or SLS 671.)

All PhD candidates must demonstrate competence in one language other than their native language. Students may demonstrate their language knowledge either by taking a reading/translation test involving a linguistics-related passage or by having satisfactorily taken courses in the language through the 202 level. Foreign students may use English if it is not their native tongue; certification by the English Language Institute that they are exempt from ELI courses suffices to establish their competence in English.

PhD students must present two professionally written papers, pass a comprehensive examination, and pass a final oral examination in defense of the dissertation.

For details, see our PhD manual, via [www.ling.hawaii.edu/degrees-and-requirements#phd](http://www.ling.hawaii.edu/degrees-and-requirements#phd).

## Marine Biology

See the "Interdisciplinary Programs" section of the *Catalog* for more information.

## Mathematics

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2565 McCarthy Mall  
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Tel: (808) 956-4680  
Fax: (808) 956-9139  
Web: [www.math.hawaii.edu](http://www.math.hawaii.edu)

### Faculty

- \*E. Guentner, PhD (Chair)—geometrical functional analysis
- \*C. Allday, PhD—algebraic topology, transformation groups
- \*M. Chekroun, PhD—dynamical systems, climate dynamics
- \*M. Chyba, PhD—control theory
- \*T. Craven, PhD—commutative algebra
- \*G. Csordas, PhD—complex function theory
- \*K. Dovermann, PhD—algebraic topology
- \*R. Freese, PhD—lattice theory, general algebra
- \*P. Guerzhoy, PhD—number theory
- \*T. Hangelbroek, PhD—approximation theory
- \*H. Hilden, PhD—geometric topology
- \*B. Kjos-Hanssen, PhD—computability, logic, probability
- \*M. Manes, PhD—number theory
- \*Y. Mileyko, PhD—applied topology, mathematical biology
- \*D. Myers, PhD—mathematical logic
- \*J. Nation, PhD—lattice theory
- \*M. Ortel, PhD—complex function theory
- \*S. Post, PhD—mathematical physics, integrate systems
- \*L. Thomas Ramsey, PhD—harmonic analysis
- \*D. Ross, PhD—logic, probability
- \*W. Smith, PhD—analysis, function theory
- \*D. Takagi, PhD—applied math, fluid dynamics
- \*G. Wilkens, PhD—differential geometry, control theory
- \*R. Willett, PhD—noncommutative and coarse geometry
- \*L. Wilson, PhD—singularity theory

**Degrees Offered:** Undergraduate Certificate in Mathematical Biology, BA (including minor) in mathematics, BS in mathematics, MA in mathematics, PhD in mathematics

### The Academic Program

The mathematics (MATH) program offers preparation in the full spectrum of mathematical sciences, including algebra, geometry, differential equations, real and complex analysis, topology, logic, number theory, and probability and statistics, as well as various topics in applied mathematics. Mathematics majors begin with the study of calculus and linear algebra. After completion of these fundamental courses, students may choose

to specialize. The department advises each prospective major on requirements and course options to meet his or her needs and interests. Departmental advisors are also available every day to all students.

Depending upon individual interest, students of mathematics may pursue careers in a variety of fields such as teaching, computer science, operations research, statistics, business, and economics. In addition, students who continue on to the graduate program may choose to become professors and/or research mathematicians. The faculty has the competence and resources required to provide the basic mathematical preparation required for any of these professions.

A goal of all non-survey mathematics courses is the development of precision of thought and expression. This receives special emphasis in the many writing-intensive courses the department offers.

## Undergraduate Study

### BA Degree

#### Requirements

Students must complete 21 credit hours in mathematics courses numbered above 300, including:

- MATH 321
- MATH 480
- 3 credit hours in a writing-intensive mathematics course
- 6 credit hours in courses numbered above 400
- Only courses in which a student earns a grade of C (not C-) or better will be counted toward fulfillment of major requirements
- A cumulative 2.0 GPA in all completed upper division mathematics courses is required
- All mathematics majors are required to see a mathematics advisor each spring semester prior to fall registration

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree

#### Requirements

Students must complete 24 credit hours in mathematics courses numbered above 300 and 15 credit hours in additional upper division mathematics courses or appropriate non-introductory courses in related fields including:

- MATH 321
- MATH 480
- 6 credit hours in writing-intensive mathematics courses
- Only courses in which a student earns a grade of C (not C-) or better will be counted toward fulfillment of major requirements
- A cumulative 2.0 GPA in all completed upper division mathematics courses is required
- All mathematics majors are required to see a mathematics advisor each spring semester prior to fall registration

Students must also demonstrate the ability to program scientific problems on a computer.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Minor

### Requirements

Students must complete MATH 243 or 253A plus 12 credit hours in mathematics courses numbered above 300, including:

- 3 credit hours in a writing-intensive mathematics course
- 6 credit hours in courses numbered above 400

### Undergraduate Certificate in Mathematical Biology

The purpose of the certificate is to induce students to pursue the interdisciplinary study of biology and mathematics together with research. The course work will be similar to, but less than, that required to receive a minor in mathematics or biology.

However, the students will also have to do a substantial amount of research in addition to the course work. The emphasis in the certificate is different, however, in that the majority of the work is interdisciplinary.

Students will be considered accepted into the Mathematical Biology Certificate Program upon formal request for acceptance and completion of either MATH 304 or 305 with a grade of C or better. To receive the certificate, students must complete 15 credits of approved course work with no grade below a C and attain a GPA of 2.5 in the collection of courses used to satisfy the certificate requirements. Due to the interdisciplinary nature of the certificate, 6 credits of required electives will differ depending on a student's major. Courses used towards the certificate can only be double-dipped with focus requirements.

#### Prerequisites to the Certificate

- BIOL 171 (lab not required)
- CHEM 161 or 171 (lab not required)
- year of calculus (MATH 215/216, MATH 241/242, MATH 251A/252A)
- electives may have additional prerequisites

#### Requirements for the Certificate (15 credits)

- required courses (9 credits): MATH 304, 305, MATH/BIOL 490 (capstone)
- math majors (6 credits): BIOL 172, and 265 or 275 (lab not required)
- life science majors (6 credits): two courses selected from MATH 243/253A, 301, 302, 303, 307, 311, 371, 373, 402, 403, 407, 414, 416, 471, 472
- other majors: completion of above required courses, and at least 6 credits of electives approved by the Committee

Participation in an interdisciplinary Mathematical Biology research project is required. These projects must be substantial, requiring at least the effort of a 5 credit 400-level course; examples include a senior honors research project, summer Research Experiences for Undergraduate programs, and the Undergraduate Biology and Mathematics Research Program; students are advised to discuss their projects with an advisor from the Mathematical Biology Certificate Coordinating Committee before commencing. A research paper based on this research project must be submitted to and approved by the Committee. Students are expected to present their research to an approved symposium or conference.

## Graduate Study

Prospective graduate students are expected to have adequate undergraduate preparation in linear algebra, advanced calculus,

and abstract algebra. Applicants must submit to the department their scores for the GRE General Test; applicants for the graduate assistant positions are strongly encouraged to submit scores for the subject test in mathematics as well. The department requires a score of at least 650 on the quantitative section of the GRE General Test for admittance as a regular student. The department requires a general examination of all incoming graduate students for course placement purposes. This diagnostic examination consists of two parts, algebra and analysis, and is designed to evaluate the student's command of undergraduate mathematics in the areas of linear algebra, advanced calculus, and abstract algebra.

### **Master's Degree**

#### **Requirements**

Most MA students will select Plan B, which requires 30 credit hours of course work, including 611, 612, 631, and 644. Masters candidates must form a two member committee. The student is required to write and defend a paper on a research topic approved by the student's master's committee and the graduate chair. The defense will consist of a one hour public presentation on the chosen topic, followed by an oral exam. The department does not have a thesis option (Plan A), and only an exceptional student may be admitted to Plan C at the discretion of the graduate chair.

### **Doctoral Degree**

#### **Requirements**

For the PhD degree, the department requires that the student show proficiency in one of the following languages: French, German, or Russian. Teaching experience is required of all PhD students. To be admitted to PhD candidacy, the student must satisfy the language requirements and pass three written examinations: (a) linear algebra and abstract algebra; (b) real analysis and the basic facts of complex analysis and general topology; and (c) a third field chosen by the student with the approval of the graduate chair. All new students in the PhD program shall complete a minimum of five mathematics department courses numbered between 600 and 690, other than 611, 612, 631, 632, 644, 649. These five courses may be taken under the CR/NC option. Exceptions: Up to two 3-credit 649 (alpha) seminars (meeting three hours/week) may be substituted for (up to) two of these required five courses, with the written approval of the graduate chair. Also, with the written approval of the graduate chair, credit may be given for equivalent courses taken in another mathematics department or for graduate-level courses taken in another department that are recommended by the student's thesis advisor and directly related to the dissertation topic; such credit for graduate courses taken in another department is limited to a total of no more than two courses. The most important requirement for a PhD degree is the successful defense of a doctoral dissertation involving original mathematical research.

## **Microbiology**

College of Natural Sciences  
Snyder 207  
2538 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-8553  
Fax: (808) 956-5339  
Web: [www.hawaii.edu/microbiology/](http://www.hawaii.edu/microbiology/)

### **Faculty**

- \*M. Alam, PhD (Chair)—microbial physiology, genomics, and bioinformatics
- \*S. M. Callahan, PhD (Graduate Chair)—genetics, cellular differentiation, and coral microbiology
- \*S. P. Donachie, PhD (Undergraduate Chair)—marine microbiology, coral microbiology, picoeukaryotes, microbial diversity, and taxonomy
- \*J. T. Douglas, PhD—medical microbiology and infectious diseases
- \*T. T. Hoang, PhD—bacterial genetics, physiology, and molecular pathogenesis
- \*H. Li, PhD—molecular virology
- \*P. Q. Patek, PhD—cellular immunology

### **Cooperating Graduate Faculty**

- S. N. Bennett, PhD—molecular evolution and epidemiology of infectious diseases
- D. Borthakur, PhD—molecular genetics of nitrogen fixation
- S. P. Chang, PhD—immunology, molecular biology, molecular approaches to vaccine development
- V. Hinshaw, PhD—virology, pathogenesis
- T. Humphreys, PhD—invertebrate immunity, evolution of the animal immune system
- J. C. Leong, PhD—virology and fish vaccines
- Y. Lu, PhD—molecular virology
- F. D. Miller, PhD—epidemiology
- V. R. Nerurkar, PhD—infectious diseases
- M. S. Rappe, PhD—microbial ecology of marine systems
- S. E. Seifried, PhD—bioinformatics, molecular biology
- B. A. Yoza, PhD—biotechnology

**Degrees Offered:** BA (including minor) in microbiology, BS in microbiology, BS in molecular cell biology, MS in microbiology, PhD in microbiology

### **The Academic Program**

Microbiology (MICR) deals with microscopic forms of life and their activities. Bacteria, algae, fungi, protozoa, and viruses are included in this discipline. The field is diverse and concerns the nature of microorganisms, as well as their interactions—both advantageous and adverse—with other organisms and with the environment. Entire academic disciplines and commercial enterprises are based on what microorganisms do. For example, the very forms that may cause infectious diseases and epidemics may also support industries that produce vaccines or antimicrobial agents. Microorganisms play an essential role in the cycling of the limited supply of nutrients available on Earth's surface by decomposing plant residues and animal remains and by being primary producers of food in the oceans. Many microorganisms or their products may be eaten, drunk, used as fuel, or carefully disposed of as undesirable. They may be used to clean

up the environment or controlled only with great effort to prevent corrosive, obnoxious, or destructive activities that they may bring about. Microbiology also deals with the physiology, biochemistry, genetics, and molecular biology of microorganisms. Many of the advances in DNA technology are mediated through bacteria, yeasts, and viruses; much of what we know about metabolism in general comes from their study.

### Advising

Students who would like to discuss career opportunities in microbiology may contact any faculty member in the department. For specific inquiries about the undergraduate microbiology program, students can contact the department's main office, [uhmicro@hawaii.edu](mailto:uhmicro@hawaii.edu), or Dr. Donachie. For general advising about the undergraduate microbiology program, students may contact the advisors in the Academic Advising and Assessment Office, Edmondson Hall 216. For general advising or inquiries pertaining to the Molecular Cell Biology degree, please contact Drs. Patek or Callahan.

### Undergraduate Study

Students must earn a grade of C (not C-) or higher in each course applied to the major, including required courses in CHEM, BIOL, PHYS, and MATH.

### BA Degree in Microbiology

#### Requirements

Students must complete the following:

- 18 credit hours in microbiology, including required courses:
  - MICR 351/351L
  - Three courses from MICR 361, 401, 431, 461, 463, 470, 475, 485, and 490, plus 4 credits of associated laboratories
- The following required related courses:
  - BIOL 171, 172, 275 plus labs
  - CHEM 161/161L and 162/162L; or 181A/181L
  - CHEM 272/272L and 273
  - MATH 215 or 241
  - PHYS 151/151L or 170/170L, and 152/152L or 272/272L
- 9 credits of approved major electives

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree in Microbiology

#### Requirements

Students must complete the following:

- 23 credit hours in microbiology, including required courses:
  - MICR 351/351L, 431, 461, 475; and one course from MICR 361, 401, 463, 470, 485, or 490, plus 6 credits of 400-level MICR lab courses
- The following required related courses:
  - BIOL 171, 172, 275 plus labs
  - BIOC 441 or MBBE 402
  - CHEM 161/161L and 162/162L or 181A/181L
  - CHEM 272/272L and 273
  - MATH 215 and 216 or 241 and 242
  - PHYS 151/151L or 170/170L, and 152/152L or 272/272L
- 6 credit hours of approved major electives

### BS Degree in Molecular Cell Biology

The BS degree in Molecular Cell Biology (MCB) is designed to prepare students for careers in fields that require advanced knowledge of molecular biology, in particular those that relate to human health and welfare. Examples of such fields include, but are not limited to, medicine, pharmacology, pathology, genetic testing and counseling, biotechnology, nanotechnology, teaching, and basic research.

#### Requirements

Students must complete the following:

- 23 credits hours including required courses:
  - BIOL 375/375L, 407, 408/408L
  - MBBE 402 or BIOC 441
  - MCB 314, 461, 472
- The following required related courses:
  - BIOL 171/171L, 172/172L, 275/275L
  - CHEM 161/161L and 162/162L or 181A/181L
  - CHEM 272/272L and 273
  - PHYS 151/151L, 152/152L or 170/170L, 272/272L
  - MATH 215 and 216 or 241 and 242
- 10 credits of approved major electives

Major electives should be chosen with the assistance and approval of an advisor in the Academic Advising and Assessment Office, Edmondson Hall 216, and in the department, to provide a well integrated and coherent program. Prospective majors should consult the microbiology/molecular cell biology advisors promptly, so as to design a curriculum that satisfies the major requirements.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor in Microbiology

#### Requirements

Students must complete 15 credits of 300- and 400-level MICR courses, of which five credits must be MICR 351/351L.

All prerequisites for these courses must be met. Persons wishing to complete the minor and graduate in four years should have completed CHEM 272, if possible, before the middle of the junior year.

### Graduate Study

The department offers programs leading to the MS and PhD in microbiology with areas of specialization in microbial ecology, biochemistry, physiology, genetics, and ultrastructure; metabolic regulation and the regulation of gene expression; marine microbiology; medical microbiology; animal and environmental virology and viral pathobiology; and immunology, immunogenetics, and immunochemistry. In addition, an option is offered in cell biology that leads to the MS and PhD in microbiology. Research programs in interdisciplinary fields are possible. Graduate students in microbiology may join two interdisciplinary graduate specializations: the Ecology, Evolution, and Conservation Biology (EECB) Program, and the Marine Biology (MB) Program.

Applicants for advanced degree programs in the department must supplement the forms and transcripts required by the Graduate Division with three letters of recommendation and the official scores from the GRE General Test. These supplementary items should be sent directly to the department.

Complete details on the graduate program in microbiology and the availability of financial aid to prospective students are outlined in a departmental brochure available on request from the department, Snyder 207, 2538 McCarthy Mall.

Courses for the graduate programs are to be selected from the list below and from other graduate offerings in related disciplines as directed by the student's advisor or advising committee. The following courses may be repeated: MICR 625, 632, 652, 671, 680, 681, 690, 699, 700, 795, and 800. However, repeated courses other than MICR 699, 700, 795, and 800 may only be used for credit once per degree. MICR 690 is a required course. Course deficiencies shall be made up before admission to candidacy.

Both the MS and the PhD are research degrees requiring a research project, a thesis or dissertation, and an oral defense. Prospective graduate students are encouraged to contact faculty or cooperating graduate faculty to determine whether there might be a laboratory that is conducting research of interest and to determine which laboratories are taking new students (see the department website at [www.hawaii.edu/microbiology](http://www.hawaii.edu/microbiology) to find areas of research and faculty contact information).

### Master's Degree

Intended candidates for the MS degree should present a minimum undergraduate preparation in biological and physical sciences including biology, genetics, microbiology, organic chemistry, physics, and calculus. Deficiencies in some of these areas do not preclude admission. Qualified students with undergraduate majors in fields other than microbiology are welcome.

### Requirements

#### Plan A Minimum Requirements - 30 credit hours

- 2 units of directed research (MICR 699);
- 1 credit of seminar (MICR 690);
- 6 credit hours of thesis (MICR 700);
- additional 12 credit hours of course work at the 600 level or higher; plus
- 9 credit hours at the 400 level or higher
- **Note:** 3 credit maximum of MICR 695 may be applied towards the MS Plan A degree.

### Doctoral Degree

The doctoral degree (PhD) is offered in microbiology in the various areas of interest represented by research programs of the department's graduate faculty.

Course work requirements for a PhD are the same as those for the MS degree (with MICR 800 replacing MICR 700). However, consideration will be given to those who already possess an MS in Microbiology or closely related field.

### Requirements

The PhD candidate must demonstrate the ability to do original experimental research and to produce an acceptable dissertation. A comprehensive examination, written and oral, is required, and the dissertation must be successfully defended before the faculty. Experience in teaching in a laboratory course is considered a desirable part of the training of the PhD candidate. The specific requirements for each of the joint degree programs are modified somewhat from those given above.

## Music

College of Arts and Humanities  
Music 3  
2411 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7756  
Fax: (808) 956-9657  
Email: [uhmmusic@hawaii.edu](mailto:uhmmusic@hawaii.edu)  
Web: [www.hawaii.edu/uhmmusic](http://www.hawaii.edu/uhmmusic)

### Faculty

- \*L. Paxton, MM (Chair)—voice performance
- \*T. Bingham, MA—music education
- \*J. Boeckman, DMA—music education
- \*M. Felipe, DMA—choral music
- \*M. Hoover, DMA—voice performance
- \*T. Itoh, DMA—composition/theory
- \*J. Korth, DMA—piano performance
- \*F. Lau, DMA—ethnomusicology
- \*B. W. Lee, PhD—ethnomusicology
- \*I. B. Lin, DM—strings performance
- \*C. Loong, PhD—music education
- \*B. P. McLain, PhD—music education
- \*K. McQuiston, PhD—musicology
- \*J. Moulin, PhD—ethnomusicology
- \*J. Mount, MM—voice performance
- \*T. Osborne, DMA—composition/theory
- A. Sala, MA—ethnomusicology
- \*D. Womack, DMA—composition/theory
- \*L. Wright, PhD—musicology
- \*T. Yee, DMA—piano performance

**Degrees Offered:** BA (including minor) in music, BEd in elementary education (music), BEd in secondary education (music), BMus, MA in music, MMus, PhD in music

### The Academic Program

The music (MUS) department offers the bachelor of arts in music, bachelor of music, master of arts in music, master of music, and doctor of philosophy in music. In conjunction with the College of Education, the department offers the bachelor of education in elementary education (music) and the bachelor of education in secondary education (music). Information about each of these programs may be found on the Music Department website: [www.hawaii.edu/uhmmusic](http://www.hawaii.edu/uhmmusic).

The department is housed in a complex of buildings, including studios, practice and rehearsal facilities, and the Mae Zenke Orvis Auditorium, noted for its fine acoustics. In addition to many offerings in Western classical, vocal, and instrumental music, the department specializes in non-Western music, notably the musics of Asia and the Pacific.

### Accreditation

The bachelor's, master's, and PhD programs are fully accredited by the National Association of Schools of Music (NASM).

### Advising

Students interested in majoring in music, minoring in music, or participating in various ensembles may obtain information at the department office and arrange to see a music advisor. Advising is mandatory for music majors and minors.

## **New Students**

An orientation session for new students is held each fall during the week before classes begin. At that time, incoming students take theory, history, and piano placement tests and receive advising and approval for music courses.

## **Undergraduate Study**

Bachelor degree concentrations include performance, composition, music education, and general music studies.

Specific course requirements are available on the Music Department website: [www.hawaii.edu/uhammusic](http://www.hawaii.edu/uhammusic). New and transfer students must attend orientation and consult the undergraduate chair when entering UH Mānoa.

## **Admission Requirements**

In addition to the UH System Application form, prospective music majors must submit a Music Department Undergraduate Admission Application, recommendation form, and perform an audition. Forms and instructions are available from the department office and the department website at [www.hawaii.edu/uhammusic](http://www.hawaii.edu/uhammusic).

## **BA Degree**

### **Requirements**

Major requirements include 40 credit hours in various music courses. Bachelor of Arts majors work with an advisor to emphasize general music, Hawaiian music, or musical theater.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## **BMus Degree**

### **Requirements**

BMus candidates must complete 80 credit hours in music and major in composition or performance (piano, voice, and selected orchestral instruments).

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## **BEd Degree**

Prospective music education majors should see the chair of the music education committee in the Department of Music for information and requirements. This K-12 degree program is offered in conjunction with the College of Education.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

The major music requirements posted here are effective Fall 2012. Students who declared their major before this date may have different requirements. Students are advised to meet with a major advisor regarding the specific requirements that apply to them.

## **Minor**

### **Requirements**

Students can pursue a minor in music while continuing their chosen major. The minor program requires a minimum of 15 credit hours. For further information, contact the music department office or view the website at [www.hawaii.edu/uhammusic](http://www.hawaii.edu/uhammusic).

## **Graduate Study**

Entrance exams for incoming students consist of the Diagnostic Exam to test for any deficiencies and insure that students

remedy them as soon as possible in their degree programs. The General Exam (master's level)/Qualifying Exam (doctoral level) is completed before candidacy for a degree.

## **Diagnostic Exam**

Prior to enrolling for the first semester of study, each classified graduate student will take a diagnostic examination in music history (part I) and music theory (part II) to determine whether or not the general exams or qualifying exams in those areas (or specified courses in lieu of the general exams) are needed to clear pre-program deficiencies. Students are also tested in their area of concentration (part III). The purpose of this examination is twofold: (a) to assess the student's background and determine if there are deficiencies that should be remedied, and (b) to assist the advisor and the student in planning a program of study. Detailed information about the examination is available on request. Successful performance on specific parts of the diagnostic examination exempts the student from the equivalent parts I and II of the general examination or qualifying examination. Entering doctoral students who are continuing directly from a master's degree in UH Mānoa Music are exempt from taking parts I and II of the diagnostic/general exams, since the student has fulfilled this requirement. In Ethnomusicology and Composition, the student will also be exempt from part III. Musicology and Music Education doctoral students must take part III, the qualifying exam, upon entering the doctoral program.

The diagnostic/general/qualifying examination is offered in August (before the beginning of the fall semester), in January (before the beginning of the spring semester) and in the third week of April.

- Students who enter in the fall semester will take the diagnostic examination in August. If the student does not pass any portion of the diagnostic examination, he or she may re-take the examination in January and April or take the recommended course(s) between August and May and clear deficiencies in the first academic year of study by earning a grade of B or higher.
- Students who enter in the spring semester will take the diagnostic examination in January. If the student does not pass any portion of the diagnostic examination, he or she may re-take the examination in August and the following January or take the recommended course(s) between January and December and clear deficiencies in the first year of study by earning a grade of B or higher.

N.B. Students who enter in the spring semester will be exempt from taking the April examination and will not need to submit a petition for approval to the graduate faculty.

Dismissal from the graduate program will occur if the student does not pass any part of the diagnostic examination and then: (1) does not pass any part of the general examination or qualifying examination in two attempts; or (2) does not take the prescribed course(s) to clear deficiencies in their first year of study; or (3) does not earn a B or better in the prescribed course(s).

Students with deficiencies are strongly advised to take the recommended course(s). Students may also wish to study on their own and re-take the examination. Keep in mind that many classes recommended to rectify deficiencies are offered only once per year. The student should consult with his or her advisor to discuss the most suitable course of action.

## General or Qualifying Exams

Before being admitted to candidacy for a degree, each graduate student must pass the department's general examination/qualifying examination, which consists of three parts: music history, music theory, and the student's area of concentration. All parts of the general examination must be passed before the student earns more than 18 credit hours toward the degree; course work taken in excess of this limit will not be counted if the credits are earned before all three parts of the general examination are passed.

When a student does not pass any part of the diagnostic/general/qualifying examination, there are two options:

1. **Exam Option.** The student may repeat the unsuccessful portion of the exam the next time the examination is offered. If a student chooses this option but does not take the next examination, a failure is recorded. Any student who does not pass the diagnostic examination and does not pass the general examination/qualifying examination twice will be dropped from the program.
2. **Course Option.** The student may take courses to remove the deficiency and must submit the required course option form. Courses to clear pre-program deficiencies or in lieu of general or qualifying examination must be taken for grade during the first two semesters of study and passed with a grade of B (not B-) or better. These courses do not count toward graduate degrees. All deficiencies must be cleared by the end of the first year of study. Students who do not remove their deficiencies by the end of the first year of study will be dropped from the graduate program.

Any exceptions to these procedures must receive prior approval by petition to the graduate faculty. The student petitions the graduate faculty by memo, signed and dated, explaining the reason for the deferral request, no less than five weeks before the exam retest date.

## Master's Degree

The department offers programs leading to the MA in music with concentrations in ethnomusicology, music education, and musicology, and to the MMus with concentrations in composition and performance (voice, piano, and selected instruments). The MA in music education is available either on-campus or online.

## Admission Requirements

Applicants for admission to the master's degree program must have a bachelor's degree with a major in music or a bachelor's degree and evidence of musical background equivalent to a music major; three confidential letters of recommendation (not more than two years old) on forms provided by the music department; and, for non-native speakers of English, a TOEFL score of 500 (paper) 61 (iBT) minimum for performance or 540 (paper) 76 (iBT) for other concentrations and 600 (paper) 100 (iBT) with scores of 25 in listening and speaking for teaching assistants. Application forms are available at the music department and its website, or the Graduate Division and its website. The completed forms should be submitted with two copies of all transcripts by **January 15** for the fall semester, and by **August 1** for the spring semester. (Those who decide to enroll must submit official copies of all post secondary transcripts.) In the following concentrations, students must meet additional admission requirements:

- a. **Composition**—Three original scores representative of various forms and media.
- b. **Ethnomusicology**—A personal statement of 800 words minimum (3 pages) including the purpose of study. Background in cultural anthropology is desirable and, depending on the thesis research, may be required.
- c. **Music Education**—BEEd (music education) or equivalent, minimum of one year of full-time music teaching experience in a public or private school, a 20-30 minute videotape/DVD demonstrating current teaching expertise, and a lesson or rehearsal plan.
- d. **Musicology**—Sample of academic writing proficiency (a 10-page term paper in English from an upper division music history course is preferred).
- e. **Performance**—An audition of works representative of various musical styles. An applicant not residing in Hawai'i must submit an unedited tape recording or CD comparable in scope and length to an in-person audition and, if admitted, will audition before the department admissions faculty before registering for the first semester of residency to ascertain appropriate placement in the curriculum sequence. A recent UH Mānoa graduate may be admitted without a hearing if the BMus senior recital is considered to be of high enough quality by the majority of the department admissions faculty.

An applicant must declare a specific concentration within the MA or MMus; admission, if granted, is for that concentration only. If a student later wishes to change to another concentration, he or she must petition the graduate faculty in music for approval.

More detailed information and links to relevant forms for all degree programs are posted on the department's website: [www.hawaii.edu/uhammusic](http://www.hawaii.edu/uhammusic).

Some concentrations require language competence:

1. **Ethnomusicology**—A reading or speaking knowledge of a foreign language relevant to the thesis research (or equivalent competence in linguistics).
2. **Musicology**—A reading knowledge of French or German.

## Degree Requirements

Plan A requires a minimum of 30 credit hours, 22 in course work and 8 of thesis. Candidates concentrating in ethnomusicology and musicology follow this plan. An ethnomusicology thesis is usually based on fieldwork.

Under Plan A, the student arranges the oral final examination in consultation with the thesis committee, usually during the semester in which all course work has been completed and after the student has completed the thesis document. Copies of the document must be presented to the committee at least two weeks prior to the examination. At the examination, the thesis committee examines the student's knowledge and understanding of the field of concentration, with emphasis on the content of the thesis.

Plan B also requires a minimum of 30 credit hours but does not include a thesis. Candidates in performance, music education, and composition follow this plan. Plan B students in performance must fulfill the following requirements:

1. Give a public, hour-long recital.
2. Additionally, in the recital semester the student will meet with the recital committee for a one-hour oral examination to discuss historical and analytical aspects of the works performed in the graduate recital.

Plan B students in music education must fulfill the following requirements:

1. A comprehensive three-hour examination, exhibiting strength in written expression and a grasp of the essentials of the broad field of music education; and
2. A project or paper about some specific aspect of music education whose size and scope will be determined by the student and the faculty member directing the project.

Plan B students in composition must fulfill the following requirements:

1. Composition students must compose an original work in one of the larger forms, and write an essay on a topic related to their master's studies.
2. Candidates concentrating in composition must give a public, 30-45 minute recital of original works composed during their master's studies at UH Mānoa.

The master's student must spend at least two semesters in program residency at UH Mānoa. (Full-time work or the equivalent in credit hours.)

### Doctoral Program

The department offers programs leading to the PhD in music with concentrations in composition, ethnomusicology, music education, and musicology.

### Admission Requirements

Applicants for admission to the PhD program must present a master's degree in music (in the area of emphasis or equivalent), an excellent academic record (two copies of all college transcripts), three confidential letters of recommendation (not more than two years old) on forms provided by the music department, a sample of academic writing proficiency such as recent term papers as specified in certain areas, and, for non-native speakers of English, a TOEFL score of 560 (paper), 83 (iBT) or better, and, for teaching assistants, 600 (paper), 100 (iBT) with scores of 25 in listening and speaking. Application forms are available at the music department and its website, or the Graduate Division and its website. The completed forms should be submitted with two copies of all transcripts by **January 15** for entrance in the following fall semester and by **August 1** for entrance in the following spring semester. (Those who decide to enroll must submit official copies of all post secondary transcripts.)

In the following concentrations, students must meet additional admission requirements:

1. Composition—A master's degree in composition or the equivalent in terms of course work and original composition; a score of one large-scale work; scores of two shorter works; and a recording of at least one of the above.
2. Ethnomusicology—A master's degree in ethnomusicology or the equivalent in terms of course work and fieldwork. A major research paper in ethnomusicology as evidence of extensive background in musical traditions other than Western art music.
3. Musicology—A master's degree in musicology or a minimum of four graduate seminars in musicology, and a 7,500-word research paper in English on a subject in historical musicology.
4. Music Education—A master's degree in music education is preferred, but an equivalent background is acceptable. A minimum of two years full-time music teaching in a public

or private school; three confidential letters of recommendation on the applicant's teaching ability, at least two of which must be written by the applicant's job supervisors (principal or other supervisor); and one of the following: (a) a 20-30 minute videotape or DVD demonstrating current teaching expertise, or (b) an in-person teaching demonstration; and a lesson or rehearsal plan relevant to the teaching demonstration.

An applicant must declare a concentration in one of the four areas previously listed. Admission, if granted, is for that concentration only. If a student later wishes to change to another concentration, he or she must petition the graduate faculty in music for approval. Each student will have a principal advisor who must be a member of the music department's graduate faculty. An application will be denied if it is determined that no principal advisor in the applicant's area of interest is available on the music department's graduate faculty.

### Degree Requirements

This degree requires an emphasis in ethnomusicology (11 credits of specified course work) for students who are not concentrating in ethnomusicology. This emphasis ensures that all PhD graduates will be able to teach introductory courses in world music. Requirements for music PhD students also include MUS 659 Seminar in College Music Teaching, and/or supervised college teaching experiences.

The PhD student must spend at least three semesters in program residence (full-time work or the equivalent in credit hours) at UH Mānoa and must complete the degree within seven years.

Other Requirements. Before advancing to candidacy, reading proficiency must be satisfactorily demonstrated as follows:

1. Ethnomusicology—One dissertation research language and one library research language.
2. Music Education—Language appropriate to the areas of research or research statistics.
3. Musicology—Two European languages: German and one other language, preferably French.
4. Composition—Language appropriate to areas of research. Presentation of a full (50-60 minute) recital of works composed during the doctoral residency.

### Comprehensive Exam and Advancing to Candidacy.

This exam measures the student's readiness to begin significant research in the selected major area of research. It is given only after successful completion of course work, fulfillment of residency requirements, successful completion of all language requirements, and notice from the advisory committee that the student is sufficiently prepared for this examination. This two-part exam consists of a written portion and a two-hour oral portion. A student failing this exam may retake it once, but must do so within one year. Passing this exam enables the student to begin the dissertation process and receive an ABD certificate from UH Mānoa, indicating that all requirements of the doctorate except for the dissertation have been completed. Following the formation of a five-member doctoral committee, the comprehensive exam, and submission and approval of a dissertation proposal by the doctoral committee, the student is advanced to candidacy.

After this occurs, all that remains is fieldwork (for ethnomusicology majors only), research for and writing of the dissertation, and the oral defense of the dissertation.

**Final Oral Examination.** Basically a defense of the dissertation, this exam is conducted by the five-member doctoral committee, consisting of graduate faculty members appointed by the music graduate chair and approved by the Graduate Division dean. The chair of the student's advisory committee normally serves as the chair of the student's doctoral committee. At least one member must be from outside the music department, but music department members make up the majority. The committee chair and outside member must be physically present at the exam, which is subject to other regulations described at the Graduate Division website: [manoa.hawaii.edu/graduate/content/final-defense](http://manoa.hawaii.edu/graduate/content/final-defense).

The student arranges the date of the final oral exam in consultation with the doctoral committee; it usually takes place during the semester the student has completed the dissertation document. Copies of the document must be presented to the committee at least two weeks prior to the examination. At the examinations, the committee scrutinizes and judges the student's knowledge and understanding of the field of concentration, with emphasis on the content of the dissertation.

## Peace Studies

College of Social Sciences/Spark M. Matsunaga Institute for Peace and Conflict Resolution  
Saunders Hall 523 and 723  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-6433  
MIPCR Fax: (808) 956-9121  
Email: [uhip@hawaii.edu](mailto:uhip@hawaii.edu)  
Web: [www.peaceinstitute.hawaii.edu](http://www.peaceinstitute.hawaii.edu)

### Faculty

- \*C. Petersen, JD (Director, Matsunaga Institute for Peace and Conflict Resolution)—international human rights, equality and non-discrimination, women and the law
- \*B. Barnes, JD, LL.M. (Chair, Graduate Certificate in Conflict Resolution)—conflict resolution
- \*B. Hallett, PhD—peace studies

### Cooperating Faculty

- \*I. Aoude, PhD—ethnic studies
- \*J. Barkai, JD—law
- \*K. Bennett, MSW, JD—social work
- \*J. Campos, PhD—political science, terrorism studies
- \*R. Chadwick, PhD—political science
- \*D. Chandler, PhD—sociology, conflict resolution
- \*S. Chandler, PhD—public policy/child welfare
- \*M. Coffman, PhD—environmental economics, planning
- \*D. Foley, PhD—deliberative dialogs, conflict resolution
- \*A. Hubbard, PhD—conflict and relational management
- \*M. Jones, PhD—physics
- \*G. Kent, PhD—political science
- \*K. Lowry, PhD—ADR, coastal management, community planning
- \*L. Minerbi, PhD—urban and regional planning
- \*R. Robinson, PhD—management
- L. Ruby, PhD—art
- \*W. Sharkey, PhD—conflict and relational management
- M. Soetero-Ng, PhD—teacher education, peace studies

\*L. Sponsel, PhD—anthropology

\*C. Stephenson, PhD—political science

**Degree and Certificates Offered:** Certificate in Peace Studies, BA in interdisciplinary studies (peace and conflict studies), Graduate Certificate in Conflict Resolution

## The Academic Program

The Spark M. Matsunaga Institute for Peace and Conflict Resolution is a multi-disciplinary academic community of scholars, students, practitioners, and visitors, who, through teaching, research, service, and application, seek to groom future leaders and professionals in applied peacemaking and conflict resolution. A goal of the institute is to empower students to better address contemporary problems within Hawai'i, the Asia-Pacific region, U.S., and the world.

The institute was established to carry out the vision of U.S. Senator Spark M. Matsunaga that "every student enrolled in Hawai'i's public university system will be exposed to peace studies." The institute is committed to building on Hawai'i's cultural heritage and island values: aloha, mutual aid and respect, sense of community, and caring for the land, to promote cross-cultural communication and peacemaking leadership.

Peace and conflict resolution is a dynamic field, one that is increasingly relevant to our graduates' professional careers and to other fields of academic inquiry. Students from all colleges in UH Mānoa may enroll in Peace and Conflict Education (PACE) courses, either as an intellectual endeavor or to enhance their personal and professional skills. We believe that students who understand the causes of conflict and the methods for resolving conflicts will be better equipped for a wide range of careers, including, but not limited to, positions in education, law, dispute resolution, human resource management, industrial relations, government, foreign service, security, urban and regional planning, sociology, and social work.

For students who wish to obtain an academic qualification in peace and conflict resolution, the institute offers three programs:

1. The Peace and Conflict Resolution major for undergraduates (a flexible inter-disciplinary program offered in cooperation with the Interdisciplinary Studies BA program).
2. The Certificate in Peace Studies (open to undergraduate students and equivalent to a "minor").
3. The Graduate Certificate in Conflict Resolution (open to graduate students seeking the certificate only or concurrently with another graduate-level degree program).

Inherently interdisciplinary and international in perspective, these programs encourage critical thinking and further the university's mission to expand leadership in international affairs and advance stable, peaceful, prosperous, and democratic relations in the region. The institute has also built a reputation for leadership in dispute resolution and facilitation of community dialogues on controversial issues. The requirements for the degree programs are set forth below.

## Undergraduate Study

### Bachelor's Degree in Peace and Conflict Resolution

In collaboration with the Interdisciplinary Studies program, the Matsunaga Institute for Peace and Conflict Resolution offers a flexible, self-designed BA in peace and conflict resolution. With the exception of three required courses, students are



free to design an academic program that is appropriate for their interests, needs, and goals. Students work closely with faculty advisors from the Matsunaga Institute and Interdisciplinary Studies to develop a coherent, multidisciplinary course of study. This gives students the flexibility to concentrate on a special area of interest or to take a broader approach to peace and conflict studies. Additional information is available at [www.peaceinstitute.hawaii.edu](http://www.peaceinstitute.hawaii.edu) and from Interdisciplinary Studies in the Colleges of Arts and Sciences.

### Requirements

- PACE 310 Survey Peace and Conflict Studies (3)
- Either PACE 429 Negotiation (3) or PACE 447 Mediation Skills: UH Basic (3)
- PACE 495 Practicum and Internship (or a faculty approved substitute) (3)

The remaining credit hours, to meet the major's minimum requirement of 36 credit hours, can be drawn from courses offered by the Matsunaga Institute (designated as PACE courses) as well as courses offered by other departments. Although a list of suggested electives is set forth below, students may also propose other courses, provided that they can achieve a coherent program of study that meets the requirements of the Interdisciplinary Studies program. An overall GPA of 2.5, with no grade below a C, is required in the major course work.

### Certificate in Peace Studies

The Certificate in Peace Studies (15 credit hours), which is equivalent to a minor, equips students with the fundamentals of peace and conflict studies, allowing them to broaden the reach of their major with insights from this multidisciplinary field. The certificate gives students a greater awareness of what can be done to remedy the social injustices of our times and to manage

and resolve conflict, skills that are highly valued by employers in a wide range of professional fields.

To receive a Certificate in Peace Studies, students are required to take PACE 310, 429 or 447, and 495 (or a faculty approved substitute) and six additional credit hours selected in consultation with the student's certificate advisor. A GPA of 2.5, with no grade below a C, is required in certificate courses.

Suggested optional courses for the major in Peace and Conflict Resolution and for the Certificate in Peace Studies include:

- PACE 247 Survey of Conflict Management
- PACE 315 Personal Peace: Stories of Hope
- PACE 345/ANTH 345 Aggression, War, and Peace
- PACE 373/POLS 396 Nonviolent Political Alternatives
- PACE 399 Directed Reading
- PACE 410 History of Peace Movements
- PACE 412 Gandhi, King, and Nonviolence
- PACE 413 Terrorism
- PACE 420 Introduction to Human Rights
- PACE 477 Culture and Conflict Resolution
- PACE 478 International Law and Disputes
- PACE 485\* Topics in Peace and Conflict Resolution
- PACE 489 Hiroshima and Peace (summer only)
- ANTH 423 Social and Cultural Change
- BIOL 310 Environmental Issues
- COM 340 Intercultural Communication
- COMG 455 Conflict Management
- ECON 414 Global Economic Crisis and Recovery
- FAMR 350 Leadership and Group Process
- GEOG 435 Political Geography of Oceans
- GEOG 436 Geography of Peace and War
- POLS 201 Problems of War and Peace
- POLS 319 International Organization
- POLS 375 Constitutional Law I: Institutional Power
- POLS 394 Democracy in Organizations
- SOC 433 Analysis in Law and Social Change
- SOC 446/WS 446 Gender Violence Over the Lifecycle
- WS 304 Women, War, and the Military

\*There may be more than one section of this course offered, each focusing on different specialized topics in the field. Examples include Protest Under Occupation, Indigenous Peacemaking, and Advocating for Children: Rights and Welfare. The course is repeatable one time.

### Graduate Study

#### Certificate in Conflict Resolution

The Certificate in Conflict Resolution allows students pursuing a master's or doctoral degree in another area to become acquainted with conflict resolution theory, practice, and activities. It is also available to students seeking the certificate only and considers unclassified students, as well as degree students, for admission. Students enrolled in public administration, education, law, urban and regional planning, political science, sociology, anthropology, geography, health, social work, human resource management, environmental science, and psychology are part of the program, along with professionals in the community. Students are encouraged to use the certificate program to increase their competence in conflict resolution as it relates to their major area of study. The Certificate in Conflict Resolution introduces students to the fundamentals of conflict resolution; mediation systems; dynamics for group conflict; skills for

organizing and leading group deliberations and dialogues; and culturally appropriate dispute resolution.

Students are required to complete at least fifteen (15) credits from the approved course list. Each student will be assigned a temporary advisor upon acceptance into the program, with the option of making an alternate choice at a later time. Toward the end of the course of study students will complete a “capstone” paper under the supervision of their advisor, which is intended to integrate their academic and practical experiences in the certificate. Each student will also successfully complete a “skills assessment” before the certificate is awarded. The graduate certificate in conflict resolution is available to students seeking the certificate only or concurrently with a JD or an MA, MPA, MSc, PhD, or professional degree. International students must have a 600 (paper), 250 (computer), and 100 (internet) TOEFL score to be admitted.

The approved list of certificate courses is divided into “core” and “elective” courses. Students are required to complete at least six credits from the list of core courses. Courses are multi-disciplinary in nature. The areas include negotiation, mediation, facilitation, culture and conflict resolution, international disputing/international law, ADR systems design, conflict resolution for educators, political science, and communicology. Up to two classes at the 400-level may be counted toward the certificate, subject to advisor approval. See the website at [www.peaceinstitute.hawaii.edu](http://www.peaceinstitute.hawaii.edu) or contact the program office for a complete list of courses.

The capstone paper will reflect knowledge of conflict theory and analysis and the application of resolution processes. A practicum, PACE 695, is offered as an elective with variable credits and is repeatable once up to 3 credits. The precise form is to be determined in consultation with the advisor. Practicum guidelines are available in the office or can be obtained from an advisor. Specific information about the required and elective courses, including the graduate certificate brochure, can be found on our website.

Upon completion of the core courses, students are expected to demonstrate their skills in facilitation, negotiation, mediation, or process design. The demonstration may be either an actual intervention or a simulated mediation or other problem-solving process organized by faculty. Skill outcome areas will be observed and assessed, including: ability to develop and maintain a collaborative atmosphere and approach; ability to use communication skills such as appropriate questions, summarization, active listening, and re-framing, where appropriate; ability to clarify, analyze, frame, track, and link appropriate issues; ability to identify and use objective criteria in evaluating dispute resolution proposals; ability to use interest-based negotiation principles effectively; and ability to develop and test dispute resolution options using interests and criteria.

Successful completion of the program leads to a Graduate Certificate in Conflict Resolution. Consideration for admission to the certificate program requires filing of an application form available from the department and the Graduate Division, and a supplemental program application that can be found online at [www.peaceinstitute.hawaii.edu](http://www.peaceinstitute.hawaii.edu).

## Philosophy

College of Arts and Humanities  
Sakamaki D-301  
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Email: [philo@hawaii.edu](mailto:philo@hawaii.edu)  
Web: [www.hawaii.edu/philo](http://www.hawaii.edu/philo)

### Faculty

- \*R. Bontekoe, PhD (Chair)—hermeneutics, epistemology, philosophy of law
- \*T. Albertini, DPhil—Renaissance and early modern philosophy, Islamic philosophy, feminist issues in philosophy
- \*R. T. Ames, PhD—Daoist philosophy, Confucian philosophy, American philosophy, philosophy of culture, comparative philosophy
- \*A. Chakrabarti, DPhil—Indian philosophy, philosophy of language, philosophy of mind
- \*C. Y. Cheng, PhD—philosophy of language and logic, American philosophy, classical Chinese philosophy, Neo-Confucian philosophy
- \*V. Dalmiya, PhD—epistemology, feminist philosophy
- \*M. Ishida, PhD—classical American philosophy, Japanese philosophy, process philosophy, history and philosophy of mathematical logic
- T. Jackson, PhD—specialist, director of philosophy in the schools; logic, comparative philosophy, philosophy for children
- \*K. Kipnis, PhD—philosophy of law, social and political philosophy, ethics
- \*S. Odin, PhD—Japanese philosophy, comparative philosophy, American philosophy
- \*R. Raghunathan, PhD—Indian and Buddhist philosophy, philosophy of religion, ancient Greek philosophy, epistemology
- \*J. Tanke, PhD—continental philosophy, aesthetics, historical ontology, social and political philosophy
- \*G. Tsai, PhD—ethics, social and political philosophy

**Degrees Offered:** Undergraduate Certificate in Islamic Studies, BA (including minor) in philosophy, MA in philosophy, PhD in philosophy

### The Academic Program

Philosophy (PHIL) is an open inquiry that involves the disciplined examination of our most comprehensive goals, standards, and criteria. For example: how should we conduct ourselves in our relations with one another? (ethics); what standards should we use to assess our institutions? (social and political theory); how may we achieve knowledge and understanding of the world around us? (epistemology, philosophy of science); what are the most general structures of thought and reality? (philosophy of logic and language, metaphysics); and what place does art have, or what place should it have, in human life? (aesthetics). In pursuing these questions, philosophy is often led to confront issues about the ultimate nature of reality and value or to consider possible limitations on our ability to answer or even to ask such questions. Philosophy proceeds with its task in part through contributing to ongoing discussions and debates within disciplines and traditions and also by cross-disciplinary and cross-cultural comparisons.

Students majoring in philosophy work to develop for themselves a comprehensive view of the aspirations and achievements

of human culture and in the process are encouraged to acquire the skills of careful reading and interpretation of texts, of writing that conveys clearly their understanding of some issue, and of responding critically to ideas that other people advance. The Department of Philosophy's faculty has expertise in an unusually diverse range of philosophic traditions. The faculty includes specialists in Chinese, Japanese, Indian, Buddhist, and Islamic thought, as well as in many of the important Western traditions. The department as a whole has long been recognized internationally for its comparative work between philosophic traditions.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 30 credit hours of philosophy courses, including required courses:

- Logic: PHIL 110 or 111;
- Two elective courses 200-level or above;
- Two courses in the History of Western Philosophy: PHIL 211, 212, 213, or 414 (Alpha);
- Three courses in the core philosophical fields (of ethics, aesthetics, metaphysics, political philosophy, epistemology, philosophy of science: PHIL 301, 302, 304, 306, 307, 308);
- One course in Buddhist, Chinese, Indian, Islamic, or Japanese philosophy: PHIL 330 to 380, PHIL 406; and
- PHIL 449

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

Students must complete 15 credit hours of philosophy above the 100-level. A minor will have any one of the following themes: Asian philosophy; ethics and law; science and society; humanities and the arts; and history of philosophy.

For details of which courses fall under these themes, students should consult the department undergraduate advisor.

### Undergraduate Certificate in Islamic Studies

The purpose of this certificate is to increase understanding of Islam as a world religion through critical analysis of primary and secondary materials, to foster knowledge about the complexity among Islamic societies and their diverse cultural expressions, and to explore the role of Islam and Muslims in present and past world affairs.

This certificate is housed within the College of Arts and Humanities. The participating departments are Art and Art History, History, Philosophy, and Religion. Minimum prerequisites for acceptance into the program for undergraduates are sophomore or higher standing with a minimum GPA of 2.5 and the completion of at least one introductory course within one of the four participating departments with a grade of B or better. For non-UH Mānoa students, the prerequisite is an AA or BA degree (or equivalent) that included some humanities component or relevant work experience. Non-UH Mānoa students who do not wish to enroll in a degree program may register for the courses through Outreach College.

### Requirements

- 15 credit hours are required for completion of the certificate.
- HIST 354, PHIL 330, and REL 209. It is recommended that REL 209 be taken first.
- Two electives selected from: ART 491B, 492B, 493, HIST 301, 302, 355, 432, and REL 352. (One course in Arabic language may be used as one of the electives.)
- Students are required to undertake a final research project in association with an elective class. Advanced undergraduates with GPA of 3.5 or above may, with instructor consent, use credit from the following graduate classes: ART/ASAN 792, HIST 662, or PHIL 730.

For more information, contact the undergraduate chair.

### Graduate Study

The department offers graduate training leading to the MA and PhD degrees. Students with BA degrees may apply to the MA program. Students are accepted directly into the PhD program only if they have already received the MA degree or the equivalent from an accredited institution and have met any other departmental requirements.

Specific requirements for all graduate degrees are detailed in the department's "Graduate Student Handbook" at [uhmpsa.wordpress.com/the-graduate-student-handbook/](http://uhmpsa.wordpress.com/the-graduate-student-handbook/).

Although the Western philosophical tradition remains the fundamental frame of reference for the department, the opportunity provided for specialization in the area of Asian philosophy is unique in that UH Mānoa is the only institution of higher learning in the U.S. with a regular program leading to the PhD degree with areas of specialization in Islamic, Indian, Buddhist, Chinese, Japanese, and comparative philosophy. Whatever their field of specialization, graduate students intending to complete a PhD in philosophy at UH Mānoa must acquire a thorough knowledge of the history and problems of Western philosophy. On the basis of this foundation, students may further specialize in one of three areas of study: Western philosophy, Asian philosophy, or comparative philosophy. The area of comparative philosophy is the most demanding; at the PhD level its requirements include proficiency in both the Western and Asian fields. The candidate is expected to gain a mastery of some specific topic that can be approached through the resources of two or more philosophic traditions.

All graduate students shall develop their course of study in consultation with the chair of the graduate program.

The MA and PhD in Asian philosophy are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, on admission, to enroll at Hawai'i-resident tuition rates.

### Master's Degree

The MA program can be completed either entirely through course work or through a combination of course work and thesis preparation.

### Admission Requirements

Students seeking admission must have a BA degree, including the equivalent of 30 credit hours in philosophy. Students who lack this preparation must make up deficiencies either before or during graduate study. In the latter case, students will

be admitted only conditionally, pending removal of the deficiencies. Deficiencies may also be designated in cases where a student's background does not include a sufficient number and range of courses in Western philosophy. The GRE General Test is required of all program applicants to whom it is accessible.

### Degree Requirements

To be eligible for conferral of the MA degree, a student must maintain a minimum GPA of 3.3 while completing at least 30 credit hours of course work, at least 18 of which must be in courses numbered 600 and above. In addition, students submit three papers for a culminating exam, which includes an oral component. Also required for the MA degree are four semesters (or the demonstrated equivalent) of at least one philosophically significant language other than English: typically classical Greek, Latin, French, German, Arabic, classical Chinese, Japanese, Sanskrit, or Pali.

### Doctoral Degree

The doctoral program consists of two stages. The first stage is that leading to admission to candidacy; the second, to the awarding of the degree. Normally the first involves at least two years of course work beyond the MA in preparation for departmental and language examinations. The second stage involves writing a dissertation and passing an oral examination in its defense. Students must attain certification for PhD candidacy—that is, fulfill all the requirements for the PhD except for the writing and oral defense of the dissertation—within four years of admission to the PhD program.

### Admission Requirements

Students seeking admission must hold an MA degree or the equivalent in philosophy and have earned a minimum GPA of 3.3 in courses taken for the MA. Students may be required to make up deficiencies upon entry into the PhD program (see requirements for MA degree above). The GRE General Test is required of all program applicants to whom it is accessible.

### Degree Requirements

To be eligible for conferral of the doctor of philosophy degree, a student must maintain a minimum GPA of 3.3 while completing at least 30 credit hours of course work beyond the requirements for the MA. A minimum of 18 of these credit hours must be taken at or above the 600 level. Students are required to demonstrate competence in each of three general areas: 1) history of philosophy; 2) metaphysics, epistemology, logic, and philosophy of science; and 3) ethics, aesthetics, social and political philosophy, and philosophy of law. Course listings made available each semester will indicate the general area or areas within which each course fits. Students are required to pass two examinations in an area related to the subject matter of their prospective dissertation, to complete an original dissertation, and to pass a final oral dissertation defense. In addition, students shall demonstrate proficiency in at least one (and where deemed necessary two) philosophically significant language(s) other than English: typically classical Greek, Latin, French, German, Arabic, classical Chinese, Japanese, Sanskrit or Pali. Language proficiency examinations will be conducted through the Graduate Division and the department of UH Mānoa responsible for teaching that language.

## Physics

College of Natural Sciences  
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2505 Correa Road  
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Tel: (808) 956-7091  
Fax: (808) 956-7107  
Email: physics@hawaii.edu  
Web: www.phys.hawaii.edu/

### Faculty

- \*P. K. Lam, PhD (Chair)—condensed matter, theory
- \*V. Bindi, PhD—particle astrophysics
- \*T. Browder, PhD—elementary particles, experiment
- \*W. L. Ditto, PhD—applied chaos theory
- \*L. Elias, PhD—free electron laser physics
- \*P. Gorham, PhD—elementary particles, experiment
- \*F. Harris, PhD—elementary particles, experiment
- \*M. D. Jones, PhD—elementary particles, experiment
- \*J. Kumar, PhD—elementary particles, theory
- \*J. G. Learned, PhD—particle astrophysics
- \*J. M. J. Madey, PhD—free electron laser physics
- \*D. Marfatia, PhD—elementary particle (theory)
- \*J. Maricic, PhD—particle astrophysics
- \*S. Matsuno, PhD—particle astrophysics
- \*K. Sattler, PhD—condensed matter, experiment
- \*E. B. Szarmes, PhD—free electron laser physics
- \*X. R. Tata, PhD—elementary particles, theory
- \*S. Vahsen, PhD—elementary particles, experiment
- \*G. Varner, PhD—elementary particles, experiment
- \*C. Vause III, PhD—condensed matter, theory
- \*P. von Doetinchem, PhD—particle astrophysics

### Affiliate Graduate Faculty

- A. Barger, PhD—cosmology, observational
- T. Dombeck, PhD—elementary particles, experiment
- S. Dye, PhD—particle astrophysics
- A. McDonald, PhD—particle astrophysics
- R. Morse, PhD—particle astrophysics
- R. Mussa, PhD—elementary particles, experiment
- W. Simmons, PhD—elementary particles, theory

### Cooperating Graduate Faculty

- K. Bennett, PhD—high-field magnetic resonance imaging
- V. A. Stenger, PhD—neuroscience, magnetic resonance research

**Degrees Offered:** BA (including minor) in physics, BS in physics, MS in physics, PhD in physics

### The Academic Program

Physics (PHYS) is the study of matter and energy and how they interact at the most basic levels. Areas include mechanics, optics and lasers, thermodynamics, electricity, magnetism, quantum theory, atomic and nuclear phenomena, condensed matter, and elementary particles. Physics is widely regarded as the most basic of all the sciences. UH Mānoa offers both the Bachelor of Arts and Bachelor of Science degrees in physics. Faculty members who teach physics courses are at the forefront of research in physics both in experiment and in theory. In the field of elementary particles, faculty members currently perform

experiments in Hawai'i, the mainland U.S., France, Japan, and Antarctica to study neutrinos and high-energy gamma rays coming from the stars. Others are involved in experiments at the BEPC II accelerator in China and at the KEKB accelerator in Japan, studying particle production and decay and the violation of particle/anti-particle symmetry. Faculty members are also involved in the space-based AMS experiment and on the development of techniques for dark matter searches. The particle theory group is involved in the identification of new physics that addresses new questions in particle physics and cosmology that are beyond the scope of the Standard Model, and the development of strategies that distinguish this new physics from the Standard Model phenomena. In condensed-matter physics, they investigate nano-materials and use a scanning tunneling microscope to take pictures of individual atoms. A free electron laser is operating in the physics building. This device allows scientists to carry out forefront research in fundamental and applied physics. Often, undergraduate physics majors work on these projects along with graduate students and the faculty.

### Advising

Academic advising is mandatory for all undergraduate physics majors. Contact the department office for assignment to an advisor. Note that in order to complete the program in 4 years, a physics student must begin the study of calculus in either the first or the second semester of the freshman year.

## Undergraduate Study

### BA Degree

#### Requirements

Students must complete 40 credit hours in PHYS courses, including:

- PHYS 170/170L, 272/272L, 274/274L, 310, 350, 400, 430, 450, 480, and 480L
- One course from PHYS 440, 460, 481, or 490
- Two courses from PHYS 305, 475, or 481L
- CHEM 161/161L and 162/162L or 171/171L or 181A/181L
- MATH 241, 242, 243, 244, and 311 or 307 (MATH 251A, 252A, 253A, may be substituted for MATH 241, 242, 243, 244. MATH 215, 216, may be substituted for MATH 241, 242, with consent from physics advisor.)
- Grade of C (not C-) or better in above courses

Upon approval of a physics department advisor and chair, the PHYS 170 through 272L requirements may be satisfied by PHYS 151 through 152L; and requirements for PHYS 305 (or 475 or 481L), 440 (or 460 or 481 or 490), 450, 480, and 480L, may be modified to accommodate a special emphasis or interdisciplinary program that is appropriate for the major in physics.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree

#### Requirements

Students must complete 46 credit hours in physics courses, including:

- PHYS 170/170L, 272/272L, 274/274L, 310, 311, 350, 400, 430, 450, 480, 480L, and 481

- One course from PHYS 440, 460, or 490
- Two courses from PHYS 305, 475, or 481L
- CHEM 161/161L and 162/162L or 171/171L or 181A/181L
- MATH 241, 242, 243, 244, and 311 or 307 (MATH 251A, 252A, 253A, may be substituted for MATH 241, 242, 243, 244. MATH 215, 216, may be substituted for MATH 241, 242, with consent from physics advisor.)
- Grade of C (not C-) or better in above courses

Upon approval of a physics department advisor and chair, the PHYS 170 through 272L requirements may be satisfied by PHYS 151 through 152L; and requirements for PHYS 305 (or 475 or 481L), 440 (or 460 or 490), 450, 480, and 480L, may be modified to accommodate a special emphasis or interdisciplinary program that is appropriate for the major in physics.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

- PHYS 151/151L and 152/152L or PHYS 170/170L and 272/272L
- PHYS 274 (lab not necessary)
- 15 additional upper division credit hours, including PHYS 310, 350, and 480
- Grade of C (not C-) or better in the above courses

Upon recommendation of a physics department advisor and chair, requirements for PHYS 310, 350, and 480 may be modified if an equivalent course is taken in another department.

### Graduate Study

This program offers opportunities for study and research leading to the MS and PhD degrees in physics. The staff and facilities are especially aimed toward experimental and theoretical work in elementary particle physics, nanophysics, and free electron laser physics.

Intended candidates for the MS or PhD in physics must present a minimum of 35 undergraduate credit hours in physics, including atomic and nuclear physics, electromagnetism, mechanics, quantum mechanics, and thermodynamics. Courses in general chemistry and differential equations are also required. Official scores of the GRE General Test and the subject test in physics must be submitted prior to admission.

At least one year of experience as a teaching assistant is required of all MS or PhD candidates. All graduate students are required to attend the weekly colloquium.

### Master's Degree

Students wishing to terminate their formal education with the MS degree generally select Plan A (thesis) so as to gain some research experience, as well as formal class work. These students are prepared to enter teaching positions at the community college level or industrial and civil service positions at the junior scientist and engineer level.

Students planning advanced graduate work generally complete the Plan B (non-thesis) or Plan C (examination) requirements for the MS degree. At this point most of their formal class work has been completed and further work consists mainly of seminars, directed research, and the dissertation.

## Requirements

For the MS Plan A, students must complete 30 credit hours of course work, including (a) a minimum of 18 credit hours of physics courses numbered 600 to 798, including PHYS 610, 650, 670, and 690; (b) minimum of 6 credit hours of thesis; and (c) approved electives, which may be selected from PHYS 699 for a maximum of 2 credit hours and courses in mathematics, chemistry, meteorology, engineering, and philosophy. Other courses can be included on a case-by-case basis at the discretion of the department chair. A final oral examination covers the thesis and related areas and completes the Plan A requirements.

For the MS Plan B, students must complete 30 credit hours of course work, including (a) a minimum of 18 credit hours of physics courses numbered 600 to 798, including PHYS 610, 650, 670, and 690; and (b) approved electives, as in Plan A. A written qualifying examination completes the Plan B requirements.

For the MS Plan C, there is no credit hour requirement but a minimum residency requirement must be satisfied. MS Plan C is intended for students who had completed equivalent course requirements at another institution. Admission to Plan C requires the approval of the physics graduate program advisory committee. A written qualifying examination and a final oral examination complete the requirements for Plan C.

## Doctoral Degree

The PhD degree is essentially a research degree. Students complete an original and significant piece of research and are at the forefront of one area of physics. Students are expected to enter the academic world in a teaching and research capacity or industrial and government research laboratories as senior scientists.

## Requirements

To be admitted to the PhD program, students must perform satisfactorily on a written qualifying examination followed by an advancement to candidacy oral examination. A student is allowed two attempts to pass the written qualifying examination within the student's first six semesters as a regular classified graduate student. The student's first attempt must be within the student's first four semesters as a regular classified graduate student. Students who fail twice cannot continue in the graduate program.

In addition to the courses required for the MS degree, students are responsible for the material covered in PHYS 651 and 671. A scholarly dissertation must be written, and a final oral examination in defense of the dissertation completes the requirements for the PhD.

# Political Science

College of Social Sciences  
Saunders Hall 640  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8357  
Fax: (808) 956-6917  
Email: polisci@hawaii.edu  
Web: www.politicalscience.hawaii.edu

## Faculty

- \*D. Halbert, PhD (Chair)—public policy, political futures, law and politics, and politics of intellectual property
- \*S. Krishna, PhD (Graduate Chair)—comparative politics, international political economy, South Asian Studies, and postcolonial studies
- \*J. N. Goodyear-Ka'opua, PhD (Undergraduate Chair)—Hawaiian politics, Indigenous politics, politics of education and culture
- \*H. Aikau, PhD—contemporary native Hawaiian identity and politics, feminist theory, and critical race theory
- \*R. Chadwick, PhD—international relations, global modeling, methodology
- \*J. A. Dator, PhD—alternative political futures esp. Asia and Pacific Islands; Asian politics; governance designs for space settlements; politics of media
- \*K. Ferguson, PhD—feminist theory and methods; political theory; politics of organizations; gender, globalization, militarism
- \*P. Flowers, PhD—Japanese politics, international law, international relations
- \*J. Goldberg-Hiller, PhD—law and society, law and philosophy, sexuality politics, indigenous politics
- J. Grove, PhD—critical war studies, complexity theory and system theory
- \*M. Henningsen, PhD—European politics, genocide/Holocaust, political philosophy, political theory
- \*K. Heyer, PhD—law and society, disability politics, comparative law, social movement and civil rights
- \*E. Kimura, PhD—comparative politics, political change, Southeast Asia
- \*C. Moore, PhD—American politics, public policy, politics of bureaucracy, institutional change
- \*L. Nitz, PhD—American government; methodology; political economy; public policy; research methods; topics in political theory
- \*M. J. Shapiro, PhD—American politics; interpretive methods; politics of culture; media and popular culture; political theory; public policy
- \*N. Silva, PhD—Hawaiian politics, indigenous politics
- \*N. Soguk, PhD—international relations theory, comparative politics; international organization; international migration and diasporas, human rights, Middle East
- \*M. Steger, PhD—global politics, globalization, political ideologies, comparative political theory (mostly East-West), nonviolence
- \*C. M. Stephenson, PhD—international relations; international organization; international environmental politics; international security; peace studies, conflict resolution
- M. Yang, PhD—comparative politics, political economy of development, East Asia
- \*K. Zhou, PhD—comparative politics; Chinese & Asian politics; women and development, and public policy

## Affiliate Graduate Faculty

W. Dissanayake, PhD—Asian cinema, film theory  
 F. Farhi, PhD—Middle East politics, comparative politics  
 B. Kerkvliet, PhD—Southeast Asian politics  
 O. Lee, PhD—Chinese foreign policy, U.S.-China relations

## Cooperating Graduate Faculty

K. O. Kane, PhD—philosophy and theory, pedagogy, film and media studies, women's studies

**Degrees Offered:** Undergraduate Certificate in Law and Society, BA (including minor) in political science, MA in political science, PhD in political science

## The Academic Program

Political science (POLS) examines politics not only in government and among nations but also in private organizations, businesses, universities, families, language, and daily life.

Various methods are used to do this, ranging from the interpretive and historical to the quantitative and statistical. Political science graduates enter numerous professions: journalism, foreign service, social services, government, law, law enforcement, teaching, civil service, business, librarianship, and research. Undergraduate majors have done all of these and more. So have the department's graduate students, many of whom come from abroad and return to their home countries to become leaders in their fields. The Department of Political Science provides a sound undergraduate education that helps prepare people to think critically and constructively about the world and to be active, concerned citizens in whatever walk of life they choose. Its internship program permits undergraduates to earn academic credit while working in community or governmental institutions and processes.

At the graduate level, the department stands out in the fields of Asian politics, comparative politics, Asian politics, futures studies, indigenous politics, international relations, law and society, policy analysis, and political theory. The department is an open, informal place where students, staff, and faculty alike are encouraged to participate in departmental affairs and governance. For further information, call (808) 956-8357 or write to the department.

## Advising

Students may write to, or make appointments to see, either the graduate chair or the undergraduate chair, who will discuss the options available and assign students, if necessary, to a faculty member who specializes in a field of study.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

- Students must complete 30 credit hours, including:
- a prerequisite introductory course at the 100 or 200 level
  - 12 credit hours from courses distributed as follows: POLS 335; either POLS 301 or 302; either POLS 305 or 315; and one of either POLS 375, 376, or 385
  - POLS 390 (Political Inquiry and Analysis)
  - 9 credit hours from other 300 level courses, including 3x5 courses
  - 3-6 credit hours from 400 level courses

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

Students must complete 18 total credit hours. 15 credit hours from the 300 level or above, including one course from POLS 305, 315, 335, 375 or 385.

Students should choose one of the 100 or 200 level political science courses as part of their General Education Core in social sciences, since a 100 or 200 level course is prerequisite for 300 level courses.

### Undergraduate Certificate in Law and Society

#### Requirements

15 credits will be required to be completed with a GPA of 2.5 or above.

- POLS 374/SOC 374
- 9 credits must be upper division (300-400 level)
- 6 credits from either AMST 365, AMST 436/POLS 436/WS 436, ECON 476, HWST 495, HWST 496, HIST 475, PHIL 318, POLS 375, POLS 376, SOC 231, SOC 333, SOC 432, or SOC 435/WS 435
- Students are also required to submit a portfolio containing three essays.

### Interdisciplinary Certificate in Social Science and Health

The purpose of this certificate is to supplement the disciplinary major of students who wish to pursue careers in the field of health and health care by enhancing the breadth, quality, and coherence of their education through taking health-related courses in a variety of different academic disciplines. A more complete description and the requirements are described under the Department of Sociology.

## Graduate Study

The department has three different graduate degree programs: master's degree Plan A, for which a master's thesis is required; master's degree Plan B, for which a culminating experience is required; and the doctor of philosophy (PhD) program. The department offers specializations in alternative futures, Asian and Pacific politics, comparative politics, international relations, political theory, indigenous politics, and public policy.

Further information regarding the requirements for all three programs is available at [www.politicalscience.hawaii.edu](http://www.politicalscience.hawaii.edu).

The application deadline is **December 1** for admission in the fall semester. NO SPRING semester admissions are taken.

### Master's Degree

The department offers MA Plan A (thesis) and Plan B (culminating experience) degrees that can be tailored to a student's interests and needs. The MA program invites applicants who are prepared to think critically and constructively about political phenomena. All MA students are required to take three of the following courses regardless of program (Plan A or Plan B): POLS 610, 620, 630, 640, 650, 660, 670, and 680.

### Doctoral Degree

The department's PhD program encourages students to pursue specialized interests as well as to broaden their under-

standing of political phenomena. The department looks for students who are prepared to construct a successful course of study based on their individual interests, in conjunction with appropriate advising and course work. We encourage applicants who approach political questions in a critical and creative manner and who combine work from different specializations and disciplines to pursue their own particular projects.

## Honors and Awards

The department has several teaching assistantships, research assistantships, and scholarships that are awarded to deserving qualified students.

### Undergraduate

- Thomas Hamilton Memorial Scholarship—\$600 for a student with outstanding scholarship and all-around performance who has completed at least two courses in political theory.
- Carl Knobloch Prize Fund—\$500 for a student with an excellent academic record who also has an outstanding record of community and/or UH service.

### Graduate

- Norman Meller Award—\$1,500 for fall semester to a graduate student with an outstanding academic record.
- Harry J. Friedman Memorial Scholarship—\$700 for outstanding work in comparative politics.
- Jorge Fernandes Memorial Fellowship and Award—for spring semester to aid an outstanding graduate student to support the completion of his/her dissertation.
- Glendon Schubert and James Neal Schubert Political Science Endowed Scholarship—for spring to a graduate student who specializes in public law, law and society.

## Psychology

College of Social Sciences  
Sakamaki C-400  
2530 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-8414  
Fax: (808) 956-4700  
Email: psych@hawaii.edu  
Web: www.psychology.hawaii.edu

### Faculty

- \*A. E. Maynard, PhD (Chair)—developmental, cultural, siblings and socialization, cognitive change
- \*C. K. Baker, PhD—community, intervention development and evaluation, domestic violence, teen dating violence
- \*J. Barile, PhD—community, neighborhood environments, health equity, quality of life and well-being
- \*D. Cicero, PhD—clinical, experimental psychopathology, psychosis, risk for schizophrenia
- \*P. A. Couvillon, PhD—behavioral neuroscience, animal learning, cognition
- \*L. A. A. Dumas, PhD—cognitive, analogy, computational models of cognition, mental representation, the development of structured thought
- \*F. J. Floyd, PhD—clinical, family and couple relationships, developmental disabilities, sexual minority growth

- \*B. N. Frazier, PhD—children's cognitive development
- \*E. H. Hatfield, PhD—social, emotions, social-psychophysiology
- \*K. Hayashi, PhD—quantitative psychology and psychometrics
- \*E. M. Heiby, PhD—clinical depression, compliance assessment, integrated behavioral theory
- \*L. A. James, PhD—social-personality, library skills, psycholinguistics
- \*J. Latner, PhD—understanding and treatment of obesity and eating disorders
- \*C. W. Mueller, PhD—child clinical, social, HIV, and health
- \*B. J. Nakamura, PhD—clinical, youth anxiety, dissemination of evidence-based practices
- \*K. Pauker, PhD—social intergroup relations, stereotyping, social perception
- \*S. C. Sinnett, PhD—cognitive, mechanisms of attention and perception
- \*C. H. Sophian, PhD—developmental, cognitive development in children
- \*L. K. Takahashi, PhD—behavioral neuroscience
- \*K. M. Vitousek, PhD—clinical, cognitive behavioral approaches, eating disorders, caloric restriction for longevity
- \*Y. Xu, PhD—children's social development and culture

### Cooperating Graduate Faculty

- D. Bhawuk, PhD—culture and community
- R. W. Brislin, PhD—social-personality
- P. W. Dowrick, PhD—video research
- E. S. Hishinuma, PhD—health, cross-cultural
- J. K. Kaholokula, PhD—Native Hawaiian Health
- P. E. Nachtigall, PhD—marine mammal behavior
- L. A. Yamauchi, PhD—educational psychology

### Affiliate Graduate Faculty

- B. F. Chorpita, PhD—clinical childhood anxiety disorders
- D. Landis, PhD—psychology
- A. Pack, PhD—marine mammal behavior
- J. E. Schiffman, PhD—child clinical
- W. G. Stephan, PhD—social psychology
- W. T. Tsushima, PhD—neuropsychology

**Degrees and Certificate Offered:** BA in psychology, BS in psychology, MA in psychology, PhD in psychology, Certificate in Clinical Psychology (Respecialization)

### The Academic Program

Psychology (PSY) can be defined as the science of mind and behavior. Some psychology majors are preparing to enter graduate school, where they will be trained to become professional psychologists and scholars. Others use psychology as a pre-professional major for other fields, such as law or medicine. The majority of psychology majors, however, are using psychology as a general interdisciplinary arts major. Psychology is qualified as a discipline for this purpose. An understanding of the spectrum of psychological knowledge, methods, and concepts facilitates and enhances productivity in virtually every area of human endeavor. This understanding also promotes interpersonal skills and sensitivities, as well as critical thinking skills. Collectively, these understandings foster a respect for others, which is a core element of the curriculum of the psychology department.

UH Mānoa is fortunate in having a psychology department composed of an unusually large number of internationally recognized figures in the field. Not only do students get to learn from these scholars in the classroom, but many receive direct training in cutting-edge research and the application of psycho-

logical knowledge. Areas of concentration include behavioral neuroscience; clinical studies (APA accredited); community and cultural psychology; developmental psychology; experimental psychopathology; social-personality; and cognition.

## Undergraduate Study

### Bachelor's Degree

#### Pre-major BA and BS Degree Requirements

Students must complete one course in methodology (PSY 212) and one course in statistics (PSY 225 or SOCS 225) with a minimum grade of C (not C-) and attend one major meeting. In addition, a minimum overall entry GPA of 2.5 in all PSY UH Mānoa course work (including PSY 100 and any transfer PSY courses) is required to declare psychology as a major.

#### BA Degree Requirements (minimum 36 credits, 15 earned at UH Mānoa)

In addition to completion of PSY 212 and PSY 225 or SOCS 225, students must complete 30 credit hours, including:

- 15 credits at the upper division level (300 level and above)
- One course from three of these four psychology foundation areas:
  - Experimental (PSY X2X courses), e.g., PSY 220, 322, 324
  - Psychobiology (PSY X3X courses), e.g., PSY 230, 331, 333
  - Developmental (PSY X4X courses), e.g., PSY 240, 341, 342
  - Social or Personality (PSY X5X or PSY X6X courses), e.g., PSY 250, 260, 352
- 3 credit hours in the advanced topic series (PSY 4X9, many 4X9 courses are designated as Writing Intensive), excluding PSY 499)

A minimum exit GPA of 2.0 in psychology must be maintained for graduation. PSY 100 is a prerequisite to all other courses except PSY 170 and may be counted toward the major and the diversification social sciences (DS) core requirement. No more than a combined total of 15 credits of practicum (PSY 407), teaching (PSY 408), and directed research (PSY 499) may be counted for the major; no more than 9 credit hours in PSY 499 may be counted. Only 3 credit hours in PSY 499 can be used to fulfill the requirement of 15 credit hours at the upper division level. Nevertheless, students intending to do graduate work are encouraged to enroll in PSY 499 and in PSY 408 or 478.

#### BS Degree Requirements (minimum 42 credits, 21 earned at UH Mānoa)

In addition to completion of PSY 212 and PSY 225 or SOCS 225, students must complete one year of Biology\* and 18 credits at the 300 and above level, including:

- one additional PSY 4X9 advanced focus (W, O, etc.) seminar (3 credits)
- two semesters of directed research PSY 499 (6 credits)
- one 3-credit course in Statistics, e.g., PSY 419, 610, or 611 is highly recommended in their senior year
- BIOL 171/171L (4 credits)
- and either BIOL 172/172L (4 credits) or PSY 331 or 333 (3 credits)

A minimum exit GPA of 2.5 in psychology must be maintained for graduation.

New majors should seek assistance from the Undergraduate Advising Office in Sakamaki D409 (psychadv@hawaii.edu)

or consult with Lorey K. Takahashi, Chair of Undergraduate Studies (LKT@hawaii.edu), as soon as possible for advising. Additional information can be found at [www.psychology.hawaii.edu](http://www.psychology.hawaii.edu).

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Graduate Study

The graduate program in psychology is designed to provide students with a strong background in theory, research methodology, and psychological issues. Currently, there are 7 concentrations in which students can receive specialized training: behavioral neuroscience; clinical studies; community and cultural psychology; developmental psychology; experimental psychopathology; social-personality; and cognition. Specific details concerning each of the concentrations, their requirements, and faculty research interests may be obtained in one of four ways: (a) by writing to the Department of Psychology, University of Hawai'i, 2530 Dole Street, Honolulu, HI 96822; (b) by faxing your request to (808) 956-4700; (c) by sending an email communication to the Chair of Graduate Studies (gradpsy@hawaii.edu); or (d) by accessing the department's website at [www.psychology.hawaii.edu](http://www.psychology.hawaii.edu).

Applications are considered only for the fall semester. Applicants should normally possess a bachelor's degree, have a minimum of 24 credit hours of undergraduate work in psychology (including courses in basic psychology such as research methodology, statistics, learning, abnormal, social, developmental, personality, cognition, and physiological psychology), a cumulative grade point average of at least 3.0, strong letters of recommendation from professors, competitive general GRE scores (past applicants admitted as graduate students in the department tend to score at or above the 600 level on the various sub-domains of the GRE), and preferably one to two years of research experience.

One can apply online at [apply.hawaii.edu/](http://apply.hawaii.edu/) or obtain materials relevant to the application process at [www.manoa.hawaii.edu/graduate/](http://www.manoa.hawaii.edu/graduate/). Completed applications must be received by the Graduate Division no later than **December 1** each year, with the exception of GRE scores (which can arrive during the month of January).

### Master's Degree

The master's degree program includes a thesis and at least 30 credit hours of courses specified by the department and specific area of concentration. Detailed descriptions of specific requirements for each area of concentration are contained in the department webpage. The department does not offer a terminal master's degree program in psychology. Only students interested in pursuing a PhD degree are considered for admission. Students with a BA degree are admitted to the master's program and, upon successful completion, petition for entry into the doctoral program.

### Doctoral Degree

Students must complete their master's degree (from UH Mānoa or another accredited institution of higher learning) prior to entering the doctoral program in psychology at UH Mānoa. Specific course work and other relevant departmental and concentration specific classes are required for the doctoral degree. Students must pass comprehensive examinations before proceeding to the dissertation.

## **Certificate Program in Clinical Psychology (Respecialization)**

The Clinical Studies Respecialization Program provides clinical training for individuals holding a PhD in a basic area of psychology from a regionally accredited university (or foreign equivalent). Individuals who are already licensed in psychology or who hold an applied degree (e.g., EdD, PsyD) are not appropriate for this program. Upon satisfactory completion of core clinical courses, practica, and internship, the Respecialization student receives a certificate from the Graduate Division and is competitive for clinical research and teaching positions as well as eligible to sit for licensure in most states. The Clinical Studies Program is APA-approved and follows a scientist-practitioner, broadly-behavioral, dual specialty approach to training in which it is encouraged of all graduate and respecialization students to integrate the literatures of a basic area of psychology with related clinical phenomena.

For further details of this certificate, please see [www.psychology.hawaii.edu/concentrations/clinical-psychology.html](http://www.psychology.hawaii.edu/concentrations/clinical-psychology.html).

## **Public Administration**

College of Social Sciences  
Saunders Hall 631  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8260/(808) 956-3691  
Fax: (808) 956-9571  
Email: [pubadmin@hawaii.edu](mailto:pubadmin@hawaii.edu)  
Web: [www.puba.hawaii.edu](http://www.puba.hawaii.edu)

### **Faculty**

\*C. Grandy, PhD (Director)—economics  
\*J. Ady, PhD—communication studies  
\*S. Chandler, PhD—social work  
\*M. Johansen, PhD—public management  
T. Kim, PhD—public administration  
\*D. Nixon, PhD—political science  
\*R. Pratt, PhD—political science

### **Cooperating Graduate Faculty**

T. Brislin, PhD—Academy for Creative Media

### **Adjunct Faculty**

P. Martin, JD  
R. Alm, JD

**Degree and Certificate Offered:** MPA, Graduate Certificate in Public Administration

## **The Academic Program**

The Public Administration Program (PUBA) builds leadership in public service in Hawai'i and the Asia-Pacific region. Located in the College of Social Sciences, it offers a 30-credit master's degree and a 15-credit certificate. The program's format emphasizes interdisciplinary learning, collaborative teaching, and the development of close relationships among participants. It creates an environment in which many of the complex issues facing those with public responsibilities are addressed while also giving participants specific skills useful to their work.

Financial support for the degree and the certificate is available through the Herman S. Doi Fellowship and the Pacific Island Health Administration Scholarship. For further information, contact the program office in Saunders Hall 631 or call (808) 956-8260. Applicants may also apply to the East-West Center.

## **Graduate Study**

### **Master's Degree**

The master's degree consists of a core year, an individualized concentration, a practicum experience, and a capstone. The core year and capstone must be taken first and last in the program, respectively. Once the program begins in the fall, new admissions are not made until the following year.

The core year is an integrated, collaboratively taught curriculum offered in a format that balances lecture and discussion sessions. The curriculum is highly interdisciplinary and integrates a series of perspectives and skills important to effective work in public service. These include communications, the political context of public institutions, economic processes, public ethics, budget and policy processes, administrative law, bureaucratic structure and organizational change, and the role of personal and organizational culture.

The individualized concentration is intended to balance the common work of the core year. It allows each student to design a program of study built around a theme of special personal and professional interest. The concentration is satisfied by completion of 9 credit hours in course work, directed reading, or directed research. Themes are created by the student working in conjunction with a faculty advisor. Anyone electing the thesis (Plan A) option may substitute thesis work for concentration credits with approval of the faculty advisor. The thesis option requires the student to take at least one graduate level research methods course.

The practicum is designed to place individuals in a setting where they may compare organizational structure and processes, study leadership styles, understand community dynamics, gain an international perspective, or develop specific skills. The location of the practicum varies according to the student's learning goals. In some cases placement in one organization may be modified to become work on a project that takes place across several organizations. Students are encouraged to undertake a practicum that will have the greatest personal and professional benefits.

The capstone consists of a 1-credit planning seminar, taken during the semester preceding that in which graduation will occur, and the concluding 3-credit seminar. The focus of the capstone is on group analysis of a public issue of importance in Hawai'i and the Asia-Pacific region.

The program welcomes a diversity of professional and educational backgrounds and sees these as contributing to the learning environment. The course work is compatible with the schedules of people working full-time.

### **Requirements**

MPA candidates must complete 14 credit hours of core requirements, 9 credit hours of individual concentration, 3 credit hours of practicum, and 4 credit hours of capstone. The student must earn at least a grade of B in the practicum and both capstone courses. The thesis option may be selected to replace some or all of the concentration credits.

## Other

Up to nine credits of the MPA degree can be counted toward graduate certificates in related fields. Call the program for additional information.

## Certificate in Public Administration

The program offers two certificate tracks: (1) public service leadership, and (2) nonprofit management. Each is 15 credits.

The track in public service leadership consists of the 14-credit core year, plus a 1-credit applied professional development seminar, co-designed by those in the certificate program working with an advisor, and taken in the second semester of the core year. The core year surveys issues facing those in public service while providing skills for addressing those issues.

The track in nonprofit management is made up of two 3-credit core courses that provide an overview of issues in the field; 6 credits of electives; a 3-credit practicum.

Courses in both tracks are compatible with working schedules, and each utilizes a cohort model to enhance learning. The nonprofit management certificate may be taken in conjunction with the master of public administration (MPA) degree. The track in public service leadership shares the degree's core year and some restrictions apply to how it can be counted toward the degree.

## Public Policy Center

College of Social Sciences  
Saunders Hall 723  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-4237  
Fax: (808) 956-0950  
Email: dcsakai@hawaii.edu  
Web: www.publicpolicycenter.hawaii.edu

## Faculty

\*S. Chandler, PhD (Director)—policy analysis, child welfare, collaborative management, public administration

S. Moriwaki, PhD (Associate Director)—energy policy, sustainability, community development

\*M. Johansen, PhD—non-profit research, public management, educational policy, public policy

## Cooperating Graduate Faculty

The Public Policy Center has 53 affiliate faculty representing all of the departments within the College of Social Sciences. See our website for their names and contact information, as well as their fields of interest, research, and areas of teaching.

## The Academic Program

The mission of the Public Policy Center is to enhance the quality of community life throughout Hawai'i, the U.S., and the Asia-Pacific region. This mission is achieved through an interdisciplinary approach to teaching, research, service, and application. The center provides opportunities for students to expand their knowledge and gain experience in public policy. Its premise is that public policy analyses are critical to sound public policy decision-making and that teaching and scholarly work are intertwined and should be continually linked to the

community beneficiaries. Public policy is a discipline that seeks to solve public problems through the design, analysis, and advocacy of well thought out, evidence-based research. In all levels of government and globally, public needs and limited resources require policy choices that are economically efficient, socially and technically effective, politically and administratively responsive. Such choices exist across a broad range of critical issues, including health, education, the environment, energy, economic development, social welfare policy, and community resilience. Students with experience and knowledge about public policy offer their community essential and meaningful skills and tools needed to analyze, design, and evaluate public policy choices. Students trained with these skills are attractive to employers in the public, nonprofit, and business sectors.

## Courses in Public Policy

Students can select courses from a wide range of fields in addition to those offered by the Public Policy Center, including: political science, economics, public administration, urban and regional planning, peace studies and conflict resolution.

## Related Courses

- PPC 301 Governing, Politics, and Public Policy (3)
- PPC 330 Survey of Public Policy and Analysis (3)\*
- PPC 695 Topics in Public Policy (3)\*
  - (1) Introduction to Public Policy and Analysis\*
- POLS 670 Introduction to Public Policy (3)
- PUBA 662 Applied Policy Analysis (3)
- PLAN 603 Economic Analysis for Urban Planning and Policy (3)

\*Taught on-line in the summer session

## For more information

Please visit our website at [www.publicpolicycenter.hawaii.edu](http://www.publicpolicycenter.hawaii.edu) or call Susan Chandler at (808) 956-4237 or email her at [chandler@hawaii.edu](mailto:chandler@hawaii.edu).

# Religion

College of Arts and Humanities  
Sakamaki A-311  
2530 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-8299  
Fax: (808) 956-9894  
Web: [www.hawaii.edu/religion/](http://www.hawaii.edu/religion/)

## Faculty

- \*M. Mohr, PhD (Chair)—Japanese and Asian religions
- \*H. J. Baroni, PhD—Japanese and East Asian religions, Buddhism in America
- M. A. Brown, MA—Hawaiian religion
- \*J. Frankel, PhD—Islam, Confucianism, comparative religion, mysticism
- \*R. Lamb, PhD—South Asian religions, Asian monasticism
- \*J. Lyon, PhD—Christianity, Hebrew Bible, New Testament, history of religion in Hawai‘i
- \*K. P. C. San Chirico, PhD—global Christianities, Indian religions, theory and method
- \*L. A. Siegel, PhD—Indian religions

## Cooperating Graduate Faculty

G. D. Panisnick, PhD—Western religions

**Degrees Offered:** Undergraduate Certificate in Islamic Studies, BA (including minor) in religion, MA in religion

## The Academic Program

In keeping with the goals of UH Mānoa, the Department of Religion takes advantage of the state’s strong social and cultural ties with Asia and the Pacific and seeks to enhance those ties. Within this extraordinary multicultural milieu, the Department of Religion serves as a link between the academic community and the many Asian and Pacific religious communities that flourish in Hawai‘i. Most of the major religious traditions—Buddhism, Christianity, Confucianism, Hinduism, Islam, Judaism, Shinto, Taoism, as well as Hawaiian and Polynesian religions—are represented and make Hawai‘i an ideal site and context for a study of Asian and Pacific religious communities and activities.

The Department of Religion is dedicated to the cultivation of a humanistic understanding of a wide range of religious traditions, ritual practices, philosophical speculations, ethical imperatives, and institutional histories. Its investigative approach is interdisciplinary and intercultural.

## Undergraduate Study

### Bachelor’s Degree

Undergraduate education in religion includes survey courses in Western, Asian, and Pacific religions. There are also thematic courses dealing with such issues as sexuality and death, politics and ethics, and the relationship between religion and other disciplines, such as anthropology, medicine, political science, and sociology.

### Requirements

Students must complete 30 credit hours in religion, including at least 18 credit hours in 300- and 400-level courses. A

minimum 2.5 GPA in religion courses must be maintained for graduation. Required course: REL 300.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Minor

### Requirements

Students must complete 15 credit hours at the 300 level and above. Required course: REL 300.

## Undergraduate Certificate in Islamic Studies

The purpose of this certificate is to increase understanding of Islam as a world religion through critical analysis of primary and secondary materials, to foster knowledge about the complexity among Islamic societies and their diverse cultural expressions, and to explore the role of Islam and Muslims in present and past world affairs.

This certificate is housed within the College of Arts and Humanities. The participating departments are Art and Art History, History, Philosophy, and Religion. Minimum prerequisites for acceptance into the program for undergraduates are sophomore or higher standing with a minimum GPA of 2.5 and the completion of at least one introductory course within one of the four participating departments with a grade of B or better.

A more complete description and the requirements are described under the Department of Philosophy.

## Graduate Study

### Master’s Degree

The department has developed two graduate program plans leading to the MA degree: a thesis-based MA program (Plan A) and a non-thesis track (Plan B). Both Plans A and B are two-year programs.

### Admission Requirements

Applicants to the MA program in religion must hold a bachelor’s degree from an accredited U.S. college, university, or its equivalent from a recognized foreign institution of higher learning. Applicants should include in the Statement of Objectives an explanation of how their academic background has prepared them for study in the religion MA program.

### Plan A

The thesis program provides students with an opportunity for graduate study in Asian or Polynesian religions. 30 credits are required.

Advancement to Candidacy: Candidacy may be granted after the first semester after completing 9 graduate credits plus REL 600 with a GPA of 3.0 or better (total 12 credits) and the language requirement.

### Required courses (9 credits)

- REL 600 History and Theory of the Study of Religion (3)
- REL 700 Thesis Research (3, 3)

### Area requirements (9 credits minimum)

Students must take at least three 600-level courses in their area of specialization (Asian or Polynesian).

### Electives

Electives consist of any Religion course (400 level and above, excluding 499), other than those that fulfill program and area requirements. Two complementary graduate courses (3 credits

each) from other disciplines may be accepted at the discretion of the thesis advisor and graduate chair. No more than two 400-level courses may be used to satisfy this requirement.

### Language

To achieve a mastery of language at the second-year level, students are required to complete two years of a language appropriate to their field of specialization (e.g., Chinese, Hawaiian, Hindi, Japanese, Sanskrit, Samoan, Tahitian, or another Asian or Polynesian language approved by the area advisor) with a minimum B-minus grade in the fourth semester of class.

This language requirement will be waived for students demonstrating language proficiency by an equivalency exam. These exams will be set by the student's advisor and assessed by two faculty readers (one from the Department of Religion and one from the department in which the language is taught).

Language courses will not count towards the 30 credits required for an MA in religion.

### Thesis (REL 700)

A maximum of 3 credits per semester for a total of 6 credits of REL 700, usually taken over two semesters is required. Students must be admitted to candidacy and must complete 12 credits before they can register for REL 700.

Completion of an original thesis, demonstrating a mastery of advanced research, analytic, and discursive skills, is required of all students in Plan A.

Each candidate must form a committee of three members of the graduate faculty, one of whom is from outside the department. Faculty reserve the right not to serve on a thesis committee.

After submission of a completed thesis to the committee for its consideration, the candidate must be present for the final oral examination on the subject of the thesis.

After all revisions as determined by the thesis committee have been incorporated and the thesis is in final form, the majority of the committee, including the chairperson, passes the student for the master's degree. A candidate who fails may be re-examined once, provided it is done within one calendar year of the initial examination.

After a candidate has taken 6 credits of 700, the candidate must register for 1 credit of 700 in subsequent semesters and in the semester of graduation.

One bound copy of the approved thesis shall go on file in the department office and must be submitted to the department office at the same time the final thesis is deposited with the Office of Graduate Education.

### Plan B

The Plan B degree program provides students with a non-thesis opportunity for graduate research and study in Asian or Polynesian religions. Plan B is designed for students who wish to articulate the results of their research in innovative ways using various available technologies. In place of a thesis, the culminating requirement is a Plan B Project, an original research project as described below. 30 credits are required.

#### Master's Plan B Procedures

1. Preliminary conference with the graduate chair for the purpose of determining an advisor, proposed courses to fulfill the requirements, and the foreign language for the degree.
2. Candidacy for Plan B students requires a memo from the graduate chair indicating that 12 graduate credits, including REL 600, have been taken with a GPA of 3.0 or better and that the student has prepared a preliminary proposal and secured the support of two graduate faculty members from

the Department of Religion to serve on their committee.

Committee members will have the responsibility of approving, supervising, and evaluating the project as completed in REL 688 (Plan B Research).

3. Completion of a research project demonstrating a critical understanding of religion in a particular area of Asia or the Pacific or of a topic within the overall region. The project should reveal original insights into selected religious phenomena or area of concentration. Students will be expected to present the results of their research in innovative ways that utilize the arts, various media, or developing technologies, and thereby show their relevance to scholarly discourse. Research projects will be presented in a public forum during the student's final semester.

#### Required courses (6 credits)

- REL 600 History and Theory of the Study of Religion (3)
- REL 688 Plan B Research

#### Area requirements (9 credits)

Students must take at least three 600 level courses in a particular region of Asian or in Polynesian religions.

#### Electives (15 credits)

Electives consist of any religion course (400 level and above, excluding 499), other than those that fulfill program and area requirements. Two complementary graduate courses (3 credits each) from other disciplines may be accepted at the discretion of the advisor and graduate chair. No more than two 400-level courses may be used to satisfy this requirement.

### Language

To achieve mastery of a language at the second-year level, students are required to complete two years of a language appropriate to their area of specialization (e.g., Chinese, Hawaiian, Hindi, Japanese, Sanskrit, Samoan, Tahitian, or another Asian or Polynesian language approved by the area advisor) with a minimum B-minus grade in the fourth semester of class.

This language requirement will be waived for students demonstrating language proficiency by an equivalency exam. These exams will be set by the student's advisor and assessed by two faculty readers (one from the religion department and one from the department in which the language is taught). Language courses will not count toward the 30 credits required for an MA in religion.

## Russian Area Studies

College of Languages, Linguistics and Literature

Moore 489

1890 East-West Road

Honolulu, HI 96822

Tel: (808) 956-4165

Web: [manoa.hawaii.edu/llea/?page\\_id=33](http://manoa.hawaii.edu/llea/?page_id=33)

**Certificate Offered:** Undergraduate Certificate in Russian Area Studies

To receive a Certificate in Russian Area Studies, a student must complete certain requirements in addition to a regular major. These are advanced reading and conversation courses in Russian, equivalent to at least the third-year level, and 9 credit hours of work, exclusive of courses taken as part of the major, chosen from an approved list of courses. For more information,

contact Professor Virginia Bennett, Department of Languages and Literatures of Europe and the Americas, 489 Moore Hall, bennett@hawaii.edu or (808) 956-4165.

## Second Language Studies

College of Languages, Linguistics and Literature  
Moore 570  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-9010  
Fax: (808) 956-2802  
Web: www.hawaii.edu/sls

### Faculty

- \*G. Crookes, PhD (Chair)—classroom teaching, classroom-centered research, materials and syllabus design
- \*G. Kasper, Dr. phil. (Graduate Chair)—language and social interaction, qualitative research
- \*R. Bley-Vroman, PhD—English syntax, second-language analysis, formal models of language acquisition
- \*J. D. Brown, PhD—language testing, research methods, curriculum design
- \*K. Davis, PhD—qualitative research methods, language policy and planning, literacy, bilingual education
- \*R. Day, PhD—teacher education, teaching of reading, vocabulary, materials development, literature
- E. Gilliland, PhD—writing studies, adolescent literacy, teacher education, qualitative research methods, discourse analysis
- \*T. Grüter, PhD—morphosyntax and semantics, developmental psycholinguistics, language processing, bilingualism
- \*C. Higgins, PhD—macro- and micro-sociolinguistics, qualitative research methods, discourse analysis, code-switching
- \*T. Hudson, PhD—language testing, reading, methods and materials, English for specific purposes, research methods
- \*L. Onnis, PhD—statistical learning, enhancement of learning and training based on cognitive science findings, computational modeling and corpus-based analyses, monolingual and bilingual sentence processing, language evolution
- \*B. D. Schwartz, PhD—linguistic theory and second language acquisition, second language analysis, second language processing, child second language acquisition
- \*D. Zheng, PhD—cognition and instruction, second language technology and pedagogy, bilingual education, instructional media
- N. Ziegler, PhD—second language acquisition, interaction, corrective feedback, task-based language teaching, synchronous computer mediated communication, Maritime English (English as a lingua franca, English for specific purposes in the commercial shipping industry)

### PhD in SLS Faculty Outside the SLS Department

- F. Bail, PhD—Human learning and development, instructional formats
- J. M. Bilmes, PhD—cognitive anthropology, human communication, decision-making, conversation analysis, Southeast Asia
- H. Cook, PhD—Japanese sociolinguistics, discourse analysis, language socialization and pragmatics
- K. Kanno, PhD—Japanese SLA, pedagogical grammar, language analysis
- K. Kondo-Brown, PhD—heritage language learning, assessment, Japanese language learning

W. O'Grady, PhD—syntax, first and second language acquisition, Korean

K. Rehg, PhD—phonology, bilingual education, Micronesian linguistics

### Cooperating Graduate Faculty

- M. González-Lloret, PhD—second language acquisition, technology and language instruction, Spanish linguistics, pragmatics
- A. J. Schafer, PhD—sentence comprehension and production across languages (including Korean, Japanese, and Austronesian languages); sentence prosody; information structure; psycholinguistic approaches to language documentation and conservation

### Affiliate Graduate Faculty

- E. Hauser, PhD—conversation analysis
- S. McKay, PhD—English as an international language, SL methods and materials, macro-sociolinguistics
- H. T. Nguyen, PhD—interactional competence, classroom discourse, conversation analysis
- J. Norris, PhD—language program evaluation
- L. Ortega, PhD—second language acquisition
- R. Schmidt, PhD—(Emeritus) second language acquisition

**Degrees Offered:** BA in second language studies, MA in second language studies, PhD in second language studies, Advanced Graduate Certificate in Second Language Studies

### The Academic Program

The SLS department's programs prepare students for professional and academic careers in second language and multilingual settings, including but not limited to language education. Through course work and independent research, students acquire a broad knowledge base and familiarity with a range of research approaches and an understanding of ethics and professionalism in second language studies.

Employment opportunities have expanded nationally and internationally to include various types of educational and occupational institutions. In addition to language education and administration at all levels, employment opportunities extend to such domains as publishing, test development for international agencies, and language training programs for businesses.

The department, whose MA program dates back to 1961, is regarded as one of the most prestigious second language programs worldwide. Offerings comprise a wide range of general and specialized courses. SLS faculty members are well respected nationally and internationally through their research, publications, and leadership roles at national and international levels. The department has excellent library resources. It attracts top-quality students and maintains a variety of services and activities that stimulates a high level of student satisfaction and collaboration, including post-graduation employment advice and assistance.

SLS faculty members (J. D. Brown, G. Kasper, and R. Schmidt) have served on the executive boards of the American Association for Applied Linguistics and the Teachers of English to Speakers of Other Languages International Association. Department faculty are also past and present editors of the international journals *Applied Linguistics* (G. Kasper) and *Reading in a Foreign Language* (R. Day, T. Hudson), and have been actively involved in the organizing boards of the Second Language Research Forum and the Pacific Second Language Research Forum.

## Undergraduate Study

### Bachelor's Degree

The Bachelor of Arts degree program in second language studies provides students with a comprehensive understanding of a wide range of issues related to how second and foreign languages are learned, taught, and used in local and global contexts. This program, in accord with the values of SLS graduate degree programs, takes the broad view that plurilingual and pluricultural societies have greater success at communication in and across languages, which enables mutual understanding and appreciation, conflict resolution, and negotiation of values.

The program addresses theory, research, and practice, and helps prepare students to become second language specialists who understand the nature of second language learning and use in diverse circumstances, and are able to act upon related challenges that emerge in a variety of settings. The BA in SLS also serves as an excellent preparation for entry into a variety of language-related graduate programs.

### Requirements

Students must complete 33 credit hours of upper division courses, including:

- 24 credit hours of required courses: SLS 302, 303, 380, 430, 441, 480(alpha), 485, and 490
- 9 credit hours of elective courses: 300-499 courses from SLS, or 300-499 courses from other departments (as approved by an SLS advisor)

For more information about the BA degree in SLS, see [www.hawaii.edu/sls/ba/](http://www.hawaii.edu/sls/ba/) and contact the department's undergraduate coordinator. Newly declared majors should make appointments with the SLS coordinator as soon as possible.

### Graduate Study

The department offers an MA degree in second language studies, an Advanced Graduate Certificate in second language studies, and a PhD degree in second language studies. The MA and PhD degree programs are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming are eligible, upon admission with a GPA of 3.50 or higher, to enroll at Hawai'i resident tuition rates. See the "Tuition, Fees, & Financial Aid" section of this *Catalog* for more information on WICHE programs.

### Master's Degree

The main goal of the Master of Arts degree program is to serve the needs of prospective and practicing teachers, administrators, and researchers in the area of second and foreign language studies. Attention is given to the areas of second and foreign language acquisition, applied psycholinguistics, second language use, second language research, bilingual education, curriculum development, and teacher education, among others.

The program emphasizes theory as well as practice. In addition to the courses dealing with approaches to language teaching, materials, and testing, core courses are concerned with the linguistic, psychological, and sociological aspects of language and language learning. The core courses, which are primarily theoretical, are designed to provide an essential foundation on which the more practically oriented courses can build.

The MA in SLS does not result in teaching certification. Contact the College of Education for information regarding State of Hawai'i teacher certification.

Entry into the MA program is possible in both the fall and spring semesters. The GRE is required for all MA in SLS applicants whose first language is English or who are exempt from taking the TOEFL or IELTS. Most applicants whose first language is not English are required to take the TOEFL or the IELTS.

Application materials are required for both the UH Mānoa Office of Graduate Education and for the Department of Second Language Studies. For details about how to apply, see: [www.hawaii.edu/sls/sls/admissions/ma/](http://www.hawaii.edu/sls/sls/admissions/ma/).

### Requirements

All students in the MA program, whether Plan A, Plan B, or Plan C, are expected to have undergone second or foreign language learning (two years of college study or equivalent). Students who have not had such experience before entering the program are required to take at least a semester of language study, which does not count toward the 36-credit MA.

### Plan A (Thesis) Requirements

- Four core courses (12 credits): SLS 441, 600, 650, 660
- One core seminar (3 credits): SLS 730, 750, 760, or 775
- Five electives approved by the advisor (15 credits)
- SLS 700 thesis research (6 credits)

### Plan B (Non-thesis) Requirements

- Four core courses (12 credits): SLS 441, 600, 650, 660
- One core seminar (3 credits): SLS 730, 750, 760, or 775
- Seven electives approved by the advisor (21 credits)
- Submission of an acceptable scholarly paper

### Plan C Requirements

Plan C is an individually planned program for established language scholars who wish to pursue an additional degree. For admission requirements, contact the Graduate Chair.

### Specialization

As an option, the 36-credit MA program allows students to concentrate in a particular area of specialization. Each specialization requires a distinct selection of four courses from among various electives, as well as a related core seminar. Five areas of specialization are available:

- Critical second language studies
- Language assessment, measurement, and program evaluation
- Language and social interaction
- Language teaching ("English" can be designated)
- Second language acquisition

For further information about these specializations and the MA program, see: [www.hawaii.edu/sls/sls/programs/masters/](http://www.hawaii.edu/sls/sls/programs/masters/).

### Advanced Graduate Certificate

The Advanced Graduate Certificate program in second language studies provides advanced training to those who already have a graduate degree (master's or doctorate) in applied linguistics, foreign languages, ESL, or related fields. The program is specifically aimed at those who wish to re-specialize or to update their training to include recent developments in the field. Applicants must have completed an MA or PhD degree in an appropriate field, or they must be a continuing student in an MA or PhD program in an appropriate field at UH Mānoa before entering the certificate program. Graduate students

enrolled in other programs at UH Mānoa are permitted to apply for the certificate while they concurrently complete another graduate degree. For specific information and guidelines on the AGC application process, see: [www.hawaii.edu/sls/sls/admissions/agc/](http://www.hawaii.edu/sls/sls/admissions/agc/).

The course of study typically lasts about two semesters and includes 15 credits (five courses) and a research paper (scholarly paper) to be produced during the program. Transfer credits are not applicable toward graduate certificate requirements. However, up to six UH Mānoa PBU credits may be applied. Students who complete the graduate certificate in SLS will obtain knowledge and skills in second language studies with possibilities including second language analysis, learning, pedagogy, and use, in utilization of research findings, and application of research methods.

As a culminating activity in the program, students are required to submit a paper that demonstrates the student's ability to conduct independent, high-quality scholarly research. This paper must be new research (i.e., different from prior MA-level work) conducted under the supervision of the program's faculty.

### Doctoral Degree

The PhD program in second language studies at UH Mānoa was established in 1988. The graduate faculty of the PhD program comprises all members of the SLS faculty, as well as faculty members of the Departments of Anthropology, East Asian Languages and Literatures, and Linguistics.

The courses in the program are organized into four areas of specialization:

1. Second language analysis—Structural analysis of learners' language development; comparison of native and nonnative languages; second language varieties; differences arising from social and geographical contexts; phonological, grammatical, and discursive properties; typological factors; putative universals.
2. Second language learning—Studies of the biological, psychological, social, and cultural factors in the language learning process; the role of universals; interlanguage; processes of comprehension and production.
3. Second language use—Studies of social functions of second and foreign languages; pidgins, creoles, and dialect variation; roles of social and geographical contexts; pragmatics; discourse analysis; cross-cultural and interethnic communication; sociopolitical factors; language policy and planning.
4. Second language pedagogy—Research into learners' language needs (including immigrant needs); formulation of needs-based curriculum objectives and syllabi; task-based and content-based language teaching; computer-aided instruction; program administration; evaluation and language assessment; critical pedagogy.

The basic requirement for admission into the PhD program is the completion of an MA in second language studies, applied linguistics, or second or foreign language education. Applicants with graduate degrees in related disciplines such as anthropology, education, modern languages, linguistics, and psychology are also welcome.

Entry into the PhD program is possible in both the fall and spring semesters. The GRE is required for all PhD program applicants. Most applicants whose first language is not English are required to take the TOEFL or the IELTS. Additionally,

those required to take the TOEFL or IELTS have the following minimum scores to work as a teaching graduate assistant (GA): 600 TOEFL PBT; 250 TOEFL CBT; 100 TOEFL iBT, with subtest scores 25 listening and 25 speaking; 7.0 IELTS.

Prospective PhD students are automatically considered for a graduate assistantship at the time of application. Each year, four years of guaranteed funding are offered to the four most qualified applicants to the PhD in SLS program, pending availability of funds.

Application materials are required for both the UH Mānoa Office of Graduate Education and for the Department of Second Language Studies. For details about how to apply, go to: [www.hawaii.edu/sls/sls/admissions/phd/](http://www.hawaii.edu/sls/sls/admissions/phd/).

### Requirements

Students work closely with their advisors and doctoral committees in defining their individualized programs. In order to establish a common core of expertise among students, specific courses are designated according to the background of each student. The basic preparation expected as part of PhD students' MA training is at least one graduate-level course in each of the four areas of specialization. Beyond basic preparation, each doctoral student's program must include a minimum of two graduate-level courses in three of the four areas of specialization and a minimum of two graduate-level courses in research methods. At least two seminars (700-level) are required.

Doctoral candidates must pass a comprehensive examination before the dissertation, and a final oral examination defending the dissertation.

Students must also document and reflect on substantial, diverse learning experiences in two languages other than their first language. This requirement is fulfilled by submitting a 3- to 5-page reflective essay during the first two years of study and before advancement to candidacy. Examples of substantial and diverse language learning experience include the following:

- Attaining L2 competence for functioning successfully in an L2 academic context
- Completing a primary, secondary, or higher education degree in a language other than the first language
- Growing up with two or more languages
- Teaching a language (or in a language) other than the first language
- Engaging in research that involves the analysis of data in another language

For further information about the PhD program, see: [www.hawaii.edu/sls/sls/programs/doctorate/](http://www.hawaii.edu/sls/sls/programs/doctorate/).

### English Language Institute

College of Languages, Linguistics and Literature  
Moore 570  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-8479  
Fax: (808) 956-2802  
Email: [uhmeli@hawaii.edu](mailto:uhmeli@hawaii.edu)  
Web: [www.hawaii.edu/eli](http://www.hawaii.edu/eli)

The English Language Institute (ELI) is located in the Department of Second Language Studies. The ELI's primary purpose is to provide English instruction for international and immigrant students or others, whose native language is not English, to facilitate their academic studies at UH Mānoa. The

ELI program is only for students who have been admitted to UH Mānoa.

All potential ELI students admitted to UH Mānoa are referred to ELI to determine if they must take the ELI placement test before registering for UH Mānoa courses. If a student does not fulfill this obligation, ELI will place a hold on the student's registration. The ELI placement test is generally offered two or three times at the beginning of each semester. Information about the testing dates and times can be found on the ELI website or the UH Mānoa registration homepage. Students can sign up for ELI placement tests online or in person at Moore 570 prior to the testing date.

### **ELI Exemptions**

Students are exempt from taking the ELI placement test if they meet any of the following conditions: (a) the student is a native speaker of English; (b) the student has received a score of 100 or better on the internet-based TOEFL, a score of 250 or better on the computer-based TOEFL, or a score of 600 or better on the paper-based TOEFL; (c) the student has received a score of 7.0 or better on the IELTS; (d) the student has received a score of 460 or better on the verbal section of the GRE; (e) the student has received a score of 540 or better on the verbal section of the SAT if taken before March 2005, or a score of 540 or better on the critical reading section if taken in March 2005 or thereafter; (f) the student has received a combined score of 48 on the reading and English sections of the ACT and neither subscore (reading or English sections) is lower than 21; (g) graduate students who have received within the last five years a bachelor's degree or an advanced degree from an accredited/recognized college in the U.S., United Kingdom, Canada (except Quebec), New Zealand, Singapore, Australia, or Ireland; (h) the student has an Associate of Arts degree from a community college within the UH System; (i) the student has obtained the equivalent of 60 transferable semester credits with a GPA of 2.0 or better, all earned in classroom settings at regionally accredited colleges or universities in the U.S., or from colleges or universities whose academic standing is recognized by UH Mānoa and where English is the primary language of instruction; or (j) the student has completed six years of full-time schooling with English as the medium of instruction at a middle school, high school, college, or university in Australia, Canada (except Quebec), Ireland, New Zealand, the United Kingdom, or the U.S. Documentation of all six years is required.

These exemption criteria apply at the time students are admitted to UH Mānoa. An exemption on the basis of one of these criteria may be automatically granted by UH Mānoa, or it may be granted by the ELI office if the student can provide the appropriate documentation, including official transcripts or test results.

### **Assignment to ELI Courses**

All other potential ELI students who have been admitted to UH Mānoa must take the ELI placement test before they can register for courses. Placement into ELI courses or exemption from ELI courses will be based on the test results. Students pursuing online degrees should contact the ELI director for further information. All ELI courses must be completed within the first year of study at UH Mānoa. Students who do not complete ELI course work as planned may not be allowed to graduate.

### **Relationship to Other Course Work**

ELI courses are equivalent to 3-credit courses when considering a student's course load. Students placed into ELI courses need to reduce the number of additional credit courses they can take and should expect to make slower progress in their regular UH Mānoa studies. This is an especially important factor in some graduate programs and should be considered carefully by students whose time or financial support is limited.

### **Hawai'i English Language Program**

College of Languages, Linguistics and Literature  
Makai Campus 13-1

1395 Lower Campus Road

Honolulu, HI 96822

Tel: (808) 956-6636

Fax: (808) 956-5100

Email: [eslhelp@hawaii.edu](mailto:eslhelp@hawaii.edu)

Web: [manoa.hawaii.edu/eslhelp/wordpress/](http://manoa.hawaii.edu/eslhelp/wordpress/)

The Hawai'i English Language Program (HELP), located in the Department of SLS, is a noncredit, intensive academic English skills program for students who wish to improve their English language proficiency for academic, business, or professional pursuits. HELP is the pathway into the UH system for students who need to sharpen their academic English skills before starting courses at UH Mānoa or in another American college or university. HELP students may receive conditional admission to UH Mānoa without a TOEFL score by completing two terms at the highest level of HELP, after which they may take the ELI placement exam to see if further English preparation is needed. HELP's four-level curriculum accepts students of all levels—from those with no English background to very advanced academic English, and every level in-between. Because of HELP's more than four decades of experience in delivering the best ESL instruction, every student can achieve success at HELP.

HELP is also a teacher training center and offers customized teacher training workshops as well as the globally recognized Certificate in English Language Teaching to Adults (CELTA) program.

Admission to HELP is open to individuals 17 or older who have completed high school or its equivalent. There are four 8-week sessions each year beginning in January, March, August, and October. HELP also offers 6-week summer programs in May and July.

See [manoa.hawaii.edu/eslhelp/wordpress/](http://manoa.hawaii.edu/eslhelp/wordpress/) for more information.

## Sociology

College of Social Sciences  
Saunders Hall 247  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-7693  
Fax: (808) 956-3707  
Email: socdept@hawaii.edu  
Web: www.sociology.hawaii.edu

### Faculty

- \*V. K. Kanuha, PhD (Chair)—multicultural issues, gender violence, native Hawaiian health, HIV
- \*P. G. Steinhoff, PhD (Graduate Chair)—collective behavior/social movements, comparative sociology (Japan), political sociology
- \*S. K. Chai, PhD—social theory, economic development, comparative sociology (Asia)
- \*K. Irwin, PhD—criminology, deviance and social control, qualitative methodology
- \*D. T. Johnson, PhD—criminal justice, comparative sociology (Japan), law and society
- \*H. Koo, PhD—comparative sociology (Korea), social stratification, development
- \*Y. J. Lee, PhD—quantitative methodology, demography, gender stratification, aging and health
- \*K. Mossakowski, PhD—medical sociology, stress and mental health, life course and aging, social psychology, social epidemiology, race/ethnicity
- \*S. Nakajima, PhD—economic sociology, organizations, culture, sociology of film and media, Chinese society
- \*N. Sharma, PhD—race/ethnic/minority relations, theory/migration and immigration
- \*L. Uperesa, PhD—race and race relations, global anthropology, sociology and ethnic studies
- \*D. W. Wood, PhD—medical sociology, evaluation research, quantitative methodology, substance abuse prevention and treatment
- \*S. Wurtzburg, PhD—gender, ethnicity, violence, addictions, Pacific Islands
- \*W. Zhang, PhD—medical sociology, social epidemiology, research methods

### Cooperating Graduate Faculty

- M. Brown—UH Hilo criminology, gender and women's issues
- M. Chesney-Lind, PhD—criminology, gender and women's issues
- J. Chinen, PhD—women and work, race, class and gender, race and ethnic relations
- A. Kimura, PhD—women's studies

### Affiliate Graduate Faculty

- S. Kanaiaupuni, PhD—demography, education, Native Hawaiians
- A. B. Robillard, PhD—ethnomethodology, medical sociology, comparative disability (Pacific Islands)

### Adjunct Faculty

- P. Adler, PhD—conflict management, community studies
- J. Dannenberg, JD—law and society
- J. Manis, PhD—social psychology, social problems

**Degrees Offered:** BA (including minor) in sociology; MA in sociology; PhD in sociology

## The Academic Program

Sociology (SOC) is the study of how society organizes itself and how various groups interact with each other and the consequences of these processes. Sociology's subject matter includes marriage and family patterns, race and ethnic relations, demography, social change, class structure, formal organizations including bureaucracies, value systems, conflict, deviant behavior, medical sociology and aging, criminology, and the people and institutions of other societies.

Sociology uses a range of research techniques for studying social phenomena that can be applied to many areas, whether one is interested in the incidence of crime, client satisfaction, policy evaluations, or demographic trends. In addition to preparing people as professional sociologists in academic settings, sociology is an excellent background for careers in law, social work, public health, urban planning, public administration, and other fields. The graduate program provides students with a foundation in basic theory and methods of research. In addition, faculty and advanced graduate students are involved in several broad areas of sociological interest: the comparative sociology of Asia; the study of crime, law, deviance, and human services in the U.S.; aging and medical sociology; and race and ethnic relations.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete a prerequisite introductory sociology course and 30 credit hours of upper division courses, including:

- three 400-level courses
- SOC 300 and 321
- one course from SOC 475, 476, 478, or SOCS 225 (**Note:** SOCS 225 is a lower division course and cannot be counted toward required upper division credit hours)

Consult the department for graduate and career opportunities.

For further information on the Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

#### Requirements

Students must complete a prerequisite introductory-level sociology course and 15 credit hours, including:

- SOC 300
- One 400-level course
- Three other upper division sociology courses
- SOC 100 or any 200-level course is a prerequisite for all 300-level courses; SOC 300 is a prerequisite for all 400-level courses
- To fulfill major or minor requirements, courses must be passed with a grade of C (not C-) or better

### Undergraduate Certificates

For information about applying for the following certificate program and a list of the available courses, please see the undergraduate advisor in sociology.

## Graduate Study

Two programs of graduate study in sociology are offered: a PhD program, intended to provide a professional basis for research and university teaching, and an MA program, designed to offer a general sociology curriculum and specialized areas of study relevant to career lines other than university scholarship. The following are brief descriptions and do not list all aspects of procedures and requirements; the department provides a complete statement of its graduate degree program on its website at [www.sociology.hawaii.edu](http://www.sociology.hawaii.edu). All requirements specified by the Graduate Division and general university regulations also apply.

Applicants for graduate study in the department must specify whether they wish to enter the MA or PhD program. University transcripts, a Statement of Objectives, letters of recommendation, and GRE General Test scores are required of all applicants. The TOEFL or IELTS test is required for applicants who are not native speakers of English. A sample of written work is also required of applicants to the PhD program and recommended for applicants to the MA program. An undergraduate major in sociology is not required for admission, but makeup course work may be required in some cases. Applications will be accepted for either fall term or spring term admission. The application deadline for admission are **January 15** (international students) and **February 1** (domestic students) for the fall semester and **August 1** (international) and **September 1** (domestic) for the spring semester. Please see the department website for more information and links to appropriate graduate division pages.

### Master's Degree

The department offers an MA Plan A (thesis) program.

#### Plan A (Thesis) Requirements

The MA curriculum in sociology (Plan A) should prepare the student for positions involving expertise in social research. In addition, preparatory training is provided to those who are thinking of aspiring to a doctoral degree, but feel they need more preparation. However, an MA candidate cannot assume that satisfactory completion of this curriculum will lead to placement in the department's PhD program.

The Plan A program aims to provide the student with a firm foundation in sociological theory, methods and statistics, as well as their application to the study of various substantive aspects of society.

A minimum of 30 credit hours of sociology-related course work is required for this program, as well as the successful completion of an MA thesis. All candidates are required to take at least one course each in the core areas of sociological theory, research methodology, and social statistics at the 400 level or higher, as well as five substantive courses, of which four must be at the 600 level or higher. In addition, students must take 6 credits of Thesis Research (SOC 700). The thesis is a substantial research project that shows a student's ability to produce original substantive and intellectual work. All courses credited toward the 30 credit hour minimum required for the MA degree must be passed with a grade of B or better.

The first semester's work is planned in consultation with the graduate chair and a temporary advisor appointed by the graduate chair. During the first semester, under the guidance of the temporary advisor, the student prepares a statement outlining a study plan that reflects his or her special interests and meets the credit requirements of the program. By the end of the second

semester, the student should form a thesis committee of three or more faculty members, generally drawn primarily from the department.

The thesis committee assists the student in deciding upon a thesis topic. The student then writes a thesis proposal, which must be approved by the committee. Under the supervision of the committee, the student carries out the proposed research and writes the MA thesis. When the committee feels the student is ready, the student submits the final draft of the thesis, and the committee conducts a final oral examination. Both the oral examination and the written paper must meet the committee's approval for an MA to be awarded.

#### Plan B (Non-thesis) Requirements

A Plan B (non-thesis) MA is also offered only in special circumstances. Students are only admitted to the Plan A MA program.

### Doctoral Degree

This is an academically-oriented program. It is designed to provide the student with a firm foundation in sociological theory, methods, and research so the student is prepared to engage in professional research and university teaching.

The PhD program is designed to give the student systematic exposure to sociological theories, methods, and statistics, as well their application to a number of substantive areas of society. It also provides the opportunity to develop special, high-level competence within an area of research, and the training to publish and present this research in professional settings.

The first phase of the PhD program provides basic training in theory, methods, and research. The course requirement in this phase is to complete five required courses in theory, methods, and statistics, as well as 15 additional course credits consisting of substantive courses and up to three credits of SOC 699. All courses that count towards PhD requirements must be at the 600 level or higher and passed with a grade of B or above. The minimum total number of course credits necessary for graduation is 33, but most PhD students take more than the minimum in order to gain adequate knowledge. Completing non-course requirements (QR, comprehensive, dissertation) generally takes more time than course requirements. Please consult the department website for more specifics regarding each of the stages in the PhD degree.

By the third semester, the student should form a guidance committee consisting of at least three faculty members, typically drawn primarily from within the department. By approximately the fourth semester, the student submits two of their best course papers for their qualifying review. The papers are judged by a specially constituted qualifying review panel. The qualifying review must be passed before proceeding onto Phase II of the PhD program.

The second phase provides advanced training in areas of concentration and dissertation research. The course requirement in this phase is to take three additional credits of substantive courses at the 600 level or above. In addition, the student is required to take a written and oral comprehensive examination on two selected areas of concentration, write a dissertation proposal, perform the approved dissertation research, finish writing and orally defend a dissertation.

Early in the second phase, the student must organize a dissertation committee consisting of at least five members of graduate faculty, including the official university representative from the

Graduate Division's list of eligible university representatives for sociology, in accordance with the Graduate Division policies.

Preferably by the fifth semester, all PhD students must take a comprehensive examination from the dissertation committee. The written examination covers two broadly defined research areas, as determined by the student and the dissertation committee. The student develops a bibliography for each area, and the dissertation committee makes up questions from each. After the student has taken the written examination, the dissertation committee evaluates the results and proceeds to hold a closed oral examination to determine whether or not the student is prepared to undertake dissertation research.

Following successful completion of the comprehensive examination, the student prepares a dissertation proposal. This proposal describes the theoretical basis and the research strategy to be employed in the study of the dissertation problem. When it has been successfully defended before the doctoral committee, the student proceeds to the research and writing phase of the dissertation. The dissertation should represent a major original scholarly contribution to the field of sociology suitable for publication in the form of a monograph book. A PhD is given only after completion of the dissertation text and oral defense to the satisfaction of the dissertation committee.

## Theatre and Dance

College of Arts and Humanities  
Kennedy Theatre 115  
1770 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-7677  
Fax: (808) 956-4234  
Web: [www.hawaii.edu/theatre](http://www.hawaii.edu/theatre)

### Faculty

- \*P. Mitri, MFA (Chair, Director of Theatre)—acting, voice, movement
- \*G. Lizenbery, BFA (Associate Chair, Director of Dance)—modern dance, kinesiology, movement analysis
- \*P. Gaither Adams, MFA—modern dance, choreography
- \*T. H. Baker, MFA—Hawaiian theatre, playwriting
- \*I. Belton, MPhil—directing
- \*M. Branner, MFA—theatre for young audiences
- \*J. Dodd, MFA—scene design
- \*E. Fisher, DAD—modern techniques, dance history, choreography
- \*J. Iezzi, PhD—Asian theatre
- \*K. Miller, MFA—dance ethnography, visual media for dance, research
- \*L. O'Malley, PhD—theatre history, dramatic literature
- \*K. Pauka, PhD—Asian theatre
- \*A. Schiffner, MFA—creative dance and drama, pedagogy; dance/theatre teaching internships, research, theory
- \*B. Shevelenko, MFA—lighting, sound, special effects, projections
- \*C. Vasek, MFA—costume design
- \*M. Wessendorf, PhD—dramatic literature, theory
- \*E. Wichmann-Walczak, PhD—Asian theatre

### Affiliate Graduate Faculty

M. Cristofori, MA, MBA—theory and dance history  
H. Glass, MA—improvisation, choreography  
P. Leong, MA—Asian theatre, movement  
M. Wong, MA—modern dance, choreography

**Degrees Offered:** BA (including minor) in dance, BA (including minor) in theatre, BFA in dance, MA in dance, MA in theatre, MFA in dance, MFA in theatre, PhD in theatre

### The Academic Program

The Department of Theatre (THEA) and Dance (DNCE) is comprised of two separate but related disciplines.

Theatre includes the study of dramatic literature and theory; acting and directing; stage, costume, and lighting design; stagecraft; playwriting; Asian theatre, Hawaiian theatre, and TYA (Theatre for Young Audiences). Imaginative and creative individuals interested in the disciplined, practical application of classroom theory are suitable candidates as theatre majors. Teaching and professional stage, film, and television work are typical professions of theatre majors, but the analytical and practical skills, discipline and self-confidence, creativity, problem solving, and ability to work toward common production goals are applicable to a wide variety of industries and professions. Other fields known to actively recruit employees with a theatre degree include: advertising, animation, architecture, arts administration, business administration, design for public spaces, fashion, graphic design, human-computer interface design (HCI), landscaping, multi-media marketing, non-profit management, public relations, themed entertainment, urban design and planning, and video game design and performance. The theatre major will benefit from a comprehensive curriculum that includes the world's most noted Asian theatre program, a nationally respected TYA program, and our Hawaiian theatre offerings.

Dance is the art of human motion. It encompasses the study of human movement as it relates to the physical sciences, music, theatre performance and production, history, cultural context, education, visual design, and human expression. Dance majors find careers in the areas of performance, choreography, teaching, arts administration, production, history and criticism, and research. UH Mānoa's dance program offers comprehensive theory courses and a wide variety of dance techniques and styles. The program is considered unique with its offerings in dance culture and performance studies and Asian and Pacific dance.

### Affiliations

The department belongs to the Hawai'i State Theatre Council, is an institutional member of the U.S. Institute for Theatre Technology, and participates in the Kennedy Center American College Theatre Festival. The Asian theatre program is affiliated with the Association for Asian Performance.

The dance program is affiliated with the American College Dance Festival Association and the Council of Dance Administrators.

### Advising

After being admitted as majors in the theatre program, undergraduates must consult each semester with the theatre undergraduate advisor. Newly admitted theatre graduate students should consult each semester with the director of graduate studies in theatre for initial advising. After one year of study, a graduate student is expected to select from the graduate faculty a permanent advisor well-versed in the area of the student's concentration.

In dance, undergraduate majors must consult with the dance undergraduate advisor every semester. Graduate students must

consult with the director of graduate studies in dance each semester.

## Undergraduate Study

### BA in Theatre

This degree is designed for students with a broad interest in theatre and allows maximum flexibility to satisfy requirements in the greatest areas of interest. Incoming students may declare a BA major in Theatre on their university application.

Students must complete 42 credit hours, determined in consultation with an advisor and based on the student's interests within theatre while fulfilling the broad-based requirements in the areas of acting, directing, theatre history, Asian theatre, theatre for your audiences, design and technical theatre production:

- THEA 240, 311, 312, 411, and 412
- Two courses in Asian theatre (one in theory/history/literature, one in performance)
- One course each in acting, voice/movement, directing, design, and youth theatre
- 6 credits of theatre workshop
- Recommended additional courses: ART 101, DNCE 150 or 255, and MUS 106 or 107
- Graduation requirements include the submission of a portfolio of student work eight (8) weeks into the student's final semester, an exit interview, and a written assessment of the student's tenure at UH Mānoa.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BA in Dance

This degree is designed for students with a broad interest in dance and allows them maximum flexibility to satisfy requirements in their greatest areas of interest. Incoming students may declare a BA major in Dance on their university application.

Students must complete 40 credit hours: 29 credits of required courses and 11 of elective courses. BA majors are required to register for and attend a technique course each semester. Elective credit hours are determined in consultation with an advisor and based on the student's desired focus within dance, such as teaching, choreography, dance culture and performance studies, or technical theatre production.

#### Course Requirements

- DNCE 151, 255, 260, 360 or 361, 370 or 490, 452, or 453
- THEA 200C, 200D, or 200E
- 12 credits of dance technique at the 200 level or above, including:
  - 3 credits in ballet
  - 3 credits in modern dance
  - 3 credits from *two different* Asian/Pacific dance forms and at least one of these in Asian dance
- 11 credits of focus electives to be selected from:
  - DNCE 250, 360, 361, 362, 370, 371, 372, 452, 453, 459, 460, 470, 480, 490, 499, 660, 693, MUS 107, THEA 200, Asian and Pacific performance courses, related courses in ethnomusicology, Asian theatre, anthropology, Hawaiian studies, Pacific Island studies, or ethnic studies

### Other Requirements

BA Dance students are required to participate in at least **one** (1) UH dance production per year (eg., student dance concerts, main stage dance concerts, as performers or crew members). BA majors are required to attend the annual end-of-year assessment class. BA majors are required to take at least one technique class per semester.

Graduation requirements include the submission of a portfolio of student work, assessment essay, exit interview, and completion of a survey.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BFA in Dance

This program is designed for students who wish to pursue professional careers as dancers, teachers, and/or choreographers. Admission to the program is by audition held annually, usually in April.

Incoming students may declare a BA major in Dance on their university application, then audition for the BFA degree during spring semester of their first year at UH Mānoa, if interested in the BFA degree program.

#### Course Requirements

Students must complete 62 credit hours, including:

- DNCE 151, 250, 360, 361, 362, 370, 371, 372, 452, 453, 495
- 1 credit hour of DNCE 495
- 6 credit hours of DNCE 321
- 6 credit hours of DNCE 331
- 3 credit hours of DNCE 470 or 480
- 2 credit hours in two different Asian or Pacific dance performance courses and at least one of those in Asian dance
- 6 credit hours of ballet technique at the 300 level or higher (DNCE 321 or 421) or 6 credit hours of modern dance technique at the 300 level or higher (DNCE 331 or 431)
- 6 credit hours of DNCE 421 or 431
- 2 credit hours of THEA 200C, 200D, or 200E

### Other Requirements

BFA Dance students are required to participate in at least **two** (2) UH dance productions per year. At least one must be in a performance capacity. Attendance at the BFA audition is required each year by the BFA major. Prior to the senior project, BFA students must audition choreography for a fall or spring student concert by the sixth semester of the dance major. BFA majors are required to register for a technique course every semester.

Graduation requirements include the submission of a portfolio of student work, assessment essay, exit interview, and completion of a survey.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor in Dance

#### Course Requirements

Students must complete 15 credit hours numbered 200 level and above, including nine credit hours in courses numbered 300 or above. A maximum of 9 credit hours from dance technique courses may be designated for the minor.

## Minor in Theatre

### Requirements

Students must complete 15 credit hours in courses numbered 200 or above, including 9 credit hours in courses numbered 300 or above. Courses must include one from performance, one from technical theatre, and one from history/literature. Participation in two departmental productions is required. Theatre minors should consult with the undergraduate theatre advisor.

### Graduate Study

Most graduates, especially those with PhD degrees, pursue teaching careers, but there are many career opportunities in professional theatres and dance companies, radio, television, films, and community theatres, as well as the wide variety of other fields which actively recruit those with theatre degrees.

The degrees in Asian theatre are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are therefore eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

### Master's Degrees in Theatre

Master's degrees in theatre offered are the MA Plan A (thesis), Plan B (non-thesis), and the MFA Plan B (creative/performance). For the MA Plan A, the candidate does research in theatre history, theory, or dramatic literature; the thesis may be in Asian or Western theatre. For the MA Plan B, a generalist degree, the candidate takes additional advanced course work in lieu of writing a thesis. The MFA Plan B emphasizes creative or performance work in six concentrations: acting, directing, design, and playwriting (each of these four may include Western, Asian, Hawaiian, and TYA), Asian performance, and TYA.

Applicants must present an adequate undergraduate background and submit three letters of recommendation, as well as official scores from the GRE General Test. The department expects that all incoming graduate students will have taken at least two courses in dramatic literature and one course in each of the following four areas: acting, directing, design or technical theatre, and theatre history. If such courses have not been taken, they will be made up as undergraduate deficiencies while in residence for the master's program and will not count toward the credit accumulation for the master's degree. The TOEFL minimum score for foreign students is 90 (100 for Graduate Assistantship applicants). Applicants for the MA Plan A degree are also expected to submit a major paper; those seeking the MFA degree should present appropriate supplementary materials such as portfolios, video of acting audition material or material directed, or play scripts.

Application deadline for the fall semester is **January 15**. Spring semester application deadline is **August 15**. Upon the successful completion of 12 graduate credit hours within the department, the elimination of any undergraduate deficiencies, and (for MFA students) the presentation of an acceptable qualifying creative project, the student may be admitted to candidacy.

Students pursuing an MA in theatre develop, with an advisor, a program appropriate for their interests (minimum of 39 credit hours). The program must include 3 credit hours in each of the following areas: research methods (THEA 600); Asian theatre theory/history; Western theatre theory/history;

and graduate theatre workshop (THEA 690), in which students receive 1 or 2 credit hours (depending upon extent of involvement) for working on a single Kennedy Theatre production. MA (Thesis) students take an additional 6 credit hours in theatre history or theory; 3 credit hours in a creative area. MA (Non-Thesis) students take 3 credit hours each of TYA, creative drama, creative movement, or Western puppetry; Asian or Western acting or directing; design/technical theatre. A minimum of 18 credit hours must be in courses numbered 600 to 798; a minimum of 6 credit hours must be in Asian theatre (excluding 690); credit for 699 may not exceed 9 credit hours. In addition, MA (Thesis) students must complete 6 credit hours of THEA 700 Thesis Research. For both MA degrees, students will take a four-hour written comprehensive examination followed by an oral examination. MA (Thesis) students will have an additional oral comprehensive on the written thesis.

MFA students in all concentrations will take a minimum of 60 credit hours comprised of 12 credit hours of foundation courses (3 credits in research and 9 in history and/or theory); 39 credit hours of concentration courses, including enrollment in THEA 690 Graduate Theatre Workshop, in which students receive 1 or 2 credit hours (depending upon extent of involvement) for working on a single Kennedy Theatre production, and a culminating project for which the student will enroll in 6 credit hours of THEA 695 Creative Project; and 9 credit hours of electives. Of the total 60 credit hours, 30 must be at the 600 level or above. There is no written comprehensive examination for the MFA degree. However, the culminating project will include a written component that goes beyond the descriptive record of the project; the thesis committee, in conjunction with the candidate, will decide the nature, extent, and scope of the written component in each case. Additionally, each student will be given an oral examination on the culminating project.

To receive a list of specific recommended courses for meeting MA and MFA requirements, contact the departmental director of graduate studies. Students will select their elective courses (MA Plan A, 12 credits; MA Plan B, 18 credits; or MFA Plan B, 9 credits) in consultation with their advisors to reflect their special interests. Students with sufficient undergraduate preparation may take approved related graduate courses in other departments for credit toward their degree.

In consultation with an advisor, each MFA student develops a program appropriate for his or her interests within the specific requirements of one of the following concentrations:

#### Acting

For the concentration in acting, students must complete 3 credits in research; 9 credits in history and/or theory (minimum 3 credits in Asian and 3 credits in Western); 6 credits in voice; 6 credits in movement and/or dance; 12 credits in acting (minimum 3 credits in Asian and 3 credits in Western); 3 credits in additional creative/performance courses in above areas or in directing, design/technical theatre, or playwriting; 6 credits of THEA 690 Graduate Theatre Workshop (a minimum of 4 credits in acting and 1 credit in technical theatre; 1 credit may be in design, directing, playwriting, etc., and 6 credits of THEA 695 Creative Project.

#### Design

For the concentration in design, students must complete 3 credits in research; 9 credits in history and/or theory, Asian and/or Western (minimum one 3 credit seminar); minimum 6

credits in intermediate design (400 level or above) and minimum 3 credits in advanced design (600 level), excluding other requirements below; 6 credits of THEA 657 Seminar in Design; 6 credits in creative/performance courses (400 level or above) (may include acting, directing, dance, playwriting, puppetry, or others as approved); 9 credits of THEA 690 Graduate Theatre Workshop (as approved by graduate committee chair); minimum 3 credits in Asian theatre (excluding THEA 690); 6 credits of THEA 695 Creative Project (including qualifying and final projects); and minimum 3 credits THEA 699 Directed Research.

### Directing

For the concentration in directing, students must complete 3 credits in research; 9 credits in history and/or theory (minimum 3 credits in Asian and 3 credits in Western, 3 credits of which must be in theory); 3 credits in script analysis; 12 credits in graduate-level directing (minimum 3 credits in Asian and 3 credits in Western); 6 credits in design/technical theatre (in two areas—theatre design, costume, lighting, or set); 6 credits in creative/performance courses (in at least two areas—acting, choreography, dance, movement, music, playwriting, puppetry, or voice); 6 credits of THEA 690 Graduate Theatre Workshop (minimum 4 credits in directing including assistant directing and dramaturgy; 2 credits may include acting, design, playwriting, stage managing, etc.; minimum 2 credits in faculty-directed and 2 credits in student-directed shows); and 6 credits of THEA 695 Creative Project.

### Playwriting

For the concentration in playwriting, students must complete 3 credits in research; 9 credits in history and/or theory (including 3 credits in Asian and 3 credits in Western, both at 600 level or above); 9 credits in playwriting (excluding THEA 318); 3 credits in script analysis; 3 credits in contemporary dramatic literature or theatre history; 6 credits in design/technical theatre (including 3 credits in lighting design); 3 credits in acting or directing (Asian or Western); 3 credits in movement, dance, or music (Asian or Western); 3 credits in puppetry or youth theatre; 3 credits of THEA 690 Graduate Theatre Workshop in dramaturgy; electives may include an additional 3 credits of THEA 690 (in acting, design, directing, playwriting, stage managing, etc.); and 6 credits of THEA 695 Creative Project.

### Asian Performance

For the concentration in Asian performance, students must complete 3 credits in research; 9 credits in Asian theatre history/theory; 9 credits in Asian acting; 6 credits in Asian/multicultural directing; 3 credits in Asian/Pacific music and dance (minimum 1 credit in music and 1 credit in dance); 3 credits in design/technical theatre or playwriting; 6 credits of additional creative/performance courses in above areas or courses at the graduate level in Western acting or directing; 6 credits of THEA 690 Graduate Theatre Workshop (minimum 4 credits in Asian performance—acting, directing, or puppetry; 2 credits may include other courses in acting, design, directing, playwriting, stage managing, etc.; minimum 2 credits in faculty-directed and 2 credits in student-directed shows); and 6 credits of THEA 695 Creative Project.

### Theatre for Young Audiences (TYA)

For the concentration in TYA, students must complete 3 credits in research; 9 credits in Asian and/or Western history

and/or theory; 3 credits in child/adolescent development; 3 credits in creative drama/dance; 3 credits in theatre for young audiences; 3 credits in a teaching seminar; and 3 credits in a TYA seminar. Areas of specialty in the TYA concentration include acting, curriculum, design, directing, playwriting, and puppetry. Candidates must take 9 credits in any one of these areas along with minimum of 4 credits of Graduate Theatre Workshop (THEA 690) and 6 credits of Creative Project (THEA 695). An additional 12 credit hours of electives are available, although a minimum of 3 credits in Asian theatre (excluding THEA 690) are required.

### Master's Degrees in Dance

The department's graduate offerings in dance include the MA Plan A, MA Plan B, and the MFA. For admission to the master's in dance program the GRE is not required; for foreign students the minimum TOEFL score is 600. The MA Plan A requires a written thesis. The MA Plan B requires a capstone project. The MFA requires a creative performance and choreography thesis with accompanying written documentation and video. Intended dance candidates for all degrees must present an adequate undergraduate background in dance or a related field and submit three letters of recommendation. MFA candidates in dance must also submit a DVD sample of their choreography and performance. MA and MFA candidates must submit a sample of written work, such as a major paper. The application deadline for the fall semester is **February 1** (January 15 for foreign applicants). Spring semester application deadline is **September 1** (August 1 for foreign applicants). All materials should be sent directly to the Graduate Division.

Upon the successful completion of 12 graduate credit hours within the department, the elimination of any undergraduate deficiencies, and (for MFA students) the presentation of an acceptable example of creative work (the qualifying dance) the student may be admitted to candidacy.

### Dance Culture and Performance

The MA Plan A (dance culture and performance emphasis) requires a minimum of 36 credit hours, including DNCE 651, 652, 653, 654, 655, or 661 and 700 (6 credit hours); 3 credit hours in 400 level Asian or Pacific performance courses; related area electives (6 credit hours); dance electives (3 credit hours); and general electives (3 credit hours). All electives must relate to thesis research. Language courses may be required if necessary for the student's thesis research.

### Dance Education

MA Plan B (dance education emphasis), requires a minimum of 36 credit hours, including DNCE 460 or 490, 651, 652, 691, 693, and 699; 9 credit hours from 321, 331, 421, 431; 3 credit hours in 300 to 400 level Asian or Pacific dance courses; and 6 credit hours of electives (3 credits at the 600 level).

### Performance and Choreography

The MFA emphasizes performance and choreography. The MFA Plan A requires a minimum of 60 credit hours, including DNCE 421 or 431 (18 credit hours); DNCE 651, 652, 660, 661, 671, and 672 (4 credit hours); DNCE 679 (2 credit hours), 691, and 700 (6 credit hours); 2 credit hours in two different Asian or Pacific dance forms; 3 credit hours in 600 level dance electives; 6 credit hours in non-dance electives; and 1 credit hour in a general elective. MFA candidates must participate in two dance productions a year and register to at-

tend a technique course each semester. It is expected that MFA candidates present choreography every semester. Qualifying choreography on a student concert is required prior to proposing the thesis.

MFA Plan A and MA Plan B require written comprehensive examinations and an oral defense of the examination. MA Plan A and MFA Plan A require an oral defense of the thesis.

### Doctoral Degree

The Doctor of Philosophy degree given for scholarship in theatre history, theory, or criticism, not creative or artistic work, is offered in three areas: (a) Western theatre, (b) Asian theatre, and (c) comparative Asian-Western theatre. The PhD degree is not conferred for the acquisition of academic credits. It is granted only to candidates who demonstrate outstanding ability to do imaginative research and who present the results in a cogent dissertation.

A candidate for the degree is required to successfully complete three semesters of full-time residence, required courses (detailed below), other courses as deemed necessary by the student's doctoral committee, examination in the research language(s) used in the student's dissertation research, a written and oral comprehensive examination, and an oral defense of the student's dissertation. The minimum residence requirement is three semesters of full-time work or the equivalent in credits at UH Mānoa. At the end of the second semester in residence, the graduate faculty will provide the candidate with an assessment of his or her progress to date.

Required courses in the Western area are THEA 600, plus three other 600 to 700 level courses from a departmental list of approved courses; required courses in the Asian area are THEA 464, 465, and 466, as well as THEA 660 if the candidate's dissertation requires field research. The curriculum of the comparative Asian-Western theatre area is determined by the student's doctoral committee. A high level of accomplishment in the foreign language or languages appropriate to the proposed area of research is required and will be determined by examination.

Proficiency in teaching, whether lecturing before large classes or teaching smaller classes and leading discussions, is considered part of the training of all PhD candidates, who should demonstrate this proficiency by giving several such lectures or by serving as teaching assistants.

Written comprehensive examinations and two hours of oral comprehensive examinations are required of all candidates before admission to candidacy. These are given after a student has completed the language requirement and before embarking on the dissertation. Written comprehensive exams shall consist of nine questions, one or more of which will specifically address the candidate's major area of research and one or more of which may be of a special nature at the discretion of the candidate's committee. The comprehensive includes questions on both Asian and Western drama and theatre; further guidelines are available from the graduate advisor. The questions on the written portion are posed by the theatre and dance graduate faculty and members of the student's committee. The doctoral committee consists of at least five graduate faculty, of whom a majority are from the Department of Theatre and Dance and at least one from another department.

Applicants for admission to the program must submit a detailed statement of the dissertation research they propose, three letters from those acquainted with their academic work, a sample of their research (such as a seminar paper or a master's

thesis), and official GRE General Test scores. The application deadline for admission in the fall semester is **February 1** (January 15 for foreign applicants). Spring semester application deadline is **September 1** (August 1 for foreign applicants). Requirements include a broad background in the humanities, a master's degree in theatre or its equivalent, and competence in dramatic production.

Candidates for the PhD who do not complete all requirements within seven years after admission into the doctoral program may be readmitted to candidacy only on the approval of the department's doctoral faculty and the Graduate Division.

## Urban and Regional Planning

College of Social Sciences

Saunders Hall 107

2424 Maile Way

Honolulu, HI 96822

Tel: (808) 956-7381

Fax: (808) 956-6910

Email: idurp@hawaii.edu

Web: www.durp.hawaii.edu

### Faculty

- \*D. Foley, PhD (Chair)—strategies of citizen participation, collaboration, nonprofit planning and management, community building, and community-based planning
- \*M. Coffman, PhD—environmental economics and planning, energy and climate change policy, resource management, general equilibrium modeling
- \*A. Das, PhD—community participation and empowerment, slum upgrading, decentralization and local governance, role of civil society in development
- \*P. Das, PhD—urban development, basic environmental services and governance in South Asia, design and planning of the built environment
- \*P. Flachsbart, PhD—planning methods and models, environmental planning, energy, land use planning, and urban transportation planning
- \*K. E. Kim, PhD—planning theory, planning methods, infrastructure planning, and alternative tourism planning
- \*R. Kwok, PhD—urbanization in China, East Asian development, spatial planning and urban design, development and regional economics
- \*L. Minerbi, Dott Arch, MUP—comparative urbanism, settlement planning, environmental planning, urban design, community development, planning with indigenous people, and Pacific Island planning
- \*D. Spirandelli, MLA—patterns of urban development, interface between terrestrial and marine ecosystems; community planning for integrated water management and coastal ecosystem services
- \*K. Umamoto, PhD—community planning, planning theory, social theory, social policy, community economic development, and race in ethnic relations

### Cooperating Graduate Faculty

- D. L. Callies, JD—land use management and control, intergovernmental relations
- L. Cox, PhD—agricultural and resource economics
- B. Hallet, PhD—congressional war powers, humanitarian intervention, terrorism

- A. Kaufman, PhD—fundamentals of landscape design and planting design
- M. McDonald, PhD—agricultural change, social theory, political geography, Japan
- L. H. Nitz, PhD—public policy and political economics
- D. Nixon, PhD—bureaucratic politics, statistical methodology, public policy
- C. Papacostas, PhD—transportation engineering and design
- K. Suryanata, PhD—political ecology, agriculture, rural development in Asia, environment and development, community-based resource management
- B. Szuster, PhD—coastal land conservation, impact of human development activities
- W. Wood, PhD—international public health planning
- S. Yamada, PhD—disaster management and humanitarian assistance
- W. H. R. Yeh, MArch—architectural and urban design

### Affiliate Graduate Faculty

- J. Fox, PhD—land use, forest resources and management, geographical information systems and spatial information technology, South and Southeast Asia
- G. Marten, PhD—population dynamics, ecosystem ecology, animal behavior, statistics, mathematical modeling, population genetics, human ecology, environmental management
- S. Saksena, PhD—human exposure assessment to air pollution, health impacts of energy use, air quality policy, public perceptions of environmental risks

**Degree and Certificates Offered:** MURP, PhD, Certificate in Planning Studies, Professional Certificate in Urban and Regional Planning and the Certificate in Planning Studies, Graduate Certificate in Disaster Management and Humanitarian Assistance

### The Academic Program

Urban and regional planning (PLAN) is a dynamic field, that is still evolving. It emerged out of the convergence of two concerns: (1) the provision of urban infrastructure and (2) the initiation of social reform. While the underlying focus on community well-being continues, urban and regional planning today has broadened to include the development, implementation, and evaluation of a wide range of policies. Specifically, urban and regional planners, in both developing and developed countries, are concerned with the following:

1. The use of land in the city, in the suburbs, and in rural areas, particularly with the transition from one use to another;
2. The adverse impacts of human activities on the environment and the possible mitigation of those impacts;
3. The design of the city and the surrounding region so as to facilitate activities in which people need and want to engage;
4. The organization of settlement systems and the location of human activities in urban and regional space;
5. Identification of social needs and the design and provision of services and facilities to meet those needs;
6. The distribution of resources and of benefits and costs among people;
7. The anticipation of change and its impact on how people do and can live;
8. Participation of citizens in planning processes that affect their future; and
9. The way that choices are made, decisions implemented, and actions evaluated, and the means by which those processes can be improved in urban and regional areas.

The Department of Urban and Regional Planning takes a multidisciplinary approach to planning education, recognizing in particular the important contributions to planning that can be made by the social and natural sciences and by the architectural, public health, social work, and civil engineering professions; emphasizes extensive community involvement; engages in research that focuses on application of planning methodologies and implementation of planning endeavors; recognizes the close relationship between urban and regional planning and politics; acknowledges the difficulty of resolving the value differences that lie at the heart of most planning problems; and appreciates both the importance and the elusiveness of critical concepts, such as “the public interest,” to urban and regional planning.

UH Mānoa Master of Urban and Regional Planning (MURP) graduates, of whom there are about 466, hold planning and related positions in a variety of public agencies, academic institutions, nonprofit organizations, and private firms in Hawai‘i, on the continental U.S., and in the Asia Pacific region.

### Accreditation

The department is accredited by the Planning Accreditation Board.

### Graduate Study

The department offers a multidisciplinary approach to planning education. Students are provided with an opportunity to develop an individualized but integrated course of study drawing on this department and other departments and professional schools in UH Mānoa. Faculty and students engage in both funded and non-funded research and community service. The graduate curriculum focuses on theory, methodology, and practice in the following areas: community planning and social policy, environmental planning, urban and regional planning in Asia and the Pacific, and land use and infrastructure planning. Planning in the developing countries of Asia is emphasized.

For further information regarding the master’s degree or certificate programs, students should write to the department.

### Master’s Degree

Students enter the MURP program from a variety of fields, usually the social sciences, architecture, engineering, public health, social work, and, increasingly, the natural sciences, but also from such diverse fields as philosophy, human development, and history. Students coming into the program are required to have an adequate background in descriptive and inferential statistics or to acquire this background prior to enrollment in PLAN 601.

Native speakers of English are required to take the GRE General Test. Others will be expected to have achieved adequate preparation in English as evaluated by the TOEFL. Each applicant should provide two letters of reference, preferably from individuals acquainted with the applicant academically or professionally. In addition, applicants must complete a self-assessment form and an Express information form (available from the department). An interview with a member of the faculty, if feasible, is highly recommended. The deadline for application for admission is **March 1** for the fall semester and **September 1** for the spring semester.

Standards for a graduate with a MURP degree include the following:

1. Knowledge of the structure and the growth and transformation processes of human settlements;

2. Knowledge of planning theory, history, and ethics, including an understanding of the social and political nature of planning;
3. Knowledge of general methods and models appropriate to urban and regional planning, including methods appropriate to a chosen area of concentration;
4. Knowledge of planning information systems and computer applications in planning;
5. Ability to structure and evaluate alternative plans and strategies for resolving or mitigating planning problems;
6. Ability to communicate, especially in written and oral form; and
7. Ability to plan with, rather than for, clients.

MURP graduates hold a variety of planning and related positions in public agencies, nonprofit organizations, and private firms. In Hawai'i, these include the state Department of Business, Economic Development and Tourism; Department of Health; Land Use Commission; Legislative auditor; Department of Hawaiian Home Lands; House Majority Research Office; Hawai'i Community Development Authority; Housing Finance and Development Corporation; Department of Public Safety; Department of Land and Natural Resources; U.S. Department of Housing and Urban Development; Honolulu City and County Departments of Planning and Permitting, Land Utilization, Housing and Community Development, and Parks and Recreation, Office of the Managing Director, Office of Council Services; Planning Departments of the counties of Hawai'i, Kaua'i, and Maui; Mediation Center of the Pacific; banks and trust companies; consulting firms; development corporations; real estate firms; university research and extension organizations; and community colleges.

On the continental U.S., graduates are city and county planners, program analysts in federal agencies (e.g., Office of Ocean and Coastal Management and Office of Management and Budget), and planning consultants. Other graduates include a planner for a nonprofit housing corporation, a lawyer-planner, and a law professor. Overseas positions include planners with regional planning, housing redevelopment and environmental agencies, the United Nations, private development and consulting firms, as well as faculty in university programs. Several MURP graduates are pursuing doctoral degrees in planning, geography, political science, and economics, while others are seeking law degrees.

### Requirements

The MURP degree is a two-year professional program that requires a minimum of 42 credit hours. It is designed to equip students to fill professional planning and policy analysis roles in public agencies, private firms, and community groups, particularly in Hawai'i, Asia, and the Pacific Basin. All students complete the core sequence (planning theory, planning methods, economic analysis for urban and regional planning, a 6-credit-hour practicum, and two of the following courses: PLAN 610, 620, 630, and 640). The remainder of the academic program, including a second methodology course, is individually designed with concentration in a specialized area of the student's own choosing (with the consent of his or her advisor), provided adequate academic resources are available in the department and at UH Mānoa. Grades of B or better are required in PLAN 600, 601, 603, and 605, and an average of B or better must be earned in all courses counted toward the MURP degree. MURP

students receiving a grade lower than a B will be allowed one additional opportunity to achieve a B or better in each core course.

Both Plan A (thesis) and Plan B (non-thesis) programs are available. All students are required to pass a final, which includes a successful defense of the thesis on the selected area of concentration, and to meet the program standards for graduation.

### Doctoral Degree

The doctoral program provides training in advanced research in urban and regional planning. Graduates are expected to pursue academic appointments at institutions of higher education and to achieve higher levels of professional practice in the public and private sectors.

### Admission Requirements

Admission to the PhD program requires a master's degree in planning. In exceptional circumstances candidates with either an advanced research background or exceptional professional experience, but who do not have an MA degree may be admitted. Admission may be granted with the understanding that some background courses or examinations may be required. Consideration for admission requires a GPA of at least a 3.5 in previous graduate work. Applicants are also required to submit Graduate Record Examination (GRE) scores for verbal, math, and analytic sections. Non-native speakers of English are also required to submit the TOEFL; a score of 600 is required. Applicants are also expected to submit evidence of advanced work such as a research report or sole-authored plan.

### Degree Requirements

Each PhD degree student is required to complete at least fifteen credits in advanced courses (in addition to any remedial courses designated at the time of admission):

- Advanced Methods (3 credits)
- Advanced Seminar in Planning (3 credits)

In addition to these two courses, PhD candidates are required to take six credits in an allied field (to be selected in consultation with the student's advisor). Students are also required to take one three-credit course in research design/proposal writing.

Prior to starting the dissertation, PhD candidates will sit for a comprehensive examination in planning theory and planning methods. Students will be required to form a PhD committee drawn primarily, although not exclusively from the department, to guide the student through the qualifying examination and the dissertation research. Under the direction of its chair, the committee will devise a qualifying examination covering both core topics in urban and regional planning and the student's substantive area of research. Upon successful completion of the qualifying examination, students will be required to present their dissertation proposal, to a department colloquium. When the student has successfully completed the examinations and presented the dissertation proposal the student will advance to candidacy. Each student is required to conduct original research and write and present a defense of a doctoral dissertation based on the dissertation proposal. The dissertation research will be guided by the student's committee. Upon completion, the student will defend the dissertation before the committee. If successful, the candidate will be recommended for award of the PhD in Urban and Regional Planning by UH Mānoa.

## **Professional Certificate in Urban and Regional Planning**

The Professional Certificate in Urban and Regional Planning is designed for practicing planners eligible for graduate admission who are not able to attend school for the two years required to earn a MURP degree.

Professional certificate candidates specialize in one of the following four fields: community planning and social policy, environmental planning, land use and infrastructure planning, or urban and regional planning in Asia and the Pacific.

Professional certificate candidates are required to earn 18 credit hours including PLAN 600, 601, and 603, or 605. Each candidate selects a field of interest in which he or she takes two courses including PLAN 610, 620, 630, or 640. The specific courses are selected in consultation with the candidate's faculty advisor.

Applicants for the professional certificate program should apply to the Graduate Division as special non-degree students. Two letters of reference should be sent to the department from people who are familiar with the applicant's academic or professional record. Applicants must have earned a BA, BS, or a professional degree; have maintained a minimum GPA of 3.0 in the four semesters prior to admission; and have had at least three years of professional practice prior to admission.

## **Certificate in Planning Studies**

The Certificate in Planning Studies allows students pursuing a master's or doctoral degree in another area to become acquainted with planning skills and activities. Students enrolled in graduate programs in architecture, economics, engineering, geography, political science, public health, social work, and sociology are among those eligible. Students are encouraged to use the certificate program to increase their competence in planning as it relates to their major area of study.

Certificate students are required to take five courses offered by the department and complete the requirements for a master's degree in their area of study. The required courses are PLAN 600, 601 or 605, and 751. The remaining two courses are to be selected from among the following courses by the certificate student in consultation with the faculty member responsible for directing the planning studies certificate program: PLAN 601 or 605 (whichever was not taken as a required method course); 602 or 603; and one of 610, 620, 630, or 640, or one elective course.

Successful completion of the program leads to a graduate degree in the student's chosen field and a Certificate in Planning Studies. Consideration for admission to the certificate program requires filing of an application form available from the department.

## **Graduate Certificate in Disaster Management and Humanitarian Assistance (DMHA)**

UH Mānoa provides a logical location for an Asia Pacific disaster risk reduction research and institutional capacity-building program. The program responds to the compelling need to improve hazard and disaster mitigation and response in the face of increasingly frequent and severe disaster events. The Asia Pacific region suffers the greatest impact of disaster events worldwide, and Hawai'i shares many of these same vulnerabilities. By interacting with hazard and disaster researchers at UH Mānoa and Hawai'i's existing dynamic community of disaster management

organizations, students learn how to help build disaster resilient communities.

The Graduate Certificate Program in DMHA is housed in the Department of Urban and Regional Planning and is open to all graduate students. Our interdisciplinary students come from the physical and natural sciences, engineering, geography, public administration, social work, political science, and other disciplines. Some are pursuing professional degrees in law, medicine, architecture, or public health. Our students tend to be highly motivated to apply their respective disciplinary backgrounds to the problems of reducing the impacts of disaster on people and communities.

Graduate students are required to take at least three of the DMHA core courses for a base of nine units. Additional six units are selected with advisement from courses related to hazards and disaster management and response. A one unit capstone completes the requirement. Many departments offer courses which can complement the core course sequence in a coherent, rigorous, and pedagogically valid way. Contact the program director or program coordinator for more information.

## **Women's Studies**

College of Social Sciences  
722 Saunders Hall  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-7464  
Fax: (808) 956-9616  
Web: [www.womenstudies.hawaii.edu](http://www.womenstudies.hawaii.edu)

### **Faculty**

- \*M. Chesney-Lind, PhD (Chair)—criminology, sociology of gender
- \*M. Das Gupta, PhD—feminist theory and methods, immigration, race relations in the U.S.
- \*K. Ferguson, PhD—feminist theory and methods, political theory
- \*S. Hippensteele, PhD, JD—psychology, law, civil rights, dispute resolution
- \*A. Kimura, PhD—feminist perspectives on science and technology, food, health and environmental issues
- \*M. Koikari, PhD—sociology, Asia-Pacific studies
- \*A. Saraswati, PhD—feminist media and new media studies, race, globalization, and cultural studies of emotion

### **Affiliate Faculty**

- H. Aikau—political science
- B. Andaya—Asian Studies
- B. Aquino—political science
- C. Bacchilega—English
- C. Browne—social work
- J. Brunson—anthropology
- V. Dalmiya—philosophy
- L. Despain—English
- P. Flowers—political science
- C. Franklin—English
- M. Ghosh—librarian
- J. Goldberg-Hiller—political science
- N. Goodyear-Ka'opua—political science
- M. Hara—English
- K. Heyer—political science
- R. Hsu—English

K. Irwin—sociology  
 K. Kane—Center for Teaching Excellence  
 V. Kanuha—sociology  
 B. Keever—communications  
 V. Lanzona—history  
 N. Lewis—East-West Center and geography  
 L. Lyons—English  
 N. Mokuau—social work  
 K. Phillips—English  
 S. Rai—Study Abroad Program  
 K. Reynolds—Japanese  
 M. Romaniello—history  
 L. Santiago—Indo-Pacific languages and literatures  
 M. Sharma—Asian studies  
 N. Silva—political science  
 C. Sinavaiana—English  
 M. Stark—anthropology  
 P. Steinhoff—sociology  
 T. K. Tengan—ethnic studies, anthropology  
 H. Trask—Hawaiian studies  
 K. Umemoto—urban and regional planning  
 V. Wayne—English  
 C. Yano—anthropology  
 M. Yoshihara—American studies  
 A. Yap—Study Abroad Program  
 M. Yue—Chinese literature

**Degree and Certificates Offered:** Undergraduate Certificate in Women's Studies, BA in women's studies, Graduate Certificate in Advanced Women's Studies

## The Academic Program

The Department of Women's Studies offers an interdisciplinary transnational feminist approach to the study of women and gender issues. The purpose of the department is to provide a rigorous and integrated academic experience for students interested in feminist research and teaching, giving them a coherent program of study in contemporary scholarship with special emphasis on Asia-Pacific and Hawai'i. With a faculty trained in a variety of fields, the program investigates gender as it intersects with race, class, sexuality, and other vectors of power in shaping the study of history, psychology, anthropology, economics, sociology, political science, philosophy, literature, language, art, drama, education, law, medicine, and biology.

Women and men from all colleges at UH Mānoa take women's studies courses because of their intellectual rigor, political insight, and interdisciplinary ties to other fields of study. Many courses are cross-listed with other departments. Women's studies is a uniquely powerful avenue of self-understanding as well as a means of connecting research on women and gender to other academic fields of inquiry. Those who understand the workings of gender in personal lives and social orders can better pursue a variety of careers and life goals. Women's studies offers a unique opportunity to study racial, economic, ethnic, sexual, regional, and global matters of interest among women in Hawai'i and around the world, past, present, and future.

## Undergraduate Study

### Bachelor's Degree

Women's studies offers two tracks for majors: either a student-designed special concentration within the field of women's studies, or a general focus on the broad field of women's studies. Students work in close consultation with faculty to design and develop the academic experience that best fits their interests, goals, and needs. The aim of both tracks is to promote a coherent program of study in contemporary interdisciplinary scholarship in feminist and gender studies. A key purpose of the major is to provide an integrated academic experience for students interested in transnational feminist scholarship and gender issues, while offering flexibility and freedom in planning the degree.

### Requirements

Although students are strongly encouraged to seek department academic advising promptly when considering a major in women's studies, a summary of undergraduate program information is also available at [www.womenstudies.hawaii.edu](http://www.womenstudies.hawaii.edu). General and special women's studies degree requirements are as follows:

#### General Women's Studies Degree Focus

- Students must complete thirty (30) credit hours of total course work, with a grade of C (not C-) or better, including:
1. Feminist Theory (WS 439/POLS 339);
  2. Feminist Methods and Research (WS 440);
  3. At least 3 courses from among the WS courses focusing on gender, race and ethnicity in transnational perspective;
  4. A minimum of 9 total credit hours from 300 level WS courses (any 300 level course taken in #3 counts toward this total);
  5. A minimum of 9 credit hours from 400 level WS courses (WS 439, 440, and any 400 level courses from #3 count toward this total);
  6. Additional course work as necessary to complete 30 total hours of course work.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

#### Special Women's Studies Degree Focus

- Students must complete 30 credit hours of total course work, including:
1. Feminist Theory (WS 439/POLS 339);
  2. Feminist Methods and Research (WS 440);
  3. At least 3 courses from among the WS courses focusing on gender, race and ethnicity in transnational perspective;
  4. A minimum of 6 total credit hours from 300 level WS courses (any 300 level course taken in #3 counts toward this total);
  5. Up to 15 outside credits at 300 and 400 level, subject to approval by women's studies' advisor;
  6. Additional course work as necessary to complete 30 total hours of course work.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Advising

Students who plan to pursue a women's studies major should meet with the women's studies undergraduate program advisor (currently Dr. Kathy Ferguson) for help in choosing classes, defining their area of interest, creating and developing proposals, and finding the faculty advisor most suited to their areas of interest.

## The Undergraduate Certificate

The Certificate in Women's Studies is designed to encourage all undergraduates to acquire a more thorough background in contemporary interdisciplinary scholarship in feminist and gender studies, and to incorporate feminist perspectives and issues into their major fields of specialization. Through this interdisciplinary option, students from various majors can study the specific achievements of women, examine the many factors that determine the status of women across cultures and through time, and analyze theories and assumptions about women that particularly relate to their majors.

The certificate's practical value includes the enhancement of knowledge that develops students' abilities to think critically and constructively about their world and their lives. Further, it offers a credential that is applicable to a wide range of careers including medicine, law, business, education, counseling, and social work. The certificate can also provide the groundwork for advanced study of gender and feminism and the graduate level application of feminist theories.

All registered students in good academic standing who are working towards a baccalaureate degree other than Women's Studies at UH Mānoa may apply for a Women's Studies Certificate.

## Requirements

- Students must complete 15 credits in Women's Studies with a grade of C (not C-) or better.
- The 15 credits must include the following two requirements: a course in Feminist Theory (WS 439/POLS 339), and at least one course in gender, race, and ethnicity in transnational perspectives (list of courses available from the program).
- At least 9 credits must be at the 300 level or higher.

For administrative purposes, any cross-listed course will be counted as a women's studies course regardless of the departmental designation under which students register for the course.

## Graduate Study

Women's studies offers a Graduate Certificate in Advanced Women's Studies (AdWS Certificate). This certificate program provides a rigorous, integrated, and relevant educational experience for students whose education and career objectives will be enhanced through creative and scholarly transnational feminist analysis of women's lives and visions. The program guides students to examine the factors that affect the status of women across cultures and through time, analyze theories and assumptions about women in various disciplines, contribute to the reformulation of social knowledge, explore institutionalizing social change that highlights and supports the achievements of women locally and internationally, and understand the usefulness of gender as an analytical tool in many fields.

Graduate studies leading to the AdWS Certificate are focused in four broad areas under the general rubric of gender studies.

- Feminist methods of inquiry and theoretical analyses. Students will explore sex/gender as an analytical category, asking what this category means, what purposes are served by the prevailing binary notions of gender, and how gender is constituted in past, current, and future biological, sociopolitical, cultural, and economic contexts.
- Feminist knowledge. Students will learn about the pervasive impact of gender relations on thoughts, actions, and prevailing constructions of reality. They also will become acquainted with an array of feminist theories and arguments about issues including coalition practices, nationalism and imperialism, and social policy.
- Sex/gender and sociopolitical categories of power and privilege. Students will examine the interaction of sex/gender with race/ethnicity, class, sexuality, and other vectors of power and privilege as relevant to nearly all domains of human experience. They will have opportunities to explore the dynamics of these interactions with emphasis on the evolving multicultural milieu of Hawai'i and the Asia/Pacific region.

Recipients of the AdWS Certificate must be classified graduate students, and normally will be pursuing graduate degrees in other academic departments. The AdWS Certificate will help students learn to apply feminist methodologies, analysis and problem-solving to their other academic fields, and to integrate the rigors of the scholarship on gender into their chosen professions as a means of enhancing their professional lives and opportunities for advancement.

The department website lists research interests and publications of the members of the women's studies graduate faculty, and describes admissions and program requirements (see [www.womenstudies.hawaii.edu](http://www.womenstudies.hawaii.edu)). The following sections summarize the admissions and program requirements, but the program website should be consulted for complete details.

## Admissions

Students are admitted to the AdWS Certificate program in the fall and spring semesters. Applicants to the AdWS Certificate program must be classified graduate students at UH Mānoa. Candidates are required to submit their current and complete transcripts, three letters of recommendation, and the names of and full contact information for three additional references. Applicants also must submit a 4-5 page essay outlining their personal and professional goals as they relate to the AdWS Certificate program, and identifying potential research and/or community involvement projects they may wish to pursue as part of their AdWS Certificate work.

## Requirements

The AdWS Certificate program consists of a minimum of 18 credits, at least 12 of which must be at the 600 level or higher. Nine of these credits must come from the following four WS courses: WS 610 (1 cr), Faculty Seminar Series; WS 613 (3 cr), Feminist Research and Methods of Inquiry; WS 615 (3 cr), Feminist Theory; WS 650 (2 cr), Research in Feminist Studies; Capstone Experience.

Remaining credits will be drawn from a list of courses approved by the women's studies graduate advisor (currently Dr. Ayu Saraswati). All students will work with a specific advisor to develop an AdWS Certificate curriculum based on their academic majors that best supports their academic and professional goals and objectives. Up to 6 credits towards the certificate

may be taken in the student's home department provided that department's curriculum includes courses approved by women's studies.

Each student enrolled in the AdWS Certificate program will design, develop, and complete a research and/or community involvement project to culminate in a publishable-quality work or comparable product, and a professional quality seminar presentation given in the student's final semester of the program.

## Zoology

College of Natural Sciences  
Edmondson 216  
2538 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-9017 / (808) 956-7315  
Fax: (808) 956-9812  
Email: biology@hawaii.edu  
Web: manoa.hawaii.edu/biology

### Faculty

- \*S. Robinow, PhD (Chair)—neurogenetics
- \*J. H. Bailey-Brock, PhD—invertebrate zoology, reef ecology, Polychaetes
- K. M. Bennett, PhD—neuroscience and nephrology utilizing magnetic resonance imaging
- \*D. Carlon, PhD—evolution population biology, invertebrate biology
- \*K. Cole, PhD—ichthyology, behavioral ecology, reproductive biology, morphology and morphogenesis, microgravity biology
- \*H. G. de Couet, PhD—molecular cell biology, development biology, evolution
- \*L. A. Freed, PhD—evolutionary and behavioral ecology, ornithology, conservation biology
- M. A. Hixon, PhD—marine ecology and conservation biology
- \*C. L. Hunter, PhD—conservation biology, coral reef ecology, biology and ecology of marine invertebrates
- S. D. Kraft-Terry, PhD—academic advising and assessment
- P. B. J. Marko, PhD—biogeography, evolution and conservation
- A. L. Moran, PhD—marine ecology and evolution
- \*F. A. Reed, PhD—population genetics
- \*A. D. Taylor, PhD—population, theoretical, and insect ecology
- \*R. Thomson, PhD—evolutionary biology and phylogenetics
- \*T. Tricas, PhD—marine animal behavior
- \*L. Watling, PhD—impacts of humans on benthic environments; crustacean biology
- \*C. Z. Womersley, PhD—environmental physiology, biochemical adaptation, parasitology

### Cooperating Graduate Faculty

- D. Duffy, PhD—conservation biology, sea birds
- R. Gates, PhD—molecular biology, developmental genetics, cell biology, physiology and ecology of corals
- E. G. Grau, PhD—comparative endocrinology, environmental physiology
- D. K. Hartline, PhD—quantitative neurophysiology and simulation of simple networks
- B. S. Holland, PhD—conservation biology of Native Hawaiian tree snails
- K. N. Holland, PhD—physiology, behavior, ecology of aquatic organisms
- T. D. Humphreys, PhD—cellular, molecular, biochemical, developmental biology in marine organisms

- P. J. Jokiel, PhD—coral reef biology, biogeography and ecology
- K. Y. Kaneshiro, PhD—systematics, evolution, insect behavior
- S. A. Karl, PhD—molecular ecology, systematics, and phylogeography of marine animals
- P. Lenz, PhD—neuroecology of zooplankton sensory systems
- P. E. Nachtigall, PhD—behavior and sensory processes of marine mammals
- R. Richmond, PhD—invertebrate zoology, conservation biology
- F. I. Thomas, PhD—marine ecology, biology of larvae
- R. Toonen, PhD—molecular genetics of marine organisms

### Affiliate Graduate Faculty

- G. Aeby, PhD—coral reef ecology
- R. Allison, PhD—systematics, biogeography and ecology
- C. Birkeland, PhD—conservation biology regarding coral
- A. Friedlander, PhD—marine ecology, marine conservation biology
- S. Miller, PhD—ecosystem and population conservation biology

**Degrees Offered:** BA (including minor) in zoology, BS in zoology, MS in zoology, PhD in zoology

### The Academic Program

The Department of Biology at UH Mānoa offers a zoology minor and graduate programs that offer master of science and PhD degrees. Of particular note is the department's emphasis on tropical marine biology and evolutionary biology. There are few places in the U.S. where these emphases can be pursued more productively or in a more practical setting.

### Undergraduate Study

There is no admittance to the BA and BS in Zoology degrees effective Spring 2013.

### BA Degree

#### Requirements

- BIOL 171/171L and 172/172L
- BIOL 265/265L
- BIOL 275/275L
- CHEM 161/161L and 162/162L
- CHEM 272/272L and 273
- BIOC 441 or BIOL 402 (cross-listed PEPS 402 or MBBE 402) (biochemistry lab not required)
- MATH 215 or 241, or equivalent college-level calculus

Students must take an additional 20 credit hours, including:

- ZOOL 490
- Three laboratory courses from the following areas:
  - Developmental (ZOOL 420/420L)
  - Physiology (ZOOL 430/430L, BIOL 407 or 408/408L)
  - Ecology and Behavior (ZOOL 306/306L, 439/439L, or 470/470L)
  - Genetics (BIOL 375/375L)
  - Morphology and Taxonomy (ZOOL 320/320L, 340/340L, 465/465L, or 475/475L; PEPS 363)
- Non-laboratory courses applicable toward (20 credits): ZOOL 399, 499
- ZOOL courses numbered 300 and above

Zoology courses at the 200 level carry no major credit. MATH 216 or 242 and a year of college physics are strongly recommended for students planning graduate study.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## BS Degree

### Requirements

Students must complete 78 to 82 credit hours, including:

- BIOL 171/171L and 172/172L
- BIOL 265/265L
- BIOL 275/275L
- BIOL 375/375L
- CHEM 161/161L and 162/162L
- CHEM 272/272L and 273
- BIOC 441 or BIOL 402 (cross-listed PEPS 402 or MBBE 402) (labs not required)
- PHYS 151/151L, 152/152L; or PHYS 170/170L, 272/272L
- MATH 215 and 216, or 241 and 242 or 252A
- ZOOL 320/320L, or 475/475L, or PEPS 363
- ZOOL 430/430L
- ZOOL 490
- ZOOL 492 (1 credit hour)
- ZOOL 499 (Minimum of 4 credit hours)
- Nine credits of zoology electives (300 level or above in ZOOL or approved BIOL courses), 6 credits in science electives (300 level or above in approved courses in natural sciences).

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/). F

### Minor

#### Requirements

(At least 15 credits from the following courses, including 2 lab courses from 2 of the following 5 areas)

##### I. Development

- ZOOL 420/420L

##### II. Genetics

- BIOL 375/375L

##### III. Physiology

- BIOL 275/275L, 407, ZOOL 430/430L, 432

##### IV. Ecology and Behavior

- BIOL 265/265L, ZOOL 200/200L, 306/306L, 439/439L, 470/470L

##### V. Morphology and Taxonomy

- ZOOL 320/320L, 340/340L, 465/465L, 475/475L

#### Other Courses Applicable Toward Minor in Zoology

- BIOL 408
- Any ZOOL courses numbered 300 and above

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

The department offers programs of graduate study and research leading to the MS and PhD degrees. The major strengths of the graduate program in zoology are in the areas of animal behavior; cellular, molecular, and developmental biology; and evolution and ecology. Especially strong programs have developed in areas that utilize the resources of Hawai'i's unique island setting, including developmental biology, marine biology, and ecology, evolution and conservation biology. Much of the research in the department emphasizes the animals of Hawai'i: marine invertebrates, terrestrial arthropods, fishes, and birds.

Graduate students in zoology may join three interdisciplinary graduate specializations; the Cellular and Molecular Biology (CMB); and the Ecology, Evolution, and Conservation Biology (EECB) Program. The department also hosts the Hawai'i Cooperative Fishery Research Unit and has active affiliations with Hawai'i Institute of Marine Biology, Kewalo Marine Laboratory, Békésy Laboratory of Neurobiology, and the Center for Conservation Research and Training.

Recipients of the MS degree usually teach, pursue careers in research or government service, or pursue further graduate training. Those with the PhD ordinarily seek teaching positions in colleges and universities or research careers in university, government, or private laboratories.

A brochure listing research interests and publications of the members of the zoology graduate faculty, as well as summarizing admissions and program requirements and opportunities for financial aid, is available on request from the department; a separate graduate student handbook describes the details of program requirements and procedures. This information also is available on the Web at [manoa.hawaii.edu/biology/sites/manoa.hawaii.edu/biology/files/downloads/graduate-student-handbook.pdf](http://manoa.hawaii.edu/biology/sites/manoa.hawaii.edu/biology/files/downloads/graduate-student-handbook.pdf). The following sections summarize the admissions and program requirements, but the department brochure and handbook should be consulted for complete details.

### Admissions

Students are admitted to the graduate program only in the fall semester; the application deadline is **January 15**. Applicants must submit a completed graduate application form, the official record of performance on the GRE General Test, transcripts for all previous undergraduate and graduate studies; and letters of recommendation from three persons who can appraise the student's aptitude for graduate study. It is strongly recommended that students take the GRE Biology subject test, and include an official record of performance in their applications. An applicant also must be sponsored by a member of the graduate faculty who has indicated his or her willingness to advise the student; the applicant should communicate with prospective faculty sponsors well in advance of the application deadline.

Intended candidates for the MS or PhD degrees in zoology are expected to present a minimum of 18 credit hours of undergraduate course work in zoology and/or biology and to have completed at least three semesters of chemistry (inorganic and organic), one year of physics, and at least one course each in calculus and botany. Deficiencies in undergraduate preparation must be rectified within the first 2 years, without graduate credit, except that biochemistry or molecular biology may be taken for graduate credit if it is at the 400-700 level. A course in biochemistry or molecular biology is required of all students, but it may be taken for graduate credit.

### General Requirements

To ensure that students have broad competence in zoology, they must take a written diagnostic examination at the start of their first semester. This examination seeks evidence of competence at the level of the undergraduate major (for MS students) or the master's degree (for PhD students) in the areas of molecular-cellular, organismic, and supraorganismic zoology. Students scoring at the 90<sup>th</sup> percentile or higher on any of these sections of the GRE biology test are exempted from the corresponding section of the diagnostic exam. Students who do

not perform satisfactorily on the diagnostic examination will be required to take remedial course work, which must be completed within two years.

All entering students are required to take ZOOL 691C. All graduate students are required to take at least one graduate seminar or topics course each year.

### **Master's Degrees**

Thesis (Plan A) and non-thesis (Plan B) programs leading to the MS degree in zoology are available. In addition to the thesis, Plan A requires a minimum of 24 credit hours of course work and 6 credit hours of ZOOL 700 (thesis). The 24 credit hours must include at least 12 credit hours of 600- or higher-level course work. The 24 credit hours may include up to 6 credit hours from related departments and up to 2 credit hours of ZOOL 699.

Plan B is a non-thesis program and requires a minimum of 30 credit hours in 400- through 700-level courses. The 30 credit hours must include at least 6 but not more than 16 credit hours from related departments (excluding courses cross-listed in zoology or applicable to the zoology BA degree) at least 2 but not more than 5 credit hours of ZOOL 699, and at least 18 credit hours of 600 or higher level course work. A research paper based on original scientific work is required.

### **Doctoral Degree**

Many applicants to the PhD program will have completed a master's degree, but well-qualified applicants without a master's degree may be admitted directly into the PhD program. Students currently enrolled in the master's program also may apply for admission into the PhD program without completing the master's degree.

### **Course Requirements**

For students matriculating with a master's degree in zoology (or equivalent), there are no course requirements for the PhD degree other than the general requirements (ZOOL 691C in the first year, and at least one graduate seminar or topics course each year), and any courses required by the student's dissertation committee.

For students matriculating with a bachelor's degree, general course requirements are very similar to the requirements for students receiving a Plan A master's degree. A minimum of 24 credits are required in courses numbered 400-800. Additionally, 6 credits are required of ZOOL 800 (dissertation), for a total of 30 credit hours. Students are required to enroll in ZOOL 800 during the term in which their degree will be conferred. At least 12 of the 24 credits of required course work should be in 600-700 level courses, not counting ZOOL 699. The Department of Biology requires that 1 of the 24 course work credits include ZOOL 691C. Of the 24 required credit hours, student may include a maximum of 2 credit hours from ZOOL 699, and up to 6 of the 24 credits are allowed from courses in related departments. All courses cross-listed with zoology, and all biology courses which can be counted towards a zoology BA or BS, are considered zoology courses, not courses in a related department.

### **Other Requirements**

An oral comprehensive examination must be passed within one year of admission to candidacy; this examination will emphasize the student's research area but may cover any facet of zoology.

The research project culminating in the dissertation is the most important part of the PhD degree program. The dissertation is to be an original contribution based on independent research, carried out under the guidance of the advisor and dissertation committee. The completed dissertation is defended at a public final examination, conducted by the dissertation committee and including a public research seminar by the candidate.

### **Further Information**

Further information about the graduate program in zoology, including full details of admissions and program requirements, may be obtained from the biology department or at [manoa.hawaii.edu/biology](http://manoa.hawaii.edu/biology). Other inquiries may be sent to [biology@hawaii.edu](mailto:biology@hawaii.edu).



# Shidler College of Business

## Administration

BusAd C-204  
 2404 Maile Way  
 Honolulu, HI 96822  
 Tel: (808) 956-8377  
 Fax: (808) 956-9640  
 Web: www.shidler.hawaii.edu

Dean: V. Vance Roley  
 Associate Dean for Academic Affairs: John Butler

## General Information

The Shidler College of Business (Shidler College) prepares students for business leadership in Hawai'i and the Pacific basin. Students receive a solid foundation, both theoretical and practical, in the structures, functions, and objectives of business enterprise. Shidler College provides one of the two degrees in business (BBA) and the only MBA in the state of Hawai'i that are accredited by AACSB-International.\* The primary empha-

ses of Shidler College are international business, information technology, and entrepreneurship.

Shidler College offers both undergraduate and graduate degrees, including the bachelor of business administration (BBA), the master of business administration (MBA), the master of accounting (MAcc), the executive MBA (EMBA), the Japan-focused MBA (JEMBA), the China International MBA (CIMBA), US International MBA (USIMBA), the executive distance learning MBA, the executive MBA Vietnam (Ho Chi Minh and Hanoi), the master of financial engineering (MFE), the master of human resource management (MHRM), and the PhD in international management. Several professional development programs are also offered through Shidler College's Executive Education Center.

## Mission

The Shidler College of Business is a multicultural academic community achieving international excellence in business education, research, and practice utilizing Hawai'i's unique advantages.

The special role of Shidler College in UH Mānoa is to serve as the center of advanced graduate and professional studies in business administration while emphasizing research and providing excellence in undergraduate programs.

## Accreditation and Affiliations

Shidler College is accredited by AACSB-International\* and is a member of the Graduate Management Admissions Council (GMAC).

## Degrees

**Bachelor's Degrees:** BBA with concentrations in accounting, entrepreneurship, finance, human resources management, international business (double major only), management, management information systems and marketing.

**Master's Degrees:** MBA, Japan-focused MBA, China-focused MBA, Executive MBA, Executive MBA Vietnam (Ho Chi Minh and Hanoi), MAcc, 3/2 Master of Accounting, Master of Human Resource Management, MS Financial Engineering

**Doctoral Degree:** PhD in international management

## Advising

Academic advisors at the Shidler College Office of Student Academic Services (OSAS) assist students with program planning and course selection; learning UH Mānoa policies and procedures; fulfilling graduation requirements in a timely

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\*AACSB: The Association to Advance Collegiate Schools of Business

manner; and exploring transfer credit, study abroad exchange, and other educational opportunities, resources, and options. Students, while responsible for their own academic progress, should consult their advisors on a regular basis to monitor their academic status and progress toward degree completion.

Advising for undergraduate students, including mandatory advising for newly admitted undergraduate students, is available in BusAd B-101, (808) 956-8215, email: [business@hawaii.edu](mailto:business@hawaii.edu). Advising for graduate students is available in BusAd G-202, (808) 956-8266, email [busgrad@hawaii.edu](mailto:busgrad@hawaii.edu).

## Undergraduate Programs

The Shidler College of Business offers a professional, upper division program designed to give students a broad liberal arts background and a sound education in the essentials of business management. The BBA degree program, therefore, is comprised of three integral parts: (a) general education, (b) business fundamentals, and (c) a specialized major area of business. Students may select a major that complements their interests, aptitude, and career goals from such fields as accounting, entrepreneurship, finance, human resources management, international business, management, management information systems, and marketing. A double major and/or minor are also options.

### The Shidler Freshman Direct Admit Program (DAP)

The Shidler Freshman Direct Admit Program (DAP) is designed for high achieving incoming freshmen who wish to enter the Shidler College of Business early and get a head start. It is an option for outstanding high school seniors entering UH Mānoa in the fall. Selective admission for the Shidler Freshman Direct Admit Program is highly competitive and merit-based.

On your UH Mānoa application, simply designate “Pre-Business” or any specific business major as your first choice major, and you will automatically be considered for the Shidler DAP. No separate application is necessary. Shidler DAP students are eligible for a scholarship upon enrollment.

### Admission Requirements

Students transfer into Shidler College upon the successful completion of the following admission requirements:

1. Minimum of 55 credit hours of college-level work (junior standing);
2. Minimum cumulative GPA of 2.5 in all courses attempted (combined UH Mānoa and transfer GPA from all other colleges attended) and a minimum cumulative GPA of 2.0 at UH Mānoa (if courses have been attempted at UH Mānoa). If 30 or more credits with a 2.5 cumulative GPA have been completed at UH Mānoa, the transfer GPA will not be used to determine admission.
3. Completion of the following pre-business courses with a combined GPA of at least 2.5, with no grade below C. (C- grades will not be accepted for admission.) Pre-business courses: ENG 100/ELI 100/ENG 190, or ENG 200; COMG 151 or 251; ACC 201 and 202; NREM 203, BUS 250 or MATH 203, 215, 241, or 251A; and ECON 130 and 131;
4. Minimum grade of C in ICS 101 (or equivalent); and
5. If three or more business courses (or equivalents) beyond the pre-business courses (e.g., business law, statistics, management, etc.) have been attempted, a combined GPA of at least 2.5 is required in those courses.

Important: The Diversification-Social Sciences requirement in the General Education Core is met by completing ECON 130, 131 and PSY 100 or SOC 100 (which is the prerequisite to BUS 315 in the business core).

### Application Procedures

Students currently enrolled as classified students at UH Mānoa can contact the Shidler College of Business, Office of Student Academic Services (OSAS), BusAd A-202, for application materials.

Non-UH Mānoa students or unclassified students enrolled in Outreach College must submit the System Application Form to the Office of Admissions, 2600 Campus Road, Room 001, Honolulu, HI 96822 (or visit the website at [manoa.hawaii.edu/admissions/](http://manoa.hawaii.edu/admissions/)).

### Application Deadlines

The application deadlines for classified UH Mānoa students are **November 1** for the spring semester and **April 1** for the fall semester.

New and transfer students should consult with the Office of Admissions for the application deadlines. Information is available online or call (808) 956-8975.

### College Requirements

1. Completion of 120 non-repeated credit hours, including the General Education Core Requirements (see the “Undergraduate General Education Requirements” section for more information) and the following College curriculum requirements:
  - a. Pre-business courses (see “Admission Requirements”);
  - b. Required business courses: BLAW 200, BUS 310, 311, 312, 313, 314, 315, 345;
  - c. Requirements for the major;
  - d. BUS 209 or ENG 209;
  - e. An upper division course in international business; and
  - f. 11 credits of non-major elective courses beyond the introductory level (must include 11 non-business credits, 11 upper division elective credits), which may include a minor and up to 3 credits of BUS 395.
2. GPA of 2.0 in all UH Mānoa registered credit hours.
3. GPA of 2.0 in all required business courses (and their equivalents) and Shidler College major courses completed at UH Mānoa.
4. Grades of C- or higher in any required business courses (and their equivalents) and Shidler College major courses completed at UH Mānoa.
5. Residency requirements for BBA degree include both:
  - a. University residency requirement of 30 credit hours at UH Mānoa and
  - b. Minimum of eight upper division business courses (24 credit hours), including a minimum of three courses in the student’s major and BUS 345, after admission to Shidler College.

Students interested in applying to Shidler College should contact the Office of Student Academic Services for current information on admission and program requirements.



### **Modification of Hawaiian/Second Language Requirement for Shidler College Students**

Shidler College students must complete one or a combination of the following options to satisfy the Hawaiian/Second language requirement:

1. A four-semester sequence of a single language (or proven competency via a language requirement waiver or completion of 202/212);
2. Participation in a study abroad or international exchange program of 12 credits or more during the fall or spring;
3. 12 credits of international culture/area courses, from one culture of study, to be chosen from an approved list of courses provided by the Shidler College Curriculum and Program Committee and the Office of Student Academic Services.
4. Four semesters of language and culture study. Only 1 language and 1 culture may be used to satisfy the requirement, but the language and culture groups do not need to match.

### **Major Requirements**

See appropriate departments in this *Catalog* for specific major requirements leading to a BBA degree.

### **Academic Policies**

#### **Sequence of Courses**

Shidler College undergraduates are required to take BUS 310 and 311 in their first semester in the Shidler College. BUS 345 as a capstone course is taken in the final graduating semester. Shidler College students must consult the course descriptions in this *Catalog* for prerequisites and proper sequencing of business and major courses toward graduation.

#### **Minimum Standards for GPA**

The minimum acceptable academic performance for Shidler College undergraduates at UH Mānoa is (a) cumulative UH Mānoa GPA of 2.0; (b) GPA of 2.0 in all required business courses (and their equivalents) and Shidler College major courses completed at UH Mānoa; (c) Grades of C- or higher in any required business courses (and their equivalents) and Shidler College major courses completed at UH Mānoa.

#### **Probation**

Shidler College students are placed on probation at the end of any semester for any of the following reasons:

1. The student's cumulative GPA falls below 2.0
2. The student's GPA in required business courses and major falls below 2.0

3. The student fails to complete BUS 310 and 311 in the first semester in the Shidler College with a grade of C- or higher.
4. Satisfactory progress toward graduation is not being made. Continued probation may lead to suspension.

Students on probation will be required to meet with their academic advisor.

### **Double Major**

Students may pursue a double major to enhance their educational spectrum and professional marketability. To qualify for a double major, students must have a minimum cumulative UH Mānoa GPA of 3.0 and a minimum UH Mānoa GPA of 3.0 in each of the two proposed majors. At the time of declaration, the student must have completed at least one course in each major. A double major shall consist of 27 or more credits which lead to a specialization in two fields of study. Courses must meet the requirements for a major in each of the fields, and may not be used to meet the non-introductory electives requirement. (**Note:** International Business is offered only as a double major.) After successfully meeting the double major requirements, students may officially declare a double major in the Office of Student Academic Services, BusAd B-101.

### **Transfer Students**

Students completing their first two years of study at a community college or at another four-year institution should take only those business courses offered at the freshman or sophomore level (e.g., introductory accounting, business law). Business courses taught at community colleges may not be used to satisfy upper division course requirements in Shidler College (e.g., business statistics). Junior-level and senior-level business courses are accepted only from colleges accredited by the AACSB and select foreign universities.

### **Seniors**

Seniors must file a graduation application by **December 31** for summer graduation, by **March 1** for fall graduation, and by **November 1** for spring graduation in the semester preceding graduation. Seniors who plan to finish their program requirements during the summer session will need to indicate on their graduation application if they would prefer their name to be printed in the spring commencement program **or** the fall commencement program. Application forms and deadline information is available online at [shidler.hawaii.edu/forms/](http://shidler.hawaii.edu/forms/).

### **Withdrawal Deadline**

**Shidler College strictly enforces a three-week withdrawal deadline for upper-division business classes. Please note that this deadline is not the same as that for non-business classes.** In general, exceptions regarding late drop requests will not be granted.

### **Dual/Concurrent Degrees**

Shidler College students may choose to pursue a concurrent degree in any other UH Mānoa college/school. The consideration of an additional field of study can increase knowledge, diversify perspectives, and enhance personal education as well as professional growth. Requirements for admission include a cumulative GPA of 3.25, approval from the current advisor, and a statement of purpose from the applicant. Current Shidler College students considering a dual degree or students interested in admission to the Shidler College as a concurrent degree

candidate should meet with an advisor in the Office of Student Academic Services to discuss individual academic programs.

### **Second Baccalaureate Degree**

Priority for admission is given to students seeking their first undergraduate business degree. Shidler College welcomes students pursuing a second bachelor's degree, however, students who have already completed a bachelor's degree in business will be denied admission to Shidler College of Business. Students should complete the application form (available online) and submit the appropriate required documents to the Office of Admissions in QLCSS 001 or call (808) 956-8975.

### **Minors**

Shidler College students may choose a minor offered in another UH Mānoa college/school to complement their business program. A minor course of study consists of a minimum of 15 credit hours of non-introductory or upper division course work that is completed with a grade of C (not C-) or better. Shidler College students may use a minor to replace the non-introductory electives requirement. Minor course work must be approved by the respective department advisor.

### **Minor in Business Administration**

The Shidler College offers a minor in Business Administration to non-business majors. This minor will provide students with a greater understanding of business in preparation for their entrance into the workforce. Applicants must meet the following prerequisites:

1. Classified undergraduate student not enrolled in the Shidler College of Business
2. Junior standing (55 or more college-level credits)
3. 2.5 cumulative GPA
4. Completion of the following courses with a C (not C-) or better:
  - a) ICS 101 (or equivalent)
  - b) ECON 120 or 130 or 131
  - c) ACC 201
  - d) Calculus (or equivalent: NREM 203 or MATH 203, 215, 241, 251A, or BUS 250) or Statistics (or equivalent: NREM 310 or ECON 321 or PSY 225 or SOCS 225)
  - e) PSY 100 or SOC 100

For more information and to receive an application, please contact the Shidler College Office of Student Academic Services in BusAd B-101 or at (808) 956-8215.

### **Graduate Programs**

Shidler College of Business offers the only AACSB-International accredited MBA and MAcc programs in Hawai'i. The AACSB seal of approval guarantees students that their programs satisfy the expectations of a wide range of quality standards relating to strategic management of resources, interactions of faculty and students in the educational process, and achievement of learning goals in degree programs. There are less than 700 AACSB accredited institutions worldwide, and Shidler College of Business is proud to be one of them.

### **Application Deadlines**

#### **Master's Degree Programs:**

The MBA and MAcc programs both admit students during the fall semester. The fall application deadline is **March 1** for international students and Full-Time MBA students interested

in scholarships and **May 1** for all other students. The fall deadline for the Master of Human Resources and the Executive MBA program is **June 1**. The fall deadline for the Executive MBA-Vietnam program is **July 1**.

The MAcc program is the only program that admits students during the spring semester. The spring application deadline for the MAcc program is **November 1**, and **October 1** for international students.

### **Master of Business Administration**

**Full-Time Global MBA**—The Full-Time Global MBA program offers students a comprehensive foundation in business fundamentals with an Asia-Pacific focus. The Full-Time Global MBA program features a first-year cohort experience designed to help students learn the inner-workings of group dynamics crucial for the leaders of today's organizations. The MBA curriculum is predominantly focused in international business and stresses developing the skills and breadth of judgment required of top-level managers and executives in both the private and public sectors.

Students spend their first year learning the principles and theories of management strategies through a sampling of courses in various functional areas. Next, students spend the summer taking part in an internship experience allowing them to build upon the foundation created during their first year. The second year is spent customizing their degree through the completion of seven elective courses. With the assistance of an advisor, students select courses that fit their personal and professional goals and interests. In their last semester, students register in the consulting practicum, synthesizing and applying knowledge from their MBA course work to an existing organization.

**Country Focus**—The Full-Time Global MBA program at Shidler College of Business offers students a comprehensive foundation in business fundamentals with an Asia-Pacific focus. Students have access to internships, career development assistance and strong networking opportunities with fellow students, alumni, and the business community at large. The Full-Time Global MBA program features a first-year cohort experience designed to help students learn the inner-workings of group dynamics crucial for the leaders of today's organizations. Throughout the program, students meet their personal and professional goals while preparing them for leadership in today's global business environment.

To receive a certificate recognizing that an MBA meets the level of a country-specific focus, international experience and language proficiency or training are both required. The international experience will generally be achieved through a combination of overseas internship and coursework. The internship will generally be accomplished during the summer following your first complete year of study in the country of focus. This will be followed by elective business coursework at one of our partner institutions in that country that will coincide with the fall term of the second year. The combination of this for-credit internship and coursework should equal twelve credit hours to maintain your pace toward graduation with in two academic years.

For the country focus certification, there is a language requirement that can be met in one of two ways. You can pass a proficiency test that would waive the requirement to take language courses. This would be administered by the language department here at UH Mānoa. The level of proficiency

required to pass this test would be equal to testing out of third year language courses. The program is not limited to those that arrive at Shidler with language proficiency, and so the language requirement can also be met by taking language courses here at UH Mānoa during the first year of the Full-Time Global MBA program. After proficiency testing, there would be placement into one of three levels of language class, and there would then be two terms of progressive language coursework.

#### **Chinese Partner Schools:**

Sun Yat-Sen University

Shanghai University of Finance & Economics College of Business

China Europe International Business School (CEIBS) MBA Program

Shanghai Jiao Tong University

Shanghai Advanced Institute of Finance

Shanghai Jiao Tong University

Antai College of Economics & Management

Japanese Partner Schools:

International University of Japan

Nagoya University of Commerce and Business

**Part-Time MBA**—The Part-Time MBA program provides working professionals a way to leverage their education while maintaining full-time employment. The global business environment is constantly undergoing changes, therefore the Part-Time MBA program stresses the development of analytical skills and their application to decision-making rather than simply reviewing current practices. Students gain a solid academic foundation for professional careers in management.

Students in the part-time program generally take two courses per semester with classes held once a week per subject area. Classes meet during the weekday evenings and are offered each semester and during both summer sessions. Students in the part-time program enjoy the flexibility of being able to complete their degree at their own pace. Depending on the number of courses taken each semester, part-time students can usually complete their degree in three years.

**Joint Programs**—The Shidler College of Business also offers four joint MBA programs. The JD/MBA and the MS in Nursing Administration/MBA. Applicants must meet the admission requirements and apply to both programs to be eligible for joint programs.

#### **Executive MBA**

The Executive MBA (EMBA) program is a 22-month degree program designed for highly motivated managers who want to increase their knowledge and acquire the skills needed to assume broader corporate responsibility. A total of 48 credit hours is completed during this accelerated degree program. Classes are uniquely scheduled to allow working individuals to participate with maximum convenience to themselves and their sponsoring organizations. The program consists of a short residence session at the start of the first academic year, with classes meeting every Tuesday evening and alternate Saturdays. An undergraduate degree, GMAT exam, at least five years of progressively successful work experience, and a current management position are required for admission. A new EMBA class begins in August of alternate years.

#### **Executive Distance Learning MBA**

The Executive Distance Learning MBA is a 22-month program designed to meet our neighbor islands' business demands by providing advanced business training to their residents. The 48-credit hour program is geared toward individuals who have shown leadership or management potential. It enables students from the neighbor islands to pursue a graduate degree without having to travel and with limited interruption to their professional obligations or family life. The executive distance learning MBA classes are highly interactive and are broadcast in real time so that all students on the receiving sites will receive instruction simultaneously. Students will have 16 visits to UH Mānoa for their intensives throughout the program. The instructors, curriculum, and academic standards are the same as our regular evening UH MBA program. As such, it requires the completion of 48 semester credit hours of graduate level courses divided into two parts: the required core and elective courses. Electives will be determined by the students as a group based on collective needs.

#### **Executive MBA–Vietnam (Ho Chi Minh City and Hanoi)**

The Executive MBA-Vietnam (EMBA) is a 22-month degree program in business administration, conducted in cooperation with the International University in Ho Chi Minh City and the Hanoi School of Business in Hanoi. Both institutions are part of the Vietnam National University. The 48-credit-hour program is modeled after the Executive MBA conducted in Honolulu, with the same faculty and curriculum. Faculty members teach courses in Ho Chi Minh City and Hanoi in one-month modules, partly as distance learning. Participants in the program are established Vietnamese executives, some Americans, East Asians, and other expatriates. EMBA has Asian business as its focus but constant consideration is given to the impact of globalization on business and economics in the region.

#### **MBA Requirements**

All MBA students are expected to enter the program with computer competency and English language proficiency. Up to six courses of English as a second language may be required of international students depending upon placement exam results.

The MBA program consists of 21 credit hours of core courses: BUS 621, 622, 623, 624, 626, 627, 628, 629, 630, and 631; 21 credits hours of electives; the capstone experience, which consists of BUS 632 Business Policy and Strategy (3 credit hours) and BUS 696 MBA Consulting Practicum (3 credit hours).

#### **Required Core Courses**

- BUS 621 Business Statistics (1.5)
- BUS 622 Economic Foundations of Strategy (1.5)
- BUS 623 Marketing Management (3)
- BUS 624 Accounting for Decision-making (3)
- BUS 626 Leadership and Organizational Behavior (3)
- BUS 627 Business, Government, and External Environment (1.5)
- BUS 628 Ethics (1.5)
- BUS 629 Managerial Finance (3)
- BUS 630 Managing Information Technology for Strategic Advantage (1.5)
- BUS 631 Operations and Supply Chain Management (1.5)

**Electives (21 credit hours)**

Of the required 21 credit hours, six may be at the 400-level. Students may also take graduate electives from outside the college as long as at least nine elective credits are completed within Shidler College.

**Professional Development (0 credit hours)**

- BUS 601 Professional Development (two semesters)  
Required for full-time MBA programs

**Integrative Capstone (6 credit hours)**

- BUS 632 Business Policy and Strategy (3)
- BUS 696 MBA Consulting Practicum (3)

**Thesis Option**

In consultation with their advisor, a student may opt to do a research thesis in place of BUS 696 and three elective credits. Thesis students enroll in BUS 700 Thesis Research.

**MBA Admission Requirements**

For admission into the MBA graduate programs, Shidler College of Business applicants must take the GMAT within five years prior to applying, have a recommended GPA of 3.0 and at least two years of full-time post-baccalaureate work experience (five years for Executive MBA and Executive MBA-Vietnam applicants). Applicants must also submit essays, a Statement of Objective, resume, two letters of recommendation, and as part of the admission decision, candidates may be invited for an interview. Admission is competitive. Thus, the college is not always able to admit all qualified applicants.

All applicants who received a bachelor's and/or master's degree in a country where English is not the primary language of instruction are required to take the TOEFL or IELTS. Test scores may not be more than two years old. International applicants who earned a bachelor's degree (or an equivalent) within the last five years at a regionally accredited or recognized institution in the U.S., Australia, Canada (excluding Quebec), New Zealand, Singapore or the United Kingdom are exempt from the TOEFL. The minimum TOEFL score is 550 for the Executive MBA, 500 for the Executive MBA-Vietnam, and 600 for all other MBA programs, or internet based test (IBR) score of 100, or IELTS score of 7.

Information about the TOEFL may be obtained from the Educational Testing Service at [www.toefl.org](http://www.toefl.org). Information about the IELTS may be found at [www.ielts.org](http://www.ielts.org). Information regarding the GMAT may be found at [www.mba.com](http://www.mba.com).

Admission requirements for the Master of Accounting programs are found in the "Accounting" section within the Shidler College of Business. Admission requirements for the PhD program in International Management are found in the "PhD in International Management" section of this *Catalog*.

For detailed information regarding the MBA programs, contact the Shidler College of Business Office of Student Academic Services, 2404 Maile Way #G202, Honolulu, HI 96822; (808) 956-8266; email: [mba@hawaii.edu](mailto:mba@hawaii.edu); or web: [www.shidler.hawaii.edu](http://www.shidler.hawaii.edu).

For detailed information regarding the Executive MBA programs, contact the Shidler College of Business Executive Education Center, 2404 Maile Way #A303, Honolulu, HI 96822; (808) 956-8135; email: [emba@hawaii.edu](mailto:emba@hawaii.edu); web: [www.shidler.hawaii.edu](http://www.shidler.hawaii.edu).

**Master of Accounting**

The Master of Accounting (MAcc) degree provides an advanced education in taxation, financial accounting, and auditing necessary for students to pursue leading positions in public practice, business, government, and related fields.

The program offers students the opportunity to adequately prepare for today's multifaceted accounting practice by strengthening their understanding of the body of accounting knowledge, as well as preparing them for the complexities and new technology facing the accounting profession. The objectives of the program include: a) providing the educational opportunity necessary for students to become qualified professional accountants for leading positions in public practice, business, not-for-profit organizations, government, and related fields; b) enhancing students' intellectual and analytical skills with research skills necessary to further educate themselves after graduation, including exposure to leading high technology; and c) enhancing students' professional communication skills necessary for success in a contemporary accounting environment. Completion of this program will fulfill the State of Hawai'i's 150 credit hour requirement for Certified Public Accountant Licensure. In addition, there are opportunities available to study abroad (Asian Field Study), as well as internships (up to 3 graduate level credits), and career development services to further enrich and support your undergraduate and graduate accounting studies.

MAcc students may choose one of two suggested concentrations: (tax or financial reporting) or create their own.

**Admissions Guidelines**

- GPA 3.0
- GMAT taken within the last 5 years
- International Students: TOEFL 600 or IELTS 7.0 scores\*
- No work experience required

\*Applicants who do not meet these requirements may still be granted admission but may be required to take a placement exam at the time of matriculation and/or to take English language classes in addition to their MAcc coursework.

**3/2 Master of Accounting**

The 3/2 Master of Accounting (MAcc) program is an integrated, five-year 150-credit hour program designed for students who want to earn both undergraduate and graduate degrees in accounting. Students in this program gain the skills necessary to build a successful career in the multifaceted, dynamic practice of accounting. Current undergraduate students may apply to the program during their junior year. This program is for students who wish to enter professional careers in public practice, business, non-profit organizations, and government sectors. Completion of this program will fulfill the State of Hawai'i's 150 credit hour requirement for Certified Public Accountant Licensure. In addition, there are opportunities available to study abroad (Asian Field Study), as well as internships (up to 3 graduate level credits), and career development services to further enrich and support your undergraduate and graduate accounting studies.

MAcc students may choose one of two suggested concentrations: tax or financial reporting.

Email: [macc@hawaii.edu](mailto:macc@hawaii.edu)

## Master of Human Resource Management

The Master of Human Resource Management (MHRM) degree is for individuals who are in human resource management functions and want to upgrade their skills, or individuals who want to move into the profession. The program is also offered to the neighbor islands via video conferencing.

Over the last several decades, HRM has become a much more demanding profession, requiring specialized training and appropriate work experience. Job specialties in HRM include training, staffing, compensation and health benefits, health and safety, organizational development, and career development. Each of the specialties is overseen by demanding legislation and the push to optimize the competitiveness of the organization. The human resource management curriculum is interdisciplinary in its approach, integrating other disciplines—especially organizational behavior, management systems, and labor and employment legislation.

Admission criteria are as follows:

- A bachelor's degree from an accredited college/university or equivalent.
- A grade point average of 3.0 in the last 60 hours of undergraduate work, if within the last five years.
- A satisfactory interview with the director of the MHRM program.
- A biographical sketch describing pertinent activities/accomplishments.
- Two years' professional/managerial post-baccalaureate employment preferred.
- TOEFL score of 500 for graduates of foreign universities.

The program consists of 30 academic credit hours, or 10 courses. The curriculum will include the foundation courses (compensation, staffing, training, industrial relations, and health and safety) leadership, organizational development, negotiations, an integrative capstone experience, and an elective. The MHRM is a cohort program where students will go through the entire program as a group. The classes will be offered on every other Saturday and one evening per week. The program should take approximately 16 months.

## PhD in International Management

The PhD Program in International Management offers an academically challenging and rigorous program designed to prepare highly motivated and intellectually gifted students for a career in research, teaching, and service with a particular focus on Asia and the Pacific. This full-time program emphasizes a strong foundation in both methodological and theoretical training. A teaching opportunity supported by ongoing seminars in pedagogy will give students valuable experience in the classroom. Collaborative work with faculty will enhance research and learning opportunities. Students will also gain valuable computing, quantitative, and methodological skills vital to effective research.

Doctoral candidates work closely with Shidler College faculty in areas of specialization that often parallel the strengths of faculty members. These areas include International Accounting, Asian Finance, Global Information Technology Management, International Marketing, and International Organization and Strategy.

The program is small and individualized, which enables students to pursue their own areas of interest. Admission, for the fall semester only, is highly competitive, and only full-time

study is allowed. The expected completion time for the doctoral degree is four to five years.

For admission to the PhD in International Management, the candidate applicant should meet the following criteria. The deadline for application is **March 1**. (Note that admission to the doctoral program is not automatic, and will be determined on a case-by-case basis by a faculty committee.)

### Minimum Qualifications

- Master's degree or bachelor's degree. Subject matter of the foundation courses in business or accounting obtained at an accredited school.
- GMAT or GRE in the top 25<sup>th</sup> percentile
- GPA of 3.2 or above on a 4.0 scale
- TOEFL (computer-based) of 250 or the equivalent score on the IELTS
- 3 letters of reference
- Exceptions to the above requirements may be made by the PhD Admissions Committee on a case-by-case basis.
- Meeting the above minimum requirements is necessary for consideration, but does not automatically assure admission. Admission is granted on a case-by-case basis by the PhD Admissions Committee.

### Recommended Qualification

- Personal interview or telephone interview
- Teaching potential as demonstrated by previous teaching performance, if available.
- Research interests compatible with Shidler College faculty research
- Example of previous research paper or essay written by candidate, if available.

### Desirable Qualifications

- International experience
- Foreign language ability in area of desired specialization
- International area academic studies, such as Japan or China area studies

For further detailed information, please contact the PhD Program in International Management at (808) 956-6723; email: [imphd@hawaii.edu](mailto:imphd@hawaii.edu); web: [shidler.hawaii.edu/phd](http://shidler.hawaii.edu/phd).

## Special Professional Programs

See [www.shidler.hawaii.edu](http://www.shidler.hawaii.edu)

### Asia-Pacific Economic Cooperation (APEC) Studies Center

The APEC Studies Center was formed in July 1994 as a joint venture of UH Mānoa and East-West Center and is one of the founding members of the U.S. APEC Study Center Consortium. APEC has become the primary vehicle for developing a sense of economic community in the Asia-Pacific region. The 21 member economies that currently comprise APEC constitute about half of the world's total annual output in terms of GNP and represent almost 50 percent of the world's total merchandise trade.

### Asia-Pacific Financial Markets (FIMA) Research Center

FIMA Research Center conducts academic and policy research on financial markets in the Asia-Pacific region. It serves the securities and banking industries, academia, and government sector through four major programs:

The Asian Shadow Financial Regulatory Committee (ASFRC) is a group of independent experts on economic policy issues relevant to financial markets and the financial industry of the Asia-Pacific region. ASFRC members are independent of any of the members' affiliated institutions. The policy recommendations of ASFRC are its own. Typically, ASFRC tries to translate concepts drawn from academic literature into concrete policy recommendations.

The *Pacific-Basin Finance Journal* publishes the highest quality theoretical and empirical research on financial markets of the region.

The FIMA Financial Executive Program is intended for market regulators and financial executives to develop a better understanding of the financial markets in the region as well as in the developed economies in light of state-of-the-art finance theories.

The PACAP Databases Program creates, maintains, and distributes capital market databases of Asia, including China, Hong Kong (SAR), Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand. The program is jointly undertaken by FIMA and the University of Rhode Island PACAP Research Center. The FIMA Research Center assumes a leadership role as the front office by acting as a liaison with participating financial institutions from the region. The PACAP Research Center, in turn, provides the back office function of maintaining, updating, and distributing the databases.

### **The Center for International Business Education and Research (CIBER)**

The UH CIBER goal is to promote international business research and development activities within the UH System and the community. As one of 33 such centers at major universities across the U.S., the UH CIBER serves as a national resource for improved international business techniques and strategies as well as a regional resource providing training and research designed to meet the needs of companies doing business with the Asia-Pacific.

Working with faculty and researchers from various disciplines across UH Mānoa and from the UH System, CIBER has promoted the creation of interdisciplinary courses, research and programs. Other activities supported include the innovative Field Study in Asia course, the annual PAMI Summer Program, faculty research projects on international business topics, studies abroad and overseas internships by students and travel support for faculty and doctoral students to present papers at national and international conferences. Outreach initiatives include working with various community organizations to sponsor workshops and other training activities.

### **Executive Education Center**

The Executive Education Center is responsible for the Shidler College's executive masters programs as well as custom and open-enrollment programs. Our programs develop the critical skills and leadership capacities of individuals, teams, and organizations to sustain a competitive advantage in a global economy.

We design and deliver custom programs to support organizations in achieving their strategic goals. Our open-enrollment programs are offered to flexibly serve individuals and organizations seeking breakthrough learning opportunities. For more information, or to speak with an executive education staff member, please email [execed@hawaii.edu](mailto:execed@hawaii.edu) or call (808) 956-8135.

### **Family Business Center of Hawai'i**

The Family Business Center of Hawai'i is a partnership between Hawai'i's family business community and the UH's Shidler College of Business. The mission of the Family Business Center is "equipping, educating, and celebrating families in business." The center provides opportunities for the families to address many of the challenges they face by providing educational seminars and a forum for the exchange of information between families so that they can survive and thrive into and through the 21<sup>st</sup> century.

### **Pacific Asian Center for Entrepreneurship and E-Business (PACE)**

The goal of PACE is to foster the entrepreneurial spirit among students, faculty, and the community. The center supports the inclusion of entrepreneurship-related courses in the UH Mānoa curriculum and offers a summer certificate in international entrepreneurship. In addition, PACE also supports the student Entrepreneurship Club and numerous outreach programs, including statewide business plan competitions at the high school and college levels, the Kauffman Entrepreneurial Internship Program, a distinguished lecture series, the Hawai'i Entrepreneurs Bootcamp, and programs for Native Hawaiian entrepreneurs.

### **Pacific Asian Management Institute (PAMI)**

PAMI was established in 1977 as an institute of international management education and research bridging the East and the West. Students, faculty, managers, and government officials from more than 170 companies and 200 institutions in 22 countries have attended cross-cultural, international management courses, and training programs developed by PAMI.

For a modest fee in addition to the summer course tuition, two certificate programs—in International Management and International Entrepreneurship—are offered by PAMI during the Summer Sessions. The curriculum features traditional (classroom-based) and online international business courses in management, marketing, finance, business economics, entrepreneurship, and human resource management. These are taught by faculty from UH Mānoa and from some of the best business schools in the U.S. and around the world. The certificate programs are open to undergraduate and graduate students from any discipline, to Americans and foreigners, who are admitted by the Summer Session Office.

The Pacific Asian Lecture Series (PALS), open to the public, is part of the PAMI summer program, as are occasional field trips and site visits. The highlight of PAMI's summer is the annual N.H. Paul Chung Luncheon and Lecture, held in honor of PAMI's founder and features a renowned international business speaker.

PAMI is the secretariat for the Pacific Asian Consortium on International Business Education and Research (PACIBER), with 36 member universities in the U.S., Canada, Asia, and Oceania.

### **Pacific-Basin Finance Journal**

The *Pacific-Basin Finance Journal* is an academic journal published five times a year by Elsevier Science publishers B.V. (North-Holland) in collaboration with the Shidler College of Business. The journal provides a specialized forum for the publication of the highest quality theoretical and empirical research on capital markets of the Asia-Pacific region and represents a

significant milestone in the FIMA Research Center's program and objectives as it effectively reaches a broader audience in terms of current developments in Asian and Pacific capital markets. Its primary emphasis will be placed on the following areas:

- investment and portfolio management
- theories of market equilibrium
- valuation of market equilibrium
- behavior of asset prices in financial sectors
- normative theory of financial management
- capital markets development
- market mechanism

### **Pacific Research Institute for Information Systems and Management (PRIISM)**

PRIISM is a center for research and educational activities. Drawing on a variety of academic disciplines, PRIISM focuses on information systems and technologies and management of organizations. Its primary objective is to promote research on the development, implementation, and use of information and communication technologies in organizations.

## **Career Development & Internships**

### **Undergraduate Students**

The Office of Internships and Career Development at Shidler College of Business provides career-related internships to gain real world experience while earning academic credits. Through the internship program, students strengthen their employment opportunities in the marketplace after graduation and gain greater insight into the selection of a career path, and network with professionals in their chosen field.

The Career Development Office provides extensive on-campus interview programs, career fairs, and workshops. The office is dedicated to assisting students in their career growth and development, and to helping employers identify and select highly qualified candidates. A broad range of services are offered to enhance our students' employment marketability. From career search and information sources to skills development workshops, we seek to educate, train, and advise our students to ensure successful preparation for entry in the business job market, and assist students in making the right career decisions.

The office maintains a business and alumni network that provides a link between recruiters and students, to maximize the potential for successful internship and permanent job placement.

For more information on the various programs, contact the Career Services Office at (808) 956-6972 or (808) 956-9330. Questions regarding graduate-level internships and career development should be directed to (808) 956-3122. Visit the internship and career development website at [shidler-hawaii-csm.symplicity.com](http://shidler-hawaii-csm.symplicity.com) for an active list of internships and jobs, along with valuable career links.

### **Graduate students**

The Office of Graduate Career Services and Professional Development provides career planning and professional development services for Shidler graduate students and alumni. The office offers career strategy and planning workshops, individual coaching and career management services, mentorship programs, and guest speaker events. Graduate students, who participate in the Professional Development Series, are exposed to a variety of industries and occupations by the Shidler College

of Business' employer partners and Graduate Career Services. Students are also equipped with basic professional development tools to support their career planning.

Shidler graduate students and alumni will have lifetime access to the Career Services Platform, Shidler Career Links. Students will be able to post their resumes, and search for internship and job opportunities posted by Shidler's employer partners. Students will be able to access career related announcements. Access Shidler Career Links at: [shidler-hawaii-csm.symplicity.com](http://shidler-hawaii-csm.symplicity.com).

The Office of Graduate Career Services and Professional Development offers lifetime services to support the Shidler student and alumni career efforts and ambitions. For more information, contact the Office of Graduate Career Services and Professional Development at (808) 956-3122 or (808) 956-2811.

## **International Study**

In addition to the study abroad programs offered through the UH Mānoa Study Abroad Center and the UH Mānoa's International Exchange (MIX) Office, the following Shidler College sponsored programs are available.

### **Asian Field Study**

Shidler College offers two Asian Field Study courses, a summer 10-week, 6 credit course (BUS 477/677) which includes three weeks in Asia, and a variable credit course (BUS 476/676), which includes a required preparatory course (BUS 475/675) followed by one to three weeks in Asia. Students visit companies, factories, economic agencies, and government offices to learn more about organizational structure, government policies, and international competition and their effect on these units. Classes are held on campus before and after the field study. BUS 475/476/477 are approved IB electives. IB major, entrepreneurship major, and management major electives, and BUS 675/676/677 qualify for the entrepreneurship certificate. Consult with your academic advisor to determine applicability. Some Shidler College scholarships are available on a competitive basis to help defray the costs.

### **Shidler College International Exchange Agreements**

Shidler College students can apply to study abroad in connection with several official exchange agreements between Shidler College of Business and overseas universities. These international universities include:

- Chulalongkorn University in Thailand;
- City University of Hong Kong;
- Copenhagen Business School in Denmark;
- Hong Kong University of Science and Technology;
- Keio University in Japan;
- Keio Business School (MBA) in Japan;
- Korea University;
- National Sun Yat-Sen University in Taiwan;
- National University of Singapore;
- NEOMA Business School-Reims in France;
- Seoul National University in Korea;
- Thammasat University in Thailand;
- Waseda University in Japan;
- WHU-Otto Beisheim School of Management in Germany;
- Yonsei University in Korea.

Other UH Mānoa partner universities that are AACSB-accredited include:

- Chinese University of Hong Kong;
- Ewha Womans University in Korea;

Fudan University in China;  
 Kyungpook National University in Korea;  
 Monash University in Australia;  
 National Taiwan University;  
 Sogang University in Korea;  
 University of Auckland in New Zealand;  
 University of Otago in New Zealand;  
 University of Technology, Sydney in Australia;  
 University of Waikato in New Zealand;  
 Victoria University of Wellington in New Zealand.

In most cases, business courses are offered in English, language training is available, and the host schools often plan excursions for exchange students. Undergraduate students enroll in IS 099 at UH Mānoa and Graduate students enroll in BUS 667 as full-time students at UH Mānoa, therefore, the host school tuition is waived. Travel awards and Shidler Scholarship programs (e.g., Freeman Asia Abroad, Johnson International Scholarship) are available on a competitive basis to help defray costs. To be nominated to a Shidler partner university, students must apply through the UH MIX program. Upon nomination, the student will make their own travel arrangements and coordinate their housing requests directly with the partner university. For more information, visit [www.shidler.hawaii.edu/international](http://www.shidler.hawaii.edu/international) or contact the Office of Student Academic Services in BusAd B-101 or call (808) 956-8215.

UH Mānoa and host school tuition is waived. Some scholarship assistance is available on a competitive basis to help defray travel costs. The student makes their own travel arrangements and coordinates their housing requests directly with the partner university. For more information, visit [www.shidler.hawaii.edu/international](http://www.shidler.hawaii.edu/international) or contact the Office of Student Academic Services in BusAd B-101 or call (808) 956-8215.

## Student Organizations

Active student organizations within Shidler College provide students with opportunities to interact socially, academically, and professionally. These organizations include Accounting Club, American Marketing Association, Beta Alpha Psi, Business Executive Society of Tomorrow, Delta Sigma Pi Business Fraternity, Entrepreneurs Club, Financial Management Association, Information Technology Management Association, Inter-Business Council, Pi Sigma Epsilon, International Business Organization, and Society of Human Resource Management. Students with superior academic records are invited for membership in Beta Gamma Sigma, the national honor society for business majors, and Beta Alpha Psi for accounting majors.

The Graduate Business Student Association is a focal point of graduate student life at Shidler College. All graduate business students are members. Net Impact is an organization for both undergraduate and graduate students. Its purpose is to foster student leadership ability and promote socially responsible business practices.

Guest speakers, tours of local businesses, workshops, seminars, and internships are supported by the various student organizations—many of which have earned national recognition and awards for their contributions to the professional development of Shidler College students.

## Honors and Awards

Shidler College of Business and its departments provide scholarships and awards to exceptional students. For a list of these scholarships, see the “Tuition, Fees, and Financial Aid” section of this *Catalog*. Detailed information on scholarships can be obtained at [www.star.hawaii.edu](http://www.star.hawaii.edu).

## Accounting

School of Accountancy  
 BusAd C-306  
 2404 Maile Way  
 Honolulu, HI 96822  
 Tel: (808) 956-7332  
 Fax: (808) 956-9888  
 Web: [shidler.hawaii.edu/soa](http://shidler.hawaii.edu/soa)

### Faculty

\*J. Wendell, PhD (Director)—accounting  
 \*S. Daniel, PhD—accounting  
 \*R. Debrecey, PhD—accounting  
 \*L. Guan, PhD—accounting  
 \*B. Jung, PhD—accounting  
 M. Kaiama, MAcc—accounting  
 \*T. Pearson, LL.M./JD—accounting  
 \*H. Pourjalali, PhD—accounting  
 \*J. N. Teruya, PhD—accounting  
 \*T. Wang, PhD—accounting  
 M. Woollen, MAcc—accounting  
 \*D. C. Yang, PhD—accounting  
 \*J. Zhou, PhD—accounting

**Degrees Offered:** BBA in accounting, MAcc, PhD, International Management, International Accounting concentration

## The Academic Program

The School of Accountancy within the Shidler College of Business offers the Bachelor of Business Administration (BBA) with a major in accounting (ACC) and the Master of Accounting (MAcc) degrees. The undergraduate accounting program provides students with an educational foundation for entry into a wide range of accounting careers and enables students to pursue graduate or advanced professional education. The MAcc program provides advanced education in taxation, financial accounting, and auditing necessary for students to pursue leading positions in public practice, business, not-for-profit organizations, government, and related fields.

An accounting background will provide a competitive edge for those aspiring to become chief executive officers. Students often study accounting even though their major interests may be in other areas of business. This enables these students to have a salable skill for easy entry into a business firm.

### Mission

The mission of the School of Accountancy is to provide students with an accounting and business education relevant to a technologically advanced global economy with emphasis on the Asia-Pacific region; to advance accounting and business knowledge through research; and to instill students with skills and a sense of moral, ethical, and professional obligations to society.

## Accounting Careers

The accounting profession may be divided into the following two major segments.

### Public Accounting

Specialties in this area include auditing, tax, and management advisory services. Some of the larger firms have reorganized these activities along industry lines. Students entering public accounting should prepare to become a Certified Public Accountant (CPA). Many students who graduate with an accounting degree are employed by national or international CPA firms, or by local CPA accounting firms. Some open their own independent practices after they become certified.

### Other Accounting Jobs

Accounting positions in industry are available in firms engaged in manufacturing, wholesaling, retailing, banking, transportation, insurance, and real estate, as well as in hotels, entertainment enterprises, and restaurants. Positions in these organizations can be found in the areas of financial accounting, managerial accounting, internal auditing, tax accounting, and accounting information systems. Graduates also find employment as accountants in various branches of federal, state, or local governments or in not-for-profit organizations.

## Undergraduate Study

### BBA in Accounting

#### Major Requirements

- ACC 321, 323, 401, 409, 418, and 460

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### MAcc Degree

#### Admission Requirements

In addition to the Shidler College of Business graduate admission requirements, students without an undergraduate degree in accounting are required to complete the following undergraduate deficiencies in accounting: ACC 201 and 202 prior to admission to the MAcc program, and ACC 321, 323, 401, 409, and 418 prior to graduation.

Admission to the MAcc program is competitive. The school seeks individuals who have the potential for outstanding achievement in accounting, auditing, or taxation. The admissions committee primarily considers the candidate's academic record and GMAT score and places emphasis on strong communication skills.

#### Degree Requirements

The MAcc degree requires 30 credits (10 courses)

### Required Accounting courses (15 credits)

- ACC 413 Law for the Accountant
- ACC 415 Advanced Financial Accounting
- ACC 616 Accounting Theory and Development
- ACC 625 Accounting and Tax Research
- ACC 660 Analysis and Decision-making

### Elective Accounting courses, three of the following (9 credits)

Students can take any 400-600 level accounting course except ACC 460 and those courses used to fulfill deficiency or core requirements. No more than two elective courses may be from the 400-level. The following tracks are recommended:

#### Tax concentration (any three of the following)

- ACC 407 Taxation of Business Entities
- ACC 638 Estate and Gift Taxation and Planning
- ACC 639 Multijurisdictional Taxation

#### Financial Reporting concentration (any three of the following)

- ACC 619 Advanced Auditing
- ACC 620 Global Accounting
- ACC 635 Advanced Public Sector Accounting

#### Additional Elective courses (6 credit hours)

- Students may take any two of the following:
- Courses from the Tax or Financial Reporting tracks provided that they are not fulfilling ACC Elective requirements
  - ACC 690 Current Topics in Accounting
  - ACC 695 Accounting Internship (only three credit hours of an internship course can be taken for credit)
  - 400- to 600-level courses from the Shidler College of Business (BLAW, FIN, HRM, ITM, MGT, MKT, RE), the Field Study in Asia (BUS 677), or selected courses in PACE, LAW, COM, or COMG (business courses may not include MBA core classes BUS 621-632, BUS 696)

Students must complete a minimum of 30 credits to earn the Master of Accounting degree. If a course is waived, another course in the same area of study and of the same or higher level must be substituted.

#### Thesis Option

In consultation with their advisor, a student may opt to do a research thesis in place of ACC 660 and three elective credits. Thesis students enroll in ACC 700 Thesis Research.

# Financial Economics and Institutions

Department of Financial Economics and Institutions  
 BusAd C-305  
 2404 Maile Way  
 Honolulu, HI 96822  
 Tel: (808) 956-6675  
 Fax: (808) 956-9887  
 Web: fei.shidler.hawaii.edu/

## Faculty

\*R. Chang, PhD (Chair)—finance  
 \*J. Ai, PhD—risk management and insurance  
 B. Bystrom, MA, MBA—finance  
 D. Cost, JD—finance  
 \*W. Huang, PhD—finance  
 \*D. Hunter, PhD—finance  
 J. Kim, PhD—finance  
 \*Q. Liu, PhD—finance  
 \*J. B. Marsh, PhD—business economics  
 \*E. Mais, PhD—finance  
 \*D. McClain, PhD—economics  
 \*G. Meissner, PhD—financial engineering  
 \*M. Misawa, PhD—international finance and banking  
 \*N. Ordway, PhD—real estate  
 \*G. Rhee, PhD—finance  
 V. Roley, PhD—economics  
 \*J. P. Snyderhoud, PhD—business economics  
 J. Wong—finance

**Degrees Offered:** BBA in finance

## The Academic Program

The department offers courses in finance, business law, real estate, and insurance.

## Undergraduate Study

### BBA in Finance

The major in finance (FIN) develops analytical skills in the planning, management, and control of financial resources to achieve the financial goals of the organization. Central to that task is the evaluation of the risk and return consequences of financial decisions. The major financial decisions studied are the selection of assets (equipment, buildings, inventories, securities, etc.) and the choice among financing alternatives (selling stock, borrowing from a bank, issuing bonds, etc.). Students may select course sequences that concentrate on business financial management, investment management, personal financial planning, Asian finance, and real estate finance.

The major prepares students for positions and career advancement in financial institutions, retail, wholesale, and manufacturing firms; securities institutions; and personal financial planning.

### Requirements

- FIN 311
- Four elective courses from:
  - FIN 301, 305, 307, 321, 331, 341, 412, 415, 444, 450, 490;

- RE 300, 310, 320, 330, 351, 390;
- INS 300, 411, 431

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

# Information Technology Management

Department of Information Technology Management  
 BusAd E-303  
 2404 Maile Way  
 Honolulu, HI 96822  
 Tel: (808) 956-7430  
 Fax: (808) 956-9889  
 Email: shidleritm@hawaii.edu  
 Web: shidler.hawaii.edu/itm

## Faculty

\*E. Davidson, PhD (Chair)—information systems  
 \*T. Bui, PhD—information systems  
 \*H. M. Chen, PhD—information systems  
 \*F. N. Kazman, PhD—information systems  
 \*R. Minas, PhD—information systems  
 \*R. R. Panko, PhD—information systems  
 \*D. Port, PhD—information systems  
 \*B. Xiao, —information systems

**Degrees Offered:** BBA in management information systems

## The Academic Program

The focus of the Department of Information Technology Management includes management of information technologies within organizations, application, development and use of information systems for management and business.

## Undergraduate Study

### BBA in Management Information Systems

The Management Information Systems (MIS) major learns how to analyze opportunities for business change and growth using information technologies (IT), to design and develop business solutions that utilize IT, and to manage projects to implement IT-related change. Designing and managing information flows within and between firms and their customers is critical in today's business enterprise. All firms in every type of industry—large or small, for-profit or not-for-profit—rely on information systems and technologies for ongoing operations and future growth. The internet and other information technologies also create entrepreneurial opportunities for new or existing firms. (Many of today's leading firms grew rapidly from IT innovation.)

The MIS major offers students the flexibility to focus course work on business analysis, project management, or technical design. MIS majors are prepared for careers in project management, business analysis, networking, system architecture and design, and technical support. MIS majors are prepared to work as in-house information systems staff, as consultants for information systems and accounting firms, as independent contractors, and as business entrepreneurs. The Bureau of Labor Statistics forecasts increasing job grow for MIS-related careers.

## Requirements

- ITM 352, 353, 354, 431
- One elective from the following: ITM 321, 322, 385, 387 (various), 433, ICS 300- or 400-level course (excluding ICS 399 or 499)
- Double majors may use the following as their elective: ACC 409, MKT 362, 363 or 410
- Students who take both ICS 111 and 211 and achieve a grade of “B” or better may petition to waive the elective requirement.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

# Management and Industrial Relations

Department of Management and Industrial Relations  
 BusAd C-301  
 2404 Maile Way  
 Honolulu, HI 96822  
 Tel: (808) 956-8485  
 Fax: (808) 956-2774  
 Web: [mir.shidler.hawaii.edu/](http://mir.shidler.hawaii.edu/)

## Faculty

- \*H. D. Bess, PhD (Chair)—organizational behavior, transportation
- \*D. Bhawuk, PhD—cross-cultural management, positive psychology
- \*J. Butler, PhD—entrepreneurship
- \*R. H. Doktor, PhD—international business, organizational behavior, strategy
- H. Folk, PhD—human resources management, international business, industrial relations
- S. Ghumman, PhD—organizational behavior, management, international management
- \*K. Ito, PhD—international business and strategic management
- A. Joshi, PhD—strategy, management
- H. Nguyen, PhD—management
- \*M. Rhee, PhD—organization theory, entrepreneurship
- \*J. Richardson, PhD—strategy, international business, entrepreneurship
- \*R. Robinson, PhD—angel investing, entrepreneurship and negotiations

**Degrees Offered:** BBA in entrepreneurship, BBA in human resources management, BBA in international business, BBA in management, Master of Human Resource Management

## The Academic Program

The Department of Management and Industrial Relations teaches courses in the following areas: international management, comparative management, entrepreneurship, organizational behavior, human resources management (HRM), and industrial relations (IR). The department offers majors in human resources management, international business, and management (MGT).

## Undergraduate Study

### BBA in Entrepreneurship

#### Requirements

- MGT 320
- FIN 341
- MKT 372
- Two elective courses from
  - BUS 475/476, 477
  - FIN 307
  - HRM 351
  - ITM 321, 385
  - MGT 341, 344, 345, 450, 461
  - MKT 341, 351, 352, 362, 363

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BBA in Human Resources Management

#### Requirements

- HRM 351
- HRM 468
- Four elective courses from
  - HRM 353, 354, 361, 453, 455
  - HRM 463, 465, 467, 469
  - MGT 341, 344

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BBA in International Business (Double major only)

#### Requirements

- FIN 321
- MKT 381
- MGT 342 or MGT 343
- Two elective courses from
  - ACC 460
  - ANTH 416
  - ASAN 312, 320
  - BUS 367 (with international focus), 475/476 (3 credits only), 477
  - BLAW 360
  - ECON 405, 410, 415, 460, 461
  - FIN 331, 444, 470, 490C
  - HRM 469
  - MGT 320, 342, 343, 344 (with international focus), 460
  - MKT 361 (with international focus)
  - POLS 306, 315, 316
  - TIM 324, 425, 442
    - Third-year foreign language (301, 302 or both)
- Integrative, international experience

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BBA in Management

#### Requirements

- HRM 351
- MGT 320(1B)
- MGT 341

- Two electives from
  - HRM 353, 354, 361, 453, 455, 463, 465, 467, 469(1B);
  - ITM 321;
  - MGT 342(1B), 343(1B), 344, 345, 348, 399, 450, 461;
  - MKT 321 if double majoring with Marketing

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Marketing

Department of Marketing  
 BusAd C-303  
 2404 Maile Way  
 Honolulu, HI 96822  
 Tel: (808) 956-6692  
 Fax: (808) 956-9886  
 Email: [mktg@hawaii.edu](mailto:mktg@hawaii.edu)  
 Web: [mkt.shidler.hawaii.edu/](http://mkt.shidler.hawaii.edu/)

### Faculty

- \*D. L. Alden, PhD—marketing communications, healthcare marketing, cross-cultural consumer behavior
- \*Q. Chen, PhD—e-commerce, online consumer behavior, consumer well-being
- R. Garrity, MS—principles of marketing, global sales management, cross-cultural consumer behavior
- N. Hartmann, PhD—principles of marketing, sales management
- \*E. M. Okada, PhD—marketing strategy, consumer decision making, new ventures marketing
- \*A. P. Palia, DBA—international business
- \*N. E. Synodinos, PhD—consumer behavior, marketing research
- \*S. L. Vargo, PhD—marketing theory, service-encounter evaluation, buyer-seller relationships, brand evaluation and extension
- \*J. R. Wills Jr., DBA—international marketing, technology marketing, marketing strategy

**Degrees Offered:** BBA in marketing

### The Academic Program

Marketing (MKT) involves studying the ways that organizations create and maintain mutually satisfying exchanges between themselves and their customers. Marketing course work helps students learn how to effectively and efficiently manage components of the marketing mix: product, distribution, communications, and price.

Marketing offers courses in marketing research, marketing strategies, consumer behavior, personal selling, internet marketing, advertising and promotion, entrepreneurial marketing, retailing, and multinational operations. After completing the marketing major, the student should possess knowledge that is applicable to a wide range of professional careers. These careers include advertising account executive, marketing manager, sales manager, and marketing research manager.

## Undergraduate Study

### BBA in Marketing

#### Requirements

- MKT 311, 321, and 391
- Two elective courses from MKT 331, 332, 341, 351, 352, 361, 362, 363, 372, 381, 410, 411

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

# College of Education



## Administration

Everly Hall 128  
 1776 University Avenue  
 Honolulu, HI 96822  
 Tel: (808) 956-7703  
 Fax: (808) 956-3106  
 Web: [coe.hawaii.edu](http://coe.hawaii.edu)

Dean: Donald B. Young, Jr.

## General Information

The College of Education (COE) prepares teachers, administrators, and other education personnel; provides professional development for teachers and other education professionals; disseminates information for understanding educational issues to school and community groups; and conducts basic and applied research related to issues in education. The college is nationally accredited by the National Council for the Accreditation of Teacher Education.

The college is committed to preparing all educators to work with diverse populations of students, including those with special needs; ensuring that Hawai'i's educators are prepared to use technology to enhance instruction and learning; and fostering the skills and abilities of graduates to assume leadership roles in education throughout the state and region.

The College of Education offers three baccalaureate degrees, two post-baccalaureate certificates, nine master's degrees, four

graduate certificates, and three doctoral degrees. State approved teacher education programs (SATEP), leading to initial teacher licensure, are offered at the baccalaureate, post-baccalaureate, and master's levels. Many COE programs are offered through distance education, including interactive video, web-based, and hybrid formats. For more information, contact individual departments or visit the COE website at [www.coe.hawaii.edu](http://www.coe.hawaii.edu).

## Vision and Mission

### Vision

The College of Education envisions a community of educators who provide innovative research, teaching, and leadership in an effort to further the field of education and prepare professionals to contribute to a just, diverse, and democratic society, and enhance the well-being of the Native Hawaiian people and others across the Pacific Basin through education. Our vision guides the direction and work of the college in and beyond Hawai'i and is informed by a sense of purpose and a sense of place.

### Mission

Our mission is to collaborate as a professional community in three primary areas of responsibility or kuleana:

- Teaching—prepare new educational professionals and provide on-going professional development in education.
- Research—increase the knowledge base in education and related fields through the production and application of educational research.
- Service—serve as partners and leaders for excellence in education.

### Philosophy

The College of Education's philosophy of responsibility is reflected in our purposes, which are to promote excellence in teaching, scholarship, and service; encourage life-long learning; and develop educational leadership at all levels.

### Accreditation

The College of Education holds the following national accreditations:

- National Council for the Accreditation of Teacher Education (NCATE)—Initial and advanced educator preparation programs
- Council on Rehabilitation Education (CORE)—Rehabilitation Counselor Education program

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- Commission on Accreditation of Athletic Training Education (CAATE)—Entry-Level Athletic Training Program and Post-Professional Athletic Training Program

### **Degrees and Certificates/Licenses**

**Bachelor's Degrees:** BEd in elementary education (with early childhood, Hawaiian education, and special education dual preparation available), BEd in secondary education by academic major, and BS in kinesiology and rehabilitation science.

**Master's Degrees:** MEd in curriculum studies, MEd in early childhood education, MEd in educational administration, MEd in educational foundations, MEd in educational psychology, MEd in educational technology, MEd in special education, MEdT in teaching, and MS in kinesiology and rehabilitation science with options in athletic training (entry-level or post-certification), physical activity/adapted physical activity, and rehabilitation counselor education.

**Doctoral Degrees:** PhD in education (with specializations in curriculum and instruction, educational administration, educational foundations, educational policy studies, educational technology, exceptionalities, and kinesiology), PhD in educational psychology, and EdD in Professional Educational Practice.

**Certificates:** PBCSE (post-baccalaureate certificate in secondary education), PBSPED (post-baccalaureate certificate in special education), and graduate certificates in Disability and Diversity Studies, Online Learning and Teaching, PK-3 Education, and Reading K-12.

### **Advising**

#### **BEd Elementary Education, Dual Teacher Preparation Programs in Elementary/Special Education, Elementary/Early Childhood Education, Early Childhood/Special Education, and Elementary/Hawaiian Education; Secondary Education; BS in Health and Physical Education and Kinesiology and Rehabilitation Science; Post-baccalaureate Certificate in Secondary Education; Post-Baccalaureate Certificate in Special Education; and Master of**

#### **Education in Teaching**

Office of Student Academic Services (OSAS)  
Director, Melvin E. Spencer, III  
Everly Hall 126  
1776 University Avenue  
Honolulu, HI 96822  
Tel: (808) 956-7849 / 956-7915  
Fax: (808) 956-4271  
Email: osas@hawaii.edu  
Web: coe.hawaii.edu/undergraduate/advising-paths-to-teaching

#### **BS in Kinesiology and Rehabilitation Science**

Department of Kinesiology and Rehabilitation Science  
Physical Education/Athletics 231  
1337 Lower Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7606  
Fax: (808) 956-7976

### **Graduate Degrees**

Contact the departmental offices of the graduate field of study in the College of Education.

### **Undergraduate Programs**

The college offers the bachelor of education (BEd) degree in elementary education (with early childhood, Hawaiian education, and special education dual preparation available), in secondary education by academic major, and the bachelor of science (BS) degree in health and physical education, and in kinesiology and rehabilitation science (KRS). Specific degree requirements for these undergraduate programs and General Education Requirements are available in the Office of Student Academic Services (OSAS), Everly Hall 126 or on the web. For program requirements for the BEd, see the Institute for Teacher Education section of the *Catalog*. For program requirements for the BS in KRS, see the Kinesiology and Rehabilitation Science section of the *Catalog*. The BEd in Elementary Education is offered on campus at UH Mānoa and statewide through distance education.

### **Admissions Requirements for Undergraduate Majors**

Students applying for admission to the bachelor of education (BEd) and the bachelor of science (BS) programs must meet all UH Mānoa admission requirements and complete the COE online Major Declaration Form. Majors should follow specific General Education Requirements listed on their program sheets. Please consult an advisor. During the admission process, applicants may be referred to, or interviewed by, appropriate faculty members regarding their qualifications and potential as educators. The behavior of applicants should reflect high ethical and professional standards at all times. Behavior may be evaluated on the basis of past experience and current interaction with college personnel.

To declare a major, see [makalei.coe.hawaii.edu/student](http://makalei.coe.hawaii.edu/student). Admission requirements are subject to change. Call OSAS for updated information.

### **Additional Requirements for Licensure Track/State Approved Teacher Education Programs (SATEPs)**

The college offers licensure track/state approved teacher education programs (SATEPs) that qualify program completers to apply for licensure with the Hawai'i Teacher Standards Board (HTSB). The college also offers a prelicensure track for students who wish to declare an education major. However, participation in the prelicensure track does not guarantee admission to a SATEP. Students pursuing a teaching license also must meet the following criteria or those in effect due to HTSB actions at the time of application:

1. Achieved upper division status by completing a minimum of 55 credit hours from an accredited college.
2. Cumulative GPA of 2.75 for all postsecondary institutions attended.
3. For secondary education majors, GPA of 2.75 in the content major. Students pursuing a secondary major in mathematics, physical education, or science may be considered for admission to the baccalaureate level SATEP with a minimum cumulative GPA of 2.50 and a major cumulative GPA of at least 2.50.
4. PRAXIS I—Pre-Professional Skills Test (PPST/C-PPST) with minimal HTSB passing scores in reading, writing, and mathematics subtests, or other approved options to demonstrate basic skills in reading, writing, and mathematics. Contact an OSAS advisor.
5. Demonstrate oral and non-verbal communication competencies through the successful completion of a Personal Admis-



sions Interview(s). The purpose of the interview is to assess fluency of oral communication, interest in teaching, student motivation and suitability to the teaching profession, including appropriate professional dispositions. Qualified students who are off-island during the semester of SATEP application may be granted a telephone or web-based interview.

6. Completion of General Education requirements specified for education majors pursuing teacher licensure. Applicants who have completed an articulated AA degree from a UH community college (including AAT from Leeward CC, AS in Human Services with Early Childhood Specialization from Maui CC, AA in Elementary Education and Special Education from Kapiolani CC, and AS in Early Childhood Education-Preschool Option, per memoranda of agreement) are considered to have met the UH Mānoa General Education requirements with possible exceptions (see an academic advisor).
7. A minimum of 40 hours of documented group leadership experience, paid or volunteer, with a group of school-age children at the grade level(s) of most interest in future teaching.

Admission requirements are subject to change. Call OSAS for updated information.

Applicants should be aware that admission to a SATEP does not guarantee admission to clinical placements, including practicum, student teaching, internship, or teaching residency. Students' progress in state approved teacher education programs will be evaluated at transition points throughout the program.

Also required for clinical placement:

1. Original TB certificate clearance as required by Hawai'i Department of Education school regulations. Contact the Department of Health for more information.
2. Liability insurance.
3. Hawai'i Department of Education fingerprinting and background check.
4. Transportation to and from the school sites is the student's responsibility.

The HTSB also requires passage of the appropriate content test (e.g., Praxis II, ACTFL) prior to student teaching, internship, or teaching residency. Please see a COE academic advisor for more details.

## Requests for Reconsideration of Negative Admissions Decisions

Students who are denied admission to a College of Education degree program or SATEP may request reconsideration of their application from the Director of OSAS. However, only students who have achieved a minimum overall cumulative GPA of 2.5 and who attain the minimum qualifying passing score on the Praxis I may request reconsideration for admission to a SATEP.

In addition, students must show strong evidence of future potential in the field and a strong record of recent scholarship.

## Application Procedures and Deadlines

1. Applicants for the BEd and BS degrees should follow all appropriate UH Mānoa procedures.
2. All SATEP applicants must submit a current College of Education application form to OSAS and submit additional application materials outlined at this website: [coe.hawaii.edu/undergraduate/forms](http://coe.hawaii.edu/undergraduate/forms).
3. SATEP applicants are responsible for making arrangements for the interviews and the Praxis I tests, and for submitting documentation of field experience hours.

Application for degree programs follows UH Mānoa deadlines. For SATEP application, priority deadline is **February 1**, and final deadline is **March 1** for fall admission; priority deadline is **August 1**, and final deadline is **September 1** for spring admission. Be aware that not every program admits every semester. Deadlines are subject to change. Call OSAS for updated information.

All students in the BEd and BS programs should make an appointment for a graduation check with an academic advisor in June or July for the September 15 graduation deadline and in November or December for the February 15 deadline. No late applications will be accepted.

SATEP participants should check with an advisor to ensure compliance with all completion requirements. OSAS will not recommend candidates to the HTSB for licensure until all requirements are satisfied.

## Field and Clinical Experiences

The College of Education plans, arranges, and supervises all required field and clinical experiences, including student teaching, at the elementary and secondary levels in public and private schools. Since student teaching is a full-time experience, students may not register concurrently for other courses and are strongly advised not to undertake employment during any required student teaching. Check with the advisors for additional prerequisites related to classified status, course completion, grade requirements, GPA requirements, Praxis II content knowledge tests, and required forms before registering for student teaching. Please be aware of deadlines, particularly those after which no late applications will be accepted.

Those undertaking field and clinical experiences, including student teaching or teaching residency as part of a SATEP, must have met the following prerequisites:

- Enrollment in the College of Education as a classified student and completion of all coursework necessary;
- A cumulative GPA of not less than that required for admission to the SATEP;
- Completion of the Student Teaching Application from the Office of Student Academic Services;
- Liability insurance;

- Hawai'i Department of Education fingerprinting and background check.

There is typically no student teaching or teaching residency during the summer session.

The HTSB requires passage of the Praxis II content examination or other approved options or demonstrating content knowledge prior to student teaching. Students should check with their academic advisor concerning specific requirements.

## Graduate Programs

### Master's Degrees

The College of Education offers MEd degrees in curriculum studies, early childhood education, educational administration, educational foundations, educational psychology, educational technology, and special education. The MEd programs in curriculum studies and early childhood education are in the Department of Curriculum Studies. Other MEd programs are in departments of the same name.

The College of Education also offers a master of science (MS) degree in Kinesiology and Rehabilitation Science (KRS). The MS degree is designed as a two- to three-year program of study for students with advanced knowledge, skills, research, and clinical/field experiences in one of the following program areas: Physical Activity, Adapted Physical Activity; Entry-Level Graduate Athletic Training Education Program (EL-GATEP), Post-Professional Advanced Athletic Training Education Program (PP-AATEP), and Rehabilitation Counselor Education.

The MEdT, a two-year, field-based program, is designed for students who have earned baccalaureate degrees in fields other than education. Graduates are eligible for state teacher licensure in either elementary or secondary education. See the "Institute for Teacher Education" for more information.

### Doctoral Degrees

Doctor of Philosophy in Education (PhD)

Wist 113

1776 University Avenue

Honolulu, HI 96822

Tel: (808) 956-7913

### Graduate Faculty

- S. B. Roberts, EdD (Chair)—curriculum administration, policy, professional socialization, school administration
- A. Bartlett, PhD—literacy, teacher education
- M. Benham, EdD—Hawai'i inuiākea School of Hawaiian Knowledge, educational administration, educational policy, indigenous education (K-post secondary), qualitative inquiry, leadership/community based
- K. F. Berg, PhD—collaborative learning, educational psychology
- R. Black, EdD—mental retardation transition, students at risk, research design
- B. Cheng, EdD—comparative and international education, education policy
- P. Chinn, EdD—elementary and secondary science education
- C. S. Collins, PhD—qualitative research, higher education, globalization, and social rates of return
- M. Conway, PhD—disability studies, transition, postsecondary supports, sensory impairment, assistive technology
- B. G. Cook, PhD—mild/moderate disabilities, inclusion, evidence-based practices, higher education and students with disabilities
- L. H. Cook, PhD—mild/moderate disabilities, inclusion, evidence-based practices, and students with disabilities
- J. A. Daniels, EdD—school, development, adolescent, group, homeless children, loss and transition counseling
- P. Deering, PhD—curriculum and instruction, middle level education, social studies education, qualitative research
- X. Di, EdD—teacher education, multicultural and international education
- E. Enomoto, EdD—organization technology, politics of education
- D. P. Ericson, PhD—philosophy of education, educational policy
- C. Frambaugh-Kritzer, PhD—language and literacy
- C. P. Fulford, PhD—educational technology, instructional and visual design
- L. A. Fulton, PhD—elementary science education, teacher education, qualitative research
- L. H. L. Furuto, PhD—mathematics education, ethnomathematics, quantitative research
- D. Grace, EdD—language arts, media studies, early childhood
- P. E. Halagao, PhD—social studies, multicultural education and Filipina/o curriculum and pedagogy
- R. H. Heck, PhD—leadership and governance, organizational theory, policy
- R. Hertzler, PhD—exercise physiology with interest in body composition and metabolism
- C. Hitchcock, PhD—disability studies
- C. Ho, PhD—educational technology
- E. S. Hoffman, EdD—educational technology, e-learning, qualitative research methods
- A. A. Jenkins, PhD—mild/moderate disabilities, content strategies/inclusive education, collaboration
- J. L. Johnson, DrPH—exceptionalities, early childhood
- R. Johnson, EdD—early childhood and elementary education
- L. K. Johnsrud, PhD—academic governance and leadership, organizational theory, policy and planning
- J. Kaomea, PhD—Native Hawaiian and indigenous issues in education; postcolonial theory
- C. L. Kessler, EdD—K-6 social studies-history education; anti-bullying; health advocacy
- I. F. Kimura, PhD—kinesiology, athletic training and biomechanics
- D. Leake, PhD—transition, self-determination, child and adolescent mental health
- P. Leong, PhD—educational technology, distance education, virtual worlds
- M. G. Lin, PhD—educational technology, participatory learning, open access resources
- B. J. Lum, PhD—philosophy of education, human development, peace education, social and cultural studies
- M. Maaka, PhD—indigenous education, language and literacy in education, multicultural education
- J. K. Maeda, PhD—physical education, elementary and adapted physical education pedagogy, and professional development, applied behavior analysis
- D. McDougall, EdD—behavioral self-control (self-management, self-monitoring), behavioral disorders/learning disabilities, inclusion/integration, applied behavior analysis, special education law
- H. McEwan, PhD—curriculum theory, philosophy of teaching
- P. McKimmy, EdD—policy and information technology solutions
- M. P. Menchaca, EdD—educational technology integration, online teaching and learning, distance education, multiculturalism and social justice, and communities of practice
- J. A. S. Moniz, PhD—multicultural education, social studies, research methods
- C. Morgan, PhD—promoting youth physical activity; benefits, assessment, levels, and related factors of youth physical activity
- L. S. Muccio, PhD—early childhood, inclusive education, teacher action research
- N. Murata, PhD—general physical education pedagogy, adapted physical education, special education/transition, and professional development

K. L. Murphy, DPE—physical education  
 W. D. Narkon, PhD—mild/moderate disabilities, learning disabilities, reading strategies  
 T. T. T. Nguyen, EdD—educational leadership, educational technology, internet safety  
 M. J. Noonan, PhD—moderate and severe disabilities, early intervention  
 L. Novosel, PhD—mild/moderate disabilities, design-based research, adolescent literacy, social and emotional learning, culturally responsive teaching pedagogy  
 K. Oliveira, PhD—Hawaiian language, culture and geography  
 T. O’Neill, PhD—science education with a focus on multicultural science education and the teaching and learning of science for social justice  
 C. Ornelles, PhD—mild/moderate disabilities, students at risk, teacher education  
 L. Oshita, PhD—special education teacher education, multicultural education in special education, and distance advising  
 S. Paek, EdD—educational technology, statistical analysis and evaluation  
 M. E. Pateman, HSD, MPH—school and college health education  
 E. Ponte, PhD—second language studies, teacher education, assessment and evaluation  
 F. Pottenger, PhD—science education  
 J. H. Prins, PhD—kinesiology  
 K. Rao, PhD—assistive technology, distance education, universal design for learning, English language learners and literacy  
 G. G. Reed, PhD—social and cultural foundations, values and education, comparative education  
 R. Reed, PhD—teacher training, cultural diversity, language arts, recruitment and retention of special education teachers  
 K. D. Roberts, PhD—assistive technology, culturally responsive education, learning disabilities, and educational research  
 S. Robinson, PhD—secondary teacher preparation, science education  
 C. Schmidt, PhD, BCBA-D—autism spectrum disorders, applied behavior analysis  
 M. Schmidt, PhD—educational technology, design-based research, assistive technology, autism  
 A. K. Serna, PhD—health education, school health programs, elementary education  
 P. Sheehy, PhD—mild/moderate and severe disabilities, families, multicultural issues  
 J. Simpson Steele, PhD—elementary teacher preparation, performing arts education, performance ethnography  
 H. Slovin, EdD—mathematics education  
 C. K. Sorensen, PhD—higher education, educational technology  
 E. Spitzer, PhD—English/language arts methods; secondary education, adolescent literacy, disciplinary literacy, teacher literacy identity and transformation, teacher beliefs, sociocultural, psycholinguistic, reader response and multicultural studies, multiple/21st century literacies  
 C. D. Stickley, PhD, ATC—athletic training and biomechanics, exercise physiology  
 N. J. Stodden, PhD—disability and diversity, school-based supports  
 R. A. Stodden, PhD—mental retardation, career/vocational special education  
 E. H. Tamura, PhD—history of education, ethnic and minority issues, Asian-American history  
 K. Tamura, PhD, ATC—athletic training and biomechanics  
 C. Tanabe, PhD—educational law and policy, philosophy of education  
 H. Tavares, PhD—politics of education, critical theories of education  
 J. A. Torralba, PhD—science education  
 S. Twomey, PhD—literacy, gender  
 J. Wells, PhD—autism, severe disabilities  
 B. L. Williams, PhD—art education  
 K. Wong, PhD—Hawaiian language and culture

K. K. Yamamoto, PhD—rehabilitation counseling, transition, and disability-related issues  
 J. Yoshioka, PhD—science education, teacher education  
 D. B. Young, EdD—science education  
 J. Zilliox, EdD—mathematics education  
 D. K. Zuercher, PhD—teacher education, middle level, health, qualitative research methodology, language arts, fine arts

### Cooperating Graduate Faculty

W. S. Nishimoto, PhD—oral history, life history, interviewing in qualitative research

### Affiliate Graduate Faculty

P. G. LeMahieu, PhD—educational research methodology, statistical analysis, evaluations and measurement

The doctor of philosophy in education (PhD) is a college-wide degree awarded for distinguished academic preparation for professional practice and research in the field of education. The program is designed to enhance and facilitate educational, social, and economic growth locally, nationally, and internationally with a pool of highly qualified educational scholars and leaders.

The quality of a candidate’s work is judged by a variety of experiences, which include the College of Education general and specialization area courses, culminating in a field project or internship, a set of comprehensive and final examinations, and a dissertation. The dissertation is based on a selected research problem and is a significant part of the candidate’s experience. Seven areas of specialization are currently available: curriculum and instruction, educational administration, educational foundations, educational policy studies, educational technology, exceptionalities, and kinesiology.

Application for admission to the PhD program will be considered for the fall semester only and is made to the Graduate Division and to the College of Education. Students must meet the requirements of both the Graduate Division and the College of Education, including acceptable scores on the Graduate Record Examination (GRE) verbal, quantitative, and analytic writing assessment. Applicants from foreign countries where English is not the dominant language are required to have a TOEFL score of 600 (regardless of degree completion from other U.S. institutions). A master’s degree from an accredited university or college is required with evidence of a minimum of three years of experience in the field of education. The applicant must demonstrate competence in writing and present a written statement of career goals and academic objectives. At least three letters of recommendation are required. An oral interview may be conducted.

For further information, applicants may contact the PhD in Education Program at (808) 956-7913.

### Specialization in Curriculum and Instruction

The specialization in Curriculum and Instruction develops educational leaders in curriculum development, teaching, curriculum evaluation, and/or teacher education and professional development. The program varies in the number of credit hours required, depending upon the candidate’s qualifications, and includes courses required for all doctoral students enrolled in the College of Education; courses in an area of specialization, such as issues and trends in curriculum, teaching and learning, curriculum and program evaluation, and research on teacher education and professional development; breadth courses; a field project or an internship in college teaching; and the dissertation.

### **Specialization in Educational Administration**

The primary purpose of this area of specialization is to develop educational leaders in elementary, secondary, and higher education settings. Areas of emphasis within the program include management and leadership, organizational theory, policy and governance, organizational socialization, and research methods.

The program includes courses required of all doctoral students in the college, courses in an area of specialization (K–12 or higher education), courses taken outside the department, a field project/internship or an apprenticeship in college teaching, and the dissertation.

### **Specialization in Educational Foundations**

This area of specialization prepares educational professionals with an understanding of the historical, philosophical, cultural, social, and political contexts of education so that they can make informed and wise decisions about educational problems and policy issues. Graduates with the PhD are expected to exert leadership in the field of education and deal with those aspects and problems in society that need to be taken into account in advancing educational thought, policy development, and practice, especially where these concern the social role of the school and other educational agencies. The program of study varies in the number of credits required, depending upon the candidate's qualifications; college and departmental course requirements; course work focused on an area of emphasis in history, philosophy, or comparative or social foundations of education; courses outside the department; a field project/internship or an apprenticeship in college teaching; qualifying and comprehensive examinations; and the dissertation.

### **Specialization in Educational Policy Studies**

Educational policy studies consists of a multidisciplinary program of study and research concerned with identifying and ameliorating significant educational problems. It draws upon concepts and research methods from a variety of fields (including the social sciences, history, law, and philosophy) in defining problems and formulating solutions. The purpose of this specialization is to prepare professionals from diverse backgrounds for effective informed engagement in this process. At the same times, it prepares such persons to pursue research and service agendas geared toward lifting policy analysis, discourse, and action to new levels. The program varies in the number of credit hours required, depending upon the candidate's qualifications, and includes courses required of all doctoral students in the college, courses in the specialization, breadth courses taken outside the specialization, a field project/internship, or an apprenticeship in college teaching, and the dissertation.

### **Specialization in Educational Technology**

This specialization is designed to prepare influential professionals to make original scholarly and technical contributions in the field of educational technology (ETEC). Scholars in the field explore the uses of innovative media and technologies for education, studying aspects from student learning, communication, and cognition to impacts of technology use and change on individuals and institutions. ETEC integrates the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning and teaching. The specialty has been designed to encourage intellectual excel-

lence and participation in a scholarly community. The program includes courses required of all doctoral students in the college, courses in educational technology, breadth courses taken outside the specialization, a field project/internship or an apprenticeship in college teaching, and the dissertation. Graduates of the program are prepared to assume intellectual and technology leadership roles in many areas, including education, business, health care, military, and government.

### **Specialization in Exceptionalities**

This area of specialization prepares professionals to work as leaders in the education and support of individuals who have unique needs, often due to disabilities. The field is broad, addressing life-span concerns and involving such services as advocacy, family support, community services, vocational training and support, and special education. Graduates of the program are expected to assume leadership roles addressing local, regional, national, and international issues related to research and higher education and/or program development and evaluation. The program varies in the number of credit hours required, depending on the candidate's qualifications, and includes courses required by the college, courses in the specialization, courses that provide an emphasis/breadth, a field project/internship or an apprenticeship in college teaching, and the dissertation.

### **Specialization in Kinesiology**

This area of specialization prepares professionals to work as leaders in adapted physical activity or athletic training (BOC), and applied biomechanics. This discipline is based in the biological and physical sciences as well as in education. This foundation will be reinforced via course work, research, clinical/practical experiences in teaching, supervision, and mentorship experiences in the two areas specified above.

### **Doctor of Philosophy in Educational Psychology (PhD)**

See "Educational Psychology."

### **Doctor in Professional Educational Practice (EdD)**

The EdD professional practice doctorate in education is in line with the recent call by the American Educational Research Association (AERA) to offer advanced degrees of professional practice that are distinct from doctoral research degrees in education. Professional practice doctorates in education are advanced degree programs aimed at preparing professionals for leadership roles at all levels of education, as well as in other positions where the main interest is the application of research in education settings.

### **Completing the EdD Degree**

The EdD at the College of Education will be accessible to qualified candidates across the state, and require approximately 64 semester hours of credit spread over three years of study. Students will be organized in cohorts to encourage collaboration on projects. Instruction will be conducted in a combination of face-to-face course work during the summer, fall, and spring semesters (40%), online instruction (20%), participation in field-based projects during fall and spring semesters (40%).

### **Admission Requirements**

The COE invites applications from prospective students with outstanding academic records and demonstrated potential to succeed in a professional practice doctoral program. The follow-

ing is a summary of admissions requirements and course work. Detailed information is available on the COE website: [coe.hawaii.edu/academics/educational-foundations/edd](http://coe.hawaii.edu/academics/educational-foundations/edd).

- Master's degree
- GPA of >3.0
- At least five years of experience in an education-related field
- Evidence of competence as a writer

## Hawai'i Teacher Licensure Programs

See the "Institute for Teacher Education," "Kinesiology and Rehabilitation Science," and "Special Education" sections within the College of Education for more details on BEd, post-baccalaureate, and MEDT options for teacher licensure.

## Research Units

### Center on Disability Studies

1410 Lower Campus Road, Bldg 171F  
Honolulu, HI 96822  
Tel: (808) 956-5462  
Fax: (808) 956-7878  
Email: [cds@hawaii.edu](mailto:cds@hawaii.edu)  
Web: [www.cds.hawaii.edu](http://www.cds.hawaii.edu)

The Center on Disability Studies (CDS) is a UH Board of Regents recognized organized research unit (ORU) focused on interdisciplinary education, community service and technical assistance, research and evaluation, and information dissemination. The CDS was established in 1988 as the Hawai'i University Affiliated Program, and is a charter member of the Association of University Centers on Disability (AUCD). This national network of university centers focuses on education, research, and service activities, which impact upon the quality of life of persons with disabilities across the nation. Beginning in 1988 with core funding of only \$250,000 and a staff of four, the CDS has leveraged resources to its current level of funding of almost twenty million dollars and 50 projects, with more than 100 faculty and staff.

The CDS conducts a wide range of education, research, and service activities in collaboration with other disciplines. These activities are centered around several initiative areas: school and community inclusion; special health needs; transition, postsecondary education, and employment; mental health; and Pacific outreach. These initiative areas reflect a commitment to evidence-based practice and interdisciplinary cooperation within an academic, community, and family context. Activities strive to be culturally sensitive and demonstrate honor and respect for individual differences in behavior, attitudes, beliefs, and interpersonal styles. CDS activities reflect an organizational commitment to excellence and evidence-based practices. Faculty and staff are mentored, supported, and encouraged to excel.

The CDS offers an interdisciplinary Certificate in Disability and Diversity Studies, a 15-credit course work grounded in the interdisciplinary process to promote effective, efficient, and culturally sensitive services for persons with disabilities of all ages. This program enables graduate students to acquire the skills needed to collaborate through joint planning, decision-making, and goal setting, gaining the perspective of mutual understanding and respect for persons with disabilities and the contributions of other disciplines. The CDS also offers undergraduate students courses in disability studies, disability culture, and creating universally designed environments.

Each year, the CDS sponsors the Pacific Rim Conference on Disabilities (Pac Rim), to promote collaboration and to impact future choices for persons with disabilities. Pac Rim focuses on disseminating information on promising practices, evidence-based research, and emerging issues with the communities it serves. This conference has been held annually for the past 30 years, with an attendance of approximately 1,000 from the state, region, nation, and international communities. Special efforts are made to provide support to enable persons with disabilities, self-advocates, parents, and family members of persons with disabilities to attend.

CDS publishes an international scholarly publication in the field of disability studies, *The Review of Disability Studies: An International Journal (RDS)*. RDS is an internationally-focused academic journal in the field of Disability Studies, containing research articles, essays, bibliographies, and reviews of materials relating to the culture of disability and people with disabilities. It also publishes forums on disability topics brought together by forum editors of international stature. Poetry, short stories, creative essays, photographs, and art works related to disability are also published. RDS is published four times a year, in both print and electronic format.

### Curriculum Research & Development Group

Castle Memorial 132  
1776 University Avenue  
Honolulu, HI 96822  
Tel: (808) 956-7961  
Fax: (808) 956-9486  
Email: [crdg@hawaii.edu](mailto:crdg@hawaii.edu)  
Web: [manoa.hawaii.edu/crdg/](http://manoa.hawaii.edu/crdg/)

The Curriculum Research & Development Group (CRDG), with its partner laboratory school, is an organized research unit in the College of Education at UH Mānoa that contributes to the body of professional knowledge and practice in teaching and learning, curriculum development, program dissemination and implementation, evaluation and assessment, and school improvement. CRDG conducts research and creates, evaluates, disseminates, and supports educational programs that serve students, teachers, parents, and other educators in grades pre-K–20.

CRDG has ongoing research, curriculum development, and teacher professional development efforts in five focus areas: science, technology, engineering, and mathematics (STEM) education; Hawai'i, Asia, and the Pacific; serving diverse learners; educational technology development; and designing educational systems.

CRDG work influences change in curriculum, instruction, assessment, and school systems by creating programs and practices that result in improved student learning. CRDG concerns itself with the P–20 continuum of education, including those who receive and those who deliver educational programs and services. CRDG assembles teams of academic scholars, teachers, design specialists, evaluators, and others to create instructional programs and professional development services that improve learning, teaching, and assessment. While CRDG faculty are concerned with and address current needs, their primary focus is on creating innovations that by their very nature are intended to go beyond current practice to investigating and creating quality programs and materials for the future. Support for CRDG work comes from a mix of funding sources including the UH, other state of Hawai'i agencies, federal governmental

granting agencies, private foundations, and pro bono services from the academic community, locally, nationally, and internationally.

CRDG conducts its work in partnership with the University Laboratory School (ULS). ULS, with its culturally diverse student body, provides an essential experimental ground for developing and testing educational ideas and programs aimed at improving teaching, learning, and assessment. The school enrolls approximately 450 students in grades K–12 and serves as a demonstration site for exemplary school practices.

## Student Organizations

The College of Education Student Association (CESA) is open to all persons interested in teacher education. CESA members participate in college committees and projects and sponsor various activities for education students. CESA is an affiliate of the Student National Education Association. For more information, call (808) 956-7849 or email [cesa@hawaii.edu](mailto:cesa@hawaii.edu).

All doctoral students are eligible to participate in the College of Education Doctoral Student Association (COEDSA). COEDSA sponsors activities and workshops on matters of concern to doctoral students. For more information, visit COEDSA's website at: [www.hawaii.edu/coedsa/](http://www.hawaii.edu/coedsa/).

## Honors and Scholarships

Each semester, the College of Education recognizes the scholastic performance of students who achieve a GPA of 3.5 or better by placing them on the Dean's List. To be eligible for the Dean's List, students must successfully complete at least 15 credits during the semester. Additionally, the college awards the distinction of being student marshals at commencement exercises to those students who demonstrate high scholastic achievement, outstanding character, and extraordinary potential for teaching. Exemplary students also are invited to join the College of Education's chapter of Pi Lambda Theta, a national education honorary society.

The College of Education makes scholarship support available to classified undergraduate and graduate students. In 2012-2013, students received scholarships totaling over \$200,000. For information, contact the Office of Student Academic Services at (808) 956-7849.

# Curriculum Studies

Everly Hall 224  
1776 University Avenue  
Honolulu, HI 96822  
Tel: (808) 956-4401  
Fax: (808) 956-9905  
Web: [coe.hawaii.edu/academics/curriculum-studies](http://coe.hawaii.edu/academics/curriculum-studies)

## Faculty

- \*A. Bartlett, PhD (Chair)—literacy education, children's literature
- K. Cashman, PhD—Indigenous teacher education, art education, storytelling
- \*P. Chinn, EdD—elementary and secondary science education, culture and science studies
- R. Chun, MEd—early childhood education
- \*P. Deering, PhD—social studies, middle school curriculum
- K. K. Faria, MEd—Hawaiian language immersion, teacher education
- \*L. H. L. Furuto, PhD—mathematics education, ethnomathematics, quantitative research
- \*P. Halagao, PhD—social studies, multicultural education, Filipino curriculum and pedagogy
- \*R. Johnson, PhD—elementary and early childhood education
- \*J. Kaomea, PhD (C & I Coordinator)—Indigenous education, qualitative research, elementary mathematics
- G. (Kalehua) Krug, MEd—Hawaiian language immersion education, teacher education
- E. K. Kukahiko, MEd—Hawaiian language immersion education, teacher education
- M. K. Lenchanko, MEdT—Indigenous education and curriculum development
- \*M. Maaka, PhD—Indigenous education, language and cognition, research methodologies
- \*T. O'Neill, PhD—science education
- \*J. A. Torralba, PhD—mathematics, science and technology education
- \*S. Twomey, PhD—critical literacy, teacher education, poststructuralism, feminist theory, drama education
- \*B. L. Williams, PhD—art education

## Cooperating Graduate Faculty

- K. F. Berg, PhD—educational psychology, cooperative learning
- R. S. Black, EdD—mental retardation transition, students at risk, research design
- A. J. Dawson, PhD—mathematics education
- B. D. DeBaryshe, PhD—educational measurement, early childhood
- D. P. Ericson, PhD—philosophy of education, educational policy
- D. Grace, EdD—language, literacy, media studies, early childhood
- A. Henward, PhD—early childhood education, media, culture
- R. K. Hetzler, PhD—exercise physiology with interest in body composition and metabolism
- C. Kessler, EdD—K-6 social studies-history education; anti-bullying; health advocacy
- I. F. Kimura, PhD—kinesiology, athletic training and biomechanics
- M. I. Martini, PhD—parenting and family relationships across cultures
- H. McEwan, PhD—curriculum theory, philosophy of teaching
- J. Moniz, PhD—multicultural education
- N. Murata, PhD—general physical education, pedagogy, adapted physical education, special education/transition, and professional development
- M. E. Pateman, HSD, MPH—health education
- J. H. Prins, PhD—kinesiology
- S. B. Roberts, EdD—curriculum administration, policy, professional socialization, school administration
- J. Skouge, EdD—exceptionalities
- R. A. Stodden, PhD—mental retardation, career/vocational special education

L. Venenciano, PhD—educational psychology, mathematics education, teacher education  
 F. C. Walton, PhD—career, technology and technical education  
 D. B. Young, EdD—science education  
 J. Zilliox, EdD—elementary mathematics

**Degrees Offered:** Graduate Certificate in Preschool-3rd Grade, Graduate Certificate in Reading K-12, MEd in curriculum studies, MEd in early childhood education, PhD in education with specialization in curriculum and instruction

## The Academic Program

The Department of Curriculum Studies (EDCS) offers advanced degrees at the master's level in curriculum studies and early childhood education (MEd-CS and MEd-ECE), and, as part of a college-wide doctoral degree, in curriculum and instruction (PhD). Students may also study for 15-credit graduate certificates in Preschool-3rd Grade or Reading K-12. All programs focus on the educational needs of children and adolescents, teaching, learning, and curriculum.

The students at UH Mānoa are ethnically diverse as are the students in Hawai'i's school system. Students in EDCS programs, therefore, learn and teach in a unique multicultural environment.

## Graduate Study

General information, policies, requirements, and procedures of the Graduate Division are in the "Graduate Education" section of this *Catalog*.

### Master of Education in Curriculum Studies

The Department of Curriculum Studies offers a 30 credit program leading to the degree of master of education in curriculum studies. It is designed to serve licensed teachers who wish to learn about and inquire into the areas of PK-3 early childhood, elementary, middle level, secondary education, or K-4 education.

Students in elementary and secondary education specialize in art, language arts/literacy, mathematics, science, or interdisciplinary subjects. Other specializations may be possible if advisors are available. K-12 specializations include disabilities studies, multicultural education, language, reading, and social studies education. MEd-CS, Reading K-12 concentration may be used to add the field, Reading K-12, to a Hawai'i Standard or Advanced License. Fifteen credit graduate certificates are available in Preschool-Grade 3 and Reading, K-12, as part of the MEd-CS degree or separately.

The MEd program in curriculum studies equips teachers to fill a variety of teaching and resource roles at an advanced level. The program helps teachers become better informed about the developmental and educational needs of children and adolescents from various types of communities; skillful in diagnostic and evaluation procedures and in developing educational programs to meet individual and group needs; versatile in their teaching strategies; capable of providing leadership in a classroom, school, or school system; knowledgeable about issues, trends, and research in their fields; systematic in their reflective assessment of trends and innovations, and well-informed about new technology and its applications.

## Admission Requirements

In addition to the requirements of the Graduate Division, applicants for the MEd in the curriculum studies program must provide the following:

1. Evidence of adequate successful coursework and/or experience related to the concentration area selected.
2. Evidence of student teaching, teaching, or experience designing and/or implementing curriculum in educational settings.
3. Three (3) professional references from people who are able to comment on the quality of the applicant's experience, ability to pursue graduate study, and character.

## Program Requirements

MEd-CS courses are scheduled to meet the needs of educators and may be completed at least partially online.

Additional details about the program are available at [coe.hawaii.edu/academics/curriculum-studies](http://coe.hawaii.edu/academics/curriculum-studies). Please download Handbook 1: Prospective and New Students.

### Plan A (Thesis) Requirements

The Plan A program is designed primarily for students interested in research and in writing a thesis. It requires a minimum of 30 credit hours with at least 12 credit hours in curriculum studies, not counting 699V or 799V. Of the 30 credit hours, 24 credit hours must be approved course work. Required courses are EDCS 622, 667, and two research methods courses. A minimum of 12 credit hours is to be taken in a related field, which may be in a concentration area within the Department of Curriculum Studies, in other departments in the College of Education, or in a discipline in one or more of the other colleges/schools at UH Mānoa. Of the approved courses, 18 credit hours must be at the 600 to 700 level (excluding 699 and 799). Six credit hours (EDCS 700) are required for the thesis.

### Plan B (Non-thesis) Requirements

The Plan B program is designed primarily for students who wish to strengthen their teaching in selected areas of teacher education and curriculum studies. It requires a minimum of 30 credit hours of approved course work, with a minimum of 12 credit hours in curriculum studies (excluding EDCS 699). Required courses are EDCS 622, 667, and two research methods courses. A minimum of 18 credit hours is to be taken in a related field. The related field may be in a concentration area within the Department of Curriculum Studies, in other departments in the College of Education, or in a discipline in one or more of the other colleges/schools at UH Mānoa. Of the approved courses, 18 credit hours must be at the 600 to 700 level, excluding 699. A maximum of 6 credit hours of 699 may be applied to the degree program.

The Plan B program also requires a culminating project.

For further information and application forms, go to [coe.hawaii.edu/academics/curriculum-studies](http://coe.hawaii.edu/academics/curriculum-studies) or contact the secretary of the Department of Curriculum Studies, Everly Hall 224, (808) 956-4401.

### Graduate Certificate (GCERT) in Preschool-3rd Grade (PK-3)

The PK-3 Graduate Certificate program is a 15-credit post-baccalaureate program focusing on preschool through 3rd grade education. The certificate may be earned as a certificate-only program, or as part of the MEd-CS with 15 additional credits and a Plan A—Thesis or Plan B—Project, Paper, or Portfolio.

The certificate provides a foundation for educators to develop expertise and become informed about the developmental and educational needs of children 3-8 years old and to work in partnership with their families and communities. Oriented to the National Association for the Education of Young Children (NAEYC) professional standards and National Board Professional Teaching Standards (NBPTS) standards for early childhood (PK-3) generalists, the Certificate provides opportunities to develop knowledge and skill in supporting the needs of preschool and primary aged children. Hawai'i's K-3 teachers are the most likely audience, but other interested practitioners can be considered.

The PK-3 Graduate Certificate enables candidates to increase knowledge in the areas of PK-3 ideologies, curriculum models and theories; learn about and develop skill in designing and implementing developmentally appropriate programs that meet individual and group needs in a variety of PK-3 settings; support early literacy and language development of young children; begin to engage in action research in their own settings; and reflect on their own teaching practices.

The cohort model encourages peer support and active engagement in learning. Courses are hybridized (a combination of campus and on-line) to meet statewide needs. A laptop computer and internet access is required. Since many assignments are field-based, access to a PK-3 classroom is also essential.

### Admission Requirements

Admission to the PK-3 Graduate Certificate program is available for fall semesters in even numbered years. Applications are accepted through the previous **March 1**. After this date, they will be reviewed on a space available basis. Students must meet the requirements set by the Graduate Division and the MEd-CS for admission. If the MEd-CS is pursued concurrently, students must apply for the Graduate Certificate as a separate program through Graduate Division to receive the certificate.

In addition to the application materials required by the Graduate Division, prospective students must also submit the Curriculum Studies application packet and select the Graduate (PK-3) Certificate (see Curriculum Studies, PK-3 Graduate Certificate, How to Apply web page to download the packet). Because the number of students who can be admitted is limited, meeting the minimum established criteria does not guarantee admission.

### Program Requirements

The PK-3 Graduate Certificate is comprised of five 3-credit required courses and is completed in 2 years. The first course explores the historical, philosophical and socio-cultural foundations of the field of early childhood education. This is followed by a course on curriculum improvement in early childhood programs. In the second year of the program, students enroll in a course on early language and literacy development and another that explores issues and trends in the field. They also participate in a year round coaching course in developmentally appropriate pedagogy for early childhood programs serving indigenous populations. In addition, the culminating project for the certificate is a professional portfolio aligned with NAEYC and NBPTS Early Childhood Generalist (PK-3) professional standards.

Courses follow the UH Mānoa semester schedule, and are offered in fall and spring semesters. The coaching course includes a two-day orientation held in the summer between years 1 and

2, and workshops on 4-6 weekends during the academic year. All other courses are offered in a combination of evening face-to-face and online formats.

### Graduate Certificate (GCERT) in Reading K-12

The Graduate Certificate program in Reading K-12 is a 15-credit post-baccalaureate program. The certificate may be earned as a certificate-only program, or as part of the MEd-CS with 15 additional credits and a Plan B Professional Teaching Portfolio.

The purpose of the certificate is to prepare teachers and other educators to be school literacy leaders, literacy coaches, and reading specialists. Based on International Reading Association standards, it provides knowledge and hands-on experiences so educators improve their own literacy instruction and support school and/or district change.

Hawai'i's teachers and educational officers are the most likely audience, but other interested educators will be considered. Participants learn about and apply advanced topics in literacy, such as adapting instruction for diverse students, using formative assessments to guide instruction, coaching teachers, and creating and delivering effective professional development. Since many assignments are field-based, access to a K-12 classroom is required.

The Reading K-12 Graduate Certificate is theory, standards, and research-based. A cohort model encourages peer support and active engagement in learning. Most courses are hybrid (combination of campus and on-line), depending on each cohort's preference.

### Admission Requirements

Admission to the Reading K-12 Graduate Certificate program is available for spring semesters in odd numbered years, with applications due the previous **October 1** (International students, **February 1**). Students must meet the requirements set by the Graduate Division and the MEd-CS for admission. If the MEd CS is pursued concurrently, students must apply for the Graduate Certificate as a separate program through Graduate Division to receive the certificate.

In addition to the application materials required by the Graduate Division, prospective students must also submit the Curriculum Studies application packet and select the Reading K-12 Certificate (see Curriculum Studies, Reading K-12 Graduate Certificate, How to Apply web page to download the packet). Because the number of students who can be admitted is limited, meeting the minimum established criteria does not guarantee admission.

### Program Requirements

The Reading K-12 Graduate Certificate is comprised of five 3-credit required courses and is completed in 2 years. The first course explores advanced topics in reading, followed by two literacy assessment courses (classroom and larger-scale assessment) and two leadership courses (literacy coaching and professional development implementation). One assessment course and one leadership course are designated as practicums, although other courses also involve applied projects. The culminating project is to create and implement a Professional Development Plan in your own work environment.

Courses follow the UH Mānoa semester schedule, and are offered in fall, spring, and sometimes summer semesters. Courses are scheduled to meet the needs of educators, and are

either entirely online or a combination of online and face-to-face classes.

### **Master of Education in Early Childhood Education**

The Departments of Curriculum Studies and Special Education in the College of Education and the Department of Family Resources in the College of Tropical Agriculture and Human Resources (CTAHR) offer a 30 credit interdisciplinary program leading to the degree of Master of Education in Early Childhood Education (MEd-ECE). The program is designed to support professional development and promote leadership in personnel who work in programs with children between infancy and five years of age.

Course of study includes understanding the developmental and educational needs of young children ages birth to five; knowledge of family systems, needs and resources; development of the ability to design and implement learning environments and programs to meet the needs of all young learners ages birth to five including those with disabilities; current issues and trends in early education policy, assessment, and research; and development of reflective practice and ethical leadership skills.

### **Admission Requirements**

In addition to the requirements of the Graduate Division, applicants for the MEd in Early Childhood Education must provide the following:

1. Evidence of successful academic performance in child development and early childhood education. This includes a minimum of one course each in:
  - a. child development, age birth to five;
  - b. early childhood education;
  - c. developmentally appropriate practice;
  - d. family studies/working with families and communities;
2. Documented experience of work with young children and their families or in early childhood program administration or public policy;
3. Three (3) professional references from people who are able to comment on the quality of the applicant's experience, ability to pursue graduate study, and character.

### **Program Requirements**

30 credit hours in early childhood regular education, early childhood special education, and child development are required. Students take a common core of 18 required credits and select 12 credits of specialization courses in an area of interest within their major.

The required core of 18 credits is taken over the course of three Summer Institute sessions on the UH Mānoa campus. Core courses are offered through the Departments of Curriculum Studies and Special Education in the College of Education, and the Department of Family Resources in the College of Tropical Agriculture and Human Resources. The balance of 12 elective credits is taken either online or on ground, based on student interest and need, in consultation with a program advisor.

### **Plan A (Thesis) Requirements**

The Plan A program is designed for those who are interested in research and writing a thesis and who may be interested in pursuing a later doctoral degree. Students completing a Plan A will take a minimum of 30 credit hours including 18 credits at the 600 level or higher, a core consisting of 18 credits, 6 credits of electives, and 6 credits of thesis research (EDCS 700). The culminating experience for Plan A students will be a thesis based on original research.

### **Plan B (Non-Thesis) Requirements**

The Plan B program is for those who wish to focus on strengthening professional knowledge and skills. Students completing a Plan B will take a minimum of 30 credit hours including 18 credits at the 600 level or higher, a core consisting of 18 credits, 9-11 credits of electives and 1-3 credits of Plan B preparation. The culminating experience for Plan B students will be the submission of a portfolio that documents their competency in demonstrating program standards. The program advisor will guide and direct the development of the portfolio.

For further information and application forms, go to [coe.hawaii.edu/academics/curriculum-studies/med-ece](http://coe.hawaii.edu/academics/curriculum-studies/med-ece) or contact the Department of Curriculum Studies, Graduate ECE Program at (808) 956-0337.

### **Doctoral Degree**

The doctor of philosophy degree in education (PhD) is a college-wide degree awarded for distinguished academic preparation for the field of education.

The PhD in Education, specialization in Curriculum and Instruction, develops educational leaders in curriculum development, teaching, curriculum evaluation, and/or teacher education and professional development. The program varies in the number of credit hours required, depending upon the candidate's qualifications, and includes courses required for all doctoral students enrolled in the College of Education; courses in an area of specialization, such as issues and trends in curriculum, teaching and learning, curriculum and program evaluation, and research on teacher education and professional development; breadth courses; a field project or an internship in college teaching; and the dissertation.

For additional information, see the "Doctoral Degrees" section within the College of Education section of this *Catalog* or visit [coe.hawaii.edu/academics/curriculum-studies/phd-ci](http://coe.hawaii.edu/academics/curriculum-studies/phd-ci).

# Educational Administration

Wist 220

1776 University Avenue

Honolulu, HI 96822

Tel: (808) 956-7843

Fax: (808) 956-4120

Web: [coe.hawaii.edu/academics/educational-administration](http://coe.hawaii.edu/academics/educational-administration)

## Faculty

\*R. Heck, PhD (Chair)—leadership and governance, organizational theory, policy

\*C. Collins, PhD—higher education social benefits, policy, globalization, poverty reduction

\*E. K. Enomoto, EdD—organization, technology, politics of education

\*L. K. Johnsrud, PhD—higher education, academic governance and leadership, organizational theory, ethics

\*S. B. Roberts, EdD—curriculum administration, policy, professional socialization, school administration

## Cooperating Faculty

M. K. P. A Benham, EdD—educational leadership and community-based leadership, policy, indigenous critical studies, Mo'olelo and narrative as pedagogy and methodology, indigenous post-secondary education, community engagement

**Degrees Offered:** MEd in educational administration, PhD in education with specialization in educational administration

## The Academic Program

The department offers graduate programs leading to the MEd in educational administration (EDEA) for both lower (K-12) and higher education and the PhD with a specialization in educational administration. The educational administration program includes both introductory courses and advanced seminars in the following areas of study:

1. Theories, policies, principles, and practices of educational administration;
2. Organizational theory and change;
3. Legal/financial issues;
4. Educational leadership (problems, strategies, and solutions); and
5. Research and data utilization

The educational administration program prepares educational administrators and supervisors for a broad range of education-related administrative positions. These positions include elementary and secondary school administrators, higher education staff positions, and department and grade-level chair at lower and higher education institutions.

Participants in the educational administration program will have the opportunity to study in a multicultural setting that includes students from the Pacific and Asia, as well as from private and public schools. The department's focus on both higher and lower education provides students the opportunity to explore a wide range of national and international issues of importance to education and to specialize in an area of interest.

## Graduate Study

### Master of Education in Educational Administration

#### Admission Requirements

To be admitted, students must meet Graduate Division admissions requirements. There are two program emphases: K-12 administration and higher education administration.

Students who seek the MEd degree in K-12 educational administration must have appropriate job-related experience to evidence familiarity with teaching or other student support roles (i.e., 2 years of classroom teaching or school counseling experience). The basic program is designed to prepare educational administrators and supervisors for a broad range of education-related elementary and secondary administrative positions. For applicants working in the Department of Education currently as teachers or vice principals, there are seven courses that are required for principal certification (EDEA 601, 610, 620, 630, 645, 670, 780F). Applicants should check with the Hawai'i Department of Education for additional requirements to become an administrator in the public schools.

For students who seek the MEd degree in higher education, the program is designed for those with interest in mid-level administrative and staff positions in higher education administration (e.g., admissions, housing, student activities, financial aid, placement, counseling, and health services). Experience in working in higher education is desirable.

Students are encouraged to plan an individual program of electives to prepare them for specific educational positions.

There are two basic degree options, Plan A and Plan B, both of which require a minimum of 36 credits.

#### Plan A (Thesis)

For the K-12 emphasis, program requirements include: (1) EDEA 601, (2) 602, (3) one 700 level seminar course, (4) one course in organizations and school contexts (e.g., 610, 650, 652, 670), (5) one course in leadership and policy (e.g., 642, 645, 675, 676), (6) one course in legal/financial processes (e.g., 620, 630), (7) 6 credits of thesis research, (8) two elective courses in educational administration, and (9) two courses from any related graduate field of study (with approval of advisor) including educational administration.

For the higher education emphasis, program requirements include: (1) 657, (2) 602, (3) one 700 level seminar course, (4) one course in higher education organizations (e.g., 646, 650, 662), (5) two courses in leadership (e.g., 642, 660, 661, 663), (6) one course in legal/financial processes (e.g., 620HE, 630HE), (7) one additional course in research methods (e.g., 604, 629), (8) six credits of thesis research, and 2 related courses from any related graduate field of study with approval of advisor.

#### Plan B (Non-thesis)

For K-12, same as Plan A thesis (36 credits minimum): Three (3) credits of directed research instead of six (6) credits of thesis and an additional course in educational administration.

For higher education, same as Plan A thesis (36 credits minimum): Three (3) credits of directed research instead of six (6) credits of thesis research and an additional related course or educational administration course.

Selection of specific courses in the above areas will be by the candidate with the advice and approval of the student's faculty advisor.

The department will accept a maximum of 9 transfer credits after enrolling at UH Mānoa as a graduate student with advanced approval by the graduate program. Students should refer to the Graduate Division website for the requirements for the transfer of credits.

### Doctoral Degree

The doctor of education (PhD) is a college-wide degree awarded for distinguished academic preparation for professional practice in the field of education.

The primary purpose of a PhD with a specialization in educational administration is to provide advanced graduate study to highly qualified educational leaders in administration. The program includes course work developing knowledge and skills related to educational policy and governance, leadership in organizations, administrative theory and practice, and research.

The program includes courses required for all doctoral students enrolled in the College of Education; courses in educational administration leading to a specialization in either general education (K-12) or higher education; course work taken outside the field of educational administration; an internship within a school, school district, or post secondary or other educational institution; and the dissertation.

For further information, see “Doctoral Degrees,” or write to the Department of Educational Administration Chair, College of Education, University of Hawai‘i at Mānoa, 1776 University Avenue, Honolulu, HI 96822; (808) 956-7843.

## Educational Foundations

Wist 113  
1776 University Avenue  
Honolulu, HI 96822  
Tel: (808) 956-7913  
Fax: (808) 956-9100  
Email: [edef@hawaii.edu](mailto:edef@hawaii.edu)  
Web: [coe.hawaii.edu/academics/educational-foundations](http://coe.hawaii.edu/academics/educational-foundations)

### Faculty

- \*E. H. Tamura, PhD (Chair)—history of education, minority issues, Asian-American history
- \*B. Cheng, EdD—comparative and international education, education policy
- \*X. Di, EdD—philosophy of education, history of education, sociology of education
- \*D. P. Ericson, PhD—philosophy of education, educational policy, international education
- \*B. J. Lum, PhD—philosophy of education, human development, peace education
- \*H. McEwan, PhD—curriculum theory, teacher education research, philosophy of education
- \*G. G. Reed, PhD—social and cultural foundations, values and education, comparative education
- \*C. S. Tanabe, PhD, JD—educational law and policy, philosophy of education
- \*H. Tavares, PhD—politics of education, educational policy studies, critical theories of education

### Cooperating Graduate Faculty

W. S. Nishimoto, PhD—oral history, life history, interviewing in qualitative research

### Affiliate Graduate Faculty

- D. L. Grossman, PhD—civic/citizenship education, comparative/international/cross-cultural education, teacher education
- L. K. Menton, PhD—social studies education
- Y. Takei, PhD—sociology, comparative/international education

**Degrees Offered:** MEd in educational foundations, PhD in education with specialization in educational foundations

### The Academic Program

The Department of Educational Foundations takes an interdisciplinary approach to the critical examination of educational issues by focusing on explaining and interpreting education—asking and responding to the “why” questions. The department is committed to the professional and personal intellectual growth of educators and laypersons who wish to broaden and deepen their understanding of educational problems, questions, issues and controversies. The department adopts a multidisciplinary approach to educational inquiry by drawing on the disciplines of the humanities and social sciences. We value and affirm multiple perspectives, multiple voices, and collaboration in a program that is committed to engaging and deepening the prospect of democratic education. We seek to move our students toward greater appreciation of complexity, clarity, and compassion through our curriculum.

Related to the traditional disciplines are the department’s four areas of emphasis: history of education, philosophy of education, socio-cultural foundations, and international/comparative education. Related areas of study include educational policy studies, the politics of education, legal issues in education, and multicultural education.

Graduates with the MEd degree are expected to be able to analyze alternatives in educational thought, policy and practice related to the social and ethical problems faced by schools and other educational agencies at the state, national and international levels. Graduates with the PhD are expected to exert professional expertise in the field of education and deal with those aspects and problems in society that need to be taken into account in advancing educational thought, policy development and practice, especially where these concern the social role of the school and other educational agencies.

### Graduate Study

#### Master of Education in Educational Foundations

The department offers programs of graduate study leading to a MEd in educational foundations, informed by history of education, philosophy of education, social/cultural foundations of education, and/or comparative/international education.

#### MEd Program Options

##### Option I: Plan A Thesis (30 credits)

- Department core (12 credits)
- One research course (3 credits)
- Three electives (including a seminar) in area of emphasis and/or cognate (9 credits)
- Thesis 700 (6 credits)
- Committee: chair (full graduate faculty), member (graduate faculty), outside member (full graduate faculty)
- Culminating experience: oral defense of thesis

**Option II: Plan B Non-thesis (30 credits)**

- For field based educators and others who choose to do a project based study
- Department core (12 credits)
- One research course (3 credits)
- Three electives, including a seminar (9 credits)
- Directed reading for developing and carrying out a project and writing related paper (6 credits)
- Committee: chair, plus one reader (who must have at least a master's degree) who guide the student through the conceptualization and implementation of the project and the writing of the Plan B paper
- Culminating experience: A final paper that describes and evaluates the final project, and an oral presentation

**Option III: Summers Only Master in Education (30 credits)**

- Focus on leadership in the Asia/Pacific Region (EdLeads)\*
- Fixed sequence of courses (30 credits)
- Committee: chair (member of graduate faculty) and reader (who must have at least a master's degree) who guide the student through the conceptualization and implementation of the project and the writing of the Plan B paper
- Culminating experience: A final paper that describes and evaluates the final project, and an oral presentation

**Option IV: Summers Only Master in Education (30 credits)**

Focus on private school leadership in the Pacific Basin (PSL)\*

- Fixed sequence of courses (30 credits)
- Committee: chair (member of graduate faculty) and reader (who must have at least a master's degree) who guide the student through the conceptualization and implementation of the project and the writing of the Plan B paper
- Culminating experience: a final paper that describes and evaluates the final project, and an oral presentation.

For further information, contact the graduate chair, Department of Educational Foundations.

**Doctoral Degree**

The Doctor of Philosophy in Education (PhD) is a college-wide degree awarded for distinguished academic preparation for scholarly professional practice in the field of education.

Educational foundations is a specialization under the PhD program of the College of Education. The program prepares educational professionals with an understanding of the historical, philosophical, cultural, social, and political contexts of education so that they can make informed and wise decisions about educational problems and policy issues. Graduates with the PhD are expected to exert leadership in the field of education and deal with those aspects and problems in society that need to be taken into account in advancing educational thought, policy development, and practice, especially where these concern the social role of the school and other educational agencies. The program of study varies in the number of credits, depending upon the candidate's qualifications and will include the following: college courses required of all students enrolled in the PhD program of the College of Education; department courses required of all students with a specialization in educational foundations; area of emphasis course work focused in history, philosophy, comparative, or social/cultural foundations of education; cognate-field course work usually taken outside of the College of Education; a field project or an internship; qualifying and comprehensive examinations; and

the dissertation. The department also contributes to the policy studies concentration in the PhD program.

For further information concerning the College of Education PhD program, see "Doctoral Degrees," or write to the graduate chair, Department of Educational Foundations, 1776 University Avenue, Honolulu, HI 96822.

**Educational Psychology**

Wist Hall 214

1776 University Avenue

Honolulu, HI 96822

Tel: (808) 956-7775

Fax: (808) 956-6615

Web: [coe.hawaii.edu/academics/educational-psychology](http://coe.hawaii.edu/academics/educational-psychology)

**Faculty**

- \*M. Salzman, PhD (Chair)—cross-cultural psychology, cultural psychology, indigenous psychology
- \*P. R. Brandon, PhD—program evaluation, study of program implementation and research on professional development
- \*M. K. Iding, PhD—cognition, learning from multimedia and computer-based resources, science learning, university teaching
- \*S. Im, PhD—multivariate analysis, psychometric models for cognitive diagnosis, setting cut off scores in large scale assessment
- \*M. K. Lai, PhD—program evaluation, research methods
- \*N. Lewis, PhD—underrepresented students' interest in and persistence to doctoral education in science, technology, engineering, and mathematics (STEM) and program evaluation
- \*M. Liu, PhD—statistical and psychometric models and their application in education or other disciplines within social and behavioral science
- \*K. Ratliffe, PhD—learning and development in exceptional students, culturally diverse educational environments, family influences on learning and development
- \*L. Yamauchi, PhD—cognitive development, cultural influences on learning, minority students and schooling

**Cooperating Graduate Faculty**

- B. D. DeBaryshe, PhD—social development, parent-child relations, stress and resilience
- R. Heck, PhD—organizational theory, leadership, policy and quantitative methods
- A. Maynard, PhD—children's teaching abilities, sibling interactions, cultural change and socialization, and literacy

**Affiliate Graduate Faculty**

- M. E. Brandt, PhD—cognitive development, culture and cognition, alternative assessment
- P. G. LeMahieu, PhD—student assessment, program evaluation

**Degrees Offered:** MEd in educational psychology, PhD in educational psychology

**The Academic Program**

The Department of Educational Psychology promotes inquiry in human learning and development within the context of a diverse society. Specifically, the major areas of study include human learning, human development, research methodology, statistics, measurement, and assessment and evaluation.

The department's MEd and PhD programs prepare individuals to perform career activities—basic and applied research,

teaching, and mentoring—in universities, school systems, and other human service institutions and agencies, both public and private.

## Graduate Study

Graduate study is primarily oriented toward students with specific professional educational objectives, but it is also applicable to students who find a major in educational psychology congruent with their personal objectives, and who wish to engage in elective study to the greatest extent possible while fulfilling degree requirements.

### Initial Faculty Advising

Upon entrance to the graduate program, each student is assigned a temporary advisor to facilitate the student's progress through the program. Initial assignment or choice of a temporary advisor in no way obligates the student to select the temporary advisor as his or her program advisor or to include the temporary advisor as his or her committee member. Likewise, the temporary advisor has no obligation to serve on the student's committee. The system of temporary advisors is merely a way of identifying a specific faculty member the student can call upon for advice. The temporary advisor can be changed at any time.

In order to maintain a close working relationship between the students and the faculty, students are required to undertake self-assessment activities every semester. After completing a written self-assessment, students meet with the EDEP faculty at the end of each semester to review and direct progress toward their degrees. Students who have successfully defended their proposal and are making good progress are not required to attend these meetings.

### Master of Education in Educational Psychology

The MEd program in Educational Psychology is directed toward increasing students' competence in educational inquiry. The MEd in Educational Psychology has two broad strands: (1) General Educational Psychology; (2) Measurement, Statistics, and Evaluation (MSE). The General Educational Psychology strand focuses on the study and application of psychological principles to understand cognitive, developmental, and socio-cultural factors affecting behavior, learning, and achievement and to further develop educational interventions and programs. The MSE strand addresses quantitative approaches to educational inquiry and the development of quantitative methods that underpin the development of evidence-based research in education. Courses are offered in the areas of human learning, cognition, and development; statistics, measurement, evaluation, and research methodology. The program prepares students for professional careers as practitioners and researchers in education, evaluators, and testing and measurement specialists.

### Admission Requirements

In addition to the application form required by the Graduate Division, prospective students must also submit

- 1) Department of Educational Psychology application form to the department.
- 2) Three recommendation forms attesting to academic and professional strengths to the department. Academic recommendations are preferred.
- 3) Transcript(s) of all prior undergraduate and graduate course work to the Graduate Division.

- 4) For non-native speakers of English, a minimum TOEFL score of 600/100 unless waived in accordance with Graduate Division guidelines.

**Note:** Applications for admission to the MEd program must be received by **February 1** for the fall semester and by **September 1** for the spring semester. Application materials are available on the EDEP website, [coe.hawaii.edu/academics/educational-psychology/med/how-to-apply](http://coe.hawaii.edu/academics/educational-psychology/med/how-to-apply).

### Degree Requirements

After admission, the student and his or her temporary advisor detail a program of study, which includes a minimum of 30 credits for Plan A (Thesis) and Plan B (Non-thesis) candidates. Courses at or above the 400 level may be applied to an individual's program of study though a minimum of 18 credits must be earned in courses numbered 600-798. Up to 12 credits completed prior to admission to the program may be transferred for credit toward the degree. Students in the general Educational Psychology strand are required to take EDEP 416, 601, 608, 611, 661 and a graduate seminar (EDEP 768) as part of their 30 credits. Students in the MSE strand are required to take EDEP 601, 604, 608, 611, 616, 661 and two elective courses from the following: EDEP 605, 606, 612, 626, 768D, 768E or 768G (including at least one seminar).

A minimum residency of two semesters of full-time study or the equivalent in credits at UH Mānoa is required. Relatively soon after entering the program, students are expected to choose between Plan A and Plan B options.

### Plan A (Thesis)

Students whose objective is doctoral study are recommended to define a Plan A program of study at the master's level. Plan A candidates must take at least 6 credits of thesis research (EDEP 700). At the discretion of the thesis chair, up to five credits of EDEP 699, previously completed, may be substituted for five of the six EDEP 700 credits. The Graduate Division requires that a minimum of 12 credits must be earned in courses numbered 600-798, in addition to six credits of directed reading (EDEP 699) and thesis research (EDEP 700).

The development of a thesis proposal is concurrent with the selection of a thesis chair and committee. The proposal includes a literature review that contextualizes the research question(s) within existing research and theory. The proposal also includes a description of the proposed research methods, including how the data will be analyzed. Students work with their thesis chair to develop their proposal. After the thesis proposal is defended and approved, Master's Form II is submitted to the Graduate Division, and the student may enroll in thesis research (EDEP 700) at the beginning of the next academic semester. Students must register for at least one EDEP 700 credit during the semester in which they graduate and apply for graduation by the appropriate deadline.

It is the responsibility of the student to keep all members of the thesis committee informed of the scope, plan, and progress of the thesis research. Copies of the completed thesis must be submitted to committee members at least two weeks prior to the date of the final oral examination by the committee. Upon successful defense of the thesis and subsequent completion of revisions, Master's Form III is submitted to the Graduate Division. When the final edited document is submitted to the Graduate Division, Form IV should be submitted at the same time.

### Plan B (Nonthesis)

The culminating requirement is a Plan B project/paper, an original educational inquiry resulting in a product that informs educational practice. The development of a Plan B project is concurrent with the selection of a Plan B advisor. Students develop a 8-10 page proposal outlining their projects that are then approved by their advisors. Not more than 9 credits in directed reading/research (EDEP 699) may be applied to meet degree requirements. A presentation of the Plan B project/paper is required during their final semester.

If candidates are not enrolled in other courses, they must be enrolled in at least one credit of EDEP 699, Directed Reading and Research. Students should enroll in EDEP 500 if all other requirements are complete. EDEP 500 is a one-credit course evaluated on a Satisfactory/Unsatisfactory basis and does not count toward credit-hour requirements. Students must apply for graduation when registering for their final semester of study.

### Doctoral Degree

The PhD program in educational psychology is directed toward increasing the candidate's competence in educational inquiry. In general, the domain of inquiry encompasses human learning and development in the context of education. Courses are offered in the areas of statistics, measurement, evaluation, and research methodology; and human learning, cognition, and development. The program prepares individuals to conduct basic and applied research and evaluation in public and private educational settings and provide instruction and consultation appropriate for all educational levels.

### Admission Requirements

In addition to the application form required by the Graduate Division, prospective students must also submit:

- 1) Department of Educational Psychology application form to the department.
- 2) Three recommendation forms attesting to academic and professional strengths to the department. Academic recommendations are preferred.
- 3) Transcript(s) of all prior undergraduate and graduate course work to the Graduate Division.
- 4) Official scores on the Graduate Record Exam Aptitude Test to the Graduate Division.
- 5) For non-native speakers of English, a minimum TOEFL score of 600/100 unless waived in accordance with Graduate Division guidelines.
- 6) Evidence of research competence (e.g., master's research thesis, a published or publishable article, or a research proposal), to the department.

[**Note:** Applications for admission to the PhD program are considered for the fall semester only and must be received by **February 1** (applications from international students are due January 15).] Application materials are available on the EDEP website.

### Procedure for Completing the PhD Degree

Each student works closely with members of the graduate faculty to define an individual program of study. A typical program spans three to five years of concentrated study within the broadly defined discipline of educational psychology.

Program requirements include (a) completion of required core courses; (b) completion of required interdisciplinary specialization; (c) college teaching experience in conjunction with

one or more faculty members; (d) documentation of directed research experiences; and (e) a minimum residency of three semesters of full-time work or the equivalent in credits at UH Mānoa.

### Completion of Core Courses

Students must receive a grade of at least B in all core courses. The purposes of the core courses are (a) to determine whether to encourage students to proceed in the PhD program; and (b) to develop an appropriate plan of study; and (c) to advance to candidacy. See EDEP website for a list of core courses, [coe.hawaii.edu/academics/educational-psychology/phd-ep](http://coe.hawaii.edu/academics/educational-psychology/phd-ep).

### Dissertation Prospectus

The development of a dissertation prospectus is done in conjunction with the identification of the dissertation committee chair. The prospectus is a 10-15 page description (exclusive of references) of the proposed dissertation that is developed in consultation with a prospective chair and submitted to the faculty. The prospectus includes the statement of the problem; its relevance to educational psychology; the design of the investigation; and analysis. If there are no major objections to this prospectus from the graduate faculty as a whole, the student forms a doctoral committee based on mutual interest.

### Comprehensive Examination

The comprehensive examination is taken after the prospectus is approved and before the proposal defense. Committee members typically formulate two or three questions that may be related to the student's proposal but may be broader in scope. Typically, students take between two to four weeks to complete the written comprehensive exam; however, each committee determines the exact timeline. An oral defense will be scheduled after the written answers are turned in. The committee will have at least two weeks to read the written answers before the oral defense. A student who fails any portion of the comprehensive examination twice will be dismissed from both the graduate program and the Graduate Division, unless recommended otherwise by the graduate chair.

### Dissertation Proposal

Upon passing the comprehensive examination, the student develops a dissertation proposal in consultation with the dissertation committee. The dissertation proposal includes a literature review that contextualizes the question(s) within existing research and theory. The proposal also includes a description of the proposed research methods, including how the data will be analyzed. A formal oral defense of the proposal is made by the student to the doctoral committee in order to confirm approval of the proposed research. When students pass the comprehensive exam and proposal defense, Doctorate Form II will be submitted to the Graduate Division.

### Completion of the Program

It is the responsibility of the student to keep all members of the dissertation committee informed of the scope, plan, and progress of the dissertation research. Copies of the completed dissertation must be submitted to the committee members at least two weeks prior to the date of the final oral examination by the committee. Upon successful defense of the dissertation and subsequent completion of revisions, Doctorate Form III is submitted to the Graduate Division. When the final edited

document is submitted to the Graduate Division, Form IV should be submitted at the same time.

## Educational Technology

Wist 232  
1776 University Avenue  
Honolulu, HI 96822  
Tel: (808) 956-7671  
Fax: (808) 956-3905  
Email: edtech-dept@lists.hawaii.edu  
Web: coe.hawaii.edu/academics/educational-technology

### Faculty

- \*C. Ho, PhD (Chair)—educational technology and distance learning
- A. Eichelberger, MEd—educational technology
- \*C. Fulford, PhD—instructional design and development
- \*E. Hoffman, EdD—educational leadership
- \*P. Leong, PhD—communication and information sciences
- \*G. Lin, EdD—instructional technology
- \*P. McKimmy, EdD—educational leadership
- \*M. Menchaca, EdD—learning sciences
- \*S. Paek, EdD—instructional technology and media
- \*M. Schmidt, EdD—information science & learning technologies
- \*C. Sorensen Irvine, EdD—professional studies in education

### Cooperating Graduate Faculty

D. Lassner, PhD—communication & information sciences  
T. T. T. Nguyen, EdD—educational leadership, internet safety

**Degrees Offered:** MEd in educational technology, PhD in education specialization in educational technology, GCERT Online Learning and Teaching, Dual Master's Degree program with Library and Information Science (LIS)

### The Academic Program

For nearly half a century, the Department of Educational Technology (ETEC) has provided dynamic and high quality programs for educators seeking innovative ways to create effective teaching and learning environments that integrate emerging technologies. To meet the needs of lifelong learners, ETEC offers diverse programs and courses for graduate students as well as courses to meet the needs of undergraduate students. Students in the ETEC program may be upgrading current capacity as educators or seeking new career paths, often moving into leadership positions as a result of their educational experiences.

The department's main target group is post-baccalaureate students committed to the improvement of instruction and learning across the educational spectrum, including PreK-12, post-secondary and informal educational settings. The field of educational technology is delineated by the definition developed by its professional association, the Association for Educational Communications and Technology (AECT): "Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources." AECT standards for professional programs guide the curriculum and core assessments.

A major strength of the department is its role in developing the educational and research expertise needed for the digital age, contributing to workforce development and technology innovation at the local, national, and global levels. Educational

technology, with its multi-disciplinary focus on such areas as distance education, interactive multimedia and educational gaming, design of engaging learning environments, participatory and social learning communities, cognition and computing, and research into effective learning and teaching strategies through emerging technologies, puts the ETEC department at the forefront of developments in 21st century education.

ETEC graduates are found in many learning environments including PreK-12 and higher education, government, business, industry, military, health occupations, museums, and other non-profits. Types of careers include: technology training, support and management, instructional design, eLearning development, website development, distance learning management, educational video production, multimedia authoring, performance improvement, project management, adult education and training, and teaching and research.

### Graduate Study

ETEC graduate programs are offered at master's, PhD, and graduate certificate levels. Online options are available at the master's and certificate level, while campus-based programs include the master's and PhD.

ETEC has a commitment to provide theory and research-based, yet practical educational programs. The graduate programs place emphasis on applications and evaluation of technology in educational settings rather than simple technical skills. All ETEC programs have been designed to encourage intellectual excellence and participation in a scholarly community. Emerging technologies are actively deployed to support scholarly networking as well as learning and teaching. A set of strong objectives has been established, and appropriate activities devised to ensure high levels of competencies of program graduates.

ETEC graduate programs adhere to the general information, policies, requirements, and procedures of the Graduate Division. Students interested in graduate study should refer to the "Graduate Education" section in this *Catalog*.

### Master of Education in Educational Technology

The MEd in Educational Technology is offered in both campus-based and online versions. Both involve face-to-face and online experiences (known as hybrid). These programs are designed to accommodate busy professionals with evening hours for live sessions, whether online or face-to-face.

- Campus-based (EDTC): students take required courses in the evenings at the UH Mānoa campus. Electives may be online or face-to-face.
- Online program (OTEC): all courses are offered online, although students attend two weekend sessions together on the UH Mānoa campus in their first semester. Preference for this program is given to students not residing on Oahu. The online program does not accept waivers for tuition.

Students should indicate their preference of campus-based or online when applying. There is no automatic transfer between these programs after admission.

### Admission Requirements

Admission to the educational technology program is only for the fall semester. Applications may be filed with the Graduate Division beginning October 1 until the deadline of **February 1** for the following fall semester. Students must meet the requirements set by the Graduate Division. Because the number of

students who can be admitted is limited, the admission process is highly competitive and meeting the minimum established criteria does not guarantee automatic admission.

In addition to the application materials required by the Graduate Division, prospective students must also submit the following directly to the ETEC Department (see ETEC web page for additional details):

- 3 letters of recommendation
- Intent to apply (online form at the ETEC web site)
- Statement of objectives (brief narrative)

Students are not required to have an undergraduate degree in education or educational technology to enter the master's program. However, students without a previous background in education or with limited skills in technology are advised to consider taking a course in educational technology prior to entering the program to determine match for skill sets and interests.

### Major Requirements

The master's program requires a minimum of 33 semester credit hours, with six required and five elective ETEC courses. The ETEC MEd is cohort based, with students only admitted in fall term each year as part of a group that takes initial classes together. In a cohort model, students enroll in a series of core courses, beginning and ending the series together. Such an approach helps build community and support structures within the program. Students work with like-minded professionals to achieve a common goal. Students are required to take two core courses each in their initial fall and spring semesters; these typically meet on Tuesday and Thursday evenings. Elective courses are offered in every semester and may be taken online or on campus. All students are required to have access to a laptop computer with internet access to meet program requirements.

The set of required ETEC courses provides each educational technology major with a solid foundation in technology, instructional design, learning theory, and research and evaluation. After the four core courses in the initial year have been completed, each student will be evaluated to determine whether he or she is making satisfactory academic progress and is prepared academically and in other ways for the continuation in the program. Poise, personal dispositions, attitude, and communication skills as well as substantive progress in coursework are significant components in the overall evaluation. If advancement to candidacy is recommended, students will be allowed to begin work on their master's project. The program culminates with student presentations of a final ETEC master's project at a professional conference and submission of an electronic portfolio, both completed in a fall-spring course sequence in their final year.

### Dual Master's Degree Program

Students may pursue a Master's in Educational Technology and a second master's concurrently in Library and Information Science. Students enrolled in either program may apply for admission in the other degree program. The dual master's option allows sharing of many elective courses. For more information, contact an advisor in ETEC or LIS.

### Doctorate of Philosophy (PhD) in Education Specialization in Educational Technology

The PhD in Education specialization in Educational Technology (ETEC) is designed to prepare influential professionals

in the field of educational technology and the learning sciences. The program is research focused, designed to prepare future faculty and education leaders. Scholars in the field explore the uses of innovative media and technologies for education, studying aspects from student learning and cognition to impacts on individuals and institutions. The field provides the research base for effective utilization of new media in education and by default is interdisciplinary in its approaches and theories. From the beginning, students are expected to actively engage and contribute to the field through publication, conference presentations, and applied instructional projects. The PhD program is designed to enhance and facilitate educational, social, and economic growth locally, nationally, and internationally with a pool of highly qualified educational scholars and leaders.

### Admission Requirements

Admission to the educational technology PhD program is only for the fall semester. Applications may be filed with the Graduate Division beginning October 1 until the deadline of **February 1** for the following fall semester; international students must file by **January 15**. Students must meet the requirements set by the Graduate Division as well as submit scores for the Graduate Record Examination (GRE). Note that students must select "Education" as the major on the graduate application form, **not** ETEC.

In addition to the application materials required by the Graduate Division, prospective students must also submit the following directly to the College of Education doctoral program office (see ETEC web page for additional details):

- 3 letters of recommendation
- Statement of purpose for pursuing a doctoral degree (narrative)
- Curriculum vitae
- Evidence of competency in formal writing (i.e. masters thesis, research paper, other formal writing)

Because the number of students who can be admitted is limited, the admission process is highly competitive and meeting the minimum established criteria does not guarantee automatic admission. A degree in educational technology is not required to enter the PhD specialization in ETEC. Students without such a degree or equivalent experience may be required to complete additional coursework.

### Major Requirements

The PhD in Education in Educational Technology follows the design of other COE PhD specializations with a program totaling a minimum 46 credit hours, including:

- College research core (4 courses),
- Educational technology doctoral core (minimum 3 seminar courses),
- Emphasis area (5 courses in educational technology),
- Breadth courses to be selected by the student with approval of an advisor (2 courses),
- Field study or internship (1 course), and
- Minimum of one course of dissertation credit (1 credit minimum)

The ETEC PhD specialization is campus-based and cannot be completed online. ETEC doctoral students are part of a cohort experience which requires a minimum of two courses each semester during the first year. This includes a doctoral seminar and a research course in the fall and spring term. Students not

able to commit to attending courses on campus two evenings per week will not be accepted into the program. These courses are typically held on Monday and Wednesday evenings, usually from 4:30 to 7 p.m. Some elective courses are available online, but may require live online sessions from 6-8 p.m. HST. All students are required to have access to a laptop computer with Internet access to meet program requirements.

### **Graduate Certificate (GCERT) in Online Learning and Teaching (COLT)**

The Graduate Certificate program is a 15-credit, fully online post-baccalaureate program. The purpose of COLT is to develop competent online instructors and instructional designers. COLT provides those who desire to deliver learning at a distance with the foundational knowledge and skills required to design, develop and implement effective materials for online learning. Although targeted for Hawai'i's educators, this program will also appeal to online educators throughout the Asia-Pacific. Participants learn the skills necessary to be successful online teachers and online learners. Within the certificate program, students learn to create, use and manage appropriate technological processes and resources to understand and deploy effective, efficient, and engaging online learning environments.

The Certificate prepares participants to apply the theories, principles, models, tools, and techniques associated with online teaching in diverse educational settings. Throughout this completely online certificate program, participants have numerous opportunities to integrate their professional experiences into their learning, apply course assignments to their current professional activities, and actively engage with other professionals in the development of these proficiencies.

The COLT program has been endorsed by the Association for Educational Communications and Technology (AECT). Course objectives and assessments are framed by standards developed by AECT to ensure relevance and quality.

#### **Admission Requirements**

Admission to the COLT program is available for any semester with applications due **March 1** for the following summer or fall, and **November 1** for spring admission. Students must meet the requirements set by the Graduate Division for admission. Students should select "Online Learning and Teaching" as the major on the graduate application form.

In addition to the application materials required by the Graduate Division, prospective students must also submit the following online (see ETEC web page for additional details):

- COLT Intent to Apply form

Because the number of students who can be admitted is limited, the admission process is competitive and meeting the minimum established criteria does not guarantee automatic admission. A previous degree in educational technology is not required to enter the COLT program. Students without previous online learning experience should consider applying for admission to begin in the summer to take Introduction to E-Learning (ETEC 612) as their first course in the program. The certificate program does not accept waivers for tuition.

#### **Program Requirements**

The COLT Graduate Certificate is comprised of three 3-credit required courses, plus two additional 3-credit elective courses. The five courses are designed to cover a range of competencies to educate candidates in understanding, designing,

and delivering online learning. All courses for the COLT program are offered fully online. Courses follow the UH Mānoa semester schedule, and are offered in fall, spring, and summer semesters. Some courses may require attendance at live online sessions in the evenings from 6-8 p.m. HST. Students may opt for campus courses for electives but this is not required.

Required courses include: ETEC 612 (offered summer); ETEC 673 (offered fall); and ETEC 632: (final course-spring). Students select two electives with approval of the COLT advisor. The electives may be chosen from among the rich array within the department's graduate courses. Courses must relate to the overall goals of the certificate but are designed to meet the specific needs and objectives of the individual student. Students complete a culminating project in ETEC 632 after all other course requirements have been met. COLT students are required to have access to a laptop computer with internet access to meet program requirements.

## **Institute for Teacher Education**

Everly Hall 223 (Elementary), 226 (Secondary), and 221 (MEdT)  
1776 University Avenue

Honolulu, HI 96822

Tel: (808) 956-4154 (Elementary)/(808) 956-4241 (Secondary)/  
(808) 956-5513 (MEdT)

Fax: (808) 956-7191 (Elementary & MEdT)/(808) 956-9808  
(Secondary)

Web: [coe.hawaii.edu/academics/institute-teacher-education](http://coe.hawaii.edu/academics/institute-teacher-education)

#### **Faculty**

\*D. Grace, EdD (Elementary Director)—language, literacy, media studies, early childhood

\*J. Moniz, PhD (Secondary Director)—multicultural education

\*J. Zilliox, EdD (MEdT Director)—mathematics education

L. Baron, EdD—mathematics education

S. Buelow, PhD—literacy and reading education

C. Frambaugh-Kritzer, PhD—literacy

L. Fulton, PhD—elementary science education (shared with CRDG)

S. H. Furuta, MAT—teacher education, elementary education

A. Henward, PhD—early childhood education

\*J. Herring, EdD—art education

\*C. Kessler, EdD—social studies education

L. Muccio, PhD—early childhood education

\*E. Ponte, PhD—language, literacy

\*S. Robinson, PhD—science education

\*K. Serna, PhD—school health education

J. Simpson Steele, PhD—performing arts

M. Soetoro-Ng, PhD—social studies

E. Spitzer, PhD—language arts

L. Venenciano, PhD—secondary math education (shared with CRDG)

\*F. C. Walton, PhD—career, technology and technical education

\*J. Yoshioka, PhD—science education, teacher education

\*D. Zuercher, PhD—elementary and middle level, literary health

#### **Cooperating Faculty**

from CRDG, EDCS, EDEP, ETEC, KRS, SPED

#### **Degrees, Certificates, and Licensure Program Offered:**

BEd in elementary education, BEd in secondary education, Master of Education in Teaching (MEdT), Post-Baccalaureate Certificate in Secondary Education (PBCSE); State Approved

Teacher Education Programs (SATEPs) in elementary education, secondary education, dual elementary and special education, dual elementary and early childhood education, dual elementary and Hawaiian Education, and Hawaiian language, Hawaiian immersion, and Hawaiian studies

## The Academic Program

The Institute for Teacher Education (ITE) offers undergraduate degrees in elementary and secondary education (BEEd), a post-baccalaureate certificate in secondary education (PBCSE), an advanced degree in teaching (MEdT), and state-approved teacher education programs (SATEPs) in elementary and secondary education.

Elementary and secondary BEEd students may be able to enroll in programs that can lead to recommendation to the state for dual licensure, such as elementary or secondary and special education licensure, elementary and early childhood (PK-3) licensure, or elementary or secondary and Hawaiian language or Hawaiian Immersion licensure. All ITE programs focus on the educational needs of children and adolescents, teaching, learning, and curriculum. The students at UH Mānoa are ethnically diverse as are the students in Hawai'i's school system. Students in ITE programs, therefore, learn and teach in a unique multicultural environment.

All students are required to own laptops for their courses. The heavy emphasis on the integration of technology into course work and clinical work reflects innovations in education. To learn more about this requirement, financial aid options for covering the cost, and whether the laptop the student may now own meets requirements for the program, please refer to [coe.hawaii.edu/node/479](http://coe.hawaii.edu/node/479).

## Undergraduate Study (BEEd)

### Basic Requirements

The undergraduate major programs include a strong liberal arts foundation, professional education courses, academic subject preparation, content pedagogy preparation, and clinical experiences.

Classified status in the College of Education is necessary for registration in most teacher education courses. Some require SATEP admissions as well. Program sheets listing the specific requirements for the elementary and secondary BEEd programs and for the State Approved Teacher Education Programs (SATEPs) are available in the College of Education's Office of Student Academic Services (OSAS). Students must fulfill all degree program requirements in effect for the semester in which they are admitted into the college. Those pursuing licensure must meet all SATEP requirements in effect at the time they are admitted to the SATEP. Please be aware that SATEP requirements may be changed by the licensing agency, the Hawai'i Teacher Standards Board (HTSB). Candidates pursuing licensure also must meet all licensure requirements in place at the time of program completion.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Major Requirements

#### Elementary Program

The elementary SATEP major focuses on the learner and the learning environment in elementary school (K-6). Require-

ments include completion of the General Education courses specified for education majors, elementary emphasis and methods courses in elementary education, and clinical experience for a minimum of 120 credit hours. Students are typically assigned to cohorts and enroll in a sequence of courses. The traditional day program requires full-time enrollment. The Elementary BEEd also offers a statewide distance education program. The Dual Elementary/Special Education program adds a focus on special education settings. The Dual Elementary/Early Education program adds a focus on PK-3 settings. The Dual Elementary/Hawaiian Education program adds a focus on teaching in Hawaiian immersion schools or schools with high populations of Native Hawaiian students.

#### Secondary Program

The secondary education program focuses on the learner and the learning environment in grades 7-12. Requirements include completion of the General Education courses specified for education majors, a major in a teaching field or academic content and content pedagogy courses equivalent to a major in a teaching field, foundations and methods courses in secondary education, and clinical experiences for a minimum of 120 credit hours.

The College of Education offers secondary education majors in the following fields: English, languages (Chinese, French, German, Hawaiian, Ilokano/Filipino, Latin, Japanese, Russian, Spanish), mathematics, music, physical education, science (biology, chemistry, physics, earth science, general science, and physical science), social studies (with concentrations in American studies, anthropology, economics, geography, Hawaiian studies, history, political science, psychology, or sociology).

Secondary education courses are typically offered in sequence. All secondary majors pursuing teacher licensure through a SATEP must take ITE 401 Introduction to Teaching the first semester in the program, and ITE 440 Curriculum Implications of Multicultural Education prior to taking methods or clinical courses.

Music education majors complete a coordinated program offered in conjunction with the Department of Music to prepare teachers for grades K-12. Prospective music education majors should see the chair of the music education committee in the Department of Music during their first semester. Physical education majors must complete the General Education courses specified for education majors, the professional education required courses, and the academic major or equivalent, and related courses. In addition, the student must show skill and knowledge proficiency in lifelong physical activities appropriate to grades K-12. Interested students should see an advisor in the KRS department prior to their first year of registration.

### Post-Baccalaureate Certificate in Secondary Education (PBCSE)

The PBCSE is a post-baccalaureate certificate program for the preparation of secondary school teachers (grades 7-12). It is designed for students who possess a baccalaureate degree and wish to obtain initial teacher licensure. Students admitted to the PBCSE will have completed an academic major or its equivalent appropriate to their proposed teaching subject. The PBCSE offers a cohesive, field-based experience that encourages students to integrate educational theory and practice in cooperating secondary schools. The program consists of interrelated courses totaling 30-36 hours depending on the area of licensure sought.

Students who complete this initial teacher licensure program are encouraged to continue their professional growth. They may be able to apply up to 12 course credits from the PBCSE to a master's degree program. Students must negotiate course transfer at the time of application to a graduate program. The PBCSE program is offered statewide via distance education, as well as at UH Mānoa.

### Admissions Requirements

All applicants to the PBCSE program will be evaluated competitively and considered for admission on the basis of an overall profile. Admission to the PBCSE is considered admission to a SATEP.

1. Applicants must have a baccalaureate degree from an accredited and UH Mānoa recognized four-year institution of higher education. Additional undergraduate courses may be required. Thus, early advising is strongly recommended.
2. Applicants must achieve minimal passing scores as set by the Hawai'i Teachers Standards Board (HTSB) in the reading, writing, and mathematics subtests on the Praxis I Pre-Professional Skills test (PPST or C-PPST).
3. Applicants must demonstrate knowledge in the teaching field by passing an appropriate Praxis II Subject Assessment Content Knowledge test. Some areas such as art, music, and ESL, may allow program entry prior to passing the PRAXIS II Subject Assessment Test. However, passage of the test is required prior to being placed in a school for student teaching/internship per HTSB rules.
4. Applicants must meet admissions requirements designated by the UH Mānoa Admissions Office.
5. Applicants must demonstrate oral and nonverbal communication competencies through the successful completion of an interview.
6. Applicants must demonstrate attitudes toward education, learners, and themselves as prospective teachers that are compatible with the standards and curriculum of the program.
7. Applicants must document current (within the past five years) group leadership experience, paid or volunteer, with groups of youth between grades 7-12. A minimum of 40 hours of experience is required.

Admission requirements are subject to change. Call the Office of Student Academic Services for updated information.

### Graduate Study

The Master of Education in Teaching (MEdT) Program is a two-year initial licensure program whose applicants seek to earn a teaching license at the elementary (K-6) or secondary levels (6-12) and engage in a program of research and inquiry consistent with a graduate degree. Successful completion of the program results in both a recommendation to the Hawai'i Teacher Standards Board for licensure and a master's degree from the College of Education.

MEdT candidates are admitted in groups of approximately 25 students who work and learn together as a cohort. Across the four semesters students complete university course work and engage in research, teaching, and learning while fully immersed in K-12 school-based field settings under the guidance of university faculty and public school mentors. Candidates are assigned a field placement each semester by their cohort coordinators. The field work becomes progressively more involved each semester. At this time the program is offered full-time, in a face-to-face format (not online), and is available only on O'ahu.

Admission requirements include: approval of the Graduate Division at UH Mānoa; minimum undergraduate GPA of 3.0; and submission of passing test scores. Specific exams must be passed prior to the application deadline in order to meet Hawai'i Teacher Standards Board license requirements and our national accreditation requirements. The GRE is not required and cannot be used as a substitute. Applicants should visit the MEdT website for application instructions and current testing requirements at [coe.hawaii.edu/academics/institute-teacher-education/med-teaching](http://coe.hawaii.edu/academics/institute-teacher-education/med-teaching).

### Requirements for State Approved Teacher Education Programs (SATEPs)

Requirements for the college's state approved teacher education programs in elementary and secondary education comply with best practices and standards adopted by the national professional associations and the national accrediting body for teacher education, and with the state's requirements for teacher licensure. These requirements are subject to modification as changes are adopted by these entities. Please consult with the Office of Student Academic Services (OSAS) for current information.

## Kinesiology and Rehabilitation Science

Physical Education/Athletic Complex 231  
1337 Lower Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7606  
Fax: (808) 956-7976  
Web: [coe.hawaii.edu/academics/kinesiology-rehabilitation-science](http://coe.hawaii.edu/academics/kinesiology-rehabilitation-science)

### Faculty

- \*N. M. Murata, PhD (Chair)—physical education and adapted physical education
- \*J. A. Daniels, EdD—school counseling, development counseling, adolescent counseling, loss and transition counseling, group counseling, and counseling homeless children
- \*R. K. Hetzler, PhD—physical education and exercise science
- \*I. F. Kimura, PhD, ATC, PT—athletic training and biomechanics
- \*J. K. Maeda, PhD—physical education and adapted physical education
- \*C. F. Morgan, PhD—youth physical activity and overweight
- \*K. L. Murphy, DPE—physical education
- \*J. Prins, PhD—biomechanics and exercise science
- \*C. D. Sticklely, PhD, ATC—athletic training, biomechanics and exercise physiology
- \*K. Tamura, PhD, ATC—athletic training and biomechanics
- \*K. K. Yamamoto, PhD—rehabilitation counseling, transition, and disability-related issues

**Degrees Offered:** BS in kinesiology and rehabilitation science, MS in kinesiology and rehabilitation science, and PhD in education with a specialization in kinesiology

### Undergraduate Study

#### BS Degree in Health and Physical Education

The BS degree program provides professional curricula for students enrolled in the College of Education whose goal is to teach P-12 physical education.

The Health and Physical Education Teacher Education (HPETE) program is accredited by the National Council for Accreditation of Teacher Education (NCATE) and National Association for Sport and Physical Education (NASPE). A professional preparation curriculum is provided for students who wish to teach physical education in grades P/K-6, 7-12, or P/K-12 and health education in grades 6-12. Requirements for this program include successful completion of the PRAXIS I and PRAXIS II components required for licensure in Hawai'i. PRAXIS II must be passed prior to the teaching residencies (elementary and/or secondary). Candidates who major in this program must demonstrate competence in motor skills and comprehensive knowledge relative to content in health and physical education, as well as effective accountability. General education core is 31 credits, physical education is 47 credits, health education is 12 credits, and professional education core is 30 credits for a total number of credits of 120.

### Graduation Requirements

1. Fulfill all UH Mānoa requirements and meet all admissions requirements of the College of Education;
2. Complete the HPETE curriculum in content and field experiences for letter grades;
3. Successfully complete student teaching with a grade of B (not B-) or higher;
4. Complete a minimum of 120 credit hours;
5. Have a cumulative GPA not less than that required for admission to the college; and
6. File for graduation and pay the required fee at least one full semester prior to the intended graduation date.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### BS Degree in Health and Exercise Science

The BS degree in kinesiology and rehabilitation science focuses on health and exercise science-related professions. The areas covered under this program of study provide opportunities for students to learn how individuals can influence their own state of wellness, the response and adaptation of the human body to physical activity and sports participation, and how to help others achieve a higher state of wellness. Career paths within this area of study include, but are not limited to: physical therapy, athletic training, health and fitness promotion, exercise physiology, rehabilitation counseling, sports nutrition, and personal training. The general emphasis in all of these careers is the link between science, sports, fitness, and allied health sciences. This program area has been structured to enable the students to design an academic curriculum that best reflects his or her individual interests as well as general prerequisites for graduate or professional programs. This degree program has been designed to allow students to fulfill the requirements for entry into graduate programs in several health care professions (e.g., athletic training, physical therapy, physicians assistant, occupational therapy, rehabilitation counseling, etc.).

### Graduation Requirements

1. Fulfill all UH Mānoa requirements;
2. Complete the College of Education undergraduate curriculum in health and exercise science;
3. Complete a minimum of 120 credit hours;
4. Have a cumulative GPA not less than that required for admission to the college; and

5. File for graduation and pay the required fee at least one semester prior to the intended graduation date.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### MS Degree

The MS degree program provides opportunities for students who wish to pursue advanced knowledge and research in one of the following areas of specialization: athletic training (entry-level or post professional), physical activity/adapted physical activity, and rehabilitation counselor education.

The Rehabilitation Counseling program is offered through distance education modalities and is the only such program in the Pacific Basin and the nation accredited by the Council on Rehabilitation Education (CORE) that serves predominantly Asians and Pacific Islanders. Graduates are eligible to take the Certified Rehabilitation Counselor examination, and may also apply for State of Hawai'i licensure as a mental health counselor, provided they complete the required post-graduate requirements.

### Admission Requirements

In addition to the requirements of the Graduate Division, applicants for the MS degree will be further evaluated on their disciplinary background in their area of specialization. The Department of Kinesiology and Rehabilitation Science (KRS) also requires submission of Graduate Record Examination (GRE) scores.

Each applicant admitted will be classified in one of two categories: (1) Regular status—student who has a baccalaureate degree in the area which he or she will pursue and a minimum overall grade point average of 3.0 during the final two years of undergraduate work, or (2) Conditional status—student of promise who may have a deficiency in grade point average and/or subject matter preparation.

Physical Activity and Adapted Physical Activity program applicants should have a related undergraduate degree from an accredited college or university.

Entry-level Graduate Athletic Training Education Program (EL-GATEP) applicants must submit a signed copy of the Technical Standards and proof of a completed physical examination prior to admission. Post-Professional Advanced Athletic Training Program (AATP) applicants must be Board of Certification (BOC) certified or certification eligible for consideration for admission. Applicants of either program must also submit proof of: TB clearance, Hepatitis B vaccine or waiver and professional liability insurance prior to program entrance. Downloadable forms may be retrieved at [coe.hawaii.edu/academics/kinesiology-rehabilitation-science/ms-athletic-training](http://coe.hawaii.edu/academics/kinesiology-rehabilitation-science/ms-athletic-training). Admission to the program will depend on the availability of faculty in the particular area of scholarship.

Rehabilitation Counseling Program admission is based on previous preparation and background, intellectual and affective potential for graduate study, and personal qualifications that contribute to success as a counselor. Application to the program presumes satisfactory completion of a bachelor's degree with an acceptable undergraduate grade point average.

Three letters of recommendation relating to the candidate's personal qualifications and/or professional background, one of

ficial transcript for each institution attended, and statement of objectives must be submitted. These should show evidence that an applicant's personal qualifications, motivation, and academic preparation indicate competence and potential success in rehabilitation and counseling. A writing sample and interview are also required. Applications are considered for the fall semester.

### Program Requirements (For programs other than Rehabilitation Counseling)

A minimum of 30 credits is required for the MS degree, depending on program specialization. Of these, 6 credits are required for the Plan A Thesis or Plan B Project, and 6 credits are required for one research method course and one seminar course. The remaining 18 or more credits are to be used for coursework focusing on the student's area of specialization. The student and the thesis/project committee chair in the KRS department must approve the student's coursework.

Students interested in the MS specialization in Physical Activity or Adapted Physical Activity must meet the admission requirements of the Graduate Division and KRS. These two specializations are designed to further expand knowledge and skills related to physical activity across the lifespan. Content addresses research related to health, administration, and fitness for individuals with and without disabilities. The program is comprised of 30 credits and typically takes two years to complete. A thesis or project option is provided for the research component.

Entry-level Graduate Athletic Training Education Program (EL-GATEP) students (graduate students seeking BOC certification) are required to complete a minimum of 50 credits, that includes Plan B non-thesis (final comprehensive examination). Additionally, pre-requisite course and clinical work experiences may be required. Specific requirements and recommended course sequencing can be viewed at [tinyurl.com/KRS-Grad](http://tinyurl.com/KRS-Grad).

Post-Professional Advanced Athletic Training Program (AATP) students must complete a minimum of 48 credits that includes Plan A thesis requirements. Specific requirements and recommended course sequencing can be viewed at [coe.hawaii.edu/academics/kinesiology-rehabilitation-science/ms-programs/programs/athletic-training-entry-level](http://coe.hawaii.edu/academics/kinesiology-rehabilitation-science/ms-programs/programs/athletic-training-entry-level).

Rehabilitation Counseling Program is a distance education program leading to a Master of Science degree with a specialization in Rehabilitation Counseling. The mission of the program is to offer graduate level training that is designed to provide students with the essential knowledge, skills, and attitudes necessary to assist individuals with disabilities to secure gainful employment, achieve an increased sense of empowerment, responsibility, and independence. The Rehabilitation Counseling Program consists of 48 semester credit hours and requires 3 years of enrollment. In practice, this means attendance in 6 regular semesters plus 2 intervening summer sessions in a hybrid online environment. The Rehabilitation Counseling Program is accredited by the Council on Rehabilitation Education (CORE) and graduates are eligible to sit for the Certified Rehabilitation Counselor (CRC) Examination.

### Doctoral Degree

The PhD in Education with a specialization in kinesiology prepares professionals to work as leaders in adapted physical activity, athletic training (BOC), applied biomechanics, and sports medicine fields as educators, administrators, directors, researchers, and clinicians. These fields have great depth and breadth that require specific yet broad backgrounds in research,

pedagogy, athletic training research and education, mathematics/physics, physiology, and allied health/medical practices. Graduates are expected to assume leadership roles that influence local, national, and international lifestyles, physical and allied health/sports medicine issues related to research, higher education and/or program development (i.e., program accreditation acquisition), and to contribute to the body of knowledge.

This wide-ranged discipline is based in the biological sciences; consequently, this foundation will be reinforced so that student experiences (i.e., course work, research, clinical/practical/teaching) will provide refinement, expertise, and an increased depth of understanding.

The program varies in the number of credit hours required, depending on the candidate's qualifications and experiences, and includes course work required by the College of Education, the specialization area, and a cognate field if applicable. Additionally, students may be required to complete course work in an emphasis area based on the specific needs in order to develop a specialized and focused research and education agenda. At least one field and/or teaching internship and dissertation are also required. See the previous section on graduate programs in the College of Education.

## Special Education

Wist 120

1776 University Avenue

Honolulu, HI 96822

Tel: (808) 956-7956

Fax: (808) 956-4345

Web: [coe.hawaii.edu/academics/special-education](http://coe.hawaii.edu/academics/special-education)

### Faculty

- \*A. A. Jenkins, PhD (Chair)—mild/moderate disabilities, content strategies, inclusive education, collaboration
- C. Aiona, MEd—mentoring special education teachers, general special education, curriculum and instruction
- J. Bill, MSEd—students with mild/moderate/severe/autism disabilities, emotional disabilities, literacy, inclusion
- \*R. S. Black, EdD—mental retardation, transition, students at-risk, research design
- J. Chamberlin, MEd—mild/moderate disabilities, autism, professional learning communities, mentoring
- \*B. G. Cook, PhD—mild/moderate disabilities, inclusion, evidence-based practices, higher education and students with disabilities
- \*L. H. Cook, PhD—mild/moderate disabilities, inclusive education, collaboration
- S. Cook, MEd—general special education, inclusion, co-teaching
- C. Farley, MEd—mentoring special education teachers, general special education
- R. Heine, MEd—secondary mild/moderate disabilities, special education mentoring
- S. Klein, MEd—mentoring special education teachers, general special education
- S. M. Koegel, MEd—general special education
- J. Mahiko, MEd—transition, vocational education and workforce development, and higher education
- \*D. McDougall, PhD—general special education, mild/moderate disabilities, behavior disorders
- \*W. D. Narkon, PhD—mild/moderate disabilities, learning disabilities, reading strategies

- \*M. J. Noonan, PhD—moderate and severe disabilities, autism, early intervention
- \*L. C. Novosel, PhD—mild/moderate disabilities, adolescent literacy, youth offenders with disabilities, culture and linguistic diversity, response to intervention
- \*C. M. Ornelles, PhD—mild/moderate disabilities, students at risk, teacher education
- L. M. Oshita, MEd—learning disabilities, reading instruction, social skills
- D. Paresa, PhD—mild/moderate disabilities, learning disabilities, general special education
- \*K. Rao, PhD—media, distance learning, assistive technology, culturally and linguistically diverse students
- \*R. J. Reed, PhD—teacher training, cultural diversity, language arts, recruitment and retention of special education teachers
- A. E. Ruhaak, MA—mentoring special education teachers, general special education
- \*C. Schmidt, PhD—autism spectrum disorders, applied behavior analysis
- \*M. Schmidt, PhD—education technology, technology for students with autism
- M. D. Sheehey, MEd—mentoring special education teachers, general special education; severe/autism special education
- P. E. Sheehey, MEd—mild/moderate disabilities, teacher preparation, multicultural education, autism
- \*P. H. Sheehey, PhD—families, moderate and severe disabilities, early intervention, autism
- J. Siegel, MEd—general special education
- A. Soma, MEd, MSW—mentoring special education teachers, general special education
- \*R. A. Stodden, PhD—mental retardation, career/vocational special needs, adolescent/adult services
- \*J. C. Wells, PhD—autism spectrum disorders, communication disorders, early childhood special education, mild/moderate disabilities
- M. Wilson, MPA—program management and student advising

**Degrees and Certificates Offered:** Initial teacher licensure in special education: BEd in elementary/special education, post-baccalaureate in special education. Non-licensure: MEd in special education, PhD in education, specialization in exceptionalities.

## The Academic Program

Special education (SPED) is a component of general education. Its basic purpose is to assist individuals who do not benefit from traditional educational programs. Special educators teach and help others teach persons who have special learning needs. They individualize and adapt instruction to help individuals with special needs become independent and contributing members of society.

Faculty in the Department of Special Education prepare students at the undergraduate and graduate levels to work in both school and non-school settings. Professional roles include teacher, resource manager, consultant, infant specialist, and transition specialist. The program is field-based. On campus and statewide programs are offered.

## Accreditations

The special education program is accredited by the National Council for Accreditation of Teacher Education (NCATE) and nationally recognized by the Council for Exceptional Children (CEC).

## Advising

Advising of students in the BEd and PBSPED programs is the responsibility of the Office of Student Academic Services (OSAS), College of Education. Students should meet regularly with their OSAS academic advisor.

Upon acceptance into a special education program, students are assigned to a special education faculty advisor or cohort coordinator. Advisors/coordinators review program requirements and progress, plan program course work, complete departmental preregistration forms for the next semester, and sign course registration materials. Advisors/coordinators may waive course work (based on courses taken previously) on an individual basis. Advisors/coordinators have the responsibility of reviewing and individualizing students' programs to complement their needs. Advisors/coordinators ensure that students have appropriate knowledge and applied skills to perform as competent special educators. Given this responsibility, advisors may require additional course work and/or practicum experience for certain students. Changes made in students' programs must be approved by their advisors.

## Student Organizations

### Student Council for Exceptional Children (SCEC)

The Student Council for Exceptional Children (SCEC) is an active organization open to anyone interested in special education. Chapter 78 at UH Mānoa has received recognition by the International SCEC. SCEC members participate in professional development activities and sponsor special community projects. SCEC is an affiliate of the Council for Exceptional Children. For more information, call (808) 956-7956.

## Undergraduate Study

### BEd

The College of Education offers a BEd elementary/special education program that culminates in teacher licensure in both elementary and special education. The BEd dual program, revised in 2013, consists of fully integrated coursework in elementary and special education, co-taught by teams of faculty from both departments. Candidates complete supervised field experiences in classroom settings with students with and without disabilities. One semester of fulltime student teaching is required.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Post-Baccalaureate Programs

The College of Education offers a post-baccalaureate certificate in special education for individuals who hold a bachelor's degree in any field and desire licensure to teach special education. The program consists of 31 semester credit hours including 10 credit hours of supervised field experience. Candidates must take, or test out of, an educational technology 1-credit course prior to beginning program coursework. The PB-SPED program offers two special education teacher training options: (1) specialization in mild/moderate disabilities (mental retardation, learning disabilities, emotional/behavior disorders); or (2) severe/multiple disabilities and autism. Program sheets listing the specific course requirements for the post-baccalaureate

programs are available in the College of Education's Office of Student Academic Services.

### **Admission Requirements**

Admission is through the Office of Student Academic Services. Classified status in the College of Education is necessary for registration in the post-baccalaureate program. Program sheets listing the specific requirements are available in the Office of Student Academic Services. Students must fulfill all program requirements in effect for the semester in which they are admitted into the college.

All applicants to the post-baccalaureate certificate in special education program will be evaluated competitively and considered for admission on the basis of a profile composed of the following criteria:

1. Applicants must have a baccalaureate degree from an accredited and UH Mānoa recognized four-year institution of higher education.
2. Applicants must achieve minimal State passing scores in the reading, writing, and mathematics subtests on the PRAXIS.
3. A minimum post secondary cumulative GPA of 2.75.
4. Applicants must demonstrate oral and nonverbal communicative competence through the successful completion of an interview. Applicants must also demonstrate attitudes toward education, learners and themselves as prospective teachers that are compatible with the standards and curriculum of the program.
5. Prerequisite coursework may be required prior to beginning program coursework.

Admission requirements are subject to change. Call the Office of Student Academic Services for updated information.

## **Graduate Study**

### **Master's Degree**

The MEd in special education program is available statewide and offers interdisciplinary studies for candidates who wish to engage in a graduate course of study in the field of special education. The MEd interdisciplinary non-licensure program consists of 30 semester credit hours in special education and related fields. In addition, candidates must take, or test out of, an educational technology 1-credit course prior to beginning program coursework.

### **Admission Requirements**

Applicants must submit to Graduate Division the completed Graduate Application, GRE scores, and official transcripts. Additional materials also must be sent to the Department of Special Education. These include: (a) three letters of recommendation attesting to academic and professional strengths, (b) unofficial transcripts of all undergraduate and graduate course work, and (c) the statement of objectives. An interview by the department's selection committee is required.

### **Requirements**

The MEd in interdisciplinary studies/special education consists of a minimum of 30 credits, including 12 credits of required professional courses, and 12-15 credits in selected specialty areas. The specialty credits may be within special education or related areas (e.g., general education, psychology, social work, public health).

Both Plan A thesis and Plan B project are offered. Six credit hours of SPED 700 are required for Plan A, and additional work in statistical analysis and research design may be necessary. Plan B requires a master's paper/project and a minimum of 3 credits of SPED 695.

Graduates of the interdisciplinary studies program do not qualify for teacher licensure but may seek positions in related fields and services.

### **Doctoral Degree**

The PhD program with a specialization in exceptionalities prepares professionals to work as leaders in the education and support of individuals who have unique needs, often due to disabilities. The field is broad, addressing life-span concerns and involving such services as advocacy, family support, community services, vocational training and support, and special education. Graduates of the program are expected to assume leadership roles addressing local, regional, national, and international issues related to research and higher education and/or program development and evaluation. The program varies in the number of credit hours required, depending on the candidate's qualifications, and includes courses required by the college, courses in the specialization, courses that provide an emphasis/breadth, a field project/internship or an apprenticeship in college teaching, and the dissertation. See the section on graduate programs in the College of Education.

# College of Engineering



## Administration

Holmes 240  
2540 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7727  
Fax: (808) 956-2291  
Web: [www.eng.hawaii.edu](http://www.eng.hawaii.edu)

Dean: Peter E. Crouch  
Interim Associate Dean for Academic Affairs: Bruce E. Liebert  
Assistant Dean: Song K. Choi

## General Information

An engineering degree provides an excellent background for seeking solutions to many of the problems in the development and management of technology related to urban demands, the enhancement of our living environment, and the effective utilization of our nonrenewable resources. Engineering curricula include both general and theoretical course work designed to enable graduates to meet the challenges of a technology-oriented society. In addition to classic disciplines of engineering, students may also delve into the fundamentals of sustainability, nanotechnology, microscopic simulation, and other state-of-the-art subjects. College curricula encourage the independent study of novel engineering processes. Particular emphasis is placed on problems related to energy and the preservation and enhancement of the environment.

Engineering has been a major program of study at this institution since its founding in 1907. UH Mānoa has granted more than 6,500 engineering degrees, and many of the professional engineers practicing in industry, consulting firms, and governmental agencies throughout the state are graduates of UH Mānoa.

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## Accreditation

The undergraduate curricula in civil, electrical, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET, Inc.

## Degrees and Certificates

**Bachelor's Degrees:** BS in civil engineering, BS in computer engineering, BS in electrical engineering, BS in mechanical engineering

**Master's Degrees:** MS in civil engineering, MS in electrical engineering, MS in mechanical engineering

**Doctoral Degrees:** PhD in civil engineering, PhD in electrical engineering, PhD in mechanical engineering

For information on programs in biological engineering, refer to the "College of Tropical Agriculture and Human Resources" section of the *Catalog*. For information on programs in ocean and resources engineering, refer to the "School of Ocean and Earth Science and Technology" section of the *Catalog*.

## Advising

Student Services  
Holmes 250  
2540 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-8404

All students in the College of Engineering must receive approval of their program of courses from their advisors prior to registration each semester.

Updated curriculum check sheets summarizing all of the requirements for each undergraduate curriculum are available online at: [www.eng.hawaii.edu/current-students/undergraduate-students/curricula-check-sheets/check-sheets](http://www.eng.hawaii.edu/current-students/undergraduate-students/curricula-check-sheets/check-sheets).

Undergraduate engineering students who are well-qualified academically are encouraged to participate in the UH Mānoa Honors Programs (see the "Special Programs" section within the Colleges of Arts and Sciences).

## New Students

An orientation session for new students is held each semester before classes begin. Incoming students receive approval of their program of courses at that time. In addition, incoming students with waived course work (e.g., advanced placement examination) must still fulfill credit hour requirements and should contact the College's Student Academic Services Office in Holmes 250 for more information.

## Undergraduate Programs

Each of the curricula offered by the College of Engineering provides a fundamental science-oriented university education with coverage of communications, the humanities, and social sciences, as well as the basic physical sciences of mathematics, physics, and chemistry. The curricula also encompass engineering sciences common to all engineering disciplines and project courses that introduce the engineering method of design.

### Admission Requirements

Requirements for admission to UH Mānoa are described in the “Undergraduate Education” section of the *Catalog*. High school students applying to the College of Engineering should have completed trigonometry, physics, and chemistry. The college also uses aptitude tests and high school records in its screening procedure.

Transfer students must have completed ENG 100, MATH 241 and 242, PHYS 170/170L, and CHEM 161/161L and 162 or their equivalents, and have an overall cumulative GPA of 3.0 or higher.

Students who do not meet entry requirements may enroll in Pre-engineering in Arts and Sciences and transfer into an engineering major at a later time. Pre-engineering students are advised by the College of Engineering and may enroll in lower division engineering courses with no additional approvals needed.

### College Requirements

Course work in each curriculum consists of a set of required courses common to all engineering majors and additional courses to satisfy departmental requirements. The courses required of all engineering students, which also satisfies the General Education Core Requirements of UH Mānoa, consist of the following 51 credits:

#### Written Communication

- ENG 100 Composition I (3) (FW) or approved FW course

#### Arts, Humanities and Literature

- COMG 251 Principles of Effective Public Speaking (3) (DA)
- One elective (3) (DH or DL)

#### Social Sciences

- ECON 120 Introduction to Economics (3), ECON 130 Principles of Microeconomics (3), or ECON 131 Principles of Macroeconomics (3) (DS)
- One elective (3) (DS)

#### Global and Multicultural Perspectives

- Two approved FG electives (6)

#### Symbolic

- MATH 241 Calculus I (4) (FS)
- MATH 242 Calculus II (4)
- MATH 243 Calculus III (3)
- MATH 244 Calculus IV (3)

#### Natural Sciences

- CHEM 161/161L, and 162 General Chemistry/Lab (3/1/3) (DP/DY)
- PHYS 170/170L General Physics I/Lab (4/1) (DP/DY)
- PHYS 272/272L General Physics II/Lab (3/1) (DP/DY)



In addition, a student must complete the Focus Graduation Requirements, 1H, 1E, 1O, and 5W courses. The Hawaiian or Second Language is not required for the engineering degree.

### BS Degree Requirements

The undergraduate curricula are designed to be completed in eight semesters.

To receive a bachelor of science degree in engineering, a student must adhere to the following:

1. Complete the course work for one of the engineering curricula, which also satisfies all UH Mānoa requirements;
2. Maintain a minimum GPA of 2.0 for all registered credit hours; and
3. Maintain a minimum GPA of 2.0 for all upper division courses (numbered 300-499) in mathematics, science, and engineering.

### Major Requirements

See appropriate departments for specific major requirements leading to a bachelor's degree.

### Other Requirements

Undergraduate engineering students are subject to the policies of academic probation, suspension, and dismissal of UH Mānoa as specified in the *Catalog*. In addition, engineering students with either a cumulative GPA of less than 2.0 or an upper division GPA of less than 2.0 may be placed on academic probation. The student must maintain a semester GPA of 2.0 or higher for each probationary semester. Failure to meet any of the above conditions may result in suspension or dismissal. Engineering undergraduates may also be suspended when they fail to achieve a cumulative GPA of at least 1.7 after attempting 24 credit hours.

Students who are suspended must reapply for admission to the Office of Admissions within specified deadlines. Students who do not take courses after being suspended for the required one semester are eligible to be readmitted to the College of the Engineering. Suspended students who attend another institution (including other UH system campuses) will be considered “transfer” students when reapplying to UH Mānoa and must meet the transfer requirements of the College of Engineering.

### Graduate Programs

See appropriate department for specific description and requirements.

## Student Organizations

Student chapters of professional engineering societies are active at the college, and all students are encouraged to participate. Honorary societies are represented in all three departments.

## Honors and Awards

The College of Engineering and its departments provide scholarships and awards to exceptional students. For a list of these scholarships, see the "Tuition, Fees, and Financial Aid" section of this *Catalog* or at [www.eng.hawaii.edu/prospective-students/financial-aid-and-scholarships/](http://www.eng.hawaii.edu/prospective-students/financial-aid-and-scholarships/).

## Programs

### Hawai'i Center for Advanced Communications

The Hawai'i Center for Advanced Communications (HCAC) is a multidisciplinary research center established by the legislature and approved by the Board of Regents in 2000. Currently, with federal, state, and private funding, HCAC continues on its mission to be the leading center for innovative research in the broader areas of wireless communication and radar technologies with joint research and educational activities that promote national and international collaboration and partnership with industry. The center has tenured faculty, several full-time collaboration and partnership with industry. The center has tenured faculty, several full-time researchers, and graduate students working towards their MS and/or PhD degrees in Electrical Engineering.

Research activities in the center are funded by federal agencies including the National Science Foundation (NSF), Army Research Office, Office of Naval Research, Army CERDEC, as well as by large numbers of corporate sponsors including Agilent Technologies, BAE, L-3, Motorola, and Raytheon.

Faculty in the center have been recognized with several national and international awards including the 2012 IEEE AP-S Distinguished Educator Award, 2013 IEEE MTT-S Distinguished Educator Award, and both the UH Regents Medal for Excellence in Research and the UH Regents Medal for Excellence in Teaching.

**National and International Collaboration:** The center is a member of the NSF Industry/University Cooperative Research Center (I/U CRC), and has international partnership agreements with The State Key Lab on Microwave & Digital Communications, Tsinghua University, China; The Centre National De La Recherche Scientifique, University of Nice-Sophia Antipolis, France; Communication Research Center, Yuan Ze University, Taiwan; and Department of Signal Theory and Communications, Universitat Politècnica de Catalunya, Barcelona, Spain.

**Research Areas:** Research areas include advanced multifunction and ultra wideband antenna designs, propagation modeling and characterization of wireless communication channels, digital signal processing (DSP) for smart antennas, Ground

Penetrating Radar technologies for UXO and IED detection and classification, microwave methods for biomedical applications (in collaboration with JABSOM), and the development of Radio Frequency tunable devices for reconfigurable antennas cognitive radio, and solar energy harvesting applications. Recent research projects include microwave stethoscope for vital signs monitoring and measuring changes in lung water content, the development of antennas for directional networks, use of Genetic Programming for the design of ultra wideband metamaterials, and the development of textile antennas for medical and military applications.

**STEM Outreach:** HCAC has received significant grants from the State of Hawai'i, National Science Foundation, and corporate sponsors to launch its STEM outreach program for middle schools in Hawai'i (Research Experience for Teachers, RET).

**Laboratory Facilities:** HCAC has developed four state-of-the-art laboratories to support the ongoing research activities. This includes an indoor antenna range, a wireless communications testbed, microwave measurements lab, and the RF devices fabrication and characterization lab.

For graduate studies, all students/applicants need to fulfill the requirements of the Graduate Division, [manoa.hawaii.edu/graduate/](http://manoa.hawaii.edu/graduate/), as well as those of the Electrical Engineering Department. For availability of research opportunities, visiting scholar and graduate fellowships at HCAC, contact Teri Imanaka at [imanaka@hawaii.edu](mailto:imanaka@hawaii.edu).

### Hawai'i Space Flight Laboratory

The Hawai'i Space Flight Laboratory (HSFL) was established in 2007 as a multidisciplinary research and education activity bringing together individuals from diverse areas to explore, study, and advance the understanding of the space environment. Among HSFL's goals are to provide the infrastructure for collaborative space and science research, encourage entrepreneurship and industrial relations, and provide students with a rich and exciting education for careers in space science and engineering.

Hawai'i is located in a unique location to become a low-cost gateway to space and positions UH Mānoa as the only university in the world to have both satellite fabrication capabilities and unique, direct access to orbital space. This will enable many experiments that study the earth's oceans and continents, as well as test numerous engineering experiments in the hostile environment of space. The HSFL expands the Small-Satellite Program established at UH Mānoa, College of Engineering in 2001 by merging research interests in both the College of Engineering and the School of Ocean and Earth Sciences and Technology.

# Civil and Environmental Engineering

Holmes 383  
2540 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7550  
Fax: (808) 956-5014  
Web: www.cee.hawaii.edu

## Faculty

- \*C. S. Papacostas, PhD (Chair)—transportation, systems engineering
- \*A. R. Archilla, PhD—transportation and infrastructure systems engineering
- \*R. W. Babcock, PhD—environmental engineering
- \*S. Bateni, PhD—hydraulics
- \*H. Brandes, PhD—geotechnical engineering
- \*O. P. Francis, PhD—coastal engineering and sustainable infrastructure; design, observations, numerical methods
- \*G. Johnson, PhD—structural engineering
- \*A. S. Kim, PhD—environmental engineering and physics, parallel computing
- \*D. Ma, PhD—structures
- \*P. G. Nicholson, PhD—geotechnical engineering
- \*P. Ooi, PhD—geotechnical engineering
- \*P. D. Prevedouros, PhD—transportation engineering
- \*C. Ray, PhD—groundwater hydrology, water quality and environmental engineering
- \*H. R. Riggs, PhD—structural engineering, numerical methods
- \*I. N. Robertson, PhD—structures, earthquake engineering
- \*L. Shen, PhD—structural engineering
- \*A. Singh, PhD—construction and cost engineering, project management, quality control, construction safety, housing, coastal protection, energy analysis
- \*M. H. Teng, PhD—hydrodynamics, coastal and hydraulic engineering
- \*T. Yan, PhD—environmental engineering, environmental microbiology

## Adjunct Faculty

- A. A. Yee, MS—structural engineering
- G. Fischer, PhD—structural engineering

## Cooperating Graduate Faculty

- A. I. El-Kadi, PhD—groundwater hydrology
- R. C. Ertekin, PhD—naval architecture, offshore engineering, hydrodynamics, computational methods
- A. Fares, PhD—tropical soil, watershed hydrology
- W.-W. W. Su, PhD—biochemical engineering, plant cell culture, molecular biotechnology

**Degrees Offered:** BS in civil engineering, MS in civil engineering, PhD in civil engineering

## The Academic Program

Civil engineering is concerned with the activities of people and the environment. The civil engineer conceives, plans, designs, constructs, operates, and maintains the physical works necessary for the environmental needs of people. Students who enter the program today can look forward to one of the most rewarding careers open to men and women—rewarding in personal fulfillment, enduring service to humankind, and financial reward. The curriculum is uniquely designed to meet the demands of business, industry, and government.

The mission of the Department of Civil and Environmental Engineering is to 1) educate civil engineers that meet the

requirements of the profession, committed to life-long learning, and have the potential to be the future leaders of the profession; 2) create, develop, and disseminate new knowledge through high quality, innovative research; 3) provide service to various agencies of the state and counties of Hawai'i and the engineering community; and 4) provide leadership to the civil engineering profession in the Asia/Pacific Region.

## Undergraduate Study

### Bachelor's Degree

The department's educational objective is to produce graduates who in the first few years following graduation will:

1. Possess technical and non-technical knowledge/skills that will contribute to personal and employer success and benefit the communities they serve;
2. Adhere to accepted professional ethical standards;
3. Practice civil engineering in one or more of the following areas: construction, environmental, geotechnical, hydraulics/hydrology, structural, transportation;
4. Accept responsibility as engineers in the private and public sectors in Hawai'i, the Asia-Pacific region, and elsewhere.

The BS degree requires completion of at least 125 credit hours of course work, the equivalent of four years of full-time work. These requirements include 65 credit hours of civil and environmental engineering courses from the following areas: applied mechanics, structural analysis and design, hydraulics, transportation, construction, soil mechanics, hydrology, water resources, and environmental engineering. There are additional required courses in mathematics, physics, and chemistry, as well as courses required by UH Mānoa in humanities and social sciences. The curriculum provides a broad-based background of fundamentals with coverage of the humanities and social sciences, basic sciences, mathematics, and the engineering design method. Course enrollment for all CEE majors is subject to the approval of an advisor. The requirements are described below and reflected on the check sheet and the list of course prerequisites.

All electives are subject to the approval of the instructor.

The student learning outcomes (SLOs), also known as program outcomes, describe a skill set that students are expected to have at the time of graduation. The SLOs are:

- a. An ability to apply knowledge of mathematics, science, and engineering;
- b. An ability to design and conduct experiments, as well as to analyze and interpret data;
- c. An ability to design a system, component, or process to meet desired needs;
- d. An ability to function on multi-disciplinary teams;
- e. An ability to identify, formulate, and solve engineering problems;
- f. An understanding of professional and ethical responsibility;
- g. An ability to communicate effectively;
- h. A broad education necessary to understand the impact of engineering solutions in a global, societal, and environmental context;
- i. A recognition of the need for, and an ability to engage in, life-long learning;
- j. A knowledge of contemporary issues; and
- k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, particularly recognizing the integral role of computers in engineering and the rapid expansion of resources on the internet.

## College Requirements

Students must complete the College Requirement courses for engineering (see “Undergraduate Programs” in this section).

### Departmental Requirements

Students must complete the following courses as well as one course in engineering math and two technical electives, (specific options are provided on the curriculum check sheet):

- EE 160 or ICS 111
- CEE 270 Applied Mechanics I (3)
- CEE 271 Applied Mechanics II (3)
- CEE 305 Applied Probability and Statistics (3)
- CEE 320 Fluid Mechanics Fundamentals (4)
- CEE 330 Environmental Engineering (4)
- CEE 355 Geotechnical Engineering I (4)
- CEE 361 Fundamentals of Transportation (3)
- CEE 370/370L Mechanics of Materials and Lab (3/1)
- CEE 375 Construction Materials (3)
- CEE 381 Structural Analysis (3)
- CEE 421 Engineering Hydraulics (3) and 431 Water & Wastewater Engineering (3)
- CEE 455 Geotechnical Engineering II (3)
- CEE 461 Pavement Engineering (3) or 462 Traffic Engineering (3) or 464 Urban and Regional Transportation Planning (3)
- CEE 471 Construction Methods (3) or 472 Construction Management (3) and 485 Reinforced Concrete Design (4) or 486 Structural Steel Design (3)
- CEE 489B Surveying and AutoCAD (2)
- CEE 489C Professional Ethics (1)
- CEE 490 Senior Design Project (3)
- ME 403, GG 312 or MATH 302 or 307

Other important requirement:

1. C grade or better (C-minus is not acceptable) is required for CEE 270.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Specialty Tracks

Students who want to pursue a structures track should refer to the curriculum checksheet for alternative senior year course work.

## Graduate Study

### Master's Degree

The department offers a graduate program leading to the MS degree in civil engineering with several areas of concentration under Plan A (thesis) or Plan B (non-thesis). Close cooperation is maintained with other departments and the Water Resources Research Center. Details and requirements of each plan may be obtained from the department office or on the web.

Applicants must present a BS in civil engineering or the equivalent as determined by the application review committee (and/or may be required to fulfill deficiencies) and must submit a Statement of Objectives form and evidence of passing the FE (Fundamentals of Engineering) exam or the results of the GRE General Test. If so required by the Graduate Division, applicants must supply the TOEFL score.

### Requirements

Both Plan A and Plan B require a minimum of 30 credit hours, exclusive of seminars. Plan A includes 9 credit hours of thesis research and a minimum of 12 credit hours in graduate civil and environmental engineering courses, exclusive of thesis, seminar, and directed reading. Plan B includes a minimum of 18 credit hours of graduate civil and environmental engineering courses, exclusive of seminar and directed reading, as well as a technical report. Both plans require a minimum of 1 credit of seminar.

### Doctoral Degree

Applicants to the PhD program must have fulfilled the requirements for the MS in civil engineering at UH Mānoa or its equivalent as determined by the application review committee. Those who have earned the MS at universities other than UH Mānoa must furnish the results of the GRE General Test or submit evidence of passing either the FE (Fundamentals of Engineering) or the EIT (Engineer-in-Training) or PE (Professional Engineer) exam. All applicants must furnish official transcripts of all previous undergraduate and graduate studies and three letters of reference clearly indicating that they are capable of completing a rigorous PhD program. Applicants must also supply a letter explaining in detail their career goals, specific area of concentration, work experience, and reasons for applying to the program. If so required by the Graduate Division, applicants must supply the TOEFL score.

### Requirements

Candidates for a PhD are required to pass a qualifying examination consisting of oral and written components. The examination will be confined to basic topics in civil engineering. One purpose of the qualifying examination is to identify possible deficiencies in the student's background with a view toward remedial measures. In addition, the examination serves as a means of assessing the student's potential for doctoral studies.

Students attain the status of doctoral candidate only after passing the qualifying examination and submitting a dissertation proposal that receives the unanimous approval of the dissertation committee.

To earn a PhD in civil engineering, a student must satisfactorily complete a minimum of 50 credit hours in course work beyond the BS and a minimum of 1 credit hour in civil and environmental engineering graduate seminar as a PhD student. Students must also complete and successfully defend a satisfactory doctoral dissertation. Based on a written recommendation of the student's dissertation committee and with the approval of the chair of graduate studies in civil engineering, students entering the PhD program may be granted an equivalence of up to 30 credit hours earned as part of the student's master's program. The 30 credit hour equivalents may include up to 9 credit hours for the previous MS thesis work but exclude graduate seminar credit hours taken as part of the MS program.

The courses that a student undertakes to fulfill the PhD credit hour requirements must be approved by the student's dissertation committee. At least 27 credit hours must be from graduate-level civil engineering courses. The remaining courses may include graduate and 400-level courses offered by the civil and environmental engineering department or other appropriate departments of UH Mānoa.

## Comprehensive Examination

Every PhD student must pass a comprehensive examination. The purpose of this examination is to ascertain the student's advanced knowledge in the chosen specialty. Examinations are given when, in the judgment of the dissertation committee, the student has had sufficient preparation, but not sooner than six calendar months after the student has passed the qualifying examination.

Students pass the examination if no more than one committee member opposes such an action. Students who fail may, at the discretion of the graduate faculty, repeat the test once at least six months later. Students who fail the examination a second time are dropped from the program.

## Dissertation Defense

PhD candidates are required to take a final oral examination in defense of their dissertation. The examination is conducted by the candidate's dissertation committee. Students pass upon the favorable recommendation of the majority of the committee.

# Electrical Engineering

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## Faculty

- \*W. A. Shiroma, PhD (Chair)—electromagnetic theory, microwaves
- \*G. Arslan, PhD—distributed systems, Markov decision problems, nonlinear and robust control, game theory, learning and adaptive control
- \*O. Boric-Lubecke, PhD—RFICs for wireless communications, millimeter-wave and microwave devices, circuits and systems and biomedical applications
- \*P. E. Crouch, PhD (Dean)—nonlinear systems and control
- \*T. P. Dobry, PhD—digital systems, computers
- \*Y. Dong, PhD—computer networks and network security, distributed systems, computer architecture
- \*M. Fripp, PhD—power systems, smart grids, renewable energy
- \*N. T. Gaarder, PhD—communication theory, information theory
- \*D. Garmire, PhD—M/NEMS, CAD for M/NEMS, computer vision, computational biology
- \*A. Host-Madsen, PhD—communications signal processing, CDMA communications, multi-user communications, equalization
- \*M. Iskander, PhD (Director of HCAC)—computational electromagnetics, antennas, radar, and wireless communications
- \*A. Kavcic, PhD—communications, signal processing, information theory, magnetic recording
- \*A. Kuh, PhD—signal processing, machine learning, energy
- \*V. M. Lubecke, PhD—MEMS, microwave/terahertz radio, remote sensing technology and biomedical applications
- \*V. Malhotra, PhD—physical electronics, solid-state devices
- \*A. Ohta, PhD—devices, MEMS, biomedical microdevices, microfluidics
- \*T. R. Reed, PhD—signal and image processing, computer vision
- \*N. Santhanam, PhD—communications, signal processing, information theory, source coding

- \*G. H. Sasaki, PhD—computer communication networks, performance evaluation, optimization algorithms
- \*V. L. Syrmos, PhD—linear system theory, control theory
- \*J. R. Yee, PhD—computer communications networks, network optimization, stochastic models
- \*Z. Yun, PhD (HCAC)—wireless channel modeling, antennas and propagation
- \*R. Zhang, PhD—network and distributed system security and privacy
- \*X. Zhou, PhD—embedded systems computer architecture, hardware/software co-design and reconfigurable computing

## Emeritus Faculty

- N. Abramson, PhD—wireless data networks
- J. W. Holm-Kennedy, PhD—applied physics, sensors, biomedical sensors, innovation, innovation training
- B. Kinariwala, PhD—computer engineering
- F. Koide, PhD—biomedical engineering, operational amplifiers, electronic circuits
- S. Lin, PhD—coding theory, coded modulation, multi-user communications and error coding techniques
- K. Najita, PhD—solid-state devices
- E. J. Weldon, PhD—computer networks
- D. Y. Y. Yun, PhD—computational intelligence, biomedical informatics, parallel and networked computing

## Adjunct Faculty

- D. Nakafuji, PhD—renewable energy, distribution systems, smart grid

## Cooperating Graduate Faculty

- W. L. Ditto, PhD—applied chaos theory
- T. Ernst, PhD—neuroscience, MRI research
- R. Rocheleau, PhD—photovoltaics, sensors, thin films
- L. R. Roose, JD—integration and analysis of energy technologies and power systems
- S. K. Sharma, PhD—thin films, amorphous materials and ceramics, instrumentation development
- V. A. Stenger, PhD—neuroscience, MRI research
- G. Varner, PhD—experimental particle physics, instrumentation electronics

**Degrees Offered:** BS in electrical engineering, BS in computer engineering, MS in electrical engineering, PhD in electrical engineering

## The Academic Program

Electrical engineering and computer engineering are concerned with the exciting fields of electronics, computers, information technology, and the basic forms of energy that run our world. Electronics continue to bring forth new breakthroughs in solid-state technology (transistors, integrated circuits, VLSI chips, microprocessors, lasers, optical fibers), which in turn fuel the unprecedented revolution in telecommunications (World Wide Web, wireless, and digital signal processing), computers (neural network, distributed, and intelligent), instrumentation (biomedical, intelligent), and many other areas.

The undergraduate and graduate programs focus on three major areas: computers (architecture, algorithms, networking, hardware and software), electro-physics (solid-state devices and sensors, analog, circuit design, and microwaves and photonics), and systems (telecommunications, automatic controls, and signal processing).

The culmination of the undergraduate program is the capstone design project; this is a significant project that integrates the design content of previous courses while satisfying realistic constraints.

## Mission Statement

The mission of the Department of Electrical Engineering is to provide quality education, research, and service to our constituents. Major goals of the department are to:

1. Educate a new generation of electrical and computer engineers to meet the challenges of the future;
2. Create, develop, and disseminate new knowledge;
3. Promote a sense of scholarship, leadership, and service among our graduates; and
4. Contribute to the development of diversity within the profession through the education of women, indigenous, and other minority students.

## Undergraduate Study

### Design Experience Statement

A key aspect of electrical engineering and computer engineering education is a significant and meaningful design experience that is integrated throughout the curriculum. The design experience is necessary to prepare students in becoming professionals.

At UH Mānoa, the electrical engineering and computer engineering curricula assign design credits to each course. A student graduating in electrical engineering or computer engineering is required to have a minimum of 14 design credits with 3 design credits coming from EE 496, the Capstone Design Project. Students can check their progress in obtaining design credits by checking with their advisor and looking at design credits and the Curriculum Flow Chart. EE 496 places significant design responsibility on the students as they must plan and execute a major design problem. To prepare students for EE 496, students must take at least 1 credit of EE 296 Sophomore Project, and 2 credits of EE 396 Junior Project. The project courses help students in getting design experience outside the classroom as they learn engineering concepts in the classroom. The project courses and capstone project give students opportunities to work in teams, develop leadership skills, and work on open-ended design projects similar to industrial experience.

### Bachelor of Science Degrees

The bachelor of science degree program in electrical engineering and computer engineering requires a minimum of 122 credit hours. The departmental requirements consist of 48 credit hours of basic courses. The electrical engineering program requires 24 credit hours of technical electives. The computer engineering program requires an additional 17 credit hours of basic courses, and 6 credit hours of technical electives.

All electives are subject to the approval of an advisor. Enrollment in EE courses requires a grade of C- or better in all prerequisite courses.

### College Requirements

Students must complete the college requirement courses for engineering (see “Undergraduate Programs” within this section).

### Departmental Requirements

Electrical engineering and computer engineering students must complete the following 48 credit hours of courses:

- EE 160, 211, 213, 260, 315, 323/323L, 324, 342, 371, 495, Projects (296, 396, 496), PHYS 274, MATH 307, EB\*
- EE 160 may be substituted with EE 110 for the electrical (but not computer) engineering program, in which case there are 47 credit hours.

\*Engineering Breadth (EB) is satisfied by CEE 270, ME 311, or a CEE, ME, OE, or BE course that is at the 300 level or higher. It may also be satisfied by a physical, biological, or computer science course that is at the 300 level or higher and approved by the department’s undergraduate curriculum committee.

### Projects

There is a requirement of EE 296, 396, and 496, which is the capstone design experience. A minimum of, respectively, 1, 2, and 3 credits are required of each.

## Bachelor of Science in Electrical Engineering

### Objectives

Program educational objectives for the electrical engineering program:

1. Electrical engineering graduates should be engaged in the practice of electrical engineering in industry, education, and public service.
2. Graduates should contribute to the technological and economic development of Hawai‘i, the U.S., and beyond.
3. Graduates should be prepared for admission to top graduate programs.
4. Graduates should be motivated toward and engaged in continuous professional development, through individual effort and advanced professional education.
5. Graduates should provide technical leadership, with an understanding of the broader ethical and societal impact of technological developments, and the importance of diversity in the workforce.

### Outcomes

All graduates of the electrical engineering program are expected to have demonstrated:

1. An ability to apply knowledge of mathematics, science, and engineering. This includes probability and statistics, including applications appropriate to electrical engineering; mathematics through differential and integral calculus, and advanced mathematics, such as differential equations, linear algebra, complex variables, and discrete mathematics; sciences (defined as biological, chemical, or physical science); and engineering topics (including computing science) necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to function on multidisciplinary teams.
5. An ability to identify, formulate, and solve engineering problems.
6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively.
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9. A recognition of the need for, and an ability to engage in life-long learning.

10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Electrical engineering students must complete a minimum of 24 credit hours of technical electives.

### Technical Electives

A minimum of 17 credits is in one of the major tracks (electro-physics and systems), which includes all courses in Group I and the remaining courses from Group II.

A minimum of 7 additional credits is required from the following list, of which 3 credits must be from outside the major track, and 1 credit must be a laboratory.

#### Electro-Physics Track:

- Group I: EE 326/326L, 327, 372/372L
- Group II: EE 328/328L, 422/422L, 423, 425, 426, 427, 435, 438, 470, 471, 473, 474, 475, 477, 480

#### Systems Track:

- Group I: EE 343/343L, 351/351L, 415
- Group II: EE 344, 416, 417, 435, 442, 446, 449, 452, 453

The following Computer Engineering courses may also be used as technical electives: EE 205, 361/361L, 366, 367/367L, 406, 461, 467, 468, 469. EE 491 can also be used as a technical elective, but the track designation is determined on a case-by-case basis.

A student, along with a faculty member, may propose an alternate track. This alternate track must be (1) equivalent in rigor and breadth to the existing tracks, (2) endorsed by another faculty member, and (3) approved by the department's undergraduate curriculum committee.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Bachelor of Science in Computer Engineering

### Objectives

Program educational objectives for the computer engineering program:

1. Computer engineering graduates should be engaged in the practice of computer engineering in industry, education, and public service.
2. Graduates should contribute to the technological and economic development of Hawai'i, the U.S., and beyond.
3. Graduates should be prepared for admission to top graduate programs.
4. Graduates should be motivated toward and engaged in continuous professional development, through individual effort and advanced professional education.
5. Graduates should provide technical leadership, with an understanding of the broader ethical and societal impact of technological developments, and the importance of diversity in the workforce.

### Outcomes

All graduates of the computer engineering program are expected to have demonstrated:

1. An ability to apply knowledge of mathematics, science, and engineering. This includes probability and statistics, including applications appropriate to computer engineering; mathematics through differential and integral calculus, and advanced mathematics, such as differential equations,

linear algebra, complex variables, and discrete mathematics; sciences (defined as biological, chemical, or physical science); and engineering topics (including computing science) necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components.

2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to function on multidisciplinary teams.
5. An ability to identify, formulate, and solve engineering problems.
6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively.
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9. A recognition of the need for, and an ability to engage in life-long learning.
10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
12. A knowledge of discrete mathematics.

Computer engineering students must complete the following 23 credit hours of courses:

- ICS 141, EE 205, 361/361L, 367/367L, 468, 6 credits of technical electives

The set of courses EE 160, 205, 367, and 367L may be substituted with the set of courses ICS 111, 211, and 212.

### Technical Electives

A minimum of 6 credit hours of technical electives is required, from the following list of EE and ICS courses. One TE may be any other EE course at the 300 level or higher.

- EE 344 (or ICS 451), 366, 406, 449 (or ICS 451), EE 461 or (ICS 431), EE 467, 469, 491 (E, F, G), ICS 311, 313, 314, 321, 414, 415, 421, 424, 425, 432, 441, 442, 461, 464, 465, 466, 469, 481

Note that ICS courses from the list may have prerequisite courses that are not part of the computer engineering curriculum. These courses used as technical electives will lead to more credit hours to complete the program.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### Outcomes

The Department of Electrical Engineering adheres to the student learning outcomes of the Graduate Division:

"In general, a student who has successfully completed the graduate degree requirements should be able to

1. Demonstrate mastery of the methodology and techniques specific to the field of study.
2. Communicate both orally and in writing at a high level of proficiency in the field of study.

3. Conduct research or produce some other form of creative work.
4. Function as a professional in the discipline.”

### Master's Degree

Intended candidates for the MS degree in electrical engineering must present the BS degree in electrical engineering or the equivalent. Plan A (thesis) and Plan B (non-thesis) options are offered. However Plan B is only for Intern Plus Program students.

#### Requirements

**Plan A (thesis):** This program requires 30 credit hours in approved technical courses including one graduate seminar in electrical engineering or a related field. This plan requires 9 credit hours in EE 700 Thesis Research and a minimum of 12 credit hours in 600-level courses in a major track (computers, electro-physics, or systems), 6 credit hours in 400- or higher-level courses outside of the major track (engineering, mathematics, science), and 3 credit hours of electives in 400- and higher-level courses. A maximum of 6 credit hours in 400 level courses is allowed.

**Plan B (non-thesis):** A minimum of 30 credit hours is required with a grade of B or better (not B-minus). Students will be required to take at least 12 credits (600 level and above) in their major track, at least 6 credits (400 level and above) outside the major track, and 6 credits (600 level and above) as university-wide electives that are related to the student's major track of study. A maximum of 6 credits will be counted towards EE 699. As part of the curriculum, attendance at 12 departmental or college seminars, or the equivalent is required. The final exam includes a written report and a seminar presentation (based on independent reading or research).

### Doctoral Degree

Intended candidates for the PhD degree in electrical engineering must present the BS degree in electrical engineering or its equivalent. Applicants are encouraged to submit the GRE General Test scores. PhD students are required to achieve a good, broad understanding of electrical engineering fundamentals and a thorough knowledge, up to its present state, in a chosen specialty. Students must perform research in their special field under the guidance of a faculty advisor and present a dissertation that is an original contribution to electrical engineering. The dissertation must be a scholarly presentation suitable for publication.

#### Requirements

PhD students are required to specialize in a major track (computers, electro-physics, or systems) and show competence in a minor track. In addition to the MS course credit requirements, 9 credit hours of 600-level course work in the major track and 3 credit hours of 600-level course work in a minor track are required. All PhD students must also participate in a substantial teaching project and demonstrate competence in teaching.

### Qualifying Examination

Intended candidates for the PhD degree register for three credits of a directed reading course under their advisor's direction during their first semester in the PhD program. By the end of the following semester, the candidate takes an oral qualifying examination that tests the candidate's research potential and knowledge of pertinent fundamentals. Three graduate faculty members form the examining committee: one member of the committee is the candidate's advisor; the graduate committee selects the final two committee members. At least one of the committee members selected by the graduate committee must be from the student's major track of specialization. At least two committee members must pass the intended candidate; else, the candidate repeats the exam by the end of his/her third semester in the program. A candidate who does not pass the qualifying exam by the end of the third semester is dropped from the PhD program.

The candidates starting in the fall semester can petition to take the qualifying exam by the end of their first summer semester. In unusual circumstances (including an advisor change), the candidates can petition to postpone their qualifying exams up to a semester.

The candidates are requested to complete and submit the EE PhD Qual form, which can be picked up from the EE office. Candidates who enter the PhD program in the fall semester are requested to submit the form by the following **March 1**; while candidates who enter the PhD program in the spring semester are requested to submit the form by the following **October 1**.

After passing the qualifying examination, students are advanced to candidacy and must have a doctoral committee appointed within two semesters. The committee should consist of at least five members, one of whom must be in a department other than electrical engineering. After appointment of the committee, students should work out a tentative program of courses that meets with the committee's approval.

### Comprehensive Examination

When students have completed most of their course work, they must pass a comprehensive examination before research is undertaken. This consists of an oral examination given by the entire committee; it may be preceded, at the discretion of individual committee members, by an additional oral or written examination. Students who fail may repeat the examination only once, no sooner than three months after the first examination. Once students pass the comprehensive examination, they may proceed with dissertation research.

### Final Examination

At the conclusion of the research, students write a dissertation that must be approved by a majority of the doctoral committee. Finally, students must pass another oral examination covering primarily the dissertation.

# Mechanical Engineering

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## Faculty

- \*M. N. M. Ghasemi Nejhada, PhD (Chair)—nanotechnology, composites, renewable energy, smart structures
- \*J. S. Allen, PhD—acoustics, multiphase fluid dynamics, micro-biomechanics
- \*D. M. Azimov, PhD, DSc—guidance and control, autonomous space systems, space flight dynamics, optimal control
- \*P. J. Berkelman, PhD—haptic interfaces, surgical robotics, magnetic levitation
- \*B. S. Bingham, PhD—controls, dynamics, robotics, autonomous systems
- \*B. H. Chao, PhD—combustion, perturbation methods
- \*R. Ghorbani, PhD—renewable energy, dynamics, controls, design
- \*L. H. Hihara, PhD—corrosion materials, mechanical behavior of materials
- \*M. Kobayashi, PhD—computational fluid dynamics, aeroacoustics, dynamical systems, topology optimization
- \*J. Li, PhD—light weight materials, material, processing, manufacturing
- \*B. Liebert, PhD—materials science, corrosion, failure analysis
- \*S. F. Miller, PhD—manufacturing, design of medical devices, tribology
- \*W. Qu, PhD—boiling and two-phase flow, microscale thermofluid transport phenomena
- \*A. Z. Trimble, PhD—renewable energy, industrial automation, precision engineering
- \*Y. Zuo, PhD—colloids and surfaces, lung surfactants, AFM, biomedical applications

## Adjunct Faculty

J. Yuh, PhD—control, robotics, design

## Cooperating Graduate Faculty

- M. J. Antal Jr., PhD—alternate energy, combustion
- C. M. Kinoshita, PhD—combustion, energy systems, thermochemical systems
- B. Y. Liaw, PhD—materials, energy conversion, solid-state ionics
- S. M. Masutani, PhD—combustion, turbulent transport phenomena, energy systems
- R. Rocheleau, PhD—thin film ceramic materials
- S. Q. Turn, PhD—thermo chemical energy conversion, fuels processing, energy systems

**Degrees Offered:** BS in mechanical engineering, MS in mechanical engineering, PhD in mechanical engineering

## Mission Statement

To prepare graduates for successful engineering and professional careers and leadership roles with lifelong learning and ethical conduct that will lead them to be engaged good citizens, engineers, and professionals in their community and the world.

## Objectives

- Our graduates will be accomplished professionals by being able to formulate, communicate, and solve problems using engineering principles, methodologies, and modern tools;
- Our graduates will be professionals and leaders in industry, national laboratories, academia, and society by employing engineering fundamentals, design skills, thinking creatively, communicating effectively, working collaboratively, and implementing emerging and innovative technologies;
- Our graduates will be professionals and leaders who accept and practice their professional and ethical responsibilities, respect diversity of opinion and culture, and have a proper understanding and consideration for a healthy and aesthetic environment.

## The Academic Program

Mechanical engineering (ME) is concerned with the design of all types of machines, conversion of energy from one form to another, instrumentation and control of all types of physical and chemical processes, the manufacturing and utilization of engineering materials, and control of human and machine environments. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, instruments, materials, and systems used for energy conversion, heat and mass transfer, biomedical applications, environmental control, control of human and machine environment, physical and chemical process control, materials processing, transportation, manufacture of consumer products, materials handling, and measurements. Mechanical engineers also employ Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Computer Aided Testing (CAT), Computational Fluid Dynamics (CFD), computer modeling and simulations, novel materials, robotics, and mechatronics (integration of computers with electromechanical systems) in their day-to-day activities. Mechanical engineers find opportunities for employment in every branch of industry and in a variety of government agencies. Work may involve research, development, design, analysis, manufacture, testing, marketing, or management.

## Undergraduate Study

### Outcomes

- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design and conduct experiments, as well as to analyze and interpret data
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- An ability to function on multi-disciplinary teams
- An ability to identify, formulate, and solve engineering problems
- An understanding of professional and ethical responsibility
- An ability to communicate effectively
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- A recognition of the need for and an ability to engage in lifelong learning

- A knowledge of contemporary issues
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

### Professional Components

- A culminating design experience that integrates knowledge and skills acquired throughout the curriculum
- The application of engineering standards and realistic constraints, including consideration of economics, environmental sustainability, manufacturability, ethics, health, safety, society, and politics

### Bachelor's Degree

The BS degree requires completion of at least 124 credit hours of course work. The curriculum consists of a group of required courses chosen to provide students with the basic tools for the professional practice of mechanical engineering and to assist students in developing a sense of responsibility as professionals. The objectives of the lower division curriculum are to build a foundation in the basic sciences and mathematics, provide an introduction to engineering design and professional ethics, develop communications and computer programming skills, and acquire an appreciation for the humanities and social sciences. The objectives of the upper division program are to provide a sound foundation in the engineering sciences; build on that foundation for applications in the areas of energy conversion, mechanical systems and control, experimentation, and manufacturing; and encourage creativity culminating in a capstone design experience. To provide sufficient flexibility, technical elective courses enable students to acquire additional competence in areas compatible with their career objectives.

All electives are subject to the approval of an advisor.

### College Requirements

Students must complete the college requirement courses for engineering (see "Undergraduate Programs" within the College of Engineering).

### Departmental Requirements

Students must complete the following coursework:

- ME 213 Introduction to Engineering Design (3)
- CEE 270 Applied Mechanics I (3)
- CEE 271 or ME 271 Applied Mechanics II (3)
- MATH 190 Introduction to Programming (1) or EE 160 Programming for Engineers (4)
- MATH 302 Introduction to Differential Equations I (3) or MATH 307 Linear Algebra and Differential Equations (3)
- EE 211 Basic Circuit Analysis I (4)
- ME 311 Thermodynamics (4)
- ME 312 Applied Thermodynamics (3)
- ME 322 Mechanics of Fluids (3)
- ME 331 Materials Science and Engineering (3)
- ME 341/342 Manufacturing Processes/Lab (3/2)
- ME 360 Computer Methods in Engineering (3) or MATH 407 Numerical Analysis (3) or PHYS 305 Computational Physics (3)
- ME 371 Mechanics of Solids (3) or CEE 370 Mechanics of Materials (3)
- ME 372 Component Design (3)
- ME 374 Kinematics/Dynamics Machinery (3)
- ME 375 Dynamics of Machines and Systems (3)

- ME 402 Dynamics Systems Laboratory (2)
- ME 422 Heat Transfer (3)
- ME 480 Thermofluid Measurements and Design (3)
- ME 481 Design Project I (3)
- ME 482 Design Project II (3)
- Technical electives (9): Three courses that can be selected from ME 400-level technical electives (3), one that can be replaced with a non-ME course (3) (with approval from chair), or PHYS 274 or BIOL 171 without approval; and a second that can be replaced with an ME 600-level course (3) (3.0 GPA minimum and approval from chair) or ME 499 (3)

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Graduate Study

#### Outcomes

- Demonstrate mastery of the methodology and techniques specific to the field of study.
- Communicate both orally and in writing at a high level of proficiency in the field of study.
- Conduct research or produce some other form of creative work.
- Perform in their field of study at a professional level.

The department offers graduate programs leading to MS and PhD degrees in mechanical engineering, with areas of concentration in thermal and fluid sciences conversion (heat and mass transfer, thermodynamics, combustion, thermal environmental engineering, biotechnology), in materials/manufacturing (nano, composite and smart materials, mechanical properties, failure analysis, electrochemistry and corrosion, processing, marine materials), and in mechanics design, systems, and controls (robotics, structures, dynamics, control, continuum mechanics, renewable energy, autonomous systems, biomedical). For qualified graduate students, teaching assistantships, research assistantships, and scholarships are available.

#### Master's Degree

Applicants for admission to the MS program must have completed a BS degree in engineering or its equivalent from a reputable institution.

#### Requirements

Students are required to follow the Plan A (thesis) program. However, under special circumstances, a petition to follow Plan B (non-thesis) may be granted by the graduate faculty. A minimum of 30 credit hours is required for graduation, including 1 credit hour for seminar. Plan A students must take 8 credit hours for thesis, 12 credit hours in the ME 600 course series, and 9 credit hours in technical electives. Technical elective courses must be at the 400 level or above, selected from engineering, mathematics, or physical sciences approved by the student's thesis committee.

For graduation, each candidate must present an acceptable thesis (research report for Plan B) and must pass a final oral examination based on the thesis for Plan A or on the course work and the research report for Plan B.

## **Doctoral Degree**

Applicants for admission to the PhD program must have completed the requirements for the MS in mechanical engineering at UH Mānoa or an equivalent degree from a reputable institution.

### **Requirements**

Intended candidates for the PhD are required to pass an oral qualifying examination within the prescribed period of time, by taking 4 credits of ME 699. The purpose of the qualifying examination is to judge students' ability to pursue research. After passing the qualifying examination, the student will be admitted to the status of candidate in the PhD program. At the discretion of the qualifying examination committee, students who fail the qualifying examination will be dropped from the program.

Students must satisfactorily complete a minimum of 50 credit hours in course work beyond the BS level. They are required to select a major within the following three areas of concentration: materials/manufacturing, mechanics/design/systems/controls, or thermal/fluid sciences.

Students who enter the program may, with the approval of the graduate chair, be credited with up to 30 credits for equivalent work to be counted toward their PhD-credit-hour requirement. Up to 8 of these 30 credit hours may be assigned for prior MS thesis work. Students who possess a second MS degree may be credited with up to 9 additional credit hours for equivalent work. Up to 9 credit hours may be assigned for course work taken as an unclassified graduate student. All courses shall be selected by students but must be approved in writing by their committees. These courses must form an integrated education plan. A minimum of 2 credit hours in ME 691 or its equivalent must be included in every PhD program.

Students who desire teaching experience may, with the approval of the PhD committee chair, request that the department chair assign them teaching responsibility for a particular undergraduate course. The department chair will determine whether students are qualified to teach the course in question, and, if they are deemed qualified, they may be given the teaching assignment. Students who teach a course or courses will be assigned a maximum of 3 credit hours toward their PhD course work requirements.

### **Comprehensive Examination**

PhD candidates must pass an oral comprehensive examination to demonstrate their comprehension of the chosen areas of study relevant to their dissertation proposals and basic knowledge of courses taken at graduate level. Students who fail the comprehensive examination may, at the discretion of the graduate faculty concerned, repeat it once after at least six months. Students who fail the examination a second time will be dropped from the program.

### **Final Examination**

Students are required to complete a satisfactory doctoral dissertation and to pass an oral final examination based primarily upon the dissertation. The final examination will be administered by the respective PhD committee. A student passes the final examination upon the favorable recommendation of a majority of the PhD committee.

# Hawaiʻinuiākea School of Hawaiian Knowledge



## Administration

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Dean: Maenette K. P. Ah Nee Benham

## Centers and Programs

- Kawaihuelani Center for Hawaiian Language
- Kamakakūokalani Center for Hawaiian Studies
- Ka Papa Loʻi o Kānewai Hawaiian Cultural Garden

**Degrees and Certificates Offered:** Undergraduate Certificate in Hawaiian; minor in Hawaiian language immersion education; BA in Hawaiian; BA in Hawaiian studies; MA in Hawaiian; MA in Hawaiian studies

## General Information

Hawaiʻinuiākea School of Hawaiian Knowledge is comprised of three units that offer an integrated curriculum leading to baccalaureate and graduate degrees, certificates, and minors in their respective units.

The mission of the Hawaiʻinuiākea School of Hawaiian Knowledge is to pursue, perpetuate, research, and revitalize all areas and forms of Hawaiian knowledge, including its language, origins, history, arts, sciences, literature, religion, and education; its law and society; its political, medicinal, and cultural practices; as well as all other forms of knowledge. We recognize the unique status of the Native Hawaiian people and recognize their unique connection to these forms of knowledge by encouraging, supporting, facilitating, and ensuring the incorporation of Native Hawaiians at all levels of the university. We seek to accomplish this mission with a Native Hawaiian perspective that recognizes the holistic aspects of this knowledge, its diversities, and the importance of practical applications. Our mission

is to apply this knowledge to provide service and support to the Hawaiian community, as well as extending this knowledge outward from the academy and the community, into the Pacific and other international domains.

## Advising

Kawaihuelani Center for Hawaiian Language  
Spalding 253, 2540 Maile Way  
Honolulu, HI 96822  
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Fax: (808) 956-4599  
Email: [kukakuka@hawaii.edu](mailto:kukakuka@hawaii.edu)  
Advisor: Dr. Kamuela KaʻAhanui

Kamakakūokalani Center for Hawaiian Studies  
Room 211E, 2645 Dole Street  
Honolulu, HI 96822  
Tel: (808) 9956-0642  
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Email: [lehua.nishimura@hawaii.edu](mailto:lehua.nishimura@hawaii.edu)  
Advisor: Lehua Nishimura

Hawaiʻinuiākea Graduate Programs  
Room 211A, 2645 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-0638  
Fax: (808) 973-0988  
Email: [hshkgrad@hawaii.edu](mailto:hshkgrad@hawaii.edu)  
Graduate Programs Assistant: Ululani Oliva

Academic advisors in the respective departments assist students with clarifying academic and career goals, learning about educational options and campus resources, planning a program of study, understanding academic policies and procedures and degree requirements, and assessing their academic progress toward their degrees.

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# Kawaihuelani Center for Hawaiian Language

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Web: [manoa.hawaii.edu/hshk/kamakakuokalani/](http://manoa.hawaii.edu/hshk/kamakakuokalani/)

## Faculty

- \*K. R. K. Oliveira, PhD (Director)—innovative instruction of Hawaiian language through various cultural activities, Hawaiian place names and land tenure
- \*M. R. Nogelmeier, PhD (Graduate Chair)—innovative instruction of Hawaiian language and literature, translation, poetry, composition, creative writing
- C. Baker, MA—Hawaiian grammar, construction of Hawaiian identity through language, Hawaiian language theatre, linguistic anthropology
- K. de Silva, MA—Hawaiian language and literature, revitalization of language and identity through mass media
- R. Koga, MA—Hawaiian and English language and literature, language teaching and learning
- \*R. Lopes Jr., PhD—innovative instruction of Hawaiian language through cultural means such as hula and music
- K. K. Lucas, MEd—Hawaiian language learning and instruction
- \*K. Makekai-Whittaker, PhD—Kanaka Maoli education during the Hawaiian Kingdom period, Hawaiian language immersion education, Hawaiian culture and ceremony in language learning
- R. K. NeSmith, MA—language teaching and learning, communicative language teaching, incorporation of Hawaiian culture in language teaching
- F. P. Nicholas—Hawaiian language and culture, native Hawaiian language speaker from Ni‘ihau
- M. L. K. Saffery, MEdT—place-based Hawaiian curriculum; development of culturally appropriate interdisciplinary Hawaiian language undergraduate and graduate curriculum
- \*R. Solis, PhD—Hawaiian language learning and instruction, Hawaiian religion, newspaper translating and broadcasting
- \*S. L. Warner, PhD—Hawaiian language, Hawaiian language immersion education, evaluation, curriculum development and second-language acquisition, educational psychology
- \*A. K. Wong, PhD—Hawaiian language and culture, immersion education, curriculum development, native Hawaiian language speaker
- \*K. L. Wong, PhD—revitalization of Hawaiian language and people
- M. K. Wong, MA—Hawaiian language and culture, Paniolo practices and lifestyle.

**Degrees and Certificates Offered:** Undergraduate Certificate in Hawaiian, minor in Hawaiian, minor in Hawaiian Immersion Education, BA in Hawaiian, MA in Hawaiian

## The Academic Program

Kawaihuelani Center for Hawaiian Language (HAW) offers an undergraduate certificate, a minor in Hawaiian, a minor in Hawaiian Immersion Education, and bachelor and master’s degrees in Hawaiian. The center conducts research in relevant fields of study and offers four years of language study as well as courses on immersion education, curriculum development, and topics of relevant Hawaiian cultural content. In partnership with Ho‘okūlaiwi: ‘Aha Ho‘ona‘auao ‘Ōiwi (Center for Native Hawaiian and Indigenous Education), Kawaihuelani trains teachers for Hawaiian immersion schools, public schools

with Hawaiian language courses, Hawaiian charter schools, and the UH Mānoa program. The faculty and staff of Kawaihuelani create and implement projects and programs that promote Hawaiian language, culture, history, and traditions such as: Ka Hālau Hanakeeka, Ho‘okūlaiwi: ‘Aha Ho‘ona‘auao ‘Ōiwi (Center for Native Hawaiian and Indigenous Education), Ho‘olaupa‘i: Hawaiian Newspapers Resources, Kauakūkalahale, Kaulakahi Aloha, Ke Aolama, Mary Kawena Pukui Hale, Ka Waihona a ke Aloha, and Mauiakama.

## Undergraduate Study

### BA Degree in Hawaiian

#### Requirements

- Completion of 120 non-repeated credit hours, including the General Education Requirements (see the “Undergraduate General Education Requirements” section for more information) and the following program requirements:
- GPA of 2.0 in all UH Mānoa registered credit hours
- 30 credit hours above HAW 202 with a GPA of 3.0 or better, including:
- Required courses (15 credits): HAW 301, 302, 401, 402, and 452
- 15 electives credits: HAW 321, 331, 332, 345, 373, 383, 384, 425, 426, 427, 428, 429, 430, 433, 435B, 435C, 445, 454, 462B, 462C, 462D, 463, 466, 470, 483, 484, 485, 486, 488, 490, and 499
- A maximum of 3 credit hours from HAW 284, MAO 102, SAM 102, TAHT 103, 104, ES 360, MUS 312, MUS 412, MUS 413, SLS 430, LING 445 can be counted towards the electives
- Students must earn a grade of C or better for all Hawaiian Language courses that serve as prerequisites for other Hawaiian Language courses. Students who do not meet this requirement will not be permitted to register for the next level of Hawaiian Language.
- For Hawaiian Language majors, a grade of B- or better is required for 300-400 level Hawaiian courses counted towards the Hawaiian Language major.

Students admitted to the BA program prior to 2007 should consult an advisor to review changes that may affect their programs.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Minor

Kawaihuelani offers two undergraduate minors. One in Hawaiian and one in Hawaiian Immersion Education.

### Minor in Hawaiian

The overall purpose of the minor in Hawaiian is to provide an undergraduate learning opportunity tailored to classified students who are interested in Hawaiian Language as a second discipline of specialization that will complement their major studies, support their future work in and for the Hawaiian community, and/or empower their growth and development as Native Hawaiians. Acceptance into the minor follows:

- Completion of 25 credits of university work with a 2.0 cumulative and major GPA
- Admission to an appropriate academic major
- Successful completion of HAW 101, 102, 201, and 202.

## Requirements

- 18 credit hours of non-introductory Hawaiian Language courses (beyond 202) including:
  - 12 credit hours in continuing Hawaiian language study (HAW 301, 302, 401, and 402)
  - 6 credit hours from HAW elective courses at the 300-400 level in various content areas
- A 3.0 GPA in courses leading to the minor
- A grade of B- or better is required for all Hawaiian Language courses counted towards the Hawaiian Language minor.

## Minor in Hawaiian Immersion Education

In collaboration with Ho'okulāiwi: 'Aha Ho'ona'auao 'Ōiwi (Center for Native Hawaiian and Indigenous Education) housed within the College of Education, Kawaihuelani administers a minor in Hawaiian Immersion Education to prepare secondary subject area teachers for the Hawaiian Language Immersion Program in the Department of Education. Acceptance into the minor follows:

- Completion of 55 credits of university work with a 2.75 cumulative and major GPA
- Admission to an appropriate academic major
- Successful completion of the College of Education entrance exam and personal admissions interview
- Successful completion of HAW 302 or higher
- Attainment of a B- average for all advanced level Hawaiian language courses.

## Requirements

- A total of 27-36 credits will be required with a minimum GPA requirement of 2.75 in the minor courses: 15-18 from the College of Education and 12-18 from Hawaiian Language.
- College of Education: ITE 312, EDEP 311, EDEF 310, one complementary course (ETEC 414; SPED 445; ITE 360; EDCS 431), ITE methods course (33X-34X) in subject area
  - Hawaiian: HAW 331, 332, 401, 402, 463, and 470

## Certificates

On recommendation of the Center for Hawaiian Language, UH Mānoa confers certification of achievement in Hawaiian language.

## Requirements

- 15 credit hours beyond the intermediate level in Hawaiian, including:
  - 6 credit hours in continuing language study
  - 9 credit hours in language, literature, or structure courses selected to complement the major field of study
- A 3.0 GPA in courses leading to the certificate is required
- A grade of B- or better is required for all Hawaiian language courses counted towards the Hawaiian language certificate.

## Graduate Study

### Master's Degree

The graduate program in Hawaiian is designed to provide broad, in-depth education in the Hawaiian language, culture, and literature and is an integral part of the efforts to revitalize Hawaiian as a living language. The program is designed to create scholarship in Hawaiian in new domains, including advanced study of literature; to strengthen and expand the understanding and use of various styles of Hawaiian; to develop curriculum and resources and teacher training for the Kula

Kaiapuni (Hawaiian medium schools); and to provide support to graduate students in related fields. The MA in Hawaiian is intended for students who have a broad background in Hawaiian language and culture, but want more depth in their knowledge. The three areas of the curriculum that are available are:

- **Mo'olelo.** The Mo'olelo curricula focuses on Hawaiian history and literature through the analysis, critique, creation and presentation of Hawaiian language resources.
- **Kumu Kula Kaiapuni.** The Kumu Kula Kaiapuni curricula focuses on the educational, linguistic, and cultural tools that teachers need to perform better in Hawaiian medium schools. Students producing curriculum and developing their own teaching skills will also be able to work closely with the newly established Mary Kawena Pukui Hale: Center for the Survival and Promotion of Hawaiian.
- **Kālai'ōlelo.** The Kālai'ōlelo curricula focuses on the linguistic analysis of Hawaiian.

## Admission Requirements

All potential graduate students must submit an application to the Graduate Division. Applicants to the MA in Hawaiian must have completed a bachelor's degree and submitted the following to the graduate chair prior to admission: official transcripts from each school attended; 18 upper-division credit hours in Hawaiian and HAW 402 (or equivalent); a statement of objectives written in Hawaiian; and three letters of recommendation.

In addition, a written and oral examination in Hawaiian will be administered by the graduate chair, and an interview will be conducted by an admissions committee of Hawaiian language faculty.

## Degree Requirements

- Students must complete 33 credits with a GPA of 3.0 or better and must include at least 24 credits at the 600 level or higher.
- With pre-approval from the graduate advisor, a student may include a limit of 9 credits that are not taught in Hawaiian but are related to their research.
- Students must receive a B- or better in ALL courses counted towards their degree.
- Core requirements:
  - HAW 601 Kākau Mo'olelo (Narrative Writing)
  - HAW 602 Kākā'ōlelo Oratory (Hawaiian Speech Styles)
  - Choose two of the three courses below:
    - HAW 604 Haku Palapala Noi Laeo'o/Writing a Hawaiian Master's Proposal
    - HAW 605 Ka Hana Noi'i (Research Methods)
    - HAW 612 Nā Mana'o Politika Hawai'i (Hawaiian Political Thought)
  - HAW 615 Kuana'ike (World View)
  - HAW 652 Pilina 'Ōlelo (Grammar)
- Thesis (Plan A) and Project/Non-thesis (Plan B) options are offered.
  - Students completing a Plan A thesis are required to take 6 credits of HAW 700. A student must write a thesis in Hawaiian on a topic approved by the student's advisor and committee. The total number of 699 and 700 credits applied toward degree requirements shall not exceed 12 credits.
  - Students completing a Plan B project/non-thesis will enroll in 6 credits of HAW 695. This capstone course is

the culminating experience where the student will display the knowledge he or she has researched into a form of his or her choice with the approval of the advisor and committee. Students may also choose the internship/haumāna relationship with a mānaleo (native speaker), kupuna (elder), or other cultural practitioner where the student will observe, learn, participate, and document the experience. A maximum of 9 credits of 699 may be applied toward degree requirements.

For more information on the MA in Hawaiian, contact the graduate chair through the departmental office.

## **Credits for Previous Hawaiian Language Experience**

### **Back Credits Policy & Procedures**

Please refer to the Hawaiian and Second Language Policy on Back Credits available in the “General Education” section of the *Catalog*.

**Definition:** Back credits are credits received for previous language experience that do not qualify as transfer credits.

**Eligibility:** All students (including native speakers of a language and non-UH system students) with experience in Hawaiian language may be eligible to earn 3 to 16 back credits.

**One Language:** Back credits may be earned for ONLY ONE language and will be based on the first instance of taking a course for a letter grade in that language at UH Mānoa. A repeated or backtrack course is NOT eligible for back credits.

Students who wish to earn back credits for Hawaiian language shall:

1. Make arrangements with Kawaihuelani’s academic advisor to take the Hawaiian language placement exam.
2. Complete the Hawaiian language placement exam in order to determine the appropriate level HAW course for the student.
3. Enroll (for letter grade) in the Hawaiian language course that the student was placed into after completing the Hawaiian language placement exam.
4. Earn a grade of C or better (not C-) in the Hawaiian language course that the student was placed. Back credits will not be awarded if a student does not receive a grade of C or better for the class the student was placed. The grade of C or better must be earned on the first time the course was taken. A grade of C/NC is not eligible for back credits.
5. Make arrangements to complete forms with Kawaihuelani’s academic advisor to receive back credits. Back credits are not automatically awarded. To receive back credits, students must complete a petition form with Kawaihuelani’s academic advisor. Submit the petition form the semester after the student’s satisfactory completion of the language course, but no later than one semester before graduation.
6. Kawaihuelani’s academic advisor shall award from 3 to 16 back credits based on the course the student successfully completed with a grade of C or better. Back credits are earned with no grade assigned.

### **Transfer Credits Policy and Procedures**

Please refer to the UH Mānoa Policy for Transfer Credits. Access: [manoa.hawaii.edu/admissions/undergrad/policies.html#credits](http://manoa.hawaii.edu/admissions/undergrad/policies.html#credits).

**Definition:** Transfer credits are credits received for previous language courses completed at another institute of higher education that articulate with UH Mānoa language courses.

Transfer credits accepted for language courses completed at another institution of higher education are not eligible for back credits.

**Eligibility:** Majors and non-majors may request an evaluation of their Hawaiian language transfer credits, however, the request cannot be formally processed and approved until a student has been admitted to a program leading to a degree and has confirmed their intention to enroll.

1. Students shall submit to Kawaihuelani’s academic advisor:
  - (a) a completed “Request for Evaluation of Transfer Credits” form available at the Office of Admissions; as well as (b) supporting documents for each course requesting to be evaluated (include syllabus, course description, final product/assignment, and textbook(s)/reading(s) used). If supporting documents are not available, the Kawaihuelani Curriculum Committee may request a short interview with students to assess their Hawaiian language proficiency and to ask them about the courses in question (what was learned, what did you do, etc.).
2. The advisor will review the transfer credit petition to assure all required forms and supporting documents (listed above) are included and will check and printout the student’s transcript on STAR.
3. The advisor will then send the entire transfer credit petition (forms, documents, and transcript) to Kawaihuelani’s Curriculum Committee for review and decision-making on a case-by-case basis. The Curriculum Committee is encouraged to include faculty with specific expertise when needed. The committee will review requests twice a semester, or as needed.
4. Possible outcomes of the committee review may include:
  - a. the outside course has already been articulated with UH Mānoa, so the credits will transfer and count as the articulated HAW course;
  - b. the outside course is deemed equivalent to a HAW course even though it has not been officially articulated, so the credits will transfer and count as the equivalent HAW course;
  - c. UH Mānoa does not have an equivalent course, but committee finds the outside course valuable and in line with the scope/mission of the program/degree, so the credits will transfer and count for an HAW upper-division elective; or
  - d. the outside course is not equivalent to an existing HAW course and does not align with the scope/mission of the program/degree so credits will not be counted towards any HAW course.
5. Final decisions of the Curriculum Committee will be communicated to the director and academic advisor, who will notify the student of the decision and guide them with finalizing the transfer credits process.

## **Honors and Awards**

### **Lokomaika’iokalani Snakenberg Hawaiian Language Graduate Scholarship**

Offered to encourage graduate-level research and study for students specializing in Hawaiian language and related fields, this scholarship provides an award of up to \$5,000 per semester to students registered in graduate programs at UH Mānoa.



### **Dorothy M. Kahananui Scholarship in Hawaiian Language**

This scholarship is offered to students who have successfully completed at least the intermediate level of Hawaiian language, with preference given to doctoral or master's degree candidates who plan to teach the language. The minimum amount of the award is resident tuition at UH Mānoa.

### **Red Mandarin and Lady Yi-suen Shen Scholarship in Hawaiian Studies**

Offered to undergraduate students in Hawaiian studies at UH Mānoa, this scholarship covers tuition for the academic year. It is awarded to a degree candidate who demonstrates exceptional promise and achievement. Applicants must be pursuing a program of study that shows a central commitment to Hawaiian studies, including Hawaiian language.

## **Kamakakūokalani Center for Hawaiian Studies**

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Email: chsuhm@hawaii.edu  
Web: manoa.hawaii.edu/hshk/index.php/site/acad\_studies/en/

### **Faculty**

- \*I. H. Andrade, MFA (Director)—Native Hawaiian visual culture, customary practices and contemporary arts, museum studies
- \*R. P. H. Ka'aloa, MEd (Graduate Chair)—educational technology, distance education, Indigenous education
- \*C. L. Andrade, PhD—traditional navigation, Mālama 'Āina: traditional resource management, indigenous geography, Hawaiian music
- \*J. Armitage, PhD—Hawaiian mythology, literature, nation building
- \*K. Beamer—Indigenous agency, Native Hawaiian land tenure, sustainability, land and resource law of the Hawaiian Kingdom
- \*A. A. H. Drexel, MFA—Native Hawaiian visual culture, customary practices and contemporary arts, politics of "imaging," history, mythology, land tenure, cultural studies

\*A. Freitas, MURP—Innovative educational initiatives and support in areas of student services, program development and strategic planning, grant writing, faculty/staff development, assessment and evaluation

\*L. Kame'eiehiwa, PhD—Hawaiian mythology, history, land tenure, literature, genealogies, traditional navigation

\*L. O. M. A. Keawe, PhD—comparative politics, indigenous studies; political "myths," rhetorical tropes-and "imaging," body politics of Kanaka Maoli identity and culture; educational administration, leadership, and mentoring

\*S. K. Kikiloi—Hawaiian resource management, traditional society genealogies, cultural revitalization and empowerment

\*J. Osorio, PhD—politics of identity in the Hawaiian kingdom, colonization in the Pacific, Hawaiian music

\*W. K. Perry, JD—comparative politics, Hawaiian law

\*E. K. Wright, PhD—Indigenous higher education, identity politics, and student affairs

### **Emeritus Faculty**

H. Trask, PhD—native political movements in Hawai'i and the Pacific, literature and politics of Pacific island women, Hawaiian history and politics, third world and indigenous history and politics

**Degree Offered:** BA in Hawaiian studies, MA in Hawaiian studies

### **The Academic Program**

Kamakakūokalani Center for Hawaiian Studies (HWST) recognizes its kuleana to nurture and educate the next generation of community leaders, teachers, and scholars who will lead Hawai'i into the future. Kamakakūokalani offers bachelor's and master's degrees that reflect the breadth and interdisciplinary nature of Hawaiian knowledge. Our BA graduates have moved forward to earn advanced degrees in anthropology, art, botany, business, communications, counseling, education, engineering, English, geography, law, linguistics, medicine, ocean science, Pacific Island studies, political science, psychology, social work, theater, and urban and regional planning.

In Fall 2005, we inaugurated our MA program to offer students an opportunity to pursue their interests while deepening their scholarly abilities. The master's of art degree builds on the BA program's areas of concentration. It addresses crucial issues such as the sustainability and resource management of the environment that is consistent with the geography and history of Hawai'i, indigenous pedagogy and epistemology, and a political and governmental infrastructure for a Hawaiian nation. The MA also provides professionals in government, law, criminal justice, education, social work, and various health fields, the specialized knowledge in Hawaiian history and culture needed to adequately serve an array of communities.

Our BA and MA programs consist of five areas of concentration:

1. Hālau o Laka: Native Hawaiian Creative Expression
2. Kūkulu Aupuni: Envisioning the Nation
3. Kumu Kahiki: Comparative Hawai'inuiākea and Indigenous Studies
4. Mālama 'Āina: Hawaiian Perspectives on Resource Management
5. Mo'olelo 'Ōiwi: Native History and Literature

## Undergraduate Study

### Bachelor's Degree

Students design their program around a selected area of concentration. Third-year fluency in Hawaiian language and a Senior capstone project are required, as well as familiarity with Hawaiian history and literature, culture and creative expression, politics and integral components of governance, resource management and sustainability, and comparative indigenous studies. A Native Hawaiian perspective is emphasized in the major.

### Major Requirements

Completion of 120 credit hours, including the General Education Requirements (see the "Undergraduate General Education Requirements" section for more information) and the following program requirements:

- GPA of 2.0 in all UH Mānoa registered credit hours
- A GPA of 3.0 in all courses for the major
- Total of 35 credit hours
- 23 credit hours in the following required courses:
  - HAW 301 and 302
  - HWST 207 or 281 or 285 or 351
  - HWST 222 or 224 or 225 or 372 or 478
  - HWST 341
  - HWST 342
  - HWST 343 or 390 or 490
  - Senior Capstone Project
- 12 credit hours of approved courses in ONE of these areas of concentrations:
  - Hālaū o Laka: Native Hawaiian Creative Expression
  - Kūkulu Aupuni: Envisioning the Nation
  - Kumu Kahiki: Comparative Hawaiʻinuiākea and Indigenous Studies
  - Mālama ʻĀina: Hawaiian Perspectives on Resource Management
  - Moʻolelo ʻŌiwi: Native History and Literature

Before beginning work on the major, students should have completed HAW 101, 102, 201, and 202; HWST 107 or 107A; HWST 270. Specific programs should be determined through consultation with the academic advisor. Majors should be interviewed by the academic advisor by the end of the sophomore year.

Students admitted to the BA program prior to Fall 2010 should consult the academic advisor to review changes that may affect their programs.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### Master's Degree

The MA in Hawaiian Studies features an interdisciplinary curriculum that draws from faculty strengths in indigenous knowledge as well as other academic fields. Some examples of faculty expertise in Native practices include oli, music, fiber arts, voyaging, and navigation. Our faculty members' expertise also covers a wide spectrum of other academic fields that include poetry, political science, history, geography, education, and natural sciences.

The graduate chair offers continuous administrative assistance and academic advising as needed. Academic benchmarks

include but are not limited to: development of critical thinking and analytical skills; theoretical foundations for interdisciplinary studies; grounding in and application of Native practices particular to individual interests.

### Prerequisites

The following are prerequisite courses for applicants who are not BA degree recipients of Kamakākūokalani Center for Hawaiian Studies. Students taking these prerequisites may enroll concurrently in graduate level Hawaiian studies courses with consent of instructor. Significant contexts for analysis and critical thinking are based in the measurable teaching objectives and learning outcomes of these courses. They represent the educational foundations of our field:

- HWST 107/107A Hawaiʻi: Center of the Pacific
- HWST 270 Hawaiian Mythology
- HWST 341 Hawaiian Genealogies
- HWST 342 Chiefs of Post-Contact Hawaiʻi

And one of the following to complete the 15 credits of course prerequisites:

- HWST 343 Myths of Hawaiian History
- HWST 390 Issues in Modern Hawaiʻi
- HWST 490 Senior Seminar in Hawaiian Studies

Applicants to the MA program must have satisfactorily completed HAW 302 or the equivalent at the time of entry. All MA students will complete the fourth level (HAW 402) of Hawaiian language by graduation.

### Degree Requirements

There are four core classes that all MA students are required to complete. They form the foundation of the MA program:

- HWST 601 Indigenous Research Methodologies
- HWST 602 Hawaiian Archival Research
- HWST 603 Review of Hawaiian Literature
- HWST 604 Writing a Hawaiian Thesis

### Areas of Concentration

Hawaiian Studies MA candidates will choose two of the five areas of concentration to focus their research. Candidates will be required to integrate the two areas of concentration in a single thesis (Plan A) or non-thesis project (Plan B). The areas of concentration are:

- Hālaū o Laka: Native Hawaiian Creative Expression
- Kūkulu Aupuni: Envisioning the Nation
- Kumu Kahiki: Comparative Hawaiʻinuiākea and Indigenous Studies
- Mālama ʻĀina: Hawaiian Perspectives on Resource Management
- Moʻolelo ʻŌiwi: Native History and Literature

### Admission Requirements

1. Students seeking admission must have completed a BA degree.
2. Satisfactory completion of HAW 302 or the equivalent.
3. Complete and send an online ([manoa.hawaii.edu/graduate](http://manoa.hawaii.edu/graduate)) application to UH Mānoa Graduate Division.
4. Complete a Hawaiian Studies Graduate Education Application Information Form available at the Kamakākūokalani Center for Hawaiian Studies office in Room 209A.
5. Three current letters of recommendation. Two from the applicant's former professors and one from a Hawaiian Stud-

- ies (KCHS) faculty member with whom the applicant has consulted during preadmission advising.
6. Writing sample: a five to ten page (clean and type-written) research paper for an undergraduate level course (any class, any topic) which you have received a grade and credit. In lieu of such a document, applicants may submit an original essay (five to ten pages in length and type-written) as an overview that conveys the nature of the applicant's major field of study.
  7. Personal statement: a two page (typed) statement of intent describing the applicant's proposed thesis topic and its basic relationship to the interdisciplinary field of Hawaiian Studies.
  8. Submit a cover letter with the above mentioned documents (items #4-7) as enclosures to the graduate chair at Kamakakūokalani Center for Hawaiian Studies, 2645 Dole Street, Honolulu, HI 96822.

## Ka Papa Lo'i o Kānewai

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 Web: [manoa.hawaii.edu/hshk/ka-papa-loi-o-kanewai/](http://manoa.hawaii.edu/hshk/ka-papa-loi-o-kanewai/)  
 Director: Makahiapo Cashman

Ka Papa Lo'i o Kānewai (Kānewai) is a Hawaiian cultural research and outreach program organizationally housed in Hawai'inuiākea School of Hawaiian Knowledge at UH Mānoa. In the *ahupua'a* (traditional land division) of Waikiki, Kānewai is the only centrally located venue in Honolulu that provides a culturally place-based experiential learning center and a *pu'uhonua* (sanctuary). Kānewai provides a venue for Hawaiian and Pacific cultural activities with hands-on experiences via experiential learning curricula and lessons.

In 1980, several students from UH Mānoa re-discovered the abandoned *'auwai* (irrigation ditch) at Kānewai and restored its flow of water, after which they planted the *kalo* (taro) and

other native plants in the areas surrounding the *lo'i* (taro patch). With the "Hawaiian Renaissance" movement taking shape, they started the "Ho'okahawai Ho'oulu 'Āina" project based on the philosophy "make the water flow, and the land will be productive," which was initiated by the Hui Aloha 'Āina Tuahine Hawaiian language club. Along with the guidance of *kūpuna* (elders) such as Uncle Harry Kūnihi Mitchell and 'Anakala Eddie Kaanana, the traditional practices have been perpetuated for future generations to experience.

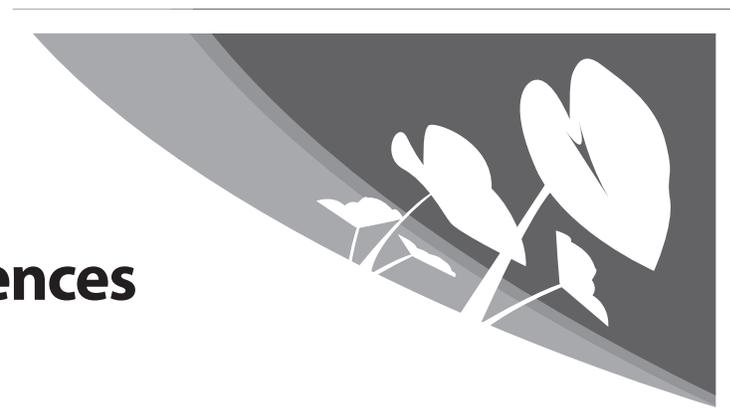
By serving as a cultural resource center, Kānewai focuses its work on perpetuating and preserving Native Hawaiian customary and traditional practices of natural resource management. As such, Kānewai engages a number of different constituencies with varying interests ranging from research and inquiry to experiential learning opportunities for students. Among these diverse partners are: Native Hawaiian communities and organizations; Hawai'i's diverse local communities; Asian and Pacific Island organizations; classes, faculty, staff, and students from the various UH campuses; Hawai'i-wide taro growers; ethnobotanical experts; and private and public educational institutions.

Every "First Saturday" of the month (except for January), Kānewai hosts participants from the UH System, other educational institutions, community groups, and the general public to engage in *mālama 'āina* at the *lo'i* and the surrounding *māla* (gardens). These "hands-on" activities help to grow an individual's understanding of the *ha'awina* (lessons) that is offered at Kānewai, along with conversing with Hawaiian language speakers, while contributing to the health and well-being of Kānewai.

As part of its research and dedication to perpetuating Hawaiian *'ike*, Kānewai maintains a number of traditional Hawaiian varieties of *kalo*, teaches *kalo* farming and traditional resource management courses in conjunction with Kamakakūokalani Center for Hawaiian Studies, and also hosts Mālama Hāloa, an annual symposium on *kalo* every Spring semester.

Because Kānewai receives approximately 15,000 visitors a year, it has formed a partnership with the Kamehameha Schools' 'Āina 'Ulu program. Through this partnership, Kānewai opened a sister site in Punalu'u, within the Ko'olauloa district of O'ahu, which provides an alternative site for participants to experience *lo'i* and thereby maintaining a sustainable level of use at Ka Papa Lo'i o Kānewai.

# Colleges of Health Sciences and Social Welfare



## General Information

The College of Health Sciences and Social Welfare is made up of three professional schools—medicine, nursing and dental hygiene, and social work. It was established to provide a coordinated interdisciplinary approach to the solution of problems common to the three fields. Interdisciplinary courses, colloquia, institutes, and practicum experiences permit students to become acquainted with one another and with trends and developments in the professions represented. The college is governed by an executive committee composed of the deans.

The degree programs of each school are summarized in this *Catalog* and in separate bulletins published by the schools. These bulletins are available through the student services office of each school.

## Mission

The mission of the college is to serve society by increasing, refining, disseminating, applying, and sharing knowledge, wisdom, and values relating to the health and social welfare concerns of the public. It carries out this mission through research, instruction, and service in medicine, nursing, public health, social work, and related health and biomedical sciences.

## Degrees and Certificates

For information on degree and certificate offerings, refer to the *Catalog* sections on the John A. Burns School of Medicine, School of Nursing and Dental Hygiene, and Myron B. Thompson School of Social Work.



# Interdisciplinary Programs

## Aging and Gerontology

**Degrees and Certificates Offered:** Undergraduate Certificate in Aging, BA in interdisciplinary studies (emphasis on aging), Advanced Certificate in Gerontology. See the “John A. Burns School of Medicine” section of the *Catalog* for more information.

## Cell and Molecular Biology Graduate Program

John A Burns School of Medicine  
BSB 222  
651 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 692-1514  
Fax: (808) 692-1968  
Web: [www.hawaii.edu/cmb/CMB/Home.html](http://www.hawaii.edu/cmb/CMB/Home.html)

### Graduate Faculty

M. J. Berry, PhD (Co-chair)—selenoprotein synthesis  
M. Gerschenson, PhD (Co-chair)—infectious diseases, HIV mitochondrial medicine

### Biochemistry

A. Bachmann, PhD—pharmacology  
A. Collier, PhD—pharmacology  
D. M. Jameson, PhD—energetics and dynamics of protein interactions; fluorescence spectroscopy  
H. L. Ng, PhD—structure based drug design and membrane protein crystallography

S. E. Seifried, PhD—molecular recognition and transcriptional control  
A. Yanagihara, PhD—biochemistry of neurotoxins, neuroactive compounds in cnidarians

### Cancer Biology

T. Donlon, PhD—molecular diagnostics of cancer  
P. Fei, PhD—tumor suppressors function and cancer susceptibility syndromes  
A. F. Lau, PhD—oncogenes, cellular transformation and signal transduction  
L. Le Marchand, MD, PhD—cancer epidemiology, breast cancer risk  
P. S. Lorenzo, PhD—diacylglycerols and their participation in carcinogenesis and malignant transformation  
J. Ramos, PhD—MAP kinase pathway  
J. Turkson, PhD—developing anticancer drugs  
C-W. Vogel, MD, PhD—biochemistry of cellular toxins, neuroblastoma  
R. K. Wada, MD—molecular oncology, oncogene regulation, tumor differentiation  
D. C. Ward, PhD—cancer, cancer research administration

### Cardiovascular

W. Boisvert, PhD—immunologic and inflammatory aspects of cardiovascular medicine  
R. Matsui, PhD—cardiovascular disease  
M. Matter, PhD—cardiovascular research  
R. Shohet, MD—cardiovascular research  
M. Tallquist, PhD—formation and function of vasculature

### Cell Signaling

A. Fleig, PhD—excitation-contraction coupling in muscle  
R. Penner, MD, PhD—calcium signaling in neurons and immune cells  
H. Turner, PhD—molecular biology of ion channels in the immune and nervous system

### Developmental Biology

R. Allsopp, PhD—cell biology  
H. G. de Couet, PhD—neurogenetics, cytoskeleton, cell motility  
V. Fogelgren, PhD—renal physiology, development and disease  
T. D. Humphreys, PhD—immune system of sponges, evolutionary foundations of animal immunity, molecular biology of hemichordates  
S. Lozanoff, PhD—developmental biology and craniofacial development

### Genetics and Molecular Biology

F. Bellingier, PhD—neurobiology of selenoproteins  
M. J. Berry, PhD—selenoprotein synthesis  
B. Bowen, PhD—conservation genetics  
R. L. Cann, PhD—molecular and evolutionary genetics of animal populations  
M. Gerschenson, PhD—infectious diseases, HIV mitochondrial medicine

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- D. S. Haymer, PhD—molecular genetics of Diptera  
 P. Hoffmann, PhD—selenoproteins as related to immunology and cardiac disease  
 O. Le Saux, PhD—genetic disorders, elastin, PXE, gene mapping  
 J. Panee, PhD—selenoproteins and natural products as antioxidants  
 S. Robinow, PhD—neurogenetics  
 B. T. Shiramizu, MD—pediatric cancer, immunology, neurovirology  
 A. J. Stokes, PhD—cardiac immunology and cell and molecular biology  
 Z. Stoytcheva, PhD—molecular biology of selenoproteins  
 D. Ward, PhD—molecular cytogenetics, proteomics

### Immunology/Virology

- S. M. Callahan, PhD—bacterial genetics  
 S. P. Chang, PhD—immunology, molecular approaches to vaccine development  
 Y. Lu, PhD—retrovirology, herpes virus, infections in marine organisms  
 V. R. Nerukar, PhD—viral pathogens, marine virology, molecular epidemiology  
 P. Patek, PhD—cellular immunity  
 E. Tam, MD—mast cell proteases, asthma, and immunology  
 M. Tuthill, PhD—monoclonal antibodies and immunology  
 R. Yanagihara, MD—viral pathogens, molecular phylogeny, emerging infections

### Matrix Pathobiology

- K. Csiszar, PhD—lysyl oxidase tumor suppressor family

### Neurobiology/Neurophysiology

- D. C. Blanchard, PhD—psychopharmacology and neurobiology of behavior  
 R. J. Blanchard, PhD—experimental ethology and ethnopharmacology  
 D. K. Hartline, PhD—small network neurophysiology  
 R. Nichols, PhD—neurobiology  
 M. D. Rayner, PhD—sodium channel control mechanisms  
 L. K. Takahashi, PhD—behavioral neuroscience  
 C. Todorovic, PhD—neurobiology of learning and memory

### Plant Molecular Physiology

- D. Borthakur, PhD—regulation of genes in the rhizosphere bacteria by root exudates  
 J. Hu, PhD—molecular biology of plant viruses

### Reproduction Function

- Y. Marikawa, PhD—molecular control of the body plan of vertebrate embryos  
 S. Moisyadi, PhD—mammalian transgenesis  
 M. Ward, PhD—biology of reproduction  
 W. S. Ward, PhD—tertiary structure of DNA, nuclear structure, and genetic instability

**Degrees Offered:** MS in cell and molecular biology, MS in cell and molecular biology (neuroscience), PhD in cell and molecular biology, PhD in cell and molecular biology (neuroscience)

## The Academic Program

The Cell and Molecular Biology Graduate Program (CMB) in biomedical sciences represents an interdisciplinary approach to graduate education with faculty in many sub-disciplines of biology dedicated to helping qualified students pursue original research using modern approaches to cell and molecular biology. The CMB graduate program brings together faculty from three colleges and various research institutes. Planning for collaborative research is emphasized in this program, as well as solid training in a variety of laboratory techniques.

The CMB graduate program provides fellowships for PhD students in their first year, and additional support in the way of research or teaching assistantships are available for qualified applicants in subsequent years. The program is intended to prepare students for careers in academia, research institutes, and in expanding areas of biotechnology in the private sector.

Master's students fall into two categories, depending on whether they opt for a Plan A (thesis) or Plan B (non-thesis). The MS Plan B is usually a terminal degree, appropriate for professionals in medical technology, government, and related fields who wish to obtain broad training in modern cell biology to advance their credentials in their chosen fields. The completion of the MS Plan A serves as a qualifying examination for students who intend to continue toward the PhD in cell and molecular biology. It may also serve as a terminal degree for those who wish to pursue careers as research technicians, either in the public or private sector.

### Advising

For complete details regarding the program, contact Lyn Hamamura at [msbiosci@hawaii.edu](mailto:msbiosci@hawaii.edu) or visit the website at [www.hawaii.edu/cmb/CMB/Home.html](http://www.hawaii.edu/cmb/CMB/Home.html).

## Graduate Study

Applicants are expected to have at least a bachelor's degree emphasizing biological or physical sciences with courses in calculus, organic chemistry, biochemistry, and cellular and molecular biology. Applicants with MD degrees are welcome. Results of the Graduate Record Examination (GRE) general test should be submitted with the application, and students whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL). Three letters of recommendation from former instructors or research supervisors, a CMB program graduate express form, and transcripts from previous universities or colleges attended must also be submitted.

### Master's Degree

The curriculum core of the CMB program is a specialized lecture class, spanning two semesters (CMB 621-622). Additional required courses are CMB 611 Seminar in Biomedical Science and CMB 626 Ethics in Biomedical Research. The remaining credit requirements can be fulfilled by specialized courses, seminars, and research units as recommended by the particular committee and research advisor each student picks to guide their academic program. Following the completion of the two semester core course, the student is expected to pass a qualifying exam, form a committee, and then propose, complete, and defend an original research project (MS Plan A) or study plan and research paper (MS Plan B).

### Doctoral Degree

PhD candidates do not need to have completed a master's degree. If an MS was not earned through the CMB program, the core lecture class is required (CMB 621-622). Formal course requirements beyond the core include additional courses specified by the dissertation committee, including CMB 611 Seminar in Biomedical Science, CMB 626 Ethics in Biomedical Research, and three laboratory rotations. The student is expected to form a committee, propose, complete, and defend an original research project and publish at least one paper in a peer-reviewed journal during their graduate career.

### Neuroscience Specialization

The Cell and Molecular Biology Graduate Program participates in the interdisciplinary “Area of Concentration in Neuroscience.” This is a graduate “specialization” rather than a free-standing graduate program. CMB students interested in this specialization will take normal requirements for CMB plus additional coursework as determined by the Neuroscience Specialization. They will be eligible for graduate degrees in Cell and Molecular Biology (Neuroscience), presuming that their dissertation research includes an emphasis on application of Cell and Molecular Biological techniques to a Neuroscience research issue (or vice versa).

### Selected Specialized Courses

#### Cell Biology

- MBBE 620 Plant Biochemistry
- TPSS 614 Molecular Genetics of Crops
- TRMD 604 Concepts in Immunology and Immunopathogenesis
- TRMD 671 Advanced Medical Parasitology
- TRMD 690 Seminar in Tropical Medicine and Public Health
- ZOOL 610 Topics in Development and Reproductive Biology

#### Molecular Biology

- CMB 625 Advanced Topics in Genetics
- CMB 654 Genetics Seminars
- MICR 625 Advanced Immunology
- MICR 671 Bacterial Genetics
- MBBE 680 Methods in Plant Molecular Biology
- MBBE 691 Advanced Special Topics in MBBE

#### Neurobiology

- CMB 606 Introduction to Neurosciences
- CMB 705 Special Topics in Neuroscience
- PHYL 606 Human Neurophysiology
- ZOOL 712 Topics in Nerve/Muscle Physiology

## Communication and Information Sciences

2550 McCarthy Mall  
 Honolulu, HI 96822  
 Tel: (808) 956-5813  
 Fax: (808) 956-5835  
 Email: cis-chair@lists.hawaii.edu  
 Web: www.hawaii.edu/cis

### Graduate Faculty

- R. S. Gazan, PhD (Chair)—social aspects of information technology  
 N. Asato, PhD—Japanese/Japanese American print cultures; Asian librarianship; censorship  
 K. Baek, PhD—computer vision, neural computation, machine learning  
 E. S. Biagioni, PhD—networking protocol design  
 K. A. Binsted, PhD—artificial intelligence, software design for mobile devices, human-computer interaction  
 W. Buentel, PhD—information and communication technologies  
 T. X. Bui, PhD—electronic commerce, information policy  
 H. Casanova, PhD—high performance computing, distributed systems  
 H. M. Chen, PhD—e-business, service engineering, business-IT alignment, electronic customer relationship management, multimedia database systems, software engineering, enterprise architecture, MIS  
 D. Chin, PhD—artificial intelligence, natural language processing, user modeling, intelligent agents, intelligent user interfaces, intelligent software maintenance, empirical evaluation, geographic information systems  
 F. Dalisay—communication effects, social capital, civic engagement  
 W. G. Chismar, PhD—information technology, telecommunications, medical informatics  
 M. E. Crosby, PhD—human-computer interaction, cognitive science, interface design for searching  
 E. J. Davidson, PhD—social cognitive aspects of information systems development methods  
 V. H. Harada, PhD—library management, information literacy  
 P. Jacso, PhD—digital libraries, webometrics, database content evaluation  
 P. M. Johnson, PhD—software engineering, high-tech entrepreneurship  
 R. Kazman, PhD—software engineering, human-computer interaction  
 T. Kelleher, PhD—public relations, online media, communication campaigns, mass communication, organizational communication  
 R. Knuth, PhD—information policy, children’s materials, international librarianship, history of the book and libraries  
 H. K. Kramer, PhD—intercultural communications  
 L. Lim, PhD—database systems  
 D. M. Nahl, PhD—human-computer interaction, affective computing, information literacy, driving informatics  
 R. R. Panko, PhD—risks in information systems, organizational communication and technology  
 J. Patriarche, PhD—image and signal processing algorithms applied to clinical medical image analysis  
 G. Poisson, PhD—cognitive informatics, bioinformatics, machine learning  
 D. Port, PhD—software economics, management information systems, software engineering  
 L. Quiroga, PhD—information filtering systems, virtual collaboration, information retrieval, databases, library systems  
 N. Reed, PhD—artificial intelligence, autonomous agents  
 S. Robertson, PhD—human-computer interaction, digital government and digital democracy  
 J. Stelovsky, DrTechSc—computer hypermedia, human-computer interaction, cognitive science

- S. Still, PhD—bioinformatics/theoretical biology, information theory, machine learning
- D. Streveler, PhD—medical informatics, international public health, issues in the electronic medical record and in telemedicine
- K. Sugihara, DrEng—algorithms, distributed computing and database systems, visual languages
- D. Suthers, PhD—human-computer interaction; social informatics; technology-enhanced learning
- A. Wertheimer, PhD—information science, library history, Japanese-American print culture
- J. S. Winter, PhD—communication policy and planning (Asia-Pacific)
- R. G. Worthley, PhD—statistics, information technology management

### Cooperating Graduate Faculty

- J. C. Ady, PhD—organizational communication, sojourner adjustment, international negotiation, conflict management
- D. L. Alden, PhD—marketing communications
- A. R. Arno, PhD—ethnography of communication, communication and law, social theory, news media
- D. Ashworth, PhD—learning technology
- T. J. Brislin, PhD—mass communications, ethics
- R. Doktor, PhD—international business, organizational behavior, strategy
- C. P. Ho, PhD—instructional technology
- M. K. Lai, PhD—research methods
- M. P. McGranaghan, PhD—computer cartography, geographical information systems
- N. Ordway, PhD—real estate
- J. R. Wills, DBA—technology marketing
- S. Zhang, PhD—quantitative research methodology, statistics

**Degree Offered:** PhD in communication and information sciences

### The Academic Program

The Interdisciplinary Doctoral Program in Communication and Information Sciences (CIS) offers a PhD degree integrating and drawing faculty from the fields of communication, computer science, library and information science, and management information systems. Because of the broad knowledge base required to support this interdisciplinary approach, the program also draws on such fields as political science, economics, engineering, operations research, and behavioral sciences.

Recipients of the PhD will undertake careers in colleges and universities, industry, government, and private organizations.

Complete details on this program are outlined on the website, [www.hawaii.edu/cis/](http://www.hawaii.edu/cis/).

### Admission Requirements

Requirements in addition to those set by the Graduate Division are:

- Master's degree in business administration, communication, library and information science, information and computer sciences, or a closely related field
- GRE or GMAT scores
- Knowledge of computing
- Demonstrated potential for conducting independent research
- Proficiency in English. Minimum TOEFL scores of at least 6600/250/100 (paper/computer/Internet based TOEFL) are required for admission.

### Application Requirements

In addition to the information required by the Graduate Division, the following must be sent directly to the CIS program, see [www.hawaii.edu/cis/?page=application](http://www.hawaii.edu/cis/?page=application):

- CIS Preliminary Express Application
- CIS Supplementary Application, including a statement of purpose, samples of relevant published or unpublished work, and skills applicable to teaching or research assistantships
- Three letters of recommendation

### Program Requirements

The student will select one primary and two secondary areas of emphasis from those currently supported: see [www.hawaii.edu/cis/?page=focus](http://www.hawaii.edu/cis/?page=focus). At this printing, the areas are: biomedical informatics, communication and information theories, communication policy and planning, human-computer interaction, information systems and services, management information systems, and social informatics.

Students must pass comprehensive exams in the chosen three areas of emphasis, publish a research paper, and complete and defend an original dissertation.

### Course Requirements

All students are required to complete the following three core courses with a grade of at least a B:

- CIS 701 Communication/Information Theories (3)
- CIS 702 Communication/Information Technologies (3)
- CIS 703 Communication/Information Research Methods (3)

In addition, all students must:

- pass at least one approved research methods or data analysis course (in addition to CIS 703) with a grade of B or better
- enroll in CIS 699 while working with a faculty research mentor to publish a research paper
- enroll in CIS 720 Interdisciplinary Seminar in CIS (1) every semester until graduation
- enroll in CIS 800 the final semester before graduation.

Courses to be taken in preparation for the comprehensive exams are to be selected from graduate offerings in related disciplines as directed by the focus area examination committees. Recommended courses as of this printing are listed below. See the program website for other directed readings required by some committees.

### Biomedical Informatics

- ICS 614 Medical Informatics I (3)
- ICS 675 Bioinformatics: Sequences Analysis (3)

### Communication/Information Theories

- CIS 701 Communication/Information Theories (3)

### Communication Policy and Planning

- COM 633 Information and Communication Technologies (3)

### Human Computer Interaction

- ICS 464 Human Computer Interaction I (3)
- ICS 664 Human-Computer Interaction II (3)
- ICS 667 HCI Design Methods (3)
- ICS 668 Social Informatics (3)
- LIS 677 Human Dimension in Information Systems (3)

### Information Systems and Services

- LIS 663 Database Searching (3)
- LIS 671 Digital Librarianship (3)

LIS 678 Personalized Information Delivery (3)  
ICS 624 Advanced Data Management (3)

### Management Information Systems

BUS 603 Managing Information Technology for Strategic Advantage (3)  
ITM 660 Current Topics in Information Systems (3)  
ITM 685 Electronic Commerce (3)  
ITM 704 Doctoral Seminar in Information Systems (3)

### Social Informatics

ICS 668 Social Informatics (3)  
ICS 669 Social Computing (3)  
COM 634 Social Media (3)

## Environmental Studies

**Degrees and Certificates Offered:** Undergraduate Certificate in Environmental Studies, BA in interdisciplinary studies (emphasis on environmental studies). See the “Colleges of Arts and Sciences” section of the *Catalog* for more information.

## Global Health Protection and Security

Office of Public Health Studies  
Biomedical Sciences T103  
1960 East West Road  
Honolulu, HI 96822  
Tel: (808) 956-6263  
Email: globhlth@hawaii.edu  
Web: manoa.hawaii.edu/publichealth/certificates

### Graduate Faculty

D. V. Canyon, PhD, DBA, MPH, FACTM (Chair)—global health protection  
E. Hurwitz, PhD—epidemiology  
A. Katz, MD—infectious disease  
Y. Lu, PhD—environmental health  
J. Maddock, PhD—social and behavioral sciences  
W. Zhang, PhD—sociology

### Affiliate Graduate Faculty

J. Campbell, PhD, MPH—global health security

### Adjunct Faculty

S. Canyon, PhD, MBBS—infectious disease  
J. Hii, PhD—global health and vector-borne disease

**Certificate Offered:** Graduate Certificate in Global Health Protection and Securities

### Program Purpose and Goals

**Purpose:** To promote awareness, knowledge, skills and attitudes conducive to population health, safety, and well-being at local and global levels by enhancing the global health competence of students in the program.

**Goals:** Within a global context, health protection is broadly linked to global security since emerging, re-emerging and pandemic infectious diseases, major chronic diseases, natural disasters and various forms of resource scarcity including food, water and energy pose innumerable threats to human health.

These public health challenges slow developmental progress, disrupt or even reverse national economic development, abrogate cooperation on treaties and agreements, exacerbate civil unrest, de-stabilize regional security and lead to the collapse of governments. The GHPS coursework critically assesses the effects of major global health protection challenges on demographic trends, bilateral cooperation including movement across international borders, flow of trade and foreign capital and fomenting terrorism. Course discussions and case studies on transnational public health are a critical learning strategy and are essential in analyzing how health threats can disrupt regional stability and impact strategic global security policy.

### Background

UH Mānoa offers this interdisciplinary program leading to the graduate certificate in global health protection and securities (GHPS). First established in 1969 as a graduate certificate program in population studies, the program has subsequently undergone modifications in 2009 to incorporate the component of global health in its name and curriculum. In 2012, the program adopted a more public health orientation and in 2014, the focus was shifted towards health protection and security.

The GHPS will appeal to students interested in how major public health challenges can impact national, regional, and global security. They will find the unique perspective and flexible educational approach of the GHPS a fascinating departure from more traditional disciplines of public health. Graduates will find exciting and meaningful career opportunities in state or domestic federal service, U.S. Foreign Service, national or international non-governmental organizations and private philanthropic institutions.

Health protection consultants commonly complete generic training in public health, with some pursuing epidemiological, medical microbiology and/or clinical infectious diseases training. This has enabled them to apply for communicable disease control positions and other specialized positions that require the generic skills and knowledge of their base specialty, but not the specific knowledge for expert practice in health protection. The specialist health protection knowledge provided in this program is not often included in general public health training and will fill some specialty knowledge gaps.

The GHPS graduate certificate qualification will be used by public health and health protection professionals who seek to pursue a career in health protection or who choose to remain in their field, to further develop knowledge and skills in health protection and security. Practitioners in health protection commonly come from varied backgrounds including doctors who practice international medicine, nurses in local health protection units, epidemiologists at regional and national units and environmental health officers at local, regional and national levels. Furthermore, the health protection workforce is aligned with other professional groups whose roles include an element of health protection, but who are not health protection specialists. For instance, nurses who specialize in hospital infection control, occupational health and health visiting, health emergency planers, environmental health scientists, microbiologists, etc. The GHPS graduate certificate will be popular and useful for professionals working in hospital or community infection control. Alternatively, individuals already working within a health protection setting or intending to move into the field may seek to develop their knowledge and skills in health protection.

## Requirements

A total of 15 credits

- Required Courses (6-9 credits):
  - GHPS/PH 690 Global Health Challenges (3 credits)
  - GHPS/PH 6xx Global Health and Human Security (3 credits)
  - Capstone project may be completed as a standalone entity with no credit or students may enroll in GHPS 699 Directed Reading/Research for up to 3 credits
- Elective Courses (6-9 credits)
- Electives (3-6 credits)
  - PH 663 Principles of Epidemiology I (3 credits)\*
  - PH 666 Seminar in Infectious Disease Control (3 credits)
  - PH 680 Health Emergencies in Large Populations (3 credits)
  - PH 681 Environmental Determinants of Health (3 credits)
  - PH 765 Program Evaluation (3 credits)
  - PLAN courses from the Disaster Management & Humanitarian Assistance Certificate

\*Students with no epidemiology are required to take PH 663.

Provided that they closely relate to the theme of the program, the GHPS Chair will accept courses from public health or other departments numbered 600 or above and up to 3 credits of 400-level courses.

Double counting of credits is permissible even for core courses in the MPH and MPH specializations.

## Graduate Interdisciplinary Specializations

Graduate specializations offer graduate students the opportunity to complete a course of study utilizing courses and faculty from several different fields. Participants must apply for admission and be admitted to a 'regular' graduate program.

## Ecology, Evolution, and Conservation Biology

St. John 101  
3190 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-9636  
Fax: (808) 956-3923  
Email: eecb@hawaii.edu  
Web: www.hawaii.edu/eecb/



### Graduate Faculty

- C. W. Morden, PhD (Chair)—molecular systematics and evolution of Hawaiian plants
- L. Arita-Tsutsumi, PhD—behavioral ecology of insects
- K. E. Barton, PhD—evolutionary ecology
- B. Bowen, PhD—phylogeography, evolution and conservation, genetics of marine vertebrates
- R. L. Cann, PhD—conservation genetics and molecular evolution
- K. S. Cole, PhD—evolution of sexual patterns, behavioral ecology
- R. H. Cowie, PhD—evolutionary biology and conservation of land and freshwater snails
- C. C. Daehler, PhD—invasive plants, plant-insect interactions
- M. J. deMaintenon, PhD—evolution of gastropod organogenetic patterns
- D. Drake, PhD—plant ecology, conservation biology, plant-animal interactions
- D. C. Duffy, PhD—conservation biology (basic and applied)
- L. A. Freed, PhD—evolutionary ecology, behavioral ecology and conservation biology
- M. Hixon, PhD—marine ecology and conservation biology
- B. S. Holland, PhD—molecular ecology, systematics and conservation genetics
- T. Idol, PhD—forest soils and nutrient cycling
- K. Y. Kaneshiro, PhD—sexual selection and biology of small populations
- S. C. Keeley, PhD—plant molecular systematics and evolution
- C. A. Lepczyk, PhD—wildlife ecology, landscape ecology, human dimensions of natural resources
- C. M. Litton, PhD—ecosystem ecology and biogeochemistry of forested systems
- W. J. Mautz, PhD—environmental physiology, environmental toxicology, ecological energetics, respiration physiology, and herpetology
- M. D. Merlin, PhD—biogeography, ethnobotany, Pacific natural history
- R. Ostertag, PhD—community structure and nutrient dynamics of tropical forests
- D. K. Price, PhD—evolutionary genetics of behaviors
- D. Rubinoff, PhD—insect systematics, conservation biology, and the evolution of ecological traits
- A. R. Sherwood, PhD—evolution, systematics and population genetics of Hawaiian algae
- C. M. Smith, PhD—physiological ecology of marine macrophytes, marine ecology
- A. D. Taylor, PhD—population and community ecology and environmental statistics
- A. Teramura, PhD—environmental stress physiology, global climate change, ecosystem analysis and biodiversity
- R. Thomson, PhD—evolutionary biology, phylogenetics, and conservation
- T. Ticktin, PhD—ethnoecology and conservation biology
- R. Toonen, PhD—population biology and larval ecology of marine invertebrates
- T. Tricas, PhD—behavior and sensory biology of sharks, rays and reef fishes

### Affiliate Graduate Faculty

- A. Allison, PhD—systematics and population biology  
 L. V. Basch, PhD—ecology, evolution and conservation of marine life histories and benthic communities  
 C. Birkeland, PhD—coral reef ecology and management, marine community ecology  
 E. Campbell, PhD—invasive species  
 J. E. Canfield, PhD—conservation biology, plant ecology  
 D. Carlon, PhD—population regulation, life-history evolution and speciation  
 S. Conant, PhD—conservation biology, life history and ecology of Hawaiian birds  
 N. L. Evenhuis, PhD—systematics and evolution of Diptera  
 D. Foote, PhD—ecosystem ecology  
 A. M. Friedlander, PhD—nearshore fisheries  
 F. G. Howarth, PhD—evolutionary biology of cave ecosystems and insect conservation  
 R. A. Kinzie, PhD—aquatic ecology, coral reefs and tropical streams  
 L. L. Loope, PhD—conservation biology, plant ecology  
 J. E. Maragos, PhD—human impact on marine ecosystems and coral reefs  
 D. Ragone, PhD—Pacific Island ethnobotany, especially conservation and use of traditional crops, focusing on breadfruit

### The Academic Program

The objectives of the interdisciplinary graduate specialization in ecology, evolution, and conservation biology (EECB) are to:

- Use the unique opportunities that Hawai'i offers to integrate tropical population biology and natural history studies with modern laboratory techniques;
- Provide the interdisciplinary, conceptual, and technical training that will allow our graduates to participate in academic and research programs in ecology, evolution, and conservation biology; and
- Foster scholarly training in research programs involving expertise in ecology, evolution, and conservation biology.

Modern theories of ecology, evolution, and conservation biology share a core of concepts and techniques that span classical academic disciplines. This common core, coupled with the emergence of powerful new technologies, invites cross-disciplinary approaches that generate many of today's most exciting scientific advances.

The EECB program provides opportunities for students at UH Mānoa to expand their knowledge and gain experience in this integrative discipline. Our interdisciplinary graduate program brings together faculty members from graduate programs in the departments of Anthropology, Botany, Cell and Molecular Biology, Geography, Microbiology, Natural Resources and Environmental Management, Oceanography, Plant and Environmental Protection Sciences, Tropical Plant and Soil Sciences, and Zoology—with all their skills and technologies—to provide the training students need to contribute effectively to this research area.

EECB is implemented as a “specialization” within existing graduate programs of the departments whose faculty participate in this program. This means that the primary duties and responsibilities of each EECB student are to satisfy the requirements of their own home academic department. The EECB specialization serves to allow students to expand beyond the traditional departmental boundaries in terms of formulating research questions, choosing thesis/dissertation committee members and taking academic courses. EECB graduate students

can be enrolled in either the doctor of philosophy or master of science degree in their home department.

Students accepted to the EECB graduate specialization must already have been accepted into the graduate program of the various departments participating in the EECB program. Course work in statistics, organic chemistry, biochemistry, genetics, evolution, and ecology are considered most important for preparing students for graduate studies.

Details on the EECB program and application forms can be found at the EECB website [www.hawaii.edu/eeceb/](http://www.hawaii.edu/eeceb/).

### Admission Procedures and Policy

Only students that have been accepted and are currently enrolled in a graduate program in one of the cooperating academic departments at UH Mānoa can be admitted. New students applying to UH Mānoa will be considered

All applicants must submit (by email directly to the EECB Chair):

- Letter expressing your interest in EECB (up to 3 pages), including, at a minimum
  - information on past academic experience
  - goals for graduate study in general and graduate study in EECB in particular
  - what you feel you can contribute to EECB
  - what you expect to gain by participation in EECB
- Letter of support from your EECB faculty sponsor

Students enrolled at UH Mānoa may be admitted to EECB in either the fall or spring semester. Application deadlines are **February 1** and **October 15**. Successful applicants are admitted the following semester.

Your original UH Mānoa application may be obtained directly by the EECB office from the Graduate Division and does not need to be submitted with your application to EECB.

### Admission Criteria

Details can be found on the EECB website: [www.hawaii.edu/eeceb/](http://www.hawaii.edu/eeceb/).

### Course Requirements for Specialization in Ecology, Evolution and Conservation Biology

Course requirements for ALL EECB graduate students:

- Complete all degree requirements of the home academic department
- Participate in EECB activities, particularly the Evoluncheon seminar series
- One course in ecology at the 600 or 700 level (at least 2 credits with an A or B grade)
- One course in evolution at the 600 or 700 level (at least 2 credits with an A or B grade)
- One course in conservation biology at the 600 or 700 level (at least 2 credits with an A or B grade)

Acceptable graduate (600-700 level) courses currently being offered are listed below. Because some offerings change from semester to semester, consult the EECB webpage for an updated list.

In addition to course requirements for the specialization in EECB, each academic department has its own course requirements. Courses from the EECB course list that are taken to fulfill departmental requirements can also be used to fulfill EECB requirements, however, a single course can only satisfy one of the three EECB requirements.

## Course Offerings

(Updated October 2013)

New courses or one-time offerings not listed here but approved by the EECB curriculum committee may also count towards the ecology, evolution, or conservation biology requirement. Please check the EECB website for updates and consult with the graduate education committee for acceptations.

### Ecology

- ANTH 606 Anthropology of Infectious Disease (3)
- BOT 644 Ethnoecological Methods (3)
- BOT 651 Invasion Biology (3)
- BOT/ZOOL 652 Population Biology (3)
- BOT 676 Environmental Physiology Seminar (2)
- IS 650 Principles of Applied Evolutionary Ecology (3)
- MICR 680 Advances in Microbial Ecology (3)
- NREM 680 Ecosystem Ecology (3)
- NREM 682 Restoration Ecology (3)
- OCN 626 Marine Microplankton Ecology
- OCN 627 Ecology of Pelagic Marine Animals (3)
- OCN 628 Benthic Biological Oceanography (4)
- OCN 629 Molecular Methods in Marine Ecology (2)
- PEPS 671 Insect Ecology (3)
- ZOOL 606 Principles of Animal Behavior (2)
- ZOOL 606L Principles of Animal Behavior Lab (1)
- ZOOL 620 Marine Ecology (3)
- ZOOL 623 Quantitative Field Ecology (3)
- ZOOL 652 Population Biology (3)

### Evolution

- ANTH 604 Physical Anthropology (3)
- BIOL 603 Molecular Ecology (3)
- BOT 661 Hawaiian Vascular Plants (3)
- BOT 669 Molecular Phylogenetics and Evolution (3)
- CMB 625 Advanced Topics in Genetics (2)
- CMB 650 Population Genetics (3)
- MICR 671 Bacterial Genetics (3)
- PEPS 662 Systematics and Phylogenetics (3)
- PEPS 691 Biogeography Seminar (2)
- TPSS 615 Quantitative Genetics (3)
- ZOOL 606 Principles of Animal Behavior (2)
- ZOOL 606L Principles of Animal Behavior Lab (1)

### Conservation Biology

- ANTH 620H Ecology (3)
- BOT 651 Invasion Biology (3)
- BOT/ZOOL 690 Conservation Biology (3)
- OCN 621 Biological Oceanography (3)
- PEPS 675 Biological Control of Pests (3)
- TCBES 600 (UH Hilo) Conservation Biology and Environmental Science (3)

**Content Varies** (but may be count towards a specific area, depending the topic)

- ANTH 620 Theory in Social and Cultural Anthropology (3)
- BOT 612 Advanced Botanical Problems (V)
- BOT 620 Perspectives in Modern Botany (2)
- BOT 654 Advances in Plant Ecology (2)
- BOT 750 Topics in Conservation Biology (V)
- GEOG 750 Research Seminar (3)
- GEOG 752 Research Seminar (3)
- GEOG 758 Research Seminar (3)
- NREM 691 Advanced Topics in NREM (3)

- PEPS 691 Special Topics (V)
- ZOOL 714 Topics in Animal Behavior (V)
- ZOOL 719 Topics in Systematics and Evolution (V)
- ZOOL 739 Topics in Ecology (V)
- ZOOL 750 Topics in Conservation Biology (V)

## Neurosciences Graduate Specialization

### Graduate Faculty

M. Berry, PhD (Chair)—cell and molecular biology  
 D. C. Blanchard, PhD—cell and molecular biology  
 R. Blanchard, PhD—psychology  
 T. Blank, PhD—cell and molecular biology  
 L. Chang, MD—medicine  
 A. Dunn, PhD—Bekesy Laboratory of Neurobiology  
 T. Ernst, PhD—medicine  
 A. Fleig, PhD—cell and molecular biology  
 M. Gerschenson, PhD—medicine  
 D. Hartline, PhD—Bekesy Laboratory of Neurobiology  
 V. Nerurkar, PhD—tropical medicine and medical microbiology  
 R. Nichols,\* PhD—cell and molecular biology  
 H. Petrovitch, MD—geriatric medicine  
 M. Rayner, PhD—cell and molecular biology  
 G. Webster Ross, MD—medicine and geriatric medicine  
 C. Shikuma, MD—medicine  
 B. Shiramizu, MD—medicine/pediatrics  
 A. Stenger, PhD—medicine  
 L. Takahashi, PhD—psychology  
 L. White, MD., PhD—pediatrics

### Neuroscience

The purpose of this specialization is to allow graduate students pursuing masters and doctoral degrees in various disciplines (e.g., medicine, psychology, engineering, computer science, molecular bioscience, etc.) to formally specialize in neuroscience. This is accomplished by taking a minimum of 4 courses plus participate in a “journal club” focusing on neuroscience as approved by the Graduate Chair.

### Courses

- CMB 606 Introduction to Neurosciences (4)
- CMB 621 Cell Molecular Biology I (4)
- CMB 622 Cell Molecular Biology II (4)
- CMB 626 Ethics in Biomedical Research (2)
- CMB 705 Special Topics in Neurosciences (V)
- PHRM 640 Neuropharmacology (2)
- PSY 622 Animal Learning (3)
- PSY 626 Cognitive Psychology (3)
- PSY 631 Comparative Psychology (3)
- PSY 642 Cognitive Development (3)
- PSY 719 Research in Psychometrics (3)
- TRMD 607 Neurovirology (1)
- ZOOL 642 Cellular Neurophysiology (3)
- ZOOL 712 Topics in Nerve/Muscle Physiology (V)

## Interdisciplinary Studies

**Degree Offered:** BA in interdisciplinary studies. See the “Undergraduate Education” section for more information.

## International Cultural Studies

UHM/EWC International Cultural Studies Graduate Certificate Program

Burns Hall Rm 2069

1601 East-West Road

Honolulu, HI 96822

Tel: 808-944-7593

Fax: 808-944-7070

Email: [culture@hawaii.edu](mailto:culture@hawaii.edu)

Web: [manoa.hawaii.edu/internationalculture/](http://manoa.hawaii.edu/internationalculture/)

### Faculty

W. Dissanayake, PhD (Director)—media studies

C. Andrade, PhD—Hawaiian studies

A. Arno, PhD—anthropology

C. Bacchilega, PhD—English

T. Bigalke, PhD—EWC education

E. Buck, PhD—EWC

G. Chan, PhD—art and art history

M. Chapman, PhD—geography

M. Das Gupta, PhD—ethnic studies

K. Ferguson, PhD—political science and women’s studies

C. Franklin, PhD—English

C. Fujikane, PhD—English

V. Gonzalez, PhD—American studies

T. Gonzalves PhD—American studies

N. Goodyear-Ka’opua, PhD—political science

D. Grace, PhD—education

J. Hamilton, PhD—art and art history

D. Hanlon, PhD—history

M. Helbling, PhD—American studies

J. Henry, PhD—English

V. Hereniko, PhD—Pacific Island studies

P. Ho, PhD—ethnic studies

P. Hoffenberg, PhD—history

R. Hsu, PhD—English

K. Kane, PhD—political science

J. Kaomea, PhD—curriculum studies

N. Kent, PhD—ethnic studies

M. Koikari, PhD—women’s studies

K. Kosasa, PhD—American studies

F. Lau, PhD—music

J. Logan, PhD—languages and literatures of Europe and the Americas

L. Lyons, PhD—English

P. Lyons, PhD—English

R. Mabanglo, PhD—Philippine studies

R. Nettell, PhD—English

J. Okamura, PhD—ethnic studies

J. Osorio, PhD—Hawaiian studies

K. Pauka, PhD—theater

R. Perkinson, PhD—American studies

R. Rath, PhD—history

S. Reiss PhD—history

J. Rieder, PhD—English

A. Robillard, PhD—sociology

S. Shankar, PhD—English

M. Shapiro, PhD—political science

M. Sharma, PhD—Asian studies

N. Sharma, PhD—ethnic studies and sociology

N. Silva, PhD—political science

C. Sinavaiana, PhD—English

N. Soguk, PhD—political science

R. Sullivan, PhD—English

T. Tengan, PhD—ethnic studies and anthropology

R. Trimillos, PhD—Asian studies

M. Wessendorf, PhD—theatre and dance

T. Wesley-Smith, PhD—Pacific Island studies

E. White, PhD—ethnic studies

G. White, PhD—EWC and anthropology

H. Wood, PhD—English (HPU)

C. Yano, PhD—anthropology

M. Yoshihara, PhD—American studies

M-B. Yue, PhD—East Asian languages and literatures

J. Zuern, PhD—English

**Certificate Offered:** Graduate Certificate in International Cultural Studies

### The Academic Program

The Graduate Certificate in International Cultural Studies offers an interdisciplinary course of study that enhances existing degrees in Arts and Sciences, area studies, and the professional schools.

Given that the language of culture is increasingly heard in debates about issues as diverse as nationalism, human rights, immigration, trade, the environment, education, media, and the arts, the certificate program develops tools for a more informed and critical understanding of the role of culture in public debates and policy.

Hawai‘i’s location at the intersection of local, U.S. and Asian spheres of influence provides an important vantage point from which to take up the social and cultural transformations taking place in today’s era of economic globalization and restructuring. Issues of cultural identity and politics are sharply drawn in the distinctive mix of indigenous, local and international communities in Hawai‘i today. Program courses and activities support a variety of approaches to analyzing and understanding the significance of culture, and of cultural difference, as global flows of people, culture, and capital increase the heterogeneity and flux of everyday life throughout the world.

The certificate program brings together faculty whose research and teaching focus on the politics and production of culture in the context of local, national, and international relations. Faculty research methods and styles emphasize the interpretive approaches of the humanities and social sciences.

### Certificate Requirements

The certificate program combines course work with directed research and, where possible, community involvement.

- A core of three courses (7 credits), including:
  - CUL 609 Faculty Seminar Series
  - CUL 610 International Cultural Studies: History and Theory
  - CUL 750 International Cultural Studies: Research Project The Capstone Experience is an individual research project supervised by a participating faculty member.
- Three electives (9 credits), including two taken outside the student’s department and no more than one undergraduate course.

## Marine Biology

Marine Biology Graduate Program  
2525 Correa Road, HIG 132  
Honolulu, HI 96822  
Tel: (808) 956-5651  
Email: mbiograd@hawaii.edu  
Web: www.hawaii.edu/mbiograd

### Graduate Faculty

S. Karl, PhD (Chair)—HIMB  
T. C. Tricas, PhD (Chair)—biology  
G. Aeby, PhD—HIMB  
R. Alegado, PhD—oceanography  
H. Ako, PhD—MBBE/CTAHR  
W. W. L. Au, PhD—HIMB  
J. H. Bailey-Brock, PhD—biology  
J. Beets, PhD—marine science/UH Hilo  
R. Bidigare, PhD—HIMB  
P. Bienfang, PhD—oceanography  
B. Bowen, PhD—HIMB  
S. Callahan, PhD—microbiology  
M. Church, PhD—oceanography  
K. Cole, PhD—biology  
H. G. de Couet, PhD—biology  
S. Donachie, PhD—microbiology  
M. Donahue, PhD—HIMB  
J. Drazen, PhD—oceanography  
E. Franklin, PhD—HIMB  
R. Gates, PhD—HIMB  
E. Goetze, PhD—oceanography  
G. Grau, PhD—biology  
M. Hadfield, PhD—biology/PBRC  
M. Hixon, PhD—biology  
K. Holland, PhD—HIMB  
C. Hunter, PhD—biology  
P. Jokiel, PhD—HIMB/biology  
D. Karl, PhD—oceanography  
J. Lemus, PhD—HIMB  
P. Lenz, PhD—Bekesey Lab/PBRC  
J. Leong, PhD—HIMB  
P. Marko, PhD—biology  
M. McManus, PhD—oceanography  
A. Moran, PhD—biology  
P. E. Nachtigall, PhD—HIMB  
C. Nelson, PhD—oceanography  
B. Popp, PhD—geology and geophysics  
M. Rappe, PhD—HIMB  
R. Richmond, PhD—Kewalo Marine Lab, PBRC  
T. B. Ron, PhD—HNFAS/CTAHR  
K. Selph, PhD—oceanography  
A. Sherwood, PhD—botany  
C. Smith, PhD—botany  
C. Smith, PhD—oceanography  
G. Steward, PhD—oceanography  
M. Takabayashi, PhD—marine science/UH Hilo  
F. I. Thomas, PhD—HIMB  
R. J. Toonen, PhD—HIMB  
L. Watling, PhD—biology  
K. Weng, PhD—oceanography

**Degrees Offered:** MS in marine biology, PhD in marine biology

### The Academic Program

Marine biological studies at UH Mānoa have a long history of excellent research and graduate training in the internation-



ally recognized graduate programs in oceanography, zoology, botany, and microbiology. The School of Ocean and Earth Science and Technology and the College of Natural Sciences together sponsor a new graduate program that offers PhD and MS degrees in marine biology. This program takes advantage of the 44 regular faculty at the university whose research interests span the study of marine organisms, ecosystems, biogeochemical processes, reefs, oceanic fisheries, and human/marine interactions. It also offers research and internship opportunities with partners at state and federal agencies such as NOAA's Pacific Islands Fisheries Science Center, the Hawai'i Department of Land and Natural Resources, and the Department of Business, Economic Development, and Tourism.

The faculty and students in this program have access to one of the largest coral reef habitats in the U.S. including the Papahānaumokuākea Marine National Monument, the main Hawaiian Islands, and the U.S.-Affiliated Pacific Islands. The unique location of the Hawaiian Archipelago in the central North Pacific Ocean makes it one of the most remote locations in the world allowing the processes that govern the marine environment to be studied with minimal anthropogenic influence. The program emphasizes scientific training in marine biology as a high demand occupation for the future.

The goal of the program is to produce scientists who are experts in their research areas with a broad-based understanding of the biology, ecology, evolution, and life processes of marine organisms. This program also addresses the growing need, locally and globally, for technically trained scientists, managers, and policy makers who are needed to understand the many processes that govern tropical marine ecosystems. Sound management of marine resources is becoming critical as these resources come under mounting pressure for exploitation from human populations and increasing stress from global climate change.

### Admissions Requirements

Requirements in addition to those set by the Graduate Division are:

- A strong undergraduate or MS training in biological oceanography, environmental science, marine science, marine biology, zoology microbiology, botany, biology, or other life sciences
- A minimum cumulative GPA of 3.2
- A GRE General Test

- A strong undergraduate background in math, chemistry and physics is highly recommended

### Application Requirements

Please see [www.hawaii.edu/marine\\_biology/graduate/admissions.php](http://www.hawaii.edu/marine_biology/graduate/admissions.php) for additional program application requirements.

### Program Requirements

The student will either be admitted to the MS or PhD program, then advance to a track upon completion of the first year of core courses. Students who fail to pass the core courses will be dismissed from the program.

### Master's Degree

Only a thesis (Plan A) program is available. In addition to the thesis, a minimum of 30 credits is required, including at least 18 credits of coursework and between 6 to 12 credits of Research (699) or Thesis (700) work and completion of the core courses with a grade of B or above.

### Doctoral Degree

Applicants can be admitted with or without having completed a master's degree. In addition to the Graduate Division's requirements for doctoral candidates, students in the PhD track will need to complete the core courses with a grade of B or above, and complete additional relevant coursework as indicated by the dissertation committee. Students entering without a MS degree will be required to take a minimum of 30 graduate course credits, including at least 18 credits of formal coursework and between 6 to 12 credits of Research (699) or Dissertation (800). All PhD candidates will be required to demonstrate teaching experience (e.g. Teaching Assistantship) during at least one semester of graduate study.

### Course Requirements

- MBIO 601\* Marine Biology-Environments and Organisms (4)
  - BIOL 602\* Marine Biology-Processes and Impacts (4)
  - One statistics or Biometry course
- \*Students must pass with a B or better.

Please check the program's website for the most up to date requirements, course offerings, and admission information at [www.hawaii.edu/mbiograd](http://www.hawaii.edu/mbiograd).

## Peace Studies

**Degrees and Certificates Offered:** Undergraduate Certificate in Peace Studies, BA in interdisciplinary studies (emphasis on peace studies). See the "Colleges of Arts and Sciences" section for more information.

## Resource Management

Saunders Hall 107  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-7381

**Certificate Offered:** Graduate Resource Management Certificate

### The Academic Program

The Graduate Resource Management Certificate is a cooperative program primarily involving the College of Social Sciences, Department of Urban and Regional Planning (anthropology, economics, geography), College of Tropical Agriculture and Human Resources (natural resources and environmental management), and East-West Center (Program on Environment, Program on Resources: Energy and Minerals). Because of its diverse topical components, multidisciplinary faculty, and practical application throughout Asia and the Pacific, the program is ideal for students who are pursuing graduate studies in traditional disciplines and also seeking expertise in environmental resource management.

This program provides students with specialized training in an area that augments their primary field and develops their pragmatic problem-solving and decision-making skills through analysis of real-world problems. Any student who has previously been admitted as a classified graduate student at UH Mānoa is eligible to apply for admission to this certificate program. Interested applicants should contact their advisor or any representative of the program in the collaborating departments and institutions.

To earn this certificate, students are expected to complete 15 credit hours, at least 9 of which are at the graduate level. For more information, contact the Department of Urban and Regional Planning.

# William S. Richardson School of Law



## Administration

2555 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7966  
(808) 956-3000 (Application Request Line)  
Fax: (808) 956-3813  
Web: www.law.hawaii.edu

Dean: Aviam Soifer  
Associate Dean for Student Services: Ronette M. Kawakami  
Associate Dean for Academic Affairs: Denise Antolini

## General Information

Since admitting its first class of students in 1973, the William S. Richardson School of Law has graduated more than 2,000 attorneys, most of whom continue to serve in the state of Hawai'i. Richardson graduates have risen to prominent positions, including governor of Hawai'i; lieutenant governor; president of a Hawai'i university; a federal magistrate; Hawai'i Supreme Court, intermediate court of appeals, circuit, district, family, and per diem court judges; partners in major law firms; and members of the state Legislature and Honolulu City Council. In addition, graduates of the school are found in significant numbers at the attorney general, public defender, and prosecuting attorney offices.

The law school offers a three-year, post-baccalaureate program culminating in the juris doctor (JD) degree, also known as the first professional degree in law. A JD degree prepares

students for the bar examination, admission to the bar, and a satisfying career in legal and related fields. The school also offers an LL.M. for international students.

## Student Body

Many of the over 300 students in the law school either were born in Hawai'i or have other ties to the state or region. We also welcome students from the continental U.S., Asia, and the Pacific. Many students from out-of-state express an interest in the school's exceptional Pacific-Asian or environmental areas of emphasis. Each entering class (approximately 90 in number) typically reflects the ethnic diversity of Hawai'i and includes individuals of African American, Caucasian, Chinese, Filipino, Hawaiian, Japanese, Korean, and Pacific Island ancestry. Currently enrolled students from the Asia Pacific region represent China, Guam, Japan, the Northern Mariana Islands, and American Samoa.

Approximately half of the students are female, and about 20 percent have completed other graduate degrees before enrolling in the law school.

## Mission

The mission of the William S. Richardson School of Law is to provide formal legal education, encourage and support scholarly legal research, and promote justice in our society and professional responsibility and public service within our profession. We share the goals of the State of Hawai'i and UH Mānoa to provide educational opportunities for the people of this state and to be leaders in environmental law, Pacific and Asian legal studies, and the law of the sea.

In carrying out this mission, the school's graduates fill a demand for qualified attorneys who are sensitive to Hawai'i's special needs and who will serve government and the public interest as well as private entities.

Students are encouraged to study law and legal institutions as integral parts of larger social, political, economic, and ecological systems. A number of law students concurrently seek graduate degrees at UH Mānoa while undertaking the JD program.

## Accreditations

The accreditation process of the American Bar Association (ABA) is designed to ensure that approved law schools have adequate facilities and adhere to sound educational policies. The School of Law has been fully approved by the ABA; this enables its graduates to present a JD degree acceptable to the bar examiners in every state.

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In 1989, the School of Law was admitted to full membership in the Association of American Law Schools (AALS).

**Degrees Offered:** juris doctor (JD), LL.M.

## Advising

Students have access to academic, personal, and career counseling at any time during the program. Academic counseling is intended to assist the student in defining a program that will satisfy both personal interests and professional development.

Career counseling and information on job opportunities are provided to students for part-time, clerkship, and entry-level positions. About 40 Honolulu legal employers representing the private, public, and public-interest sectors participate in the on-campus interview program for law students. The law school also presents informational programs on career choices and alternatives and preparation for the job search.

## Admission Requirements

Admission to the law school is a highly competitive process, which is based on an applicant's academic achievement, aptitude for the study of law, and professional promise. Included among the specific factors evaluated are undergraduate grade point average, results of the Law School Admission Test (LSAT), academic work beyond the bachelor's degree, academic rigor, writing ability, work experience, and volunteer and civic activities. The admission committee also takes into consideration the diversity of the class and unusual accomplishments or achievements. Residency in Hawai'i or special experience relevant to Hawai'i, the Asia Pacific region, or the law school's programs is also a significant admission criterion.

All applicants must have earned, by the entrance date, a baccalaureate degree from an accredited institution of higher learning in the U.S. or a foreign degree that is fully equivalent. Other requirements include the LSAT results, submission of transcripts to the Law School Data Assembly Service (LSDAS), two letters of recommendation, and a completed law school application.

## Application Deadlines

Applications for admission must be filed with the School of Law and must be submitted on the current year's forms. Contact the law school for up-to-date deadlines and applications. Late or incomplete applications are not considered. Applicants are notified of the admission decision in late March/early April for August entry.

## Ulu Lehua Scholars Program

The initiative, now known as the Ulu Lehua Scholars Program, was established in 1974, the year after the school's founding. The program selects students from legally underserved communities who have overcome adversity and demonstrated academic potential, leadership ability, and commitment to social justice and provides an opportunity for them to obtain a legal education. Ulu Lehua Scholars are fully matriculated into the JD Program, but they also benefit from participation in a small, supportive learning community within the law school, and from course load flexibility during their first year. In their first semester, Ulu Lehua Scholars, like all first year (1L) law students, take Contracts, Civil Procedure, and Legal Practice. In place of Criminal Justice, which they take in their second

year, however, Ulu Lehua 1Ls take American Legal Systems. In addition to providing participants with structured and individualized instruction in legal reasoning, legal writing, law school study techniques, and other foundational legal skills, this course introduces Lehua students to critical legal theory and to other interdisciplinary perspectives on the relationship between law and social change. Ulu Lehua 1Ls and first semester 2Ls also benefit from a structured program of tutoring in civil procedure, contracts, torts, real property, and constitutional law, led by upper division Lehua students who excelled in those courses. Ulu Lehua Scholars participate fully in the life of the law school, assuming leadership roles in such organizations as the *Hawai'i Law Review*, the 'Alahui o Hawai'i, the *Asian-Pacific Law and Policy Journal*, and the school's award-winning moot court teams. Upon graduation, they become part of a large and influential Lehua alumni community, which includes many current judges, government leaders, social justice advocates, business administrators, and prominent attorneys. The Ulu Lehua Program extends the mission of its predecessor, the Pre-Admissions Program, founded to address the underrepresentation of disadvantaged communities.

It seeks candidates who will contribute to fulfilling the goals of the program, including: (1) addressing the legal and related needs of communities under-served by the legal profession in Hawai'i and the South Pacific; (2) representing communities that are presently underrepresented in the law school and the Hawai'i Bar; (3) serving as role models for and mentors to others who are striving to overcome adversity and to reach their full potential as community leaders in Hawai'i and the South Pacific; and (4) bringing distinctive viewpoints and life experiences to the law school community, enriching the understanding of all who work and study here.

## Program Requirements

### Full-Time Program

The JD program is a three-year, full-time course of study that begins in August with a 3-day orientation for new students. The JD degree is awarded upon completion of the satisfactory completion of 89 credit hours, including a selection of required courses. Completion of the program must be attained within seven years of the date of first registration. Full-time study is defined as registration for a minimum of 12 credit hours per semester plus regular and punctual attendance at scheduled class meetings. In addition, all law students must complete 60 hours of pro bono legal service in order to graduate. Contact the law school for a detailed description of the degree requirements.

The first-year curriculum is entirely prescribed and offers a conventional format of substantive courses and intensive small group seminars in legal writing, research, and advocacy. The program for the second and third years is primarily elective and includes writing and research seminars, clinical workshops (some of which involve students in actual litigation under the Supreme Court's Student Practice Rule), and a variety of courses in both traditional and new areas of law.

### Part-Time Program

In the fall of 2008, the law school launched a part-time evening program, leading to a JD degree. Part-time students share the same competitive qualities of the full-time student body and graduation requirements are the same for both programs.



A student in the part-time program typically takes between 8-11 course credits over 3-4 evenings per week. The first two years of the part-time program are structured to allow students to complete most of the required courses. Making steady part-time progress, including summers, a student should be able to graduate in four to five years. There is no separate application for admission; applicants may indicate on their application a desire to be considered for the part-time program. Students admitted to the part-time program may continue to hold a full-time job.

### **Additional Information**

For complete information on school policies and programs, request a *School of Law Catalog* from the Office of Admissions at 2555 Dole Street, Honolulu, HI 96822 or online at [www.law.hawaii.edu](http://www.law.hawaii.edu).

## **Special Programs**

### **The Center for Excellence in Native Hawaiian Law**

The Center for Excellence in Native Hawaiian Law was established in 2005 at the law school through a grant under the Native Hawaiian Education Act. The center focuses on education, research, community outreach, and the preservation of invaluable Hawaiian historical and legal materials. It also offers new courses and supports law students as they pursue legal careers and leadership roles in the Native Hawaiian community. Center faculty have expertise in many aspects of Native Hawaiian rights, water law, Federal Indian law, and traditional and customary rights issues. With assistance from the Office of Hawaiian Affairs (OHA) and other generous community supporters, the center recently began a Post-JD Research Fellowship program; awarded Summer Fellowships allowing law students to work for Native Hawaiian organizations over the summer in 2006; awarded four student scholarships; and produced a guide to Native Hawaiian legal resources. Through a recent initiative, students are now able to receive a Pacific-Asian Legal Studies Certificate with a specialty in Native Hawaiian Law.

### **Dual Degree and Graduate Certificate Programs**

Law students may integrate their law school work with graduate work in other schools and colleges at UH Mānoa and receive both the JD degree and a graduate degree. The most popular dual degree programs have been the JD–MBA, the

JD–master of urban and regional planning, and the JD–MA in Asian studies, although other dual degrees may be approved in consultation with the law school. Students may also pursue graduate certificate programs including ocean policy, resource management, or gerontology.

Students interested in dual degree or certificate programs must apply separately and be admitted to both the School of Law and the graduate or certificate program. Admission to one program does not guarantee admission to the other.

### **Elder Law Program**

The UH Elder Law Program (UHELP) consists of two components: the Elder Law course and the Elder Law legal services project. The course is part of the law school's educational program for training law students in the rapidly expanding field of elder law. The Elder Law legal services project provides direct delivery of limited civil legal services to older persons who are socially and economically needy. It also provides education, training and advice to older persons, their families and caregivers regarding the oftentimes complex legal aspects of caregiving. This direct legal services project is an important source of cases assigned to law students in the Elder Law Clinic. UHELP also houses the Pro Bono Program.

### **Pro Bono Program**

The Pro Bono Program at the William S. Richardson School of Law was one of the first law school pro bono programs and is thought to be the first student-initiated mandatory program in the nation. Students are required to locate and to provide law-related pro bono work under the supervision of an attorney, law school faculty or dean, or other supervisor, as approved by the law school Pro Bono Program director. The definition of law-related pro bono work is construed liberally and includes law related work in the public interest with private practice and non-profit attorneys as well as any international, federal, state, or local government agency, court, or legislature. Law students are encouraged to provide a portion of their pro bono service for indigent clients. The pro bono requirement began with the entering class of August 1992 and successful completion of the pro bono service requirement is a condition for graduation.

### **Environmental Law Program**

Recognizing the challenges that Hawai'i faces in developing an environmentally sustainable economy, the law school has developed a vibrant, diverse Environmental Law Program (ELP). The ELP offers a significant number of exciting and varied courses in environment law and related fields. The centerpiece of the ELP is the Certificate in Environmental Law. The certificate program recognizes the increased student interest in this area, the expertise of a substantial number of our faculty, and opportunities in the field. Students interested in the certificate might also want to consider pursuing a Graduate Ocean Policy Certificate, which is offered at UH Mānoa and is part of our dual degree program. The certificate is available only to UH law students. For more information on the law school's ELP, visit our website at [www.law.hawaii.edu/elp](http://www.law.hawaii.edu/elp).

### **LL.M. Program for International Students**

The LL.M. program is a one-year course of study open to foreign legal professionals and law graduates who wish to gain a broader understanding of U.S. and international legal issues.

The program begins in August; no students will be admitted mid-year. To graduate, students must complete at least twenty-four credit hours. Students are free to design their own course of study in consultation with the LL.M. director and may select a range of courses and seminars in areas such as business and commercial law, environmental law, and international and comparative law. Their program may (but need not) include first-year courses, which serve as an introduction to U.S. law and methods of study. With the consent of the instructor and the LL.M. director, LL.M. students also may enroll in courses offered by schools or departments outside the School of Law or participate in legal externships.

The Introduction to American Law course is required and restricted to LL.M. students, but LL.M. students will take all other classes with American J.D. students and will have ample opportunity to interact with them. The small size of the LL.M. program and of most School of Law classes promotes close interaction, and LL.M. students are encouraged to participate in all aspects of law school life.

For more information on the LL.M. program, visit our website at [www.law.hawaii.edu](http://www.law.hawaii.edu) or contact the LL.M. director at [lawlm@hawaii.edu](mailto:lawlm@hawaii.edu).

### **Pacific-Asian Legal Studies**

In keeping with Hawai'i's location, culture, and history, the Law School has long emphasized Pacific-Asian Legal Studies Program (PALS). We now offer an exceptional range of courses on Pacific and Asian law: students may take general Asian and comparative law courses or choose from specialized courses on China, Japan, Korea, and the Pacific. Our PALS faculty members are actively engaged in current Asian-Pacific issues and bring an unusual depth of expertise to their courses. They are recognized nationally and internationally for their scholarship, which they combine with extensive real-world experience. Each year we also invite distinguished visitors from Asia and the Pacific to visit the law school and teach short-term specialized courses to supplement the regular curriculum. To recognize students who concentrate in Pacific-Asian law, we award certificates of achievement. We actively support student participation in externships in Asia and the Pacific as part of their law school program, which will also count toward certificate credit. Students may also benefit from some of the many exchange relationships the law school maintains with law schools throughout the Asia-Pacific. For more information, visit our website at [www.law.hawaii.edu/pals](http://www.law.hawaii.edu/pals).

### **Advanced JD Program for Foreign Law Graduates**

The advanced JD allows graduates of foreign law schools to complete their U.S. law studies and earn a JD degree in as little as two years. Under this program, qualified foreign law graduates may be admitted with advanced standing and awarded up to 29 credits for their previous law study. The decision on the number of credits to be granted will be made when your application is considered, and successful applicants will be notified at the time of admission how many credits they will receive for their foreign study.

Most students admitted to this program will complete the first-year required JD curriculum in their first year of study, then take their choice of elective courses in the second year of study. We work with all students to design an individual program suited to their background and interests, including participation in our programs in environmental, international, and business law.

Our two-year JD program provides foreign law graduates with the best preparation for bar admission and for the successful practice of law. Advanced JD students are full members of our law school community. Students admitted to the accelerated JD program receive the same degree as other JD students and are eligible to take the bar examination in all U.S. jurisdictions, if they meet the other requirements for admission. For more information, email [kimurasp@hawaii.edu](mailto:kimurasp@hawaii.edu).

### **Hawai'i Innocence Project**

The Hawai'i Innocence Project (HIP) fills a deep need in seeking justice for the wrongly convicted, which is essential for any system of justice. The HIP examines the process for investigating a claim of actual innocence, common errors or problems that produce wrongful conviction, state and federal post conviction procedures, and the nature and uses of DNA and other scientific evidence in connection with actual post-conviction cases.

### **Student Organizations**

The current list of student organizations are:

- 'Ahahui o Hawai'i
- Advocates for Public Interest Law
- American Bar Association-Law Student Division
- American Constitution Society
- Asia Pacific Law & Policy Journal
- Black Law Students Association
- Business Executive Legal Society
- Christian Legal Society
- Delta Theta Phi
- Dive Club
- Environmental Law Society
- Ete Bowl
- Federalist Society
- Filipino Law Student Association
- Film and Entertainment Law Organization
- Hawai'i Women Lawyers
- La Alianza
- LAMBDA Law Student Organization
- Law Review
- National Lawyers Guild-Richardson Chapter
- Pacific Asian Law Student Organization
- Phi Delta Phi
- Public Health Law Organization
- Student Animal Legal Defense Fund
- Student Bar Association
- Surf Club



# John A. Burns School of Medicine

## Administration

John A. Burns School of Medicine  
 651 Ilalo Street  
 Honolulu, HI 96813  
 Tel: (808) 692-0899/0881  
 Fax: (808) 692-1247  
 Web: [www.jabsom.hawaii.edu/jabsom](http://www.jabsom.hawaii.edu/jabsom)

Dean: Jerris R. Hedges, MD, MS, MMM  
 Director of Admissions: Ivy Nip Asano, MD, MAT/Ed  
 Associate Dean of Clinical Affairs: Roy Magnusson, MD, MS  
 Associate Dean of Medical Education: Richard Kasuya, MD, MEd

## General Information

The John A. Burns School of Medicine (JABSOM) strives to improve the quality, effectiveness, and equity of health care delivery in Hawai'i and the Pacific region. The school provides opportunity for qualified residents of Hawai'i and the Pacific Islands, including students from various underrepresented so-

cioeconomic and minority groups to qualify for an MD degree; provides MD graduates with competency to enter postgraduate programs; and provides residency training programs with emphasis on primary-care specialties.

The school also administers graduate research and professional programs that lead to MS and PhD degrees in the basics medical sciences and health-related fields; MS, MPH, and DrPH degrees in Public Health; MS degree in Communications Sciences and Disorders; and, BS and a post-baccalaureate certificate in medical technology. Medical school faculty participate in undergraduate courses for majors in nursing, dental hygiene, biology, nutrition, and related fields. In addition, the medical school, in partnership with the Hawai'i Medical Association and the Hawai'i Consortium for Continuing Medical Education, sponsors continuing medical education for physicians in the state of Hawai'i.

The school provides instruction for five major categories of students:

1. Candidates for the MD degree who are admitted directly by the school's own admissions committee;
2. Candidates for MS degrees in biomedical sciences (with concentrations in cell and molecular biology, clinical research, physiology, and tropical medicine), public health, or in communication sciences and disorders apply through the Graduate Division of UH Mānoa;
3. Candidates for the MPH or DrPH degree who apply through the Graduate Division of UH Mānoa;
4. Candidates for PhD degrees in biomedical sciences with concentrations in clinical research, cell and molecular biology, epidemiology, physiology, and tropical medicine who apply through the Graduate Division of UH Mānoa; and
5. Candidates for an undergraduate degree in medical technology, who apply through the Admissions Office.

In addition, a post-baccalaureate certificate for medical technology clinical training is offered.

## The Kaka'ako Waterfront Complex

In 2005, the John A. Burns School of Medicine relocated to a new 9.898 acre site in Kaka'ako, on the water's edge, between Waikiki and downtown Honolulu. The school's previous location, the 42-year-old Biomedical Sciences building on the Mānoa campus, continues to be occupied by the Office of Public Health Sciences, Department of Medical Technology, and by various research units. The school complex functions as an economic engine for the state that will create quality employ-

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ment opportunities, increase biomedical research activity, and be a stimulus for the biotechnical industry in Hawai'i.

Target areas of research, which include innovations in problem-based learning medical education, are retrovirology/infectious diseases/AIDS, molecular biology/genetics/neuroscience, genomic medicine, proteomics, and bioinformatics/computational biology.

Plans also include building an incubator center (leasable research space) to provide biotechnology and bioscience companies a campus-like environment enabling collaboration with academic researchers. A major medical research center, with surrounding space for such companies, as well as Honolulu's technology infrastructure and ties to Asia and the Pacific, will make the city of Honolulu a prime environment for the growing technology and biomedical research industries.

The school is accredited by the Liaison Committee for Medical Education (LCME) of the Association of American Medical Colleges and the Residency and Fellowship Programs are accredited by the Accreditation Council on Graduate Medical Education (ACGME).

Additionally, all civilian postgraduate medical education programs in Hawai'i hospitals are accredited as UH John A. Burns School of Medicine-sponsored residency programs by the ACGME. Approximately 250 physicians (employees of Hawai'i Residency Programs, Inc.) within 10 training programs serve as house staff members in these hospitals under the direction of medical school faculty from eight clinical departments. Oversight is provided by the Designated Institutional Official (DIO). Continuing Medical Education (CME) programs are accredited by the Hawai'i Consortium for Continuing Medical Education (HCCME), a liaison committee between the Hawai'i Medical Association and JABSOM, while the public health degrees are accredited by the Council on Education in Public Health (CEPH), Medical Technology (MEDT), and Communication Sciences and Disorders (CSD).

### Affiliations

The school maintains affiliations with facilities for medical student and resident clinical training that include the following: Castle Medical Center, Hawai'i State Hospital, Hilo Medical Center, Kalihi-Palama Health Center, Kaiser Permanente Moanalua Medical Center & Clinic, Kapiolani Medical Center for Women and Children, Kapiolani Medical Center at Pali Momi, Kokua Kalihi Valley Health Center, Kuakini Health Systems, Leahi Hospital, Maui Memorial Medical Center, The Queen's Medical Center, Queen Emma Clinics, Rehabilitation Hospital of the Pacific, Shriners Hospital for Children, Spark Matsunaga VA Medical Center, Straub Clinic and Hospital, Tripler Army Medical Center, Wahiawa General Hospital, and The Physician Center.

### Degrees

**Bachelor's Degrees:** BS in medical technology, BA in public health

**Master's Degrees:** MS in biomedical sciences (cell and molecular biology, clinical research, physiology, and tropical medicine); MPH and MS in public health; MS in communication sciences and disorders

**Professional Degree:** MD

**Doctoral Degrees:** PhD in biomedical sciences (cell and molecular biology, clinical research, epidemiology, and tropical medicine); PhD in developmental and reproductive biology; DrPH in public health

### Advising

Premedical advising is available through the Pre-Health/Pre-Law Advising Center, Queen Lili'uokalani Center for Student Services.

### Academic Policies

Undergraduate and graduate students in the School of Medicine must adhere to the academic policies of UH Mānoa. Medical students are exempted from certain UH Mānoa policies and instead must follow academic policies germane to the MD program. Copies of relevant policies are available in JABSOM's Office of Student Affairs.

### MD Program

The MD program follows a problem-based curriculum, the "MD Program," which was implemented in fall 1989 and includes the following key features: knowledge is acquired in problem-based modules; self-directed learning is fostered in small group tutorials; students are involved actively in the learning process, not simply passive recipients of information; the small group leaders function as facilitators of learning; content experts function as resources to the learning process; laboratory exercises, demonstrations, the library and audiovisual-computer centers supplement faculty input; basic sciences are learned primarily in the context of solving clinical problems; students are trained to think critically and to evaluate new information and research data; and evaluation of students is based on competence in a variety of problem-solving exercises.

The learning activities in the first two years of the curriculum take place in the school's state-of-the-art Medical Education Building and in community health sites. The advanced clinical instruction that constitutes the bulk of the second two years of instruction takes place in affiliated community hospitals and clinics.

### Admission Requirements/Application Process

Candidates for MD training must complete a minimum of 90 college-level semester credit hours of which the following specific science coursework is required for entry into the MD curriculum.

- 8 semester credit hours of biology with lab
- 8 semester credit hours of general physics with lab
- 8 semester credit hours of general chemistry with lab
- 8 semester credit hours of organic chemistry with lab
- 3 semester credit hours of biochemistry (no lab required)
- 3 semester credit hours of cell and molecular biology (no lab required)

Each course should be acceptable for students majoring in the above science disciplines. Additional enrichment in the biological and social sciences is encouraged. Applicants must also be fully competent in reading, speaking, and writing the English language.

Applicants are required to apply through the American Medical Colleges Application Service (AMCAS). The service permits an applicant to file a single web-based application, which is forwarded to participating medical schools as desig-

nated on the AMCAS application. AMCAS will implement a criminal background check on applicants applying to medical schools. The AMCAS application is available from **June 1** at the AMCAS website: [www.aamc.org](http://www.aamc.org). The deadline to transmit the application to AMCAS is **November 1** for regular admission (EST) or **August 1** (EST) for Early Decision.

Applicants must also take the nationally administered Medical College Admissions Test (MCAT), which deals with knowledge of the physical and biological sciences and skills in verbal reasoning and writing. The Medical College Admissions Test (MCAT) must be taken within three years of an applicant's anticipated matriculation to medical school. The latest MCATs screened or re-screened in the admissions process is September of the year of application (May for Early Decision).

Applicants who achieve the required screening cut-off points will be requested to submit additional materials and invited for interviews. Sixty-six MD candidates are accepted to the entering first-year class.

Inquiries regarding admissions should be directed to the Office of Student Affairs, Admissions, John A. Burns School of Medicine, 651 Ilalo Street, MEB 3rd floor, Honolulu, HI 96813 or via email [medadmin@hawaii.edu](mailto:medadmin@hawaii.edu). Further information may be obtained on the web at [www.jabsom.hawaii.edu](http://www.jabsom.hawaii.edu).

## Honors and Awards

Alpha Omega Alpha is the honorary society for medical students. Delta Omega is the honorary society for public health students.

## Graduate Medical Education Programs

Graduate medical education programs in Hawai'i hospitals are in family medicine, sports medicine, internal medicine, geriatric medicine, obstetrics and gynecology, orthopaedic surgery, pathology, pediatrics, neonatal-perinatal medicine, developmental-behavioral pediatrics, psychiatry (adult, child and adolescent, geriatric, addiction), general surgery, surgical critical care, cardiology, and transitional year. Also offered are a fellowship in maternal-fetal medicine accredited by the American Board of Obstetrics and Gynecology, and a fellowship in addiction medicine leading to certification by the American Board of Addiction Medicine. The UH John A. Burns School of Medicine acts as the institutional sponsor for these residency training programs. Approximately 250 physicians are involved in training, which lasts one to seven years. These physicians serve as members of the house staff in the affiliated hospitals while studying their chosen specialty.

The medical school also conducts a graduate medical education program at Chubu Hospital in Okinawa for graduates of Japanese medical schools.

## Graduate Programs

Refer to the department/program sections of the *Catalog* for more information on each graduate program. **Note:** Information on the clinical research program is listed under the Department of Complementary and Alternative Medicine and information on the cell and molecular biology graduate program is located in the "Interdisciplinary Programs" section of the *Catalog*.

Graduate program inquiries should be directed to the appropriate program chair. General information is available

on the web at [jabsom.hawaii.edu/JABSOM/admissions/gradDegrees/index.php?l1=gradD](http://jabsom.hawaii.edu/JABSOM/admissions/gradDegrees/index.php?l1=gradD).

## Biomedical Sciences

### Cell and Molecular Biology

Mariana Gerschenson, PhD  
Phone: (808) 692-1518  
Email: [gerschen@hawaii.edu](mailto:gerschen@hawaii.edu)  
Marla Berry, PhD  
Phone: (808) 692-1506  
Email: [mberry@hawaii.edu](mailto:mberry@hawaii.edu)  
Web: [www.hawaii.edu/cmb](http://www.hawaii.edu/cmb)

### Clinical Research

Rosanne Harrigan, EdD  
Phone: (808) 692-0909  
Email: [mscr@hawaii.edu](mailto:mscr@hawaii.edu)  
Web: [mscr.jabsom.hawaii.edu/wordpress/](http://mscr.jabsom.hawaii.edu/wordpress/)

### Epidemiology

Eric L. Hurwitz, DC, PhD  
Phone: (808) 956-7425  
Email: [ehurwitz@hawaii.edu](mailto:ehurwitz@hawaii.edu)  
Web: [manoa.hawaii.edu/publichealth/](http://manoa.hawaii.edu/publichealth/)

### Developmental and Reproductive Biology

W. Steven Ward, PhD  
Phone: (808) 956-5189  
Email: [wward@hawaii.edu](mailto:wward@hawaii.edu)  
Richard Allsopp, PhD  
Phone: (808) 692-1412  
Email: [allsopp@hawaii.edu](mailto:allsopp@hawaii.edu)  
Web: [www3.jabsom.hawaii.edu/Grad\\_DRB/index.html](http://www3.jabsom.hawaii.edu/Grad_DRB/index.html)

### Tropical Medicine

Sandra Chang, PhD  
Phone: (808) 692-1607  
Email: [sandrac@hawaii.edu](mailto:sandrac@hawaii.edu)  
Web: [blog.hawaii.edu/tropicalmedicine/](http://blog.hawaii.edu/tropicalmedicine/)

## Public Health

Jay Maddock, PhD  
Phone: (808) 956-8267  
Email: [ogsas@hawaii.edu](mailto:ogsas@hawaii.edu)  
Web: [manoa.hawaii.edu/publichealth](http://manoa.hawaii.edu/publichealth)

## Communication Sciences and Disorders

Henry Lew, MD, PhD, CCC-A  
Phone: (808)692-1582  
Email: [spauh@hawaii.edu](mailto:spauh@hawaii.edu)  
Web: [manoa.hawaii.edu/csd/](http://manoa.hawaii.edu/csd/)

## Undergraduate Programs

For information on medical technology, refer to the respective section of the *Catalog*.

## Special Programs

### Hawai'i/Pacific Basin Area Health Education Center (AHEC)

The Hawai'i/Pacific Basin Area Health Education Center (AHEC) supports health professions training experiences in rural and under-served areas of Hawai'i and the U.S.-Affiliated Pacific Islands (Guam, American Samoa, Commonwealth of the Northern Mariana Islands, Republic of the Marshall Islands, Republic of Palau, and Federated States of Microne-



sia). Training experiences can be preceptorships, clerkships, electives, cultural immersion experiences, or interprofessional training experiences such as the AHEC Community Based Interdisciplinary Training Program (previously known as Ke Ola). AHEC supports continuity of rural training for students wishing to perform training experiences in a particular rural or under-served area during multiple years of training. AHEC staff perform and support health careers recruitment programs across the state, coordinate science teacher training that incorporates career awareness, support use of video teleconferencing for health education purposes, and provide CME/CE to health care providers in rural and under-served areas. Finally, AHEC is conducting a statewide physician workforce assessment and students can participate in studying aspects of the workforce, such as migration patterns and use of telehealth.

AHEC is funded by the U.S. Department of Health and Human Services, Health Resources and Services Administration. The federal mandate is to improve the diversity, distribution, and quality of the health professions workforce. The mission of Hawai'i/Pacific Basin AHEC is: To improve the health of the under-served through education. Activities focus on five primary areas: 1) Health education and recruitment to health professions for students across the state from kindergarten through college; 2) Educating health professions students in rural and under-served areas, often in interdisciplinary teams; 3) Recruitment, retention, and continuing education of practicing health professionals in medically under-served areas; 4) Providing community health based and community driven health education in over a dozen community learning centers across the state; and, 5) Providing video connectivity for health education, communication, and other health care services to rural and under-served areas across the state. Contact Dr. Kelley Withy for more information at [withy@hawaii.rr.com](mailto:withy@hawaii.rr.com), (808) 692-1060.

### Overseas Programs

The school plays an extensive training role at locations outside Hawai'i and expects that its involvement in the Pacific and Asia regions will continue. In the scattered islands of Micronesia, the school has trained medical officers (MOs) and physician assistants to bring primary care to a widely dispersed population. The curricula were relevant to the clinical and community health needs of the Pacific Basin. Graduates of the MO program received a Diploma in Community Health, Medicine, and Surgery. Training of other health professionals in the Pacific Basin area continues. On Okinawa, the school

conducts a residency training program for graduates of Japanese medical schools. This program is financed by the Okinawa prefectural government. The school conducts a medical student exchange program with affiliated medical schools and hospitals in Korea, Thailand, the Philippines, Japan, Indonesia, Taiwan, Australia, and New Zealand.

## Anatomy, Biochemistry, and Physiology

John A. Burns School of Medicine

651 Ilalo Street, BSB 110

Honolulu, HI 96813

Tel: (808) 692-1446

Web: [jabsom.hawaii.edu/JABSOM/departments/intro.php?departmentid=11](http://jabsom.hawaii.edu/JABSOM/departments/intro.php?departmentid=11)

### Faculty

- \*S. Lozanoff, PhD (Chair)—renal and craniofacial morphogenesis
- \*V. B. Alarcon, PhD—mammalian developmental biology
- \*R. Allsopp, PhD—telomerase biology
- K. Cummins, MS—physiology
- \*B. Fogelgren, PhD—cell and molecular biology of kidney diseases
- \*K. S. K. Fong, PhD—neural tube and craniofacial genetics and development
- \*T. Humphreys, PhD—ptychoderaflava and stem cells
- S. Labrash, CFSP—plastination, willed body program, continuing education
- \*Y. Marikawa, PhD—mammalian embryogenesis, cell differentiation, and body pattern formation
- \*T. Matsui, MD, PhD—cardiovascular research
- \*D. Merritt, PhD—aging and exercise physiology
- \*S. Moisyadi, PhD—mammalian transgenesis
- Z. Stoytcheva, PhD—transcriptional regulation of renal development
- J. Urschitz, PhD—gene therapy, obesity, pregnancy
- \*M. Ward, PhD—sperm physiology and genetics, assisted reproduction technology
- \*W. S. Ward, PhD—DNA structure, embryogenesis, and sperm biology
- \*Y. Yamazaki, PhD—mouse cloning, primordial germ cell biology

### Cooperating Graduate Faculty

- R. V. Cooney, PhD—role of nitrogen oxides in carcinogenesis

### Adjunct/Clinical Faculty

- J. Chen, PhD
- H. Davis, PhD
- R. Dunn, PhD
- C. E. Ha, PhD
- T. Nomura, MD, PhD
- K. Nonaka, DDS, PhD
- M. Ohishi, MD, DDS, PhD
- C. Stickley, PhD
- S. Tunalı, PhD, MD
- C. F. T. Uyehara, PhD
- J. Wu, PhD
- S. Yang, MD

**Degree Offered:** MS in developmental and reproductive biology, PhD in developmental and reproductive biology

## The Academic Program

The Department of Anatomy, Biochemistry, and Physiology supports the interdisciplinary nature of modern biomedical research and exposes both medical and graduate students to the type of research environment they will encounter in their professional career. The department was formed in acknowledgment of the MD program's ongoing need for discipline-based expertise in the areas of anatomy, physiology, and reproductive biology, which provides a broad base of knowledge in biological structure and function from the molecular level to the body as a whole, as well as biochemistry, which involves the study of the chemistry and physics of living systems and is fundamental to the understanding of many of the disciplines of medical, biological, and agricultural sciences.

The department offers upper- and lower-level courses in biochemistry and physiology as preparatory coursework for prospective medical students as well as 500-level electives in human anatomy and physiology for medical students that supplement knowledge gained in the tutorials. The training of medical students and post-graduate training of physicians would not be possible without the department's Willd Body Program.

Students seeking health-related careers in areas such as dentistry, medicine, nursing, nutrition, physical therapy, public health, and the social sciences need many of the department's physiology courses. Formal programs of study leading to MS and PhD degrees in developmental and reproductive biology are also offered. These students may elect to conduct research at the molecular or cellular level, on organs such as the lungs, or on the whole animal or person. Through the interdisciplinary Cell and Molecular Biology Graduate Program, qualified graduate students have the opportunity to work with faculty from other JABSOM departments and programs within the university system as well.

The MS (Plan A) program in developmental and reproductive biology requires a combination of course work and original research, the latter forming the basis of the student's thesis. The MS (Plan B) degree serves as training for teaching positions at the high school, community college, or four-year college level. It may also be a prelude to a medical or dental education. Candidates for the MS Plan B degree are required to prepare a written paper and give an oral presentation as well as fulfilling course requirements (total of 30 credits). The MS concentration in exercise physiology provides adequate preparation for a career in sports medicine and training and in health and fitness programs in hospitals and private businesses.

The PhD degree in developmental and reproductive biology prepares students for teaching careers in universities, community colleges, and high schools, as well as for research careers at universities, hospitals, government laboratories, and large pharmaceutical companies. Candidates must take a written qualifying examination, an oral comprehensive examination, and submit an acceptable outline of their proposed dissertation research. They must also submit and defend their dissertation. PhD graduates usually obtain postdoctoral positions elsewhere as further preparation for a career in teaching and research at the university level.

Applicants must submit three letters of recommendation together with either GRE or MCAT scores. All applicants are expected to have adequate backgrounds in biology, chemistry, mathematics, molecular biology, and physics. The course requirements for admitted students vary with their degree and

specialization, but all candidates for the MS and PhD degrees must take a written qualifying examination.

The department's anatomy and reproductive biology faculty are world-renowned for their research in the areas of fertilization, reproductive endocrinology, and neurobiology of sexual behavior. Department faculty established the Institute for Biogenesis Research and pioneered the successful "Honolulu Technique" cloning technology, which provides scientists with a new and valuable tool for researching the molecular processes involved in embryo formation, cell differentiation, aging, and disease. The biochemistry faculty offer laboratory and research experience either through formal courses or through participation in funded research programs in areas such as clinical biochemistry, bioenergetics, biochemistry of reproduction, and chemical carcinogenesis. Department faculty also have appointments in the Pacific Biosciences Research Center and the University of Hawai'i Cancer Center.

## Cell and Molecular Biology

John A. Burns School of Medicine  
BSB 222  
651 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 692-1514  
Fax: (808) 692-1968  
Web: [www.hawaii.edu/cmb](http://www.hawaii.edu/cmb)

### Faculty

- \*M. J. Berry, PhD (Chair)—selenoproteins, antioxidants and human diseases
- \*F. P. Bellinger, PhD—selenoproteins in brain function
- \*R. L. Cann, PhD—molecular and evolutionary genetics
- \*M. Gerschenson, PhD—infectious diseases, HIV mitochondrial medicine
- \*D. S. Haymer, PhD—molecular evolution and developmental genetics
- \*P. Hoffmann, PhD—selenoproteins in asthma and inflammation
- \*D. M. Jameson, PhD—fluorescence spectroscopy; biomolecular dynamics and interactions; ribosomal proteins
- \*O. LeSaux, PhD—genetic disorders; dystrophic calcification
- \*R. A. Nichols, PhD—neuropharmacology, neuroscience and physiology
- \*J. Panee, PhD—selenoproteins and natural products as antioxidants
- \*M. D. Rayner, PhD—structure-function relationships in voltagegated ion channels
- \*S. E. Seifried, PhD—macromolecular interactions, transcription factor recognition of specific DNA sequences, protein subunit assembly
- \*A. Stokes, PhD—biochemistry and physiology of ion channel proteins
- \*C. Todorovic, PhD—neurobiology

### Adjunct Faculty

- A. Bachmann, PhD—cancer, pharmacology
- T. A. Donlon, PhD—human genetics
- A. Fleig, PhD—electrophysiology (patch-clamp); calcium signaling in muscle cells; regulation of calcium signaling; cellular neuroimmunology
- K. Pellegrin, PhD—pharmacy, psychology, research training
- R. Penner, PhD—electrophysiology (patch-clamp); intra- and intercellular signal transduction; regulation of calcium signaling; cellular neuroimmunology
- J. Pezzuto, PhD—pharmacy, drug discovery, natural products
- H. Turner, PhD—immunogenetics, cannabinoid receptors, cell signaling

## The Academic Program

Faculty in the Department of Cell and Molecular Biology have ongoing research programs in areas such as genetics, cell biology, biochemistry, and neurophysiology. The department also provides instruction in the basic principles and concepts of genetics, biochemistry, and molecular biology to medical students, graduate students from various disciplines, and undergraduates.

The faculty also participate in the training of PhD and MS graduate students in the interdisciplinary Cell and Molecular Biology Program. This program brings together faculty with expertise in biochemistry, cell biology, cell signaling, developmental biology, genetics, immunology/retrovirology, neurobiology/neurophysiology, plant molecular physiology, and reproduction function for collaborative teaching and research activities. Information on the Cell and Molecular Biology (CMB) Graduate Program can be found in the "Interdisciplinary Programs" section of this *Catalog*, on the CMB website, or interested applicants can contact:

Lyn Hamamura  
John A. Burns School of Medicine  
Cell and Molecular Biology Graduate Program  
651 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 692-1514  
Email: lynh@hawaii.edu

## Communication Sciences and Disorders

677 Ala Moana Blvd., Suite 625  
Honolulu, HI 96813  
Tel: (808) 692-1581  
Fax: (808) 566-6292  
Email: keithy@hawaii.edu  
Web: manoa.hawaii.edu/csd

### Faculty

\*H. Lew, MD, PhD (Chair)—audiology  
\*C. Fiestas, PhD—speech-language pathology  
\*E. Hirohata, AuD—audiology  
\*A. Lower, MS—speech pathology  
\*C. Tanaka, PhD—audiology  
B. Ward, MS—speech-language pathology  
R. Ziolkowski, PhD—speech-language pathology

### Affiliate Faculty

\*S. Ching, AuD—audiology

### Adjunct Faculty

\*C. Bell, MD, PhD—geriatric medicine  
\*V. Chinen, MS—speech-language pathology  
\*J. Hiu, MS—speech-language pathology  
\*R. Ito, AuD—audiology  
\*H. Kuniho, MS—speech-language pathology  
\*P. Mashima, PhD—speech-language pathology  
\*K. Mays, MS—speech-language pathology

**Degrees Offered:** MS in communication sciences and disorders

## The Academic Program

The study of communication sciences and disorders focuses on the basic understanding in speech, language, swallowing, cognitive-communication, and hearing processes, as well as disorders in these areas. The Department of Communication Sciences and Disorders (CSD) prepares students to become a speech-language pathologist, a health-allied professional who evaluates and treats individuals with speech, language, cognitive-communication, and swallowing disorders across lifespan, from infants to the elderly. The practice of speech-language pathology (SLP) requires a minimum of a master's degree in specialized area such as CSD and obtaining clinical certification and licensure. Currently, the CSD department is the only program in the State of Hawai'i who offers a Master of Science (MS) degree in CSD and one of the few programs in the U.S. featuring preparation in a multilingual/multicultural environment. The time required for completion of the CSD program by an individual is two years (six semesters including summer sessions).

The CSD department defines our mission using the C.A.R.E.S. Model to establish a center of excellence for:

1. Clinical Service to rehabilitate people challenged with speech language and/or hearing disorders.
2. Administrative infrastructure for internal and external networking.
3. Research to support evidence based practice.
4. Educational training to prepare highly qualified speech and language professionals.
5. Service to develop public awareness at the university, state, national, and international levels.

The MS degree education program in SLP at UH Mānoa is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA), 2200 Research Boulevard #310, Rockville, Maryland 20850, 800-498-2071 or 301-296-5700. Students who obtained the UH Mānoa MS degree and judged by the program as having acquired all of the knowledge and skills mandated by the current ASHA standards are eligible to apply for an ASHA Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP) after successful completion of post-graduate clinical fellowship.

### Advising

Students considering the major in CSD may contact the CSD department by email or phone listed above. The CSD website offers useful information for the program and admission requirements. Academic counseling from the Pre-Health Pre-Law Advising Center is also available (manoa.hawaii.edu/pac/spa.html), especially for UH undergraduate students.

## Graduate Study

### Master's Degree

- Maintenance of a minimum grade of B- for all required courses and clinical practicum
- Completion of required graduate course work
- Completion of a minimum of 375 direct-contact clock hours in clinical practicum at internship and externship and additional 25 clock hours in observation.

- Completion of a thesis (Plan A) or a research project and submission of a manuscript (Plan B)
- Passing scores on Praxis examination in Speech-Language Pathology

### Clinical Practicum

All CSD graduate students are required to complete clinical practicum at on-campus clinic and externship sites. The University of Hawai'i Speech and Hearing Clinic (UHSHC) is an on-campus internship site and serves as a core clinical teaching facility. Graduate students work directly with patients under the close supervision of a clinical supervisor (a certified speech-language pathologist and/or audiologist). The UHSHC provides speech, language, cognitive-communication, and hearing services to all individuals across the lifespan. The UHSHC is affiliated with University Clinical, Education and Research Associates (UCERA), which is the faculty practice organization created to support the clinical, academic, and research activities of the faculty of the JABSOM. After successful completion of the internship at the UHSHC, students will be placed at externship at a variety of settings, including hospitals, rehabilitation facility, nursing homes, private practice, early intervention, and schools.

### Research Project (Plan B) and Thesis (Plan A)

Under the supervision of a research or thesis advisor, the CSD students must complete either a research project (Plan B) or thesis (Plan A) as part of the graduation requirements. The project or thesis aids the student in developing and learning evidence based practice (EBP), which is an integral component of clinical practice in SLP. The ASHA advocates the EBP and defines the goal of EBP as “the integration of: (a) clinical expertise/expert opinion, (b) external scientific evidence, and (c) client, patient, caregiver values to provide high-quality services reflecting the interests, values, needs and choices of the individuals we serve ([www.asha.org/Members/ebp/intro/](http://www.asha.org/Members/ebp/intro/))”.

### Praxis Examination

The Praxis examination in SLP is offered by Educational Testing Service (ETS) and assesses knowledge and current practices in SLP for beginning practitioners. Importantly, the Praxis examination is an essential component in obtaining the ASHA CCC-SLP and state licensures. The CSD students are required to pass the Praxis examination to graduate from the program.

### Online Undergraduate CSD Courses

The CSD program offers seven online undergraduate courses (CSD 431-437) through the Outreach College. By completing these courses, undergraduate students can fulfill CSD-specific prerequisites for entering the CSD MS program.

## Complementary and Alternative Medicine

John A. Burns School of Medicine  
651 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 692-0909

### Faculty

R. Harrigan, EdD (Chair)—women's health, health disparities  
N. Apau, MD, MS—asthma  
A. Brown, PhD—nutrition  
M. Carbone, MD  
E. C. Christenson, MD  
K. Csiszar, PhD—ethnobotanics, molecular biology  
J. Davis, PhD  
P. Deleon, PhD  
T. Hoffman, MD  
T. Huynh, MD  
H. Liu, MD  
M. Long, MD  
K. Lye, MD  
J. Panee, PhD  
B. Rodriguez, MD  
T. Shintani, JD, MD, MPH—nutrition  
K. Withy, MD—health services research, workforce development  
S. Wu, PhD  
S. Yamada, MD—medical education  
I. Zunin, MD

### The Academic Program

The State of Hawai'i is an environment with the unique, rich blend of cultures and ethnicities and many healing traditions, some of ancient origins. Complementary and Alternative Medicine (CAAM) takes on increased significance in Hawai'i because the diverse population of the state uses these treatment modalities frequently.

The department is committed to conducting both basic and applied research related to complementary and alternative therapies in Hawai'i and the Pacific region, especially dietary supplements; educating the next generation of physicians and other healthcare personnel about the potential risks and benefits of complementary and alternative therapies; providing culturally competent care for people within the state of Hawai'i by understanding the use of patterns of complementary care used by the Hawaiian population; facilitating the study of medicinal plants, including varieties unique to Hawai'i and/or the Pacific Rim; and promoting health service research to assess the clinical and financial benefits—or lack thereof—of CAAM therapies for the Hawaiian population.

Models of integrative care teams strategically placed in Hawai'i's major hospitals, large medical groups and/or health maintenance organizations together with the development of relevant educational materials for clinicians, researchers, educators and consumers of health care is another major goal. Collaborations with other UH Mānoa programs such as Chinese studies and the School of Hawaiian Knowledge faculties will energize progress towards this goal to reduce and eliminate health disparities in Hawai'i and improve the health of Hawai'i's people.

## Graduate Study

A graduate program leading to the MS in clinical and translational science is offered, with an emphasis on development, of multidisciplinary research teams composed of clinicians, researchers, educators, and community members. Clinical and translational science is the study of methods used to investigate clinical problems in medicine. Available in Plan A (thesis), the program requires a combination of course work and original research, the latter forming the basis of the master's thesis.

Students enrolled in the program acquire skills in biostatistics and epidemiology, and master the scientific principles that underlie clinical research methods. They develop the ability to identify and resolve ethical issues in clinical research, to ensure the safeguarding of human subjects, and to understand the workings of Institutional Review Boards and other relevant requirements. In addition, students increase their capacity in obtaining research funding from agencies such as the National Institute of Health.

In addition to offering knowledge and skills needed for careers in clinical research, the program functions as a supportive mechanism for newly trained investigators, actively facilitating career development and encouraging research collaborations, particularly those related to research on health disparities. By providing high quality training to doctoral and post-doctoral candidates, the program aims to increase the mass of clinical researchers at UH Mānoa, including minority investigators. Targeting junior faculty, fellows, residents, and doctoral candidates from biomedical sciences, nursing, social work, psychology and public health, the interdisciplinary nature of the program broadens students' perspectives and increases opportunities for innovative, cross-disciplinary collaborations in clinical research.

Graduates of the program pursue teaching careers in academia; as well as research careers in academia, government laboratories, and pharmaceutical companies. In addition, some graduates find employment in hospitals or private businesses.

The department also has a doctoral program leading to a PhD in biomedical sciences with a concentration in clinical research.

## Family Medicine and Community Health

The Physician Center at Mililani  
95-390 Kuahelani Avenue  
Mililani, HI 96789  
Tel: (808) 627-3235  
Fax: (808) 623-7872  
Web: [www2.jabsom.hawaii.edu/FamilyMedicine/](http://www2.jabsom.hawaii.edu/FamilyMedicine/)

### Faculty

A. L. Hixon, MD (Chair)—family medicine and community health  
L. Aggarwal, MD—family medicine and community health  
L. E. Buenconsejo-Lum, MD—family medicine and community health  
S. Hankins, MD—family medicine and community health  
W. M. Izumigawa, MBA—Director of business affairs  
G. Maskarinec, PhD—medical anthropology  
A. W. Nichols, MD—family medicine, sports medicine  
J. S. Omori, MD—family medicine and community health  
N. A. Palafox, MD, MPH—family medicine and community health  
S. Riklon, MD—family medicine and community health  
M. Tubianosa, MD, MPH—family medicine and community health  
C. W. Tseng, MD, MPH—family medicine and community health  
S. Yamada, MD, MPH—family medicine and community health

**Degree Offered:** MD

### The Academic Program

The Department of Family Medicine and Community Health (DFMCH) is focused on community-based collaborations to improve patient outcomes across the lifecycle through direct clinical care, primary care workforce development, and research. The department has a particular focus on caring for cross-cultural, rural, and under-served communities in Hawai'i and throughout the Pacific. The department, in conjunction with our partner hospitals, sponsors a three-year ACGME accredited Family Medicine Residency Program and a one-year ACGME accredited Sports Medicine Fellowship.

Teaching goals for students, residents, and fellows are based on a philosophy of contextualized care that understands health and illness in relation to the individual, family, and community, and responds not only to episodes of illness, but also attempts to understand and address the broader social determinants of health. Medical student instruction focuses on basic conceptual tools and clinical strategies in real world settings through community based preceptorships.

The Sports Medicine Fellowship Program is affiliated with the DFMCH Residency Program and provides clinical, research, and educational exposure to athletes, patterns of athletic injuries, and rehabilitation. The program serves as a resource for the dissemination of sports medicine and exercise science-related information for UH Mānoa and the state of Hawai'i.

## Geriatric Medicine

John A. Burns School of Medicine  
347 N. Kuakini Street HPM-9  
Honolulu, HI 96817  
Tel: (808) 523-8461  
Fax: (808) 528-1897

### Faculty

K. H. Masaki, MD (Chair)—geriatric medicine  
S. Ahsan, MD—geriatric medicine  
C. Bell, MD, PhD—geriatric medicine  
R. Fernandes, MD, MPH—geriatric medicine  
D. Fischberg, MD—pain and palliative medicine  
M. Inaba, MD, PhD—geriatric medicine  
K. Lubimir, MD—geriatric medicine  
L. Okamoto, MD—geriatric medicine  
O. Pishchalenko, MD—geriatric medicine  
B. Rodriguez, MD, PhD—epidemiology  
C. Takenaka, MD—geriatric medicine  
B. Tamura, MD—geriatric medicine  
A. Wen, MD—geriatric medicine  
B. Willcox, MD—geriatric medicine

**Degree Offered:** MD

### The Academic Program

Geriatric medicine is dedicated to the care of older people and to healthy aging throughout life, so that the frailties and disabilities common in older years can be prevented. To provide comprehensive care, geriatrics is often interdisciplinary, and clinical instruction takes place in a wide variety of settings, including outpatient, acute hospital, nursing home, retirement community, home care, rehabilitation, and palliative care settings. As an age-based specialty like pediatric medicine, geriatric medicine includes aspects of internal medicine, pharmacology, psychiatry, adult development, family medicine, neurology, urology, gynecology, rehabilitation, and palliative medicine.

The Department of Geriatric Medicine provides education for: medical students; residents in internal medicine, family medicine, ob-gyn, and other specialties; fellows in Geriatric Medicine and Geriatric Psychiatry; practicing physicians; and allied health professionals and students in the field of aging. The fully accredited Geriatric Medicine Fellowship Program is for physicians who are graduates of either internal medicine or family medicine residency programs. The first year of fellowship training is designed to lead to eligibility for board certification in geriatric medicine. Additional years of fellowship are devoted to research, consultative medicine, medical education, and medical administration.

The Division of Palliative Medicine is located in the department, and many faculties have double board certifications in Geriatric Medicine and Palliative Medicine.

The Department of Geriatric Medicine is involved in an extensive array of funded research programs, thus providing training and experience in research for students at all levels.

## Medical Technology

Biomedical Sciences C-206  
1960 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-8557  
Fax: (808) 956-5457  
Web: [www.hawaii.edu/medtech/Medtech.html](http://www.hawaii.edu/medtech/Medtech.html)

### Faculty

D. Y. Teshima, MPH (Chair)—medical technology  
N. N. Ebisu, BS—medical technology  
S. M. Gon, MPH—medical technology  
J. S. Ha, PhD—clinical biochemistry  
K. K. Morton, BS—medical technology  
L. Onaka, MBA, MT—medical technology  
R. Yamaguchi, MPH—medical technology

**Degree and Certificate Offered:** BS in medical technology

### The Academic Program

Medical technology (MEDT) is a health-care profession in which medical technologists (medical laboratory scientists) perform laboratory procedures used for the promotion of health and the diagnosis, monitoring, and treatment of diseases. Technical skills needed to carry out the tasks include microscopy, venipuncture, manipulation of various labware and operation of automated instruments. Results of these procedures are essential to the delivery of quality health care. The field is broad and involves several disciplines: chemistry, hematology, immunohematology (blood banking), immunology, and microbiology.

Medical technology is a constantly evolving profession. Advances in healthcare and new career opportunities have fueled the demand for medical laboratory scientists. Employment opportunities are in hospitals, physician's offices, reference labs, DNA labs, research, veterinary clinics, and other labs. Education and training in medical technology also enables graduates to pursue careers as physicians, forensic scientists, researchers, educators, health administrators, consultants, and many more.

### Admission Requirements

The curriculum is a career-pathway structure that begins with medical lab technician (MLT) associate degree at a community college and culminates in a BS degree in medical technology. Students master the basic skills and knowledge in medical laboratory as MLT, then clinical applications and problem solving skills that are required of the baccalaureate level practitioners are learned at UH Mānoa. Kapiolani Community College (KCC) offers an associate degree in MLT; 4303 Diamond Head Road, Honolulu, HI 96816; URL: [www.kapiolani.hawaii.edu/academics/programs-of-study/medical-laboratory-technician-program/](http://www.kapiolani.hawaii.edu/academics/programs-of-study/medical-laboratory-technician-program/); 808-734-9270.

Among eligible candidates, 10 to 15 students will be selected by the Admissions Committee to be admitted. Eligibility criteria are:

- Associate degree in Medical Laboratory Technician (MLT).
- National certification as an MLT.
- Cumulative GPA of at least 2.5 in the MLT program.

While at KCC, students are encouraged to select courses applicable to UH Mānoa General Education, major requirements

and prerequisites. Students considering matriculating to UH Mānoa should seek academic advising from advisors on either campus.

Medical technologists perform various procedures that directly impact patient care, so it is important that all applicants be able to perform certain essential functions. With appropriate accommodations, if needed, everyone must be able to perform the activities listed below. These skills are assessed in the MLT program. Additional professional skills are taught in classes after admission.

- Manipulate labware to transfer or prepare reagents and samples (e.g., charge hemocytometer, prepare blood smear).
- Operate simple instruments according to instructions (e.g., cell counter, centrifuge, spectrophotometer).
- Perform microscopic examinations on various specimens and report the results (e.g., leukocyte differential count, cell morphology, urinary sediments).
- Follow written and verbal directions to perform laboratory tests and report results.

### Other Requirements

Medical technology majors are required to have professional liability insurance, which costs about \$40 per year. Immunization for Hepatitis B virus is highly recommended. Clinical affiliates, for those who opt to participate in the post-graduate clinical training, may have additional requirements (e.g., vaccinations, CPR/AED training, criminal background check).

### Advising

Students are encouraged to see a medical technology advisor as soon as possible and prior to each registration period. Appointments can be made through the department office.

### Clinical Training

Clinical training at affiliated clinical labs in Hawai'i follows graduation. Alternatively, as certified MLT, students may qualify for medical lab scientist (MLS) certification through work experience.

### Accreditation

The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences, 5600 N. River Rd. Rosemont, IL 60018, phone (773) 714-8880, [www.naacls.org](http://www.naacls.org).

### Certification and Licensure

After clinical training, students are eligible to take a national certification exam. In Hawai'i, state licensure is also required for employment.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

- Complete the degree requirements that satisfy UH Mānoa's General Education Core requirements and program requirements. Second language is not required.
- Earn a minimum cumulative GPA of 2.0
- Submit by the specified deadline an application for graduation to the Cashier's Office during the semester preceding the awarding of the degree.

### Curriculum for Medical Technology

MEDT 151(2) is offered at UH Mānoa for those who start at UH Mānoa. MLT curriculum is offered at KCC.

#### Junior Year

- Semester 1: †MEDT 301 (3); †MEDT 331 (3); CHEM 272/L (3/2); PHYL 301 (4)
- Semester 2: †MEDT 431 (3); †MEDT 471 (4); CHEM 273 (3), BIOL 172 (3); PHYL 302 (4); TRMD 431 (2)

#### Senior Year

- Semester 1: †MEDT 451/L (1/2), †MEDT 472 (4), †MEDT 477 (2); †MICR 461 (3)
- Semester 2: †MEDT 464 (3); †MEDT 478 (2); †MEDT 481 (1); †MICR 463 (3), BIOL 275 (3)

### Post-baccalaureate Study

#### Certificate for Clinical Training

- †MEDT 591 (28)

†Note: Grade of C or equivalent is required for courses highlighted with a dagger (†).

## Medicine

University Tower, Queen's Medical Center  
1356 Lusitana Street, 7th Floor  
Honolulu, HI 96813  
Tel: (808) 586-2910  
Fax: (808) 586-7486  
Web: [uhmed.org](http://uhmed.org)

### Faculty

E. K. Tam, MD (Chair)—pulmonary  
C. Akau, MD—rehabilitation medicine  
R. F. Arakaki, MD—endocrinology  
W. Azimi, DO—hospitalist  
E. F. Bello, MD—infectious disease  
B. Berg, MD—pulmonary critical care  
W. Boisvert, PhD—cardiovascular research  
D. Bolger, MD—general internal medicine, hospitalist  
R. Boulay, PhD—cardiovascular research education  
T. Bowen, MPH—AIDS education  
J. Brown, MD—infectious disease  
L. Chang, MD—neurology  
D. Chow, MD—general internal medicine, meds/peds  
H. Chung, MD—infectious disease  
C. Cloak, PhD—neuroscience, mr research  
W. Deng, PhD—neuroscience, mr research  
E. Diep, MD—internal medicine  
T. Ernst, PhD—neuroscience, mr research  
S. Evans, MD—pulmonary disease, critical care  
S. Gallacher, MD—critical care  
E. Ganitano, MD—critical care  
C. Goshima, MD—general internal medicine  
M. Haruno, MD—critical care  
C. S. Hew, MD—general internal medicine  
C. M. Higuchi, MD—oncology  
R. Hong, MD—cardiology  
F. Igno, MD—general internal medicine  
R. Ikeda, MD—critical care  
E. Kajioka, MD—infectious disease  
B. Keating, PhD—neuroscience, mr research  
S. Kim, MD—infectious disease  
C. Kimura, MD—general internal medicine

M. Kiyokawa, MD—general internal medicine  
 S. K. Kuwada, MD—gastroenterology  
 S. Kwee, MD—nuclear medicine  
 T. Le, MD—infectious disease  
 K. Lian, MD—hospitalist  
 S. Loo, MD—hospitalist  
 C. Lyden, MBA, MPH—AIDS education  
 T. Matsui, MD, PhD—cardiovascular research  
 J. S. Melish, MD—endocrinology  
 J. Misailidis, MD—general internal medicine  
 M. Nagoshi, MD—general internal medicine  
 B. Nakamoto, MD, PhD—neurology  
 S. Nakamoto, MD—general internal medicine  
 R. Ng, MD—nephrology  
 J. Onopa, MD—general internal medicine  
 N. Parikh, MD—cardiology  
 G. Rediger, MD—general internal medicine  
 T. Seto, MD—cardiology  
 D. Shigaki, MD—internal medicine  
 C. Shikuma, MD—infectious disease, AIDS  
 R. Shimamoto, MD—general internal medicine  
 B. Shiramizu, MD—pediatrics, hematology, oncology  
 R. Shoher, MD—cardiology  
 V. Stenger, PhD—neuroscience, mr research  
 K. Sumida, MD—hematology  
 M. Tallquest, PhD—cardiovascular medicine  
 K. Tata, PhD—mri research  
 K. Uramoto, MD—rheumatology  
 B. Uyeno, MD—general internal medicine, pediatrics  
 C. Walton, PhD—cardiovascular research  
 G. Watt, PhD—infectious disease  
 M. Yee, MD—neurology

**Degree Offered:** MD

## The Academic Program

Internal Medicine is the medical discipline that specializes in the prevention, diagnosis, and management of illnesses in adults. The Department of Medicine contributes to the general education of medical students, and provides post-doctoral and continuing education in the discipline of Internal Medicine and its sub-specialties. Faculty also maintain active, funded research programs in HIV/acquired immunodeficiency syndrome (AIDS), cardiology, diabetes, neurology, and respiratory diseases, in addition to patient-oriented, community-based, or medical education research. Faculty also provide direct patient care and medical services in hospital and outpatient settings, particularly to the under-served or under-insured. In delivering medical education, conducting research, and providing patient care, the department helps Hawai‘i meet its health care needs, develop an important work force, and advance our understanding of health disparities in the context of Hawai‘i’s unique ethnic and environmental diversity.

## Education

The department provides education for medical students, interns and residents (post-MD students), faculty, and practitioners. In the first two years of medical student education, departmental faculty hold key leadership and teaching roles in Problem-Based Learning, Colloquia, Basic Science Correlations, Clinical Skills Preceptorship, and many BIOM courses. In these early years, the curriculum integrates humanities, social sciences, and the physical and biological sciences. The curriculum also promotes skills in hypothesis formulation, data acquisition

and evaluation, clinical problem-solving, and effective communication with patients, their families, and other members of the health team.

For third year students, the department coordinates required clerkships that provide students supervised, formative experiences in the evaluation and management of patients in hospital and outpatient settings. For fourth year medical students, faculty in general medicine and internal medicine sub-specialties also offer required and elective learning opportunities that focus on particular aspects of internal medicine. In brief, the department helps the learner achieve graduation objectives and helps assure accreditation of the school by the Liaison Committee on Medical Education.

The department also provides the faculty and the educational oversight for interns and residents in the UH Mānoa Internal Medicine Residency Program, which is accredited by the American Council of Graduate Medical Education. Each year, nearly 20 post-MD students complete the 3-year Categorical program. Faculty develop and deliver curricula that address fundamental concepts in general medicine and in each of the Internal Medicine sub-specialties: Allergy and Immunology, Cardiology, Critical Care Medicine, Dermatology, Endocrinology, Gastroenterology, Geriatric Medicine, Hematology, Infectious Diseases, Nephrology, Neurology, Oncology, Pulmonary Diseases, and Rheumatology. The curricula are delivered in inpatient and outpatient sites that provide opportunities for supervised direct patient care and that embody the practical experiences for which the internist must be prepared. They prepare the resident for certification by the American Board of Internal Medicine. Increasing emphasis on medical education and scholarship help assure that residents will learn and teach well beyond their graduation from the Residency. Indeed, post-doctoral residents are integral to the education of our medical students.

As part of the departmental commitment to post-graduate training, the department also educates up to 6 preliminary residents who complete a year of Internal Medicine before focusing in Neurology, Dermatology, and other specialties. It shares in the education of as many as 9 transitional residents who complete a year of medical and surgical training before focusing in programs such as Anesthesiology, Ophthalmology, or Radiology. Finally, our faculty supervises rotations for residents in other disciplines, as required by their respective accrediting Boards. These include Family Practice and Community Medicine, Obstetrics and Gynecology, and Psychiatry.

The department is also accredited by the American Consortium in Continuing Medical Education to provide weekly seminars and special learning activities in topics pertinent to the practicing internist. Through its regular evaluation and discourse with practicing physicians as well as academic researchers, the department shares scientific advances with the community and gains practical insights that help shape the education of our future physicians.

## Research

Faculty are principal investigators of and contributors to several federally funded research programs, including the Hawai‘i Center for AIDS, the Center for Cardiovascular Research, Neuroscience and MR Research Program, and Asthma and Immunogenetics Research. Many ongoing translational and clinical research projects help address racial disparities in prevalence, detection, and management of illnesses. Reflecting

the collaboration with basic scientists, several faculty also have adjunct appointments in basic science departments and programs. Research in bioethics, medical education, public health, community outreach, and community-based participatory research promote teaching and learning approaches, and advance the health literacy of the medical and public communities. The diverse scientific and scholarly activities provide rich learning opportunities for UH Mānoa undergraduates, JABSOM medical students, UHIMRP residents, and practitioners.

### Service

In addition to supporting department, school, and university needs, faculty also provide clinical services in settings that benefit under-served communities and that enhance medical student and post-doctoral learning. The faculty practice provides a continuum in the prevention, diagnosis, evaluation, and management of illness. Complex cases that result from interactions between genetics, environment, and culture benefit from multi-disciplinary inquiry and collegial discussion fostered by the medical school and its faculty.

## Native Hawaiian Health

John A. Burns School of Medicine  
677 Ala Moana Blvd., Suite 1016B  
Honolulu, HI 96813  
Tel: (808) 587-8570  
Web: [jabsom.hawaii.edu/JABSOM/departments/intro.php?departmentid=19](http://jabsom.hawaii.edu/JABSOM/departments/intro.php?departmentid=19)

### Faculty

J. Kaholokula, PhD (Chair)—behavioral scientist, clinical health psychologist  
K. Blaisdell, MD—emeritus professor  
S. K. Brady, MD, MPH—internal medicine, biostatistics-epidemiology  
D. Carpenter, MD—internal medicine, clinical teaching, cultural competence  
C. DeCambra, MBA—post baccalaureate education, recruitment and retention  
S. Fernandes, MD—pediatrics, student recruitment and retention  
C. Ha, PhD—biochemistry, post baccalaureate education  
N. Judd, PhD—emeritus professor  
M. Kamaka, MD—family medicine, cultural competence  
S. Kaulukukui, MS—faculty and student development  
M. Mau, MD, MS—health disparities, Myron Pinky Thompson Endowed Chair  
A. Maunakea, PhD—biomedical science, epigenomics  
W. K. Mesiona-Lee, MD—pediatrics, post baccalaureate education, student recruitment and retention  
K. Sakamoto, MS—post baccalaureate education, student development  
M. Taualii, PhD, MPH—Queen’s Health Care System Scholar  
P. M. Tim Sing, MD—post baccalaureate education, internal medicine/pediatrics  
S. Tshahko, MD—anatomy and reproductive biology, post baccalaureate education  
K. Voloch, MD—pediatrics, post baccalaureate education  
V. Wong, MD—family medicine, faculty and student development

### The Academic Program

The mission of the Department of Native Hawaiian Health is to be a center of excellence in education, research, and quality

health care practices committed to the optimal health and wellness of Hawai‘i Maoli, their families, and communities that embraces traditional Hawaiian values and practices. To accomplish this mission, the program will actively seek “grass-roots” partnerships with others in the community who share their vision of Ku Pono: Hawai‘i Maoli achieving optimal health and wellness.

Research efforts will be focused on reducing and eliminating health disparities in Native Hawaiians and other Pacific-based populations. This includes activities such as conducting hypothesis driven research, developing pilot studies, training new researchers and networking with Native Hawaiian communities to disseminate research information via the Center for Native and Pacific Health Disparities Research, the Heart Failure Disparities in Native Hawaiians Study, the PILI ‘Ohana Obesity study, and other NIH funded grants.

Two programs are dedicated to increasing and improving the health workforce serving Hawai‘i, especially in Native Hawaiian communities: the ‘Imi Ho‘ōla Post-Baccalaureate Program and the Native Hawaiian Center of Excellence.

### ‘Imi Ho‘ōla Post-Baccalaureate Program

‘Imi Ho‘ōla (Hawaiian for “those who seek to heal”) is a post-baccalaureate program designed to provide educational opportunities to students from disadvantaged backgrounds capable of succeeding in medical school. Although ‘Imi Ho‘ōla is not limited to persons of Hawaiian, Filipino, Samoan, Chamorro, and Micronesian descent, a large number of these students have been able to demonstrate that they are from a disadvantaged socioeconomic and/or educational background and have demonstrated a commitment to serve areas of need in Hawai‘i and the Pacific. ‘Imi Ho‘ōla has expanded its outreach efforts and developed partnerships with local high schools, colleges, and community-based health organizations.

### Native Hawaiian Center of Excellence (NHCOE)

NHCOE is funded through state, federal, and private funds and focuses on: (1) Enhancing the performance of Native Hawaiian medical students by offering support for USMLE board preparation and collaboration with JABSOM retention efforts; (2) Developing the research and teaching skills of Native Hawaiian faculty by offering one- to two-year fellowships; (3) Addressing information resources by developing Native Hawaiian health resources, cultural competency, and curricula through conferences and workshops; (4) Focusing research by offering an elective for first year medical students on introducing research and topics of Native Hawaiian health issues; (5) Promoting student training in rural areas by serving as a resource for students choosing to do electives in rural Native Hawaiian communities; and (6) Developing a competitive applicant pool through active involvement in the establishment of collaborative efforts with colleges and high schools to develop programs aimed at increasing the numbers of Native Hawaiian medical students.

## Obstetrics, Gynecology, and Women's Health

Kapi'olani Medical Center for Women and Children  
1319 Punahou Street, Room 824  
Honolulu, HI 96826  
Tel: (808) 203-6500  
Fax: (808) 955-2174

### Faculty

I. Zalud, MD (Chair)—obstetrics and gynecology, maternal fetal medicine, gynecologic ultrasound  
M. C. Aaronoff, MD—obstetrics and gynecology  
T. C. Aeby, MD, MEd—obstetrics and gynecology  
M. L. Bartholomew, MD—obstetrics and gynecology, maternal fetal medicine  
S. S. Brizzolara, MD—obstetrics and gynecology, urogynecology  
J. M. Burlingame, MD—obstetrics and gynecology, maternal fetal medicine  
M. E. Carney, MD—gynecologic oncology  
A. L. Chang, MD, MPH—obstetrics and gynecology  
J. L. Elia, MPH—public health  
S. T. Emura, MD—obstetrics and gynecology  
W. L. T. Fong, MD—obstetrics and gynecology  
M. A. Gaspar-Oishi, MD—obstetrics and gynecology  
M. K. Y. Hiraoka, MD, MS—obstetrics and gynecology  
T. T. F. Huang, PhD—reproductive endocrinology, anatomy  
B. E. K. Kaneshiro, MD, MPH—obstetrics and gynecology, family planning  
R. M. Kawelo, MD—obstetrics and gynecology  
B. Kessel, MD—obstetrics and gynecology, reproductive endocrinology and infertility  
R. J. Kim, MD—gynecologic oncology  
T. S. Kosasa, MD—obstetrics and gynecology, reproductive endocrinology and infertility  
G. G. Li, MD—obstetrics and gynecology  
J. P. Lum, MD—obstetrics and gynecology  
R. T. McCartin, MD—obstetrics and gynecology  
S. M. Minaglia, MD, MBA—obstetrics and gynecology, urogynecology and pelvic pain  
I. A. Oyama, MD, MBA—gynecology, urogynecology and pelvic pain  
J. L. Salcedo, MD, MPH, MPP—obstetrics and gynecology, family planning  
M. C. Savala, MD—obstetrics and gynecology  
R. A. Soon, MD, MPH—obstetrics and gynecology, family planning  
S. Y. Tasaka, MA—chief of administration, operations, and finance  
S. K. Taylor, MD—obstetrics and gynecology, maternal fetal medicine  
K. Y. Terada, MD—gynecology oncology  
D. R. Towner, MD—obstetrics and gynecology, maternal fetal medicine  
T. E. Wright, MD, MS—obstetrics and gynecology  
G. C. Yokochi, MD—obstetrics and gynecology

**Degree Offered:** MD

### The Academic Program

Instruction in obstetrics and gynecology (OBN) is divided into five general areas: basic clerkship, student electives, residency training, fellowship training, and continuing medical education. The main objectives of the clerkship during the third year is to give students an overall perspective of the field, an in-depth knowledge of women's health care and the ability to perform those technical skills necessary for the care of women. The elective experiences are developed to allow interested

students the opportunity to acquire detailed knowledge and experience in women's health care or within specific areas of care.

The department directs a residency training program for medical graduates who desire specialty training in the field. The MD education program is closely integrated with residency training to maintain communication and learning experience throughout training. The department has fellowships in Maternal Fetal Medicine and Family Planning Fellowship. Research is focused in public health, health disparities, human reproduction, family planning, and human reproduction. The department is divided into the following divisions: endocrinology-infertility, maternal-fetal medicine, obstetrics and gynecology-ambulatory and hospitalist, gynecologic oncology, urogynecology, and family planning.

## Pathology

John A. Burns School of Medicine  
651 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 692-1130

### Faculty

A. L. Schiller, MD (Chair)—orthopaedic pathology, autopsy pathology  
P. K. Bryant-Greenwood, MD, MBA (Vice Chair)—molecular pathology, anatomic pathology  
D. Shimizu, MD (Program Director)—GYN pathology, anatomic pathology  
A. Powers, MD (Residency Program Associate Director)—transfusion medicine, clinical pathology  
M. Bankowski, PhD—microbiology  
D. Horio, MD—anatomic and clinical pathology  
B. J. Kaya, MD—neuropathology, anatomic pathology  
W. Kim, MD—clinical pathology  
C. Lum, MD—dermatopathology, molecular pathology  
K. S. Thompson, MD, MS—pediatric pathology, anatomic pathology, genetics  
J. H. Uyehara-Lock, MD—neuropathology, anatomic pathology

**Degree Offered:** MD

### The Academic Program

Pathology (PATH) is the study of aberrations or deviations of organs or systems that result in disease. Instruction in pathology is open to undergraduate, graduate, medical students, and residents. All medical students may elect to take PATH 515 as a part of the problem-based learning curriculum. The required PATH 541 provides essential autopsy experience for all third- and fourth-year medical students. Third and fourth-year students may choose electives PATH 545 and 699 that include instruction in laboratory medicine for the practicing physician, clinical pathology, anatomic pathology, clinical immunology, and molecular diagnostics and directed research projects.

The department directs an integrated residency program in pathology. Residents are based at Kaiser Hospital, Queen's Medical Center, Kapiolani Medical Center for Women and Children, the Honolulu Medical Examiner Office, and the Blood Bank of Hawai'i. Clinical faculty come from all the community hospitals and provide gross and microscopic specimens for demonstration, clinico-pathologic correlations, seminars, and lectures.

## Pediatrics

Kapi'olani Medical Center for Women and Children  
1319 Punahou Street, Room 742  
Honolulu, HI 96826  
Tel: (808) 369-1200  
Fax: (808) 945-1570

### Faculty

K. T. Nakamura, MD (Chair)—neonatology  
K. K. Abe, MD—pediatric neurology  
B. Ackermann, MD—pediatrics  
K. M. Ash, MD—neonatology  
V. Balaraman, MD—neonatology  
T. M. Bane-Terakubo, MD—pediatrics  
L. J. Bergert, MD—pediatrics  
R. B. Boychuk, MD—emergency medicine  
A. G. Britten, MD—critical care  
M. O. J. Chang, MD—pediatrics  
R. K. S. Chang, MD—critical care  
S. S. P. Chen, MD—pediatrics  
O. Chikovani, MD—critical care  
N. S. Clarke, MD—pediatrics  
W. C. M. Credo, MD—emergency medicine  
J. R. Di Rocco, DO—pediatrics  
P. J. Di Rocco, MD—emergency medicine  
P. J. Eakin, MD—emergency medicine  
G. Erdem, MD—infectious disease  
A. K. Feng, MD—critical care  
K. K. Fernandez, MD—pediatrics  
C. B. Finnegan, MD—pediatrics  
P. H. Francisco-Natanauan, MD—pediatrics  
G. M. French, MD—developmental/behavioral pediatrics  
B. Gangaram, MD—pediatrics  
F. J. Garcia, MD—emergency medicine  
D. W. Glaser, MD—hematology/oncology  
J. J. Harrington, MD—critical care  
C. Hirai, MD—neonatology  
T. K. F. Hong, MD—emergency medicine  
A. S. Inaba, MD—emergency medicine  
L. K. Iwaishi, MD—developmental pediatrics  
L. M. Iwamoto, MD—neonatology  
L. N. L. Kahikina, MD—pediatrics  
J. R. King, DO—sports medicine/dance medicine  
J. L. King, DO—pediatric gastroenterology  
J. S. Kosut, MD—pediatrics  
S. Kuo, MD—neonatology  
D. K. Kurahara, MD—pediatric rheumatology  
M. S. I. Kyono, MD—pediatrics  
W. T. Kyono, MD—hematology/oncology  
R. L. A. Lau, MD—pediatric nephrology  
J. J. Lee-Jayaram, MD—emergency medicine  
K. A. Len, MD—pediatrics  
J. C. Lin, MD—pediatrics  
D. Medeiros, MD—hematology/oncology  
J. C. Meister, MD—pediatrics  
M. E. Melish, MD—infectious disease  
B. D. Mih, MD—pediatrics  
S. H. J. T. Mikami, MD—pediatrics  
B. M. Mizuo, MD—pediatrics  
D. T. Murai, MD—neonatology  
J. E. Musgrave, MD—pediatric nephrology  
L. Y. Nakagawa, MD—emergency medicine  
K. Natarajan, MD—pediatrics

C. R. Neal, MD—neonatology  
B. M. Nishikawa, MD—pediatrics  
C. K. Okado, MD—pediatrics  
J. K. Okamoto, MD—developmental/behavioral pediatrics  
M. M. Okihiro, MD—pediatrics  
S. Patel, MD—pediatrics  
A. M. Perry, MD—emergency medicine  
D. V. Reddy, MD—pediatric cardiology  
L. H. Seaver, MD—genetics  
W. P. Shea, MD—pediatrics  
W. K. T. Shim, MD—pediatric surgery  
M. L. Shimokawa, MD—pediatrics  
B. T. Shiramizu, MD—hematology/oncology  
C. C. J. Sia, MD—pediatrics  
T. P. Slavin, MD—genetics  
S. L. Sood, MD—neonatology  
L. Y. Tanaka, MD—critical care  
T. H. Tjoeng, MD—neonatology  
M. Uehara, MD—developmental/behavioral pediatrics  
R. K. Wada, MD—hematology/oncology  
R. W. Wilkinson, MD—hematology/oncology  
Y. C. Wu, MD—pediatrics  
K. P. Xoinis, MD—critical care  
F. Y. Yamamoto, MD—allergy/immunology  
K. S. Yamamoto, MD—pediatric rheumatology  
L. G. Yamamoto, MD—emergency medicine  
R. T. Yanagihara, MD—infectious disease  
M. K. Yunghans, MD—pediatrics

**Degree Offered:** MD

### The Academic Program

Pediatrics (PED) is the specialty of medical science concerned with the physical, emotional, and social health of children from birth to young adulthood. The discipline deals with biological, social, and environmental influences on the developing child and with the impact of disease and dysfunction on development.

The Department of Pediatrics offers specialty training for the medical student, as well as post-MD residency training and subspecialty experience. The medical student curriculum consists of the core curriculum for pediatrics completed during the third year of the MD program. A wide variety of electives in different sub-specialties are offered during the fourth year of the MD program in addition to sub-internship opportunities in various clinical disciplines. The Post-MD residency program accommodates eight MDs (yearly) in a three year ACGME-accredited curriculum preparing them for a career in pediatrics or furthering their training in a subspecialty within pediatrics. There is also ACGME-accredited training in Neonatal Perinatal Medicine (Neonatology), which is a three year program following the Pediatric Residency Training and is jointly sponsored by Kapi'olani Medical Center for Women and Children and Tripler Army Medical Center as the clinical training sites.

The Department of Pediatrics is very active in clinical and quality improvement research with majority of the activities being done at Kapi'olani Medical Center for Women and Children.

## Psychiatry

University Tower, Queen's Medical Center, 4th Floor  
1356 Lusitana Street  
Honolulu, HI 96813  
Tel: (808) 586-2900  
Fax: (808) 586-2940

### Faculty

- A. Guerrero, MD (Chair)—general child and adolescent psychiatry and general pediatrics, consultation-liaison psychiatry  
D. Alicata, MD, PhD—general and child and adolescent psychiatry, neuroscience and neuroimaging  
J. Andrade, MD—general and child and adolescent psychiatry  
N. Andrade, MD—general psychiatry  
B. Carlton, MD—general and adolescent psychiatry, addiction psychiatry, general pediatrics  
S. Chock, MD—psychiatry, child and adolescent psychiatry, forensics  
M. Fukuda, MSW, LCSW—healthcare planning and administration  
G. Gavero, DO—general psychiatry  
A. Ghiasuddin, MD—general and child and adolescent psychiatry and general pediatrics  
D. Goebert, DrPH—public health and epidemiology, women's health, addictions  
W. Haning, MD—general and addictions psychiatry  
S. Helm, MD—community and cultural psychology  
E. Hishinuma, PhD—behavioral research and psychometrics-statistics, youth violence prevention  
L. Karan, MD—internal medicine  
D. Kissinger, DO, PhD—general, child and adolescent, and addictions psychiatry  
R. Koli, MD—general child and adolescent psychiatry, women's health  
C. Koyanagi, MD—general and addictions psychiatry  
J. Lee, DO—general and geriatric psychiatry  
B. Lu, MD, PhD—general, geriatric, and consultation-liaison psychiatry  
L. Morland, PsyD—Post traumatic stress disorder  
J. Onoye, PhD—neuroscience, women's health, youth violence prevention research  
J. Pearce, MD—neurology  
A. Schroeffer, MD—general and child and adolescent psychiatry  
J. Spira, PhD—post traumatic stress disorder  
J. Streltzer, MD—general and addictions psychiatry, pain medicine  
J. Sugimoto-Matsuda, DrPH—policy  
J. Takeshita, MD—general geriatric and consultation-liaison psychiatry  
S. Williams, MD—general and child and adolescent psychiatry  
M.D. Zuniga, MD—general psychiatry and child and adolescent psychiatry

**Degree Offered:** MD

### The Academic Program

Psychiatry (PSTY) is a branch of medicine that derives its theoretical foundations from the neurosciences, as well as the psychological and social sciences. The investigation of the biological basis of mental illness is one of the most exciting areas of medical research today and is revolutionizing our understanding of mind-body relationships.

The Department of Psychiatry contributes to the overall mission of the School of Medicine by providing leadership in psychiatric training, teaching, research, and services in Hawai'i, Asia, and the Pacific Basin. The department is committed to expanding knowledge within a cross-cultural and bio-psycho-social framework.

Traditional courses have been replaced with the problem-based learning curriculum. Psychiatric issues are addressed throughout the curriculum but are particularly emphasized in the second year during the brain and behavior sub-unit of Unit MD6 and in the third year Psychiatry Clerkship.

## Public Health Sciences

Biomedical Sciences D-204  
1960 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-3368  
Fax: (808) 956-9174  
Email: [pubhlth@hawaii.edu](mailto:pubhlth@hawaii.edu)  
Web: [manoa.hawaii.edu/publichealth/](http://manoa.hawaii.edu/publichealth/)

### Faculty

- \*J. E. Maddock, PhD (Chair)—social and behavioral health sciences, health policy and management  
\*K. L. Braun, MPH, DrPH—social and behavioral health sciences  
\*O. V. Buchthal, DrPH—social and behavioral health sciences  
\*D. V. Canyon, PhD, DBA, MPH, FACTM—health policy and management  
\*J. J. Chung-Do, DrPH—social and behavioral health sciences  
\*R. Cooney, PhD—epidemiology, environmental sciences  
\*T. Delormier, PhD—Indigenous health  
\*A. Grandinetti, PhD—epidemiology  
\*E. L. Hurwitz, DC, PhD—epidemiology  
\*A. R. Katz, MD, MPH—epidemiology  
\*D. Li, PhD—biostatistics  
\*Y. Lu, PhD—environmental health  
\*E. McFarlane, MPH, PhD—social and behavioral health sciences, health policy and management  
\*D. Nelson-Hurwitz, MPH, PhD—Indigenous health  
\*C. Nigg, PhD—social and behavioral health sciences  
\*N. Partika, MPH—health policy and management, maternal child health  
\*T. L. Sentell, PhD—health policy and management  
\*M. M. Taulii, MPH, PhD—Indigenous health  
\*R. J. Williams, MPH, DrPH—social and behavioral health sciences  
\*V. Yontz, RN, MPH, PhD—social and behavioral health sciences

### Emeritus Faculty

- G. Baruffi, MD, MPH—social and behavioral health sciences  
J. Grove, PhD—biostatistics

### Cooperating Graduate Faculty

- C. A. Albright, PhD—social and behavioral health sciences  
K. Cassel, MPH, DrPH—epidemiology  
J. J. Chen, PhD—biostatistics  
J. Davis, PhD—biostatistics  
J. Douglas, PhD—epidemiology  
T. S. Dye, PhD—social and behavioral health sciences  
P. Fagan, PhD—social and behavioral health sciences  
S. N. K. Fernandes, MD—social and behavioral health sciences  
L. Garmire, PhD—epidemiology  
D. A. Goebert, DrPH—social and behavioral health sciences  
J. R. Hedges, MD, MMM—health policy and management  
T. A. Herzog, PhD—social and behavioral health sciences  
D. T. Juarez, ScD—health policy and management  
J. K. Kaholokula, MS, PhD—Indigenous health  
L. Le Marchand, MD, MPH, PhD—epidemiology  
H. R. Lee, PhD—social and behavioral health sciences

F. Li, PhD—epidemiology  
 G. Maskarinec, MD, MPH—epidemiology  
 M. Mau, MD, MPH—Indigenous health  
 A. Maunakea, PhD—Indigenous health  
 C. M. Nishita, PhD—social and behavioral health sciences  
 R. Novotny, PhD—epidemiology, social and behavioral health sciences  
 I. S. Pagano, PhD—epidemiology  
 B. Rodriguez, MD, MPH, PhD—epidemiology  
 R. Soon, MD, MPH—social and behavioral health sciences  
 J. Sugimoto-Matsuda, DrPH—social and behavioral health sciences  
 L. R. Wilkens, DrPH—biostatistics  
 R. Yanagihara, MD, MPH—epidemiology

### Affiliate Graduate Faculty

\*J. R. Campbell, PhD—global health and population studies  
 \*D. K. Hayes, MD, MPH—epidemiology  
 \*L. Kolonel, MPH, PhD—epidemiology

**Degrees and Certificate Offered:** BA in public health, MPH, MS in public health, DrPH, PhD in epidemiology, Graduate Certificate in Global Health Protection and Security (GHPS). See the “Interdisciplinary Programs” section for more information on the GHPS program.

## The Academic Program

The mission of the Department of Public Health Sciences is to advance the health of the people of Hawai‘i, the nation, and the Asia-Pacific region through the education and training of public health professionals, innovative research in public health sciences, and service to the community.

The department offers the bachelor of arts (BA) degree in public health; the master of public health (MPH) with specializations in epidemiology, social and behavioral health sciences, Native Hawaiian and Indigenous health, and health policy and management; the master of science (MS) degree with specializations in epidemiology and social and behavioral health sciences; the doctor of public health (DrPH) degree with specialization in community-based and translational research; and the doctor of philosophy (PhD) degree in epidemiology. The department also administers the interdisciplinary graduate certificate program in global health protection and security.

### Advising

Information, applications, and initial advising about degree programs in public health are available from the Office of Graduate Student Academic Services, Biomedical Science D-204, 1960 East-West Road, Honolulu, HI 96822; phone (808) 956-8267; fax (808) 956-9174; email: ogsas@hawaii.edu; website: manoa.hawaii.edu/publichealth/.

## Undergraduate Study

The bachelor of arts (BA) degree in public health is designed to educate undergraduates interested in public health and/or health profession training in the broad basic concepts in public health education, practice, and research. The primary focus of public health education is to improve health and quality of life through the population-based prevention and treatment of disease and other physical and mental health conditions, through surveillance of cases and the promotion of healthy behaviors.

### Admission Requirements

Students applying to UH Mānoa may declare public health as their major upon entry. Requirements for admission are

described in the “Undergraduate Education” section of the *Catalog*.

For current UH Mānoa undergraduate students seeking a concurrent degree in public health, the requirements for admission include the completion of PH 201 Introduction to Public Health with a B- or better, a minimum cumulative GPA of 3.25, meeting with a public health academic advisor, and an approved Concurrent Undergraduate Degree Application.

Current UH Mānoa undergraduate students who wish to change their major to public health must first complete PH 201 Introduction to Public Health with a B- or better and meet with a public health academic advisor before filing a Major Declaration Form.

### Graduation Requirements

1. Meet all UH Mānoa and departmental requirements;
2. Complete the public health curriculum, applied learning experience, and capstone seminar for letter grades;
3. Complete a minimum of 120 semester credit hours;
4. Have a minimum cumulative GPA of 2.0 or higher in order to graduate; and
5. Complete an application for graduation in the semester preceding the award of the degree.

### Course Requirements

A total of 36 major credits (45 credits with public health related courses) are required to graduate with a bachelor’s degree in public health. All students are encouraged to work closely with the undergraduate advising staff in the Office of Public Health Studies in planning their coursework.

#### Public Health Related Courses (9 credits)

- PSY 100 Survey of Psychology (3) (DS)
- MATH 140 Precalculus or higher (3) (FS)
- Statistics, select one: PH 350, ECON 321, EDEP 429, NREM 310 or SOCS 225/PSY 225 (3)

#### Public Health Required Core Courses (24 credits)

- PH 201 Introduction to Public Health (3)
- PH 202 Public Health Issues in Hawai‘i (3)
- PH 203 Seminar in Global Public Health (3)
- PH 310 Introduction to Epidemiology (3)
- PH 341 Public Health Biology and Pathophysiology (3) (DB)
- PH 480 Application of Public Health Principles in Research and Practice (3)
- PH 485 Public Health Applied Learning Experience (3)
- PH 489 Public Health Undergraduate Capstone Seminar (3)

#### Public Health Elective Courses (12 credits)

Visit our website at [manoa.hawaii.edu/publichealth/courses](http://manoa.hawaii.edu/publichealth/courses) for a current list of public health courses. Since public health is by nature interdisciplinary, students will be encouraged to take electives in areas outside of the department. The list of recommended electives offered in other departments to complete the 12 credits of advisor-approved upper division public health electives is available on our website at [manoa.hawaii.edu/publichealth/degrees/undergraduate/non-public-health-electives](http://manoa.hawaii.edu/publichealth/degrees/undergraduate/non-public-health-electives).

Students seeking additional information and advising on our bachelor’s degree program should contact a public health academic advisor at [phadvise@hawaii.edu](mailto:phadvise@hawaii.edu).

## Graduate Study

### Master's Degree

MPH students follow a Plan B (non-thesis) program. MS students follow a Plan A (thesis) degree program.

### MPH Requirements

- minimum of 42 credit hours, 18 or more in courses numbered 600-798
- one graduate seminar
- required and core courses
- other courses as designated by the student's program committee
- field training experience (PH 791)
- final competency assessment

### MS Requirements

- minimum of 31\* credit hours for epidemiology or 36-42 credit hours for social and behavioral health sciences, 18 or more in courses numbered 600-798
- one graduate seminar
- required courses
- 6 credit hours of thesis research (PH 700)
- other courses as designated by the student's thesis committee
- final oral examination conducted by the thesis committee

\*Most students will exceed the 31-credit hour minimum to meet their educational objectives.

## Areas of Specializations

### Epidemiology

Epidemiology is the study of the distributions and determinants of health-related events in human populations. A basic tenet of epidemiology is that diseases are not randomly distributed in the population. Determining the prevalence and risk factors associated with these events, as well as measuring the magnitude of such occurrences, is the basis of public health action. An essential part of this determination involves the utilization of epidemiologic and biostatistical methods to evaluate the effectiveness of disease control measures.

The master's program generally requires two years of combined study and field work but may vary depending on academic background, experience, and academic goals of the student. The curriculum provides both breadth and depth. It instills knowledge and skills in epidemiologic methods, biostatistics, the collection and analysis of epidemiologic data, and the epidemiology of chronic and infectious diseases. Each student will have an academic advisor and committee with whom the student will work closely in scheduling and completing the academic requirements of the program.

Students are required to take advanced level training in chronic and infectious disease epidemiology, advanced biostatistics, and research design. There is opportunity for students to choose from epidemiology electives in the following areas: infectious diseases, nutrition, genetics, environment, aging, HIV/AIDS, cancer, and cardiovascular diseases. Course work in specialized statistical applications is also available. Students participate in on-going epidemiological research programs throughout the UH Mānoa system or community during their fieldwork assignment or thesis research.

The curriculum includes a core of required basic and public health offerings that cover such topics as environmental health, health care delivery and organization, health education, and health behavior. The courses provide background and breadth

in public health. A capstone paper and presentation during the final term integrates the MPH experience. The MS degree follows a similar but more research-oriented curriculum and requires the completion of a thesis.

### Health Policy and Management

Health policy and management (HPM) is a multidisciplinary field of inquiry and practice concerned with the delivery, quality and costs of health care for populations. HPM professionals concern themselves with managerial and policy aspects of the structure, process and outcomes of health services including improving the safety and efficiency of health care, expanding health insurance coverage, eliminating disparities, reducing out-of-pocket costs, financing, organization, accessibility of care, maintaining high quality of services and improving the performance of health systems.

The HPM specialization prepares students for a professional career in health services, policy and management through the provision of knowledge, skills, attitudes and practical experience. Students are taught to contribute to advancing the health of populations by improving the effectiveness and efficiency of personal and health services in public and private health organizations. The development of critical thinking and applied problem-solving skills with a focus on public health challenges and under-served populations is encouraged.

Within the HPM specialization, students may select their electives and practicum with a view to focusing more on policy or management. The practical experiences beyond the coursework are a key component of public health education and HPM's strong ties to leading public health policymakers and practitioners provide students with ample opportunities to apply themselves to actual health policy and management challenges in the US and abroad.

The two-year curriculum includes core public health coursework and the following advanced courses: 1) PH 641 Introduction to Health Policy; 2) PH 660 Current Topics in Community Health; 3) PH 672 Leading and Managing Health Programs; 4) PH 673 Health Ethics, Law and Politics; and 5) PH 677 Global Health Management. MPH students are also required to complete a fieldwork practicum as well as a capstone presentation on a topic relating to health policy and management.

### Native Hawaiian and Indigenous Health

The Native Hawaiian and Indigenous health (NHIH) specialization is designed to provide students with skills and training necessary to serve Indigenous people and assist in addressing their health and wellness needs. Indigenous people throughout the world experience grave health and socioeconomic disparities. Many of the current inequities are the result of historical national and local policies designed to eliminate and/or assimilate Indigenous people. Knowledge of history, policy, health determinants and ethics is essential to address and eliminate the inequities faced by Indigenous people.

The NHIH specialization will prepare students for leadership roles in Indigenous health policy and culturally safe health services. Graduates will better meet the social and cultural needs of Indigenous people, thereby enhancing the quality and effectiveness of those health services and policies. The improved quality and effectiveness of Indigenous health services contributes to the reduction of Indigenous health disparities and the improvement of Indigenous peoples' health.

Students enrolled in this specialization are required to take advanced level training in Indigenous health policy, ethics and research design. There is opportunity for students to choose from Native Hawaiian and Indigenous health electives in many areas across the campus. Students will participate in on-going research programs with Indigenous communities through a practicum assignment.

For MPH students specializing in NHIH, the following coursework is required: 1) Indigenous Seminar; 2) Health Ethics, Law, and Politics; 3) Advanced Native Hawaiian Health Determinants; 4) Indigenous Applied Research Methods; 5) Community Engaged Research and Practice; 6) Indigenous Peoples' Food Systems, Environment & Health; and 7) Integrative Seminar. MPH students are also required to complete a fieldwork practicum and during their final semester, students will prepare a report on their practicum experience, complete a research-intensive final paper, and deliver a public presentation as a demonstration of mastery of program competencies and present their finding in a capstone presentation.

### **Social and Behavioral Health Sciences**

Over the last century, chronic diseases have replaced infectious diseases as the leading causes of death and, despite advances in medicine and technology, health disparities are increasing in almost every country. Unhealthy lifestyle behaviors such as tobacco use, lack of physical activity, poor nutrition, unsafe sexual practices, substance abuse, and overexposure to the sun are major contributors to disability and death. Social factors, such as discrimination, poverty, dangerous living and work environments, and unequal distribution of resources (including health care resources), also affect health status. In the social and behavioral health sciences specialization, students will examine: a) behavioral and social theories in health promotion; b) behavioral, social, environmental, and political interventions that can promote health; and c) skills required for assessing health problems and for planning and evaluating health programs. Course assignments provide students the opportunity to apply knowledge, to practice skills, to enhance computer literacy, and to improve oral and written communications. Opportunities to participate in university-based and community-based research and service programs are provided.

MPH students specializing in social and behavioral health sciences gain knowledge and skills in public health research methods, biostatistics, theories of health behavior change, needs assessment, planning, and evaluation. The first semester focuses on public health core requirements. In subsequent semesters, students take required and elective course work to meet the social and behavioral health sciences competencies, as well as the student's professional goals. A required 240-hour field practicum allows students to apply knowledge and skills in a community public health setting. During the final semester, students complete an integrative seminar, prepare a capstone paper, and deliver a public presentation as a demonstration of mastery of program competencies and integration of classroom knowledge and field experience. A student-selected faculty advisor and program committee guides the student's course of study, practicum experience, and capstone. The MS degree follows a similar but more research-oriented curriculum and requires the completion of a thesis.

### **MPH and MS Requirements**

Applicants will be expected to have the academic background, experience, interests, and commitment for professional training in public health. Applicants must also have computer skills in word processing, spreadsheet construction, and internet applications. Academic preparation for the epidemiology specialization should include one year of coursework in a biological science, chemistry, and at least one semester of calculus. For the HPM specialization, preference may be given to students with training in social science, health, economics, business, or human services. Prior paid or voluntary work experience in the health care or human services fields is preferred, but not required. Academic preparation for the NHIH specialization includes course work in mathematics or statistics, public policy or political sciences, and psychology or sociology. Work or research experience in an applied health/social sciences field which serves an Indigenous population is preferred. Academic preparation for the SBHS specialization includes prior course work in mathematics or statistics, biology, or human development, and sociology or psychology. Experience in an applied health/social sciences field or in health/social sciences research is preferred.

### **Doctoral Degrees**

#### **Doctor of Public Health (DrPH)**

The DrPH program with a specialization in community-based and translational research will prepare students to lead programs and conduct independent investigations addressing public health topics relevant to culturally diverse groups, with a special focus on those in the state of Hawai'i and the Asia-Pacific region. Translational research is the investigation of how to successfully transform scientific discoveries arising from laboratory, clinical, or population studies into community applications to reduce incidence, morbidity, and mortality. Community-based participatory research in health is a collaborative approach to research that equitably involves investigators and members of the community in the research process and recognizes the unique strengths that each brings. This approach increases the likelihood that interventions will be embraced by the community and that the community members will gain knowledge, skills, and other benefits from the research.

#### **DrPH Requirements**

All DrPH students will complete required and elective coursework in health disparities, evidence-based public health, advance policy, leadership, cultural competence, community-based participatory research, and qualitative and quantitative methods. They also complete a qualifying exam, mentor teaching and research practica, a comprehensive exam, and a three-paper dissertation. DrPH students are expected to publish their work in peer-reviewed journals and present at national and international forums.

A few teaching and research assistantships are available for degree candidates. Qualified students may also apply for East-West Center fellowships. Contact Dr. Kathryn Braun (Chair) for additional details at [kbraun@hawaii.edu](mailto:kbraun@hawaii.edu)

#### **Doctor of Philosophy (PhD)**

The PhD in epidemiology is comprised of graduate faculty from the Department of Public Health Sciences; University of Hawai'i Cancer Center; Department of Tropical Medicine, Medical Microbiology, and Pharmacology; Department of

Microbiology; and the Pacific Biosciences Research Center. Candidates who successfully complete this program will be able to teach in academic and other settings, conduct independent and collaborative epidemiologic research, and provide consultative services to academic, not-for-profit, governmental, and private organizations.

Although applicants to this program are not required to have a master's degree in epidemiology or a closely related field, all applicants are expected to have a strong background in the natural and/or social sciences. Because we look for applicants who are committed to epidemiologic research and practice, past research and related work experience are important factors in selecting candidates. We encourage applications from candidates who have well-focused research interests and career goals. The Graduate Record Examination (General Test) and three letters of recommendation are required for application. Applicants must also include a written statement with the application indicating why they want to pursue a doctoral degree in epidemiology and why they want to pursue this degree here at UH Mānoa.

### PhD Requirements

A prospective applicant is expected to communicate with one of our graduate faculty members in his or her area of interest or with the program's chair and to be accepted as an applicant by a faculty member prior to admission. The faculty member involved will serve as an interim advisor upon the individual's admission into the PhD program. A listing of the PhD in epidemiology faculty is available at [manoa.hawaii.edu/publichealth/faculty-and-staff](http://manoa.hawaii.edu/publichealth/faculty-and-staff). All candidates take a qualifying examination upon completion of all required courses in epidemiology and biostatistics and core courses in infectious diseases and chronic disease epidemiology (usually after their first year of enrollment). This is followed by elective courses in the candidate's area(s) of interest, a teaching practicum, an oral comprehensive examination, and dissertation research. Candidates should refer to the *Catalog* for procedural and substantive details.

A few teaching and research assistantships are available for degree candidates. Qualified students may also apply for East-West Center fellowships. Contact Dr. Eric Hurwitz (Chair), at [ehurwitz@hawaii.edu](mailto:ehurwitz@hawaii.edu) for additional details.

### Honors and Awards

Joseph E. Alicata Award in Public Health  
 Elmer J. Anderson Professional Travel Award  
 Chin Sik Chung Memorial Award  
 Abraham Kagan, MD Endowed Fellowship  
 Koseki Award for Excellence in Community Service  
 Frances Ayako Matsuda Sano Fellowship in Public Health  
 Pauline Stitt Outstanding Student Award  
 Robert M. Worth Epidemiology Scholarship

## Surgery

University Tower, Queen's Medical Center  
 1356 Lusitana Street, 6th Floor  
 Honolulu, HI 96813-2421  
 Tel: (808) 586-2920  
 Fax: (808) 586-3022

### Faculty

S. K. Steinemann, MD (Chair)—general surgery, surgical critical care, trauma surgery  
 R. E. Atkinson, MD—orthopedic surgery, hand surgery  
 R. S. Bueno-Smith, MD—general surgery, minimally invasive/robotic/bariatric surgery  
 L. P. A. Burgess, MD—otolaryngology  
 A. H-S. Cheung, MD—general surgery, transplant surgery  
 K. P. A. Christensen, MD—orthopedic surgery  
 M. B. J. Chun, PhD—specialist  
 N. L. Furumoto, MD—general surgery  
 P. Halford, MD—general surgery  
 J. K. Harpstrite, MD—orthopedic surgery  
 J. M. Isa, MD—anesthesiology  
 W. M. L. Limm, MD—general surgery, transplant surgery  
 C. S. F. Lorenzo, MD—general surgery, minimally invasive/robotic/bariatric surgery  
 J. B. Machi, MD, PhD—general surgery, ultrasonography  
 E. M. Masuda, MD—vascular surgery, general surgery  
 M. M. Mitsunaga, MD—orthopedic surgery  
 M. M. Mugiishi, MD—general surgery  
 P. C. Murray, MD—orthopedic surgery  
 A. J. Oishi, MD—general surgery  
 P. P. Pedro, MD—general surgery  
 F. D. Parsa, MD—plastic surgery  
 W. K. T. Shim, MD—pediatric surgery  
 S. G. Smith, MD—orthopedic surgery, sports medicine  
 G. A. Soares, MD—emergency medicine  
 D. M. Takanishi, Jr., MD—general surgery, surgical oncology, surgical critical care  
 L. L. Wong, MD—transplant surgery, general surgery  
 W. J. Yarbrough, MD—urology  
 M. Yu, MD—general surgery, surgical critical care, trauma surgery

**Degree Offered:** MD

### The Academic Program

Surgery emphasizes the use of interventional techniques to treat injury and disease. The educational program encompasses the pathology, pathophysiology, diagnosis, treatment, and perioperative management of surgical disease and trauma.

The department provides instruction to medical students in all surgical disciplines, as well as the related fields of anesthesiology, radiology, and emergency medicine. It directs general surgical and orthopedic residency programs, as well as a surgical critical care fellowship. Research and continuing medical education programs are provided.

# Tropical Medicine, Medical Microbiology, and Pharmacology

John A. Burns School of Medicine  
651 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 692-1600  
Email: sandrac@hawaii.edu  
Web: blog.hawaii.edu/tropicalmedicine/

## Faculty

- \*V. R. Nerurkar, PhD (Chair)—pathogenesis of infectious diseases, delineating cellular and molecular mechanisms underlying microbe-host interaction
- \*J. Barbour, PhD—HIV immunology
- \*S. P. Chang, PhD—immunology, molecular biology, molecular approaches to vaccine development
- \*J. J. Chen, PhD—biostatistics
- \*W. L. Gosnell, PhD—host parasite interactions, malaria, immunology
- S. H. Gu, PhD—hantavirus phylogenetics
- \*V. Hinshaw, PhD—influenza virus ecology
- \*G. S. N. Hui, PhD—parasitology, immunology, cell biology
- \*P. H. Kaufusi, PhD—pathogenesis of West Nile virus
- J. F. Kelley, PhD—dengue virus pathogenesis
- \*K. J. Kramer, PhD—parasitology, epidemiology, leptospirosis, HIV serodiagnosis
- M. Kumar, PhD—virus host interaction
- \*F. Mercier, PhD—mechanisms controlling neural stem cell proliferation and differentiation in the adult brain
- \*F. D. Miller, PhD—epidemiology of infectious diseases
- \*L. Ndhlovu, MD, PhD—HIV immunology
- B. Shiramizu, MD—pathology of HIV-associated disorders
- \*D. W. Taylor, PhD—immunology of malaria in pregnant women and newborns
- A. Tuanyok, PhD—bacteriology, microbial genetics and genomics
- \*S. Verma, PhD—molecular, biochemical aspects of viral diseases
- P. Walpita, PhD—paramyxoviruses, virus-like particles, vaccines
- \*W.-K. Wang, DSc—pathogenesis of arboviral and zoonotic viruses
- \*A. Yanagihara, PhD—biochemistry of cubozoan venom

## Cooperating Graduate Faculty

- J. M. Berestecky, PhD—enteric bacteria
- L. Chang, MD—application of advanced neuroimaging techniques to study brain changes associated with HIV, substance abuse, brain development and aging
- G. Erdem, MD—molecular epidemiology of group A streptococcal and staphylococcal infections; complications of strep infections like acute rheumatic fever
- Y. Lu, PhD—gene therapy for HIV-1 infection, gene transfer approaches for neuroAIDS, immunodiagnosis of herpesvirus infection of green turtles, aquaculture virology
- M. E. Melish, MD—staphylococcal infection and toxins, clinical infectious disease, Kawasaki syndrome
- E. K. Tam, MD—inflammation, immunologic mechanisms of pulmonary diseases, genetic and environmental determinants of asthma
- R. Yanagihara, MD—transdisciplinary investigations of emerging and re-emerging infectious diseases, use of infectious agents as biological markers to trace ancient and recent movements of human populations

## Adjunct Faculty

- V. E. Ansdell, MD—tropical and infectious diseases and clinical microbiology
- M. J. Bankowski, PhD—clinical and molecular microbiology and infectious disease
- S. N. Bennett, PhD—molecular evolution and epidemiology of emerging infectious diseases
- A. Imrie, PhD—dengue immunology and epidemiology
- A. T. Lehrer, PhD—filovirus, immunology and vaccinology
- M. M. Lieberman, PhD—arbovirus and vaccinology

## Affiliate Graduate Faculty

- A. C. Collier, PhD—drug metabolism and pharmacokinetics using in vivo, in vitro and in silico approaches, reproductive pharmacology
- K. L. Palmer, PhD—global public health and tropical diseases

**Degrees Offered:** MS in biomedical sciences (tropical medicine), PhD in biomedical sciences (tropical medicine)

## The Academic Program

Tropical medicine is the study of diseases that occur more commonly in the tropical regions of the world. However, in today's era of globalization and modern transportation, diseases that were once confined to the tropics have spread geographically and played a significant role in the 20<sup>th</sup> century global resurgence of infectious diseases. As such, research in the area of tropical medicine and medical microbiology has greatly increased in importance in the past 20 years. Tropical medicine faculty conduct studies on infectious organisms and the diseases they cause, including dengue, West Nile, AIDS, hepatitis, viral and bacterial encephalitis, malaria, tuberculosis, and Kawasaki disease. The faculty employs a multidisciplinary approach, including immunology, pathogenesis, ecology, epidemiology, diagnosis, prevention, control, treatment, socio-ecological systems, human ecology, microbial and vector ecology, environmental change, and participatory action research to answer fundamental questions associated with the pathogenesis of these diseases. These studies can be laboratory-based, field-based, clinical-based, or include a combination of all three. The field of tropical medicine requires knowledge of virology, bacteriology, parasitology, entomology, immunology, cell and molecular biology, epidemiology, ecology, behavioral science, and clinical medicine.

Pharmacology is a medical science concerned with the effects of drugs and chemicals on living organisms. The subject embraces knowledge of the chemistry, actions, absorption, fate, excretion, and uses of drugs. Traditionally, the greatest interests in drugs have been with the health professions. Today, however, knowledge of pharmacology and the allied field of toxicology are relevant to all segments of society.

## Graduate Study

The department offers courses for undergraduate, medical, and graduate students. Faculty participate in the MD program by providing tutorial and elective courses in medical microbiology, clinical immunology, molecular biology, pharmacology, and clinical aspects of tropical medicine and pharmacology. Electives for medical students are team taught and coordinated with unit objectives throughout the problem-based learning curriculum. In addition, the department plays an important role in the Basic Science Foundation course, and participates in the Pathology Residency Program by offering

rotations in selected aspects of medical virology, parasitology, and bacteriology.

### **Master's Degree**

Graduates with a master's degree in tropical medicine have gone on to careers in science education at the secondary and college level, technical and research positions in universities, government agencies, and biotechnology companies, or have continued on in PhD and MD training programs at other universities.

### **Requirements**

The MS degree requires 21 credits of course work, nine credits of thesis research, completion of a thesis, and a final oral examination. A general examination, oral or written, is required before a student is advanced to candidacy for the MS (Plan A) degree. Although not encouraged, in very unusual circumstances, a non-thesis MS (Plan B) may be allowed. This program requires 30 credits of course work, a written examination, and participation in a research project.

### **Doctoral Degree**

Graduates with a PhD degree have pursued professional research, teaching, and administrative careers at various academic institutions, state and federal government agencies, international health agencies, and biotechnology companies.

### **Requirements**

The tropical medicine PhD program requires course work as determined necessary by the student's advisory committee, a qualifying examination, comprehensive examination, drafting a written research proposal, dissertation, and final oral examination/defense of dissertation. Students are encouraged to take course work covering a broad array of the disciplines involved in the field of tropical medicine, including coursework offered by other academic departments as relevant to their area of concentration.

## **Faculty**

Department faculty conduct active research in the following areas:

- virology and epidemiology of dengue, West Nile, and other flaviviruses
- diagnostic assays for flaviviruses
- hantavirus virology and epidemiology
- lentiviruses and polyomaviruses
- epidemiology and pathogenesis of hepatitis-associated viruses
- pathobiology and immunology of HIV and other retroviruses
- molecular epidemiology and evolution of viruses
- vaccines against paramyxoviruses using virus-like particles
- evaluation of hepatitis B infection and vaccination programs
- molecular and clinical epidemiology of streptococcal and staphylococcal infections
- malaria immunology and vaccine development
- malaria in pregnancy, maternal, and childhood immunity to malaria
- reproductive and developmental pharmacology
- emerging and re-emerging infectious diseases

Collaboration with infectious disease clinicians and international research institutes further expand research opportunities in the areas of HIV, Kawasaki disease, malaria, asthma, dengue, arboviruses, and zoonotic viruses. Research projects take place within the research laboratories in the department and at field sites in Africa, Asia, and the Pacific.

Pharmacology research within the department focuses on drug metabolism and pharmacokinetics. Research into developmental pharmacology in pregnancy and pediatric medicine is also a strong theme. The newly established human organ bank, in partnership with Organ Donor Center of Hawai'i, is a central part of our translational research effort and provides tissues to researchers throughout the UH Mānoa and JABSOM campuses.

A major goal of the department is to provide Asian and Pacific countries the expertise needed to expand laboratory and epidemiologic capacity in tropical infectious diseases research. The department also has active research programs with several community hospitals and collaborates closely with the State of Hawai'i Department of Health, providing instruction and expertise in bioterrorism preparedness and diagnosis of infectious diseases using the latest technology

# School of Nursing and Dental Hygiene



## Administration

Webster 402  
2528 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-8522  
Fax: (808) 956-3257  
Web: [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu)

Dean: Mary G. Boland  
Associate Dean for Academic Affairs: Scott R. Ziehm

## General Information

The School of Nursing and Dental Hygiene (SONDH) offers programs to prepare students for careers in nursing and dental hygiene primarily for the state of Hawai'i and the Pacific Basin. The program admits students both directly from high school and after completion of nursing pre-requisites and UH Mānoa General Education Core requirements.

The Department of Nursing offers programs leading to the bachelor of science, master of science, DNP, PhD nursing degrees, and a Post-Master's Certificate in Nursing.

The Department of Dental Hygiene offers the bachelor of science degree. The program admits students following completion of dental hygiene prerequisite courses and UH Mānoa General Education Core requirements.

## Vision

The leader in nursing and dental hygiene education and research in Hawai'i with outreach to Asia and the Pacific Basin.

## Mission

The School of Nursing and Dental Hygiene mission is to provide an innovative, caring, and multicultural environment in which faculty, students, and staff work together to generate and transmit knowledge, wisdom, and values to promote quality of life and health for present and future generations. To better reflect Hawai'i's unique cultural diversity and heritage, the SONDH is committed to increasing Native Hawaiian and other under-served people in all nursing and dental hygiene programs.

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## Degrees and Certificates

**Bachelor's Degrees:** BS dental hygiene, BS nursing

**Master's Degrees:** MS nursing

**Doctoral Degree:** PhD, DNP

**Certificate:** Post-Master's Certificate in Nursing

## Dental Hygiene

Hemenway Hall 200-B  
2445 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8821  
Fax: (808) 956-5707

## Faculty

C. Kuba, RDH, MEd (Chair)—dental hygiene  
A. Akamine, RDH, BEd—dental hygiene  
J. Ebert, DDS—periodontology  
P. Fujimoto, RDH, DDS—oral pathology  
G. Lau, RDH, MEd—dental hygiene  
M. Lau, RDH—dental hygiene  
P. Lee, RDH—dental hygiene  
K. Nakasone, RDH, MEd—dental hygiene  
M. Oishi, DDS—dental materials, oral histology  
J. Omori, RDH, MPH—dental hygiene  
A. Ogawa, RDH, DMD—dental anesthesia/radiology  
K. Osada, RDH, MEd—dental hygiene  
P. Sunahara, RDH, MEd—dental hygiene  
W. A. Wakai, RDH, DMD—head and neck anatomy  
L. Yamada, DDS, MEd—periodontology

**Degree Offered:** BS in dental hygiene

## The Academic Program

The Department of Dental Hygiene admits students to the bachelor of science in dental hygiene program following completion of a minimum of 29 semester credit hours of prerequisite and the majority of general education courses.

The program at UH Mānoa offers the only baccalaureate dental hygiene educational program in the state. It offers the preparation required by dental hygienists to provide oral health care and education to the people of Hawai'i, the continental U.S., and the Pacific-Asia region.

Students completing the bachelor of science in dental hygiene qualify for admission to the national and regional dental hygiene examinations for licensure to practice dental hygiene in private, public health, and other dental hygiene settings.

The bachelor of science in dental hygiene provides opportunities for students to continue their education. It offers profes-

sional training to broaden and deepen knowledge and skills, as well as provides a foundation for personal and professional development and opportunities for admission to graduate work.

The school is in discussion with the UH West Oahu campus to transfer the program in Dental Hygiene at a future date. Please check our website regularly to stay updated on the planning process and timeline for the transfer.

### **Accreditation**

The dental hygiene program is accredited by the Commission on Dental Accreditation, American Dental Association.

Each program accredited by the Commission on Dental Accreditation must post the Notice of Opportunity and Procedure to File Complaints with the Commission on Dental Accreditation. A copy of the appropriate accreditation standards and/or the Commission's policy and procedures for submission of complaints may be obtained by contacting the Commission at:

211 East Chicago Avenue  
Chicago, Illinois 60611  
Tel: 1 (800) 621-8099, ext. 4653

### **Advising**

Department of Dental Hygiene  
Hemenway Hall 200-B  
Honolulu, HI 96822  
Tel: (808) 956-8821

Academic advising is provided by faculty of the Department of Dental Hygiene. Potential applicants as well as students in need of advising should call for appointments.

### **Graduation**

All enrolled dental hygiene students are advised to meet with a faculty advisor regarding their progress toward their degree to ensure that all requirements are met at least two semesters before the scheduled graduation date.

An application for graduation must be submitted with a degree fee to the Cashier's Office, QLCSS Room 001. This should be processed during the first three weeks of the semester the student intends to graduate.

## **Honors and Awards**

### **Dental Hygiene Faculty Award**

An outstanding dental hygiene student who has maintained high scholarship and made contributions to the department is recognized by the faculty of the Department of Dental Hygiene at graduation.

### **Sigma Phi Alpha**

Alpha Kappa Chapter of Sigma Phi Alpha is the national dental hygiene honor society at UH Mānoa. Senior dental hygiene students who rank high in scholarship and character and exhibit potential qualities for future growth are recommended by faculty members for election to membership.

## **Undergraduate Study**

### **Admission Requirements**

To qualify for admission to the Dental Hygiene Program, applicants must complete the following requirements:

1. Admission to UH Mānoa
2. Minimum cumulative GPA of 2.5; inclusion of prerequisite science courses GPA

3. Prerequisite courses or equivalents: PHYL 103/103L; BIOC 241; MICR 130/140L; FSHN 185; COMG 151; ENG 100; SOC 100; PSY 100
4. Near completion of general education courses required for UH Mānoa graduation
5. Recommend completion of PHRM 203; PSY 225 (or equivalent)
6. Interview

There is a path for those students interested in completing a baccalaureate degree, who have graduated from an associate degree or certificate program. To qualify, the applicant must complete the following requirements:

1. Admission to UH Mānoa
2. Minimum cumulative GPA of 2.5; inclusion of pre-requisite science courses GPA
3. Minimum DH GPA of 3.0
4. Passed the National Board Dental Hygiene Examination
5. Completion of courses equivalent to: DH 361, DH 370, DH 389, DH 390/391
6. Near completion of UH Mānoa general education courses
7. Interview
8. Certified in the administration of intra-oral anesthesia (including regional blocks)

### **Application Period**

December 1 through **February 1** for the upcoming fall semester. Students are admitted only during the fall semester.

Transfer applicants from other universities and colleges/schools must complete the UH System Application form and submit the form to UH Mānoa Office of Admissions. Students enrolled as classified day students at UH Mānoa during the semester immediately preceding the semester of desired entry must complete the Curriculum Transfer Request and the Department of Dental Hygiene application forms.

Applicants must submit transcripts, if applicable, and photocopy of grades if enrolled in courses at any community college or other university during the semester immediately preceding the semester of entry to the program.

### **Health Certification and Other Requirements**

Prior to enrollment, accepted students must provide evidence of sound health and meet other requirements as follows:

1. CPR Certification (BLS for Healthcare Providers Course);
2. TB Clearance (Department approved);
3. Immunizations for Polio, Tetanus/Diphtheria/Pertussis (Tdap) and annual Flu vaccine;
4. Laboratory evidence (positive titer) of immunity to Hepatitis B, Mumps, Rubeola (Measles), Rubella (German Measles) and Varicella (Chicken Pox);
5. Health insurance; and
6. Malpractice insurance of \$1 million per incident/\$3 million aggregate

All requirements must be cleared before registration by presenting photocopies of CPR certification, health insurance policy (card), titer results, Health Clearance Form (vaccination record), and TB clearance to the Department of Dental Hygiene. Students with prerequisite deficiencies may not register for or attend laboratory or clinical classes.

Students must take a tuberculosis screen test or chest x-ray as required. Dental hygiene students who have not taken a TB

skin test within the last year must take the two-step TB test. CPR certification must be current.

Students are required to have health insurance. Student medical insurance plan information may be obtained through the University Health Services at (808) 956-8965.

Students enrolled in dental hygiene clinical courses have the potential for exposure to communicable diseases and may sustain injuries in the clinical setting. Limited emergency care will be rendered onsite. Students are financially liable for all care received, including emergency room charges.

**Note:** All certifications and requirements must be kept current for the duration of program enrollment.

### Financial Consideration

Significant costs (e.g., professional education fee; purchase of instruments, supplies, uniforms, and books; examination fees, etc.) not related to tuition and housing are associated with dental hygiene education. The additional cost over a period of three years in the dental hygiene program is approximately \$14,000. Dental Hygiene students must also enroll in one to two courses at UH-West Oahu. Students are encouraged to make appropriate financial arrangements.

**Note:** School of Nursing and Dental Hygiene students pay a higher fee at registration.

### Varied Schedules

Dental hygiene students are expected to participate in clinical experiences at various scheduled times. Therefore, students must make time and arrangements to accommodate a modified daily schedule.

### Continued Registration

The minimum academic requirements of UH Mānoa apply to all dental hygiene students. In addition, students must maintain a minimum GPA of 2.0 for all registered credit hours in dental hygiene courses to continue registration in the dental hygiene program.

### BS in Dental Hygiene

Students must complete the following:

- General Education Core requirements (see the “Undergraduate General Education Requirements” section in the *Catalog*)
- Pre-major requirements
- Dental Hygiene major requirements
- Other major requirements and electives

### General Education Core Requirements

- See the *Catalog*

### Pre-Major Requirements

- BIOC 241 Fundamentals of Biochemistry (3)
- COMG 151 Personal and Public Speech (3)
- ENG 100 Composition I (3)
- FSHN 185 The Science of Human Nutrition (3)
- MICR 130 General Microbiology (3) and MICR 140L Microbiology Laboratory (2)
- PHYL 103/103L Human Physiology and Anatomy/Physiology and Anatomy Lab (5/1)
- PSY 100 Survey of Psychology (3)
- SOC 100 Introduction to Sociology (3)

### Major Requirements

- DH 231 Oral Anatomy and Tooth Morphology (2)
- DH 231L Oral Anatomy and Tooth Morphology Lab (2)
- DH 238 Basic Dental Hygiene I (2)
- DH 238L Basic Dental Hygiene I Lab (1)
- DH 239L Basic Dental Hygiene I Lab (1)
- DH 240 Basic Dental Hygiene II (2)
- DH 240L Basic Dental Hygiene Lab/Clinic (1)
- DH 241L Basic Dental Hygiene Lab/Clinic (1)
- DH 242L Basic Dental Hygiene Lab/Clinic (1)
- DH 250 General and Oral Histology and Embryology (2)
- DH 251 General and Oral Histology and Embryology (1)
- DH 281 Dental Radiography (2)
- DH 281L Dental Radiography Lab/Clinic (1)
- DH 361 Health Education and Promotion (2)
- DH 366 General and Oral Pathology (2)
- DH 367 General and Oral Pathology (1)
- DH 369 Dental Materials (1)
- DH 369L Dental Materials Lab/Clinic (1)
- DH 370 Expanded Functions in Dental Hygiene (2)
- DH 370L Expanded Functions Lab/Clinic (1)
- DH 375 Clinical Dental Hygiene I (2)
- DH 375L Clinical Dental Hygiene I Clinic (1)
- DH 376L Clinical Dental Hygiene I Clinic (1)
- DH 377L Clinical Dental Hygiene I Clinic (1)
- DH 378L Clinical Dental Hygiene I Clinic (1)
- DH 380 Clinical Dental Hygiene II (2)
- DH 380L Clinical Dental Hygiene II Clinic (1)
- DH 381L Clinical Dental Hygiene II Clinic (1)
- DH 382L Clinical Dental Hygiene II Clinic (1)
- DH 389 Pain Control and Local Anesthesia in Dentistry (2)
- DH 390 Periodontology I (2)
- DH 391 Periodontology II (2)
- DH 473 Community Health (3)
- DH 475 Advanced Clinical Dental Hygiene II (2)
- DH 475L Advanced Clinical Dental Hygiene I Clinic A (1)
- DH 476L Advanced Clinical Dental Hygiene I Clinic B (1)
- DH 477L Advanced Clinical Dental Hygiene I Clinic C (1)
- DH 478L Advanced Clinical Dental Hygiene I Clinic D (1)
- DH 480 Advanced Clinical Dental Hygiene II (2)
- DH 480L Advanced Clinical Dental Hygiene II Clinic (1)
- DH 481L Advanced Clinical Dental Hygiene II Clinic (1)
- DH 482L Advanced Clinical Dental Hygiene II Clinic (1)
- DH 483L Advanced Clinical Dental Hygiene II Clinic (1)
- NURS 363 Introduction to Nursing Research (3)
- PHRM 203 General Pharmacology (3)
- PUBA 301 Health Care Administration (3) (UH-West Oahu)

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

# Nursing

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## Faculty

\*M. Boland, DrPH (Dean)—nursing workforce, health policy  
S. Ziehm, DNP (Associate Dean for Academic Affairs)—psychiatric mental health, academic program evaluation  
\*C. Ceria-Ulep, PhD (Department Chair)—adult health, administration  
\*M. Shannon, PhD (Graduate Chair)—family nurse practitioner, certified nurse midwife, women's health, HIV/AIDS, vulnerable populations, stress and aging  
C. Albright, PhD—cancer prevention and control, obesity control  
S. Alzamora, MSN—medical/surgical nursing, critical care  
E. Ben-Sefer, PhD—maternal child  
L. Blue, MSN—maternal child health, mental health  
L. Boehm, PhD(c), MSN—medical/surgical, mental health, critical care  
N. Braginsky, PhD—family nurse practitioner  
M. Bray, MSN—APHN, public health, critical care  
P. Brooks, MS—international health, family health  
\*J. Casken, PhD—administration, public health  
P. Clements, MS—medical/surgical nursing  
\*E. Codier, PhD—adult health, emotional intelligence in nursing  
C. Constantin, PhD—maternal child health, genetics  
C. Delnat, MSN—nursing education, critical care  
M. Deutsch, MS—maternal-child health, quality management  
L. Dubbs, MSN—nursing administration  
B. Friedman, RN, MBA—FNP, APHN, public health  
P. Gandall-Yamamoto, MS—family nurse practitioner  
C. Gazmen, MS—adult health, clinical nurse specialist  
P. Gendreau, MS—medical/surgical nursing  
G. Glauberman, MSN—APHN, disaster preparedness  
K. Green, MS—maternal-child health  
C. Greywolf, DNP, MSN—geriatrics, mental health, critical care  
M. Guerriero, MSN—mental health  
F. Hale, MS—maternal-child health, nursing education, psychiatric mental health  
M. Hall-Moriyasu, MSN—oncology, critical care  
V. Hanashiro, PhD—medical/surgical, geriatrics  
\*A. Hanberg, PhD—simulation learning  
M. Hayashi, MS—medical/surgical nursing, maternal-child health  
T. Higa, MS—adult health  
L. Hildebrandt, MSN—medical/surgical nursing  
H. Ho, MSN—maternal child health, medical/surgical nursing  
D. Ing, MSN—pediatric nurse practitioner  
\*J. Itano, PhD—oncology/nursing education  
R. Jarman, PhD—higher education administration and student services  
S. Jensen, MSN—medical/surgical nursing, critical care  
S. Kam, MSN—medical/surgical nursing  
\*M. Kataoka-Yahiro, DrPH—parent-child, family caregiving  
C. Kawamura, MSN—medical/surgical nursing, critical care  
M. Koury, PhD—educational planning and management  
\*S. LeVasseur, PhD—PhD Director  
\*C. Linhares, PhD—maternal child health, certified midwife  
\*D. Mark, PhD—evidenced-base practice, critical care  
S. Marshall, MS—oncology, administration

K. Matsuyama, MS—adult health  
J. McDonald, MS—medical/surgical nursing  
N. McGuckin, MPH—community health, administration  
G. Mikkalson, MSN—nurse midwife, women's health  
\*J. Miller, EdD—maternal child health  
S. Miller, MS—pediatrics  
N. Minton, MA—cultural enrichment, clinical psychology  
J. Misola, PhD—adult health, nursing administration  
\*J. Mobley, PhD—statistics, psychology  
P. Morrison, MS, RN—adult health, nursing education  
S. Murray, MS—clinical nurse specialist  
M. Napihaa, MS—pediatrics  
A. Neves, MS—psychiatric mental health  
J. Niemczura, MSN—adult health  
J. Nishikawa, DNP—family nurse practitioner  
T. Parsons, MS—nursing administration  
\*K. Qureshi DNSc—emergency nursing, disaster preparedness, community health  
J. Range, MSN—adult health  
N. Reeves, MSN—medical/surgical nursing, critical care  
\*K. Richardson, PhD—maternal-child  
V. Saunders, MSN—gerontological nurse practitioner  
\*J. Shoultz, DrPH—community health, adult health  
S. Sinclair, PhD—pediatrics  
\*K. Sullivan, PhD—psychiatric mental health  
\*A. Sy, DrPH—public health  
\*K. Tessier, PhD—pediatrics  
C. E. Thompson, MS—adult health  
\*A. Tse, PhD—pediatrics  
K. Unrau, MSN—medical/surgical nursing, pediatrics, critical care  
\*J. Uyehara, MSN—maternal health  
R. Wada, MD—pediatric hematology, oncology  
\*C. Wang, PhD—adult health  
\*L. Wong, PhD—adult health

## Emeritus Faculty

J. Inouye, PhD—psychiatric mental health, psychology  
B. Kooker, DrPH—nursing administration  
J. Lum, PhD—pediatrics  
L. Magnussen, EdD—maternal child  
R. Ryburn, DrPH—pediatrics, complementary care

## Clinical Faculty

The SONDH includes more than 175 clinical adjunct nursing faculty appointees with a wide range of expertise from a variety of fields. To see a complete list, please visit the school's website at: [www.nursing.hawaii.edu/adjunct-clinical-faculty.html](http://www.nursing.hawaii.edu/adjunct-clinical-faculty.html).

**Degrees and Certificate Offered:** BS in nursing, MS in nursing, DNP, PhD in nursing and Post-Master's Certificate in nursing

## The Academic Program

The Department of Nursing's undergraduate program provides five bachelor of science degree pathways;

- High School Direct Entry into Nursing (HS-DEN) Program. Application Deadline: **January 2** (Fall admission only)
- Executive RN to Bachelor of Science (BS) in Nursing. Application Deadline: **January 5** (Fall Admission only)
- RN to Bachelor of Science (BS) in Nursing. Application Deadline: Fall **January 5**, Spring **July 1**

- Hawaii Statewide Nursing Consortium (HSNC) Bachelor of Science (BS) in Nursing. Application Deadline: Fall **January 5**, Spring **September 1**
- Hawaii Statewide Nursing Consortium (HSNC) Bachelor of Science (BS) in Nursing, ADN Graduates from Consortium (Kapiolani, Kaua'i, and Maui). Application Deadline: Fall **January 5** (Kapiolani, Kaua'i, and Maui), Spring **July 1** (Kapiolani only)

The master of science (MS) in nursing degree program prepares the student for advanced practice as a nurse practitioner in family and adult-gerontology; clinical nurse specialist in adult health; nursing executive leadership; and advanced public health. A Masters Entry Program in Nursing (MEPN) admits students with bachelors degrees in non-nursing areas. The master's program provides the foundation for doctoral study.

The Department of Nursing offers the Post-Master's Certificate for nurses who already have a master's degree in nursing but wish to acquire expertise in another specialty.

The Doctor of Nursing Practice (DNP) program is designed as a professional (practice) doctorate integrating evidence-based practice, quality improvement, and systems leadership to prepare experts in specialized advanced nursing practice.

The PhD in nursing prepares nursing scholars with particular strength in culturally appropriate clinical research aimed at improving the health of people in diverse societies and to teach in nursing education programs, especially those with minority student populations.

### **Distance Education**

A variety of technologies are used in distance education including videoconferencing, HITS, web-based methods, or a combination of technologies. The DNP and PhD degree programs are offered online (web-based) with face-to-face intensive sessions once a year.

For further information, contact the school's Office of Student Services at (808) 956-8939 or nursing@hawaii.edu. All policies and procedures that apply to UH Mānoa students apply to students enrolled in distance learning opportunities.

### **Student and Faculty Awards**

Each graduating class recognizes an outstanding faculty educator and graduating students who have made significant contributions in service, research, leadership, and professionalism. Academic excellence is also recognized by an award to the student with the highest grade point average.

### **Accreditation**

The nursing programs are accredited by the Hawai'i State Board of Nursing, and the Commission on Collegiate Nursing Education<sup>1</sup>.

<sup>1</sup> Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC, 20036-1120, phone: (202) 887-6791

### **Criminal Background Checks And Drug Testing**

Hospitals and other clinical agencies require a criminal background check and drug testing of students in order to meet their hospital accreditation (JCAHO) requirements. The Department of Nursing will not be collecting this information. It is the student's responsibility to provide this information to the clinical facilities, if requested.

The following statement has been issued by the UH Legal Council:

"It is the responsibility of the student to satisfactorily complete affiliated hospital background checks and drug testing requirements in accordance with procedures and timelines as prescribed by the affiliated hospital. Nursing students are required to complete UH prescribed academic requirements that involve clinical practice in a UH-affiliated hospital setting with no substitution allowable. Failure of a student to complete the prescribed UH nursing clinical practice in a UH-affiliated hospital shall be deemed as not satisfying nursing academic program requirements."

If the requirements set forth by the hospital are not met by the individual student, the university is not responsible to provide a substitute clinical facility or clinical experience. Therefore, refusal of a hospital or clinical facility to allow a student in their clinical facility due to negative information will result in the student not being allowed to continue in the nursing program.

## **Undergraduate Study**

### **Advising**

Office of Student Services  
Webster 201  
Honolulu, HI 96822  
Tel: (808) 956-8939  
Email: nursing@hawaii.edu

Potential applicants are highly encouraged to review the program documents posted on our website. Pre-advising is available at both the graduate and undergraduate level for information on application procedures, program description, and degree requirement completion.

### **Preparation for Graduation**

Students are advised to check with the academic advisor to make sure that all requirements are met at least two semesters before the scheduled graduation date.

An application for graduation form is completed and signed by the student and the advisor. The advisor submits the signed Application for Degree form to the UH Mānoa Office of the Registrar by the third week of the graduation semester. Then the student goes on-line to their MyUH portal account to pay the graduation fee.

### **Diplomas**

Diplomas for graduate and undergraduate students can be obtained from the Office of the Registrar, Queen Lili'uokalani Center for Student Services, Room 010, 10 weeks after graduation. A request to mail the diploma may be filed at the Office of the Registrar.

### **National Council Licensure Examination (NCLEX-RN)**

Upon graduation from the bachelor of science program, the school certifies and submits the names of graduating students to the Hawai'i Board of Nursing, which qualifies them to take the NCLEX-RN exam. The school's Office of Student Services is available to assist with the application process. Application forms are available at [www.state.hi.us/dcca/pvl](http://www.state.hi.us/dcca/pvl). There are no specific filing deadlines.

Students who wish to take nursing licensing boards in another state must contact that state's board of nursing directly. Addresses of state boards of nursing are available from the Na-



tional Council of State Boards of Nursing via the web at [www.ncsbn.org/contactbon.htm](http://www.ncsbn.org/contactbon.htm).

### **Student Organizations**

For career and leadership development, it is important for students to become active in student and professional organizations. There are several student organizations at UH Mānoa.

#### **Student Nurses Organization**

All undergraduate nursing students can participate in the Student Nurses Organization (SNO). The organization provides an opportunity for students to develop professional identity and leadership skills. Students express their interests and opinions in an open forum. This student organization makes recommendations regarding policies to the various committees within the School of Nursing and Dental Hygiene. The Student Nurses Organization is responsible for the coordination of various activities for nursing students. It also offers an opportunity for students to socialize with each other and create mentoring relationships.

#### **National Student Nurses' Association**

The National Student Nurses' Association (NSNA) acts as the voice of nursing students on the national level. NSNA contributes to nursing education in order to provide the highest-quality health care. It helps nursing students keep in touch with fundamental and current professional interests and become active, responsible, and professional nurses. NSNA is part of the American Nurses' Association; the Hawai'i Student Nurses' Association is the local chapter of the NSNA.

#### **Sigma Theta Tau**

Sigma Theta Tau is the international honor society in nursing that promotes excellence in academic scholarship, research, and clinical nursing. Students must be nominated to become a member. The Gamma Psi Chapter is the UH Mānoa chapter of the honor society.

### **High School Direct Entry into Nursing Program (HS-DEN)**

This Baccalaureate Nursing program pathway is designed for high achieving Hawai'i high school graduates and provides an opportunity for admission into the nursing program directly after graduation. The program includes 1 year of pre-nursing coursework followed by 3 years of nursing specific and gradu-

ation requirements. Students who complete the degree are eligible to take the RN licensure examination (NCLEX-RN).

During their first year, students will join an intensive learning community designed for the HS-DEN program. This will ensure proper registration and will provide the opportunity to network with current nursing students and department and the nursing community.

Upon successful completion of the first year course work, students will begin taking the required nursing courses (as detailed under Hawai'i Statewide Nursing Consortium (HSNC) BS in Nursing Curriculum) along with remaining general education graduation requirements.

### **Admission Requirements**

The program admits Hawai'i high school students who are eligible for admission to UH Mānoa in addition to meeting the UH Mānoa Nursing requirements noted below.

1. SAT: Critical Reading 550 and Math 550 or ACT: Reading 24 and Math 24
2. High School Grade Point Average (GPA): 3.0 cumulative GPA at the end of the junior year in high school.

### **Application Procedures**

Submit a completed UH System application for UH Mānoa campus and declare NURSING as your major. Submit a Department of Nursing application (available on the SONDH website). For more information, please visit the SONDH website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

### **Application Deadlines**

Application deadline for the High School Direct Entry into Nursing program is **January 2** for fall semester. The UH System application must be complete and received by the Office of Student Services no later than the deadline. It is highly recommended that the UH System Application be submitted 4-6 weeks prior to the SONDH deadline in order to allow ample processing time in the Office of Admission. Applications received after the deadline will not be accepted.

### **Bachelor's Degree**

The bachelor of science in nursing degree prepares beginning-level generalist professional nurses to deliver care to individuals in a variety of health-care settings, meet the state requirements for eligibility to take the National Council Licensure Examination-Registered Nurse (NCLEX-RN), and obtain a sound basis for graduate study in nursing.

Pre-nursing students enroll in prerequisite and General Education requirements. Completion of these requirements provides the foundation for professional nursing requirements. After satisfactory completion of the pre-nursing requirements, students are eligible for admission to the Department of Nursing. Upon admission to the School of Nursing and Dental Hygiene, students register for the professional nursing courses, which focus on both the theoretical and practical dimensions of professional nursing.

To qualify for a BS in nursing, all undergraduate students must complete curriculum requirements with a grade of C (not C-) or higher and a minimum cumulative GPA of 2.0. All students must also complete the UH Mānoa General Education requirements as noted in the *Catalog*.

Applicants are strongly advised to attend an informational session at the School of Nursing and Dental Hygiene before

submitting an application to the program. For more information, please visit the SONDH website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

## Admission Requirements

To qualify for admission to the Department of Nursing, applicants must complete the following pre-nursing requirements by the established deadlines:

1. Classified status at UH Mānoa for the application term (unclassified, graduating, new, returning, and transfer students must complete the UH System Application);
2. Department of Nursing application (available on the SONDH website);
3. Minimum cumulative GPA of 2.5 or better;
4. Minimum grade of C (not C-) in the following prerequisite courses<sup>\*\*</sup>:  
1 FW course,\* 1 FS course,\* 1 FG course,\* 2 DS courses\* from different departments, 1 DP course,\* PHYL 141/141L, PHYL 142/142L, MICR 130.
5. For Pre-Admission Exam requirements, see the website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

<sup>\*</sup>Designated by UH Mānoa as General Education courses. These may be found in the "Undergraduate General Education Requirements" section of this *Catalog*. Students already holding degrees or certificates are not exempt from these requirements.

<sup>\*\*</sup>16 credits of prerequisites credits must be satisfactorily completed at the time of application, of which MUST include 1 PHYL lecture/lab and 1 other science lecture course (i.e., \*DP course or MICR 130). Applicants must have completed or are currently enrolled in all remaining prerequisites at the time of application to be considered.

## Application Procedures

Submit a completed UH System application for UH Mānoa or be a continuing classified student at UH Mānoa. Submit a Department of Nursing application (available on the SONDH website), copy of your exam scores, and transcripts or unofficial student schedule (non-UH applicants only) demonstrating current registration in any outstanding prerequisite courses. For more information, please visit the SONDH website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

## Application Deadlines

Fall admission deadline: **January 5**. Spring admission deadline: **September 1**. All documents, including the UH System application, must be received by the Office of Student Services no later than the deadline. It is highly recommended that the UH System Application be submitted 4-6 weeks prior to the SONDH deadline in order to allow ample processing time in the Office of Admissions.

Applications received after the deadline will not be accepted. For more information regarding program specific deadlines, please visit our website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

## Special Requirements

Upon entrance into the program, students must have the following:

1. Health Clearance,
2. Current BLS/Healthcare Provider CPR Certification\*, and
3. Health insurance.

<sup>\*</sup>The BLS/Healthcare Provider CPR curriculum includes training for Adult, Child, and Infant CPR; Adult, Child, and Infant Bag-Mask Technique; 2 Rescuer CPR, Rescue Breathing; Adult and Child AED protocols; and foreign object blockage removal for Adults, Children, and Infants.

Students with prerequisite deficiencies may not register for or attend clinical courses.

Students must satisfy the requirements set forth by the clinical agencies; students with deficiencies may not attend clinical

courses. Every year, students will need to renew their health clearance for TB. Students will also need to recertify for BLS CPR and renew their tetanus/diphtheria/pertussis clearance as required.

## Varied Schedules

Nursing students are expected to participate in clinical experiences in many community agencies at variously scheduled times. Therefore, students must make time and transportation arrangements to accommodate an irregular academic schedule.

## Continued Registration

All undergraduate students accepted as majors in the nursing program may register for nursing courses. Students must attain a grade of at least C (not C-) in all courses in the program to continue registration for the following semester.

Students may be dismissed from the program for failing to maintain academic and clinical experience standards of the School of Nursing and Dental Hygiene. Students wishing to return to the program must file a petition to continue with the Undergraduate Student Affairs Committee (see the Student Handbook).

## BS in Nursing (Traditional Curriculum)

This curriculum applies to students admitted prior to Fall 2010.

## Required Nursing Courses

- NURS 300 Introduction to the Nursing Profession (1)
- NURS 310 Psychosocial Concepts in Health Care (3)
- NURS 311 Pathophysiologic Nursing Concepts (3)
- NURS 330/330L Professional Nursing I/Lab (2/2)
- NURS 331/331L Professional Nursing II/Lab (2/3)
- NURS 370/370L Adult Health Nursing I/Lab (2/3)
- NURS 371/371L Psychiatric-Mental Health Nursing/Lab (3/2)
- NURS 372/372L Maternal Newborn Nursing/Lab (2/3)
- NURS 373/373L Child Health Nursing (2/3)
- NURS 439 Management for Health Professionals (3)
- NURS 441 Introduction to Nursing Research (3)
- NURS 470/470L Adult Health Nursing II/Lab (2/3)
- NURS 471/471L Community Health Nursing/Lab (2/3)
- NURS 475/475L Complex Nursing Practice/Lab (2/5)
- NURS 486 Professional Issues and Trends (2)

## Nursing Electives (at least one is offered each semester)

- NURS 340 Contemporary Ethical Issues in Health Care (3)
- NURS 343 Gerontology: Its Nursing Implications (3)
- NURS 344 Nursing in the Multicultural Milieu (3)
- NURS 361 Health Education and Promotion (2)
- NURS 399 Directed Reading/Research (faculty approval) (V)
- NURS 420 Cooperative Education in Nursing (V)
- NURS 431 Complementary and Alternative Therapies (3)

## Hawai'i Statewide Nursing Consortium Curriculum (HSNC) BS in Nursing Curriculum

The Department of Nursing implemented the Hawai'i Statewide Nursing Consortium curriculum in Fall 2010. Students preparing to enter this nursing program must complete the Admission Requirements listed above. For further information, contact the Office of Student Services at (808) 956-8939 or visit our website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu). The deadline for completed application is **January 5** for the fall semester and **September 1** for the spring semester.

### Required Nursing Courses

- NURS 210/210L Health Promotion Across the Lifespan/Lab (3/6)
- NURS 211 Professionalism in Nursing (2)
- NURS 212 Pathophysiology (3)
- NURS 220/220L Health and Illness I /Lab (4/6)
- NURS 320/320L Health and Illness II: Family Health/Lab (4/6)
- NURS 360/360L Health and Illness III/Lab (3/6)
- NURS 363 Introduction to Nursing Research (3)
- NURS 450/450L Community, Public, and Global Health/Lab (5/4)
- NURS 452 Cultural Aspects of Health Management in Populations Indigenous to Hawai'i, the Pacific, and Asia (3)
- NURS 453 Introduction to Genetics in Nursing Practice (3)
- NURS 460/460L Complex Nursing and Leadership/Lab (4/6)
- NURS 461 Advanced Pathophysiology and Neurobiology (3)

### Required Nursing Electives (at least one is offered each semester)

- NURS 340 Contemporary Ethical Issues in Health Care (3)
- NURS 343 Gerontology: Its Nursing Implications (3)
- NURS 344 Nursing in the Multicultural Milieu (3)
- NURS 361 Health Education and Promotion (2)
- NURS 399 Directed Reading/Research (need faculty approval) (V)
- NURS 420 Cooperative Education in Nursing (V)
- NURS 421 Summer Internship (V)
- NURS 431 Complementary and Alternative Therapies (3)

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Hawaii Statewide Nursing Consortium (HSNC) BS in Nursing Curriculum for ADN Graduates from Consortium

The Hawai'i's Statewide Nursing Consortium (HSNC) Bachelor of Science (BS) in Nursing program for associate degree nursing (ADN) graduates is a statewide continuing consortium nursing curriculum available to UH students from Maui College, Kaua'i Community College, and beginning in fall 2014, Kapi'olani Community College. The HSNC program is designed to provide an efficient pathway to the baccalaureate for the RN with an associate degree. The program builds upon initial nursing preparation with coursework to enhance professional development, prepare for a broader scope of practice, and provide an increased understanding of the cultural, economic, and social issues that affect the delivery of safe, quality patient care (American Association of Colleges of Nursing. (2011) Fact Sheet: Degree completion programs for registered nurses: RN to masters and RN to baccalaureate programs).

Students enter the program in the fall (January 5th deadline); (Students from Kapi'olani Community College may also enter in the Spring July deadline) taking courses via the Hawai'i Interactive Television Service (HITS) while balancing work and family responsibilities. With the BS degree, the student is prepared for graduate education and continued career development.

For further information, contact the Office of Student Services at (808) 956-8939 or visit our website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

### Required Nursing Courses completed at the participating community college in Year 2 and 3

- NURS 210 Health Promotion Across the Lifespan (9)
- NURS 211 Professionalism in Nursing (1)
- NURS 212 Pathophysiology (3)
- NURS 220 Health and Illness I (10)
- NURS 320 Health and Illness II: Family Health (10)
- NURS 360 Health and Illness III (9)
- NURS 362 Professionalism in Nursing II (1)
- NURS 363 Introduction to Nursing Research (3)

### Year 4 Courses completed at UHM

- NURS 450/450L Community, Public, and Global Health/Lab (5/4)
- NURS 452 Cultural Aspects of Health Management in Populations Indigenous to Hawai'i, the Pacific, and Asia (3)
- NURS 453 Introduction of Genetics in Nursing Practice (3)
- NURS 460/460L Integrated Clinical Practicum and Leadership Development/Lab (4/6)
- NURS 461 Advanced Pathophysiology and Neurobiology (3)
- Nursing Elective (2)

### Required Nursing Electives (at least one is offered each semester)

- NURS 340 Contemporary Ethical Issues in Health Care (3)
- NURS 343 Gerontology: Its Nursing Implications (3)
- NURS 344 Nursing in the Multicultural Milieu (3)
- NURS 361 Health Education and Promotion (2)
- NURS 366 Advanced Cardiopulmonary (3)
- NURS 399 Directed Reading/Research (need faculty approval) (V)
- NURS 420 Cooperative Education in Nursing (V)
- NURS 421 Summer Internship (V)
- NURS 431 Complementary and Alternative Therapies (3)

For information on the BS in Nursing for ADN graduates Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/#nursing](http://www.manoa.hawaii.edu/ovcaa/programsheets/#nursing).

### RN to BS in Nursing Curriculum for ADN Graduates

The RN to Bachelor of Science (BS) in Nursing program for associate degree nursing (ADN) graduates is a complement to the statewide continuing consortium nursing curriculum offered to UH students. The RN to Bachelor of Science (BS) in Nursing program is designed to provide an efficient pathway to the baccalaureate for the nurse with less than 2 years experience with an associate degree. The program builds upon initial nursing preparation with coursework to enhance professional development, prepare for a broader scope of practice, and provide an increased understanding of the cultural, economic, and social issues that affect the delivery of safe, quality patient care (American Association of Colleges of Nursing. (2011) Fact Sheet: Degree completion programs for registered nurses: RN to masters and RN to baccalaureate programs).

Students may enter the program in the fall or spring taking courses online and via the Hawai'i Interactive Television Service (HITS) while balancing work and family responsibilities. The

program provides access to students living on Maui and Kaua'i. With the BS degree, the student is prepared for graduate education and continued career development.

Admission to the program requires completion of 44 credits of lower division prerequisite course work. Upon admission, each student will receive a personalized review of completed coursework to create an individualized progression plan for completion. Up to 42 credits is provided for course work completed in the associate degree (35 credits) and other general elective course work (7 credits). A total of 120 credits are required for the baccalaureate degree.

Thirty-four (34) credits of upper division nursing course work with a grade of C (not C-) is required for the program. The upper division nursing course work includes two courses that must be completed before advancing to clinical course work.

### Admission Requirements

To be admitted, applicants must complete the following requirements by the established deadlines:

1. Documentation of graduation from an accredited associate degree or diploma nursing program;
2. A GPA of 2.0 or better if transferring from a UH System campus; a GPA of 2.5 or better if transferring from a non-UH System campus;
3. Submit official transcripts from all university, colleges, or post-secondary schools;
4. Acceptance to UH Manoa (unclassified, graduated, new, returning, and transfer students must complete the UH System Application);
5. Department of Nursing application (available on the SONDH website);

The deadline for completed application is **January 5** for the fall semester and **July 1** for the spring semester.

For further information, contact the Office of Student Services at (808) 956-8939 or visit our website at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu).

### Required Upper Division Nursing Courses

#### Nursing Courses Required Prior to Clinical Coursework

- NURS 301 Introduction to Evidence Based Practice and Health Promotion (3)
- NURS 363 Introduction to Nursing Research (3)

#### 400-Level Nursing Courses

- NURS 450/450L Community, Public, and Global Health/Lab (5/4)
- NURS 452 Cultural Aspects of Health Management In Populations Indigenous to Hawai'i, the Pacific, and Asia (3)
- NURS 453 Introduction of Genetics in Nursing Practice (3)
- NURS 460/460L Complex Nursing and Leadership/Lab (4/6)
- NURS 461 Advanced Pathophysiology/Neurobiology (3)

### Executive RN to BS in Nursing (for registered nurses with an associate degree in nursing)

The Executive RN to BS program is designed to provide an efficient pathway to the baccalaureate for the RN with an associate degree and a minimum of 2 years work experience as an RN. The program builds upon initial nursing preparation with course work to enhance professional development, prepare for a broader scope of practice, and provide an increased understand-

ing of the cultural, economic, and social issues that affect the delivery of safe, quality patient care.

The program is designed for learners who thrive in a setting with guided independent study, professional application, and a collegial relationship with faculty and peer students. Students enter the program in the fall, taking online courses while balancing work and family responsibilities. With the BS degree, the student is prepared for graduate education and continued career development.

Admission to the program requires completion of 45 credits of lower division prerequisite course work. Upon admission, each student will receive a personalized review of completed coursework to create an individualized progression plan for completion. Up to 35 credits is provided for course work completed in the associate degree and other general elective course work. A total of 120 credits are required for the baccalaureate degree.

Forty (40) credits of prerequisites and upper division nursing course work with a grade of C (not C-) is required for the program. The upper division nursing course work includes two "prerequisite courses" that must be completed before advancing to clinical course work.

### Admission Requirements

To be admitted, applicants must complete the following requirements by the established deadlines:

1. Documentation of graduation from an accredited associate degree or diploma nursing program;
2. A GPA of 2.0 or better if transferring from a UH System campus; a GPA of 2.5 or better if transferring from a non-UH System campus;
3. Submit official transcripts from all university, colleges, or post-secondary schools;
4. Acceptance to UH Mānoa (unclassified, graduated, new, returning, and transfer students must complete the UH System Application);
5. Department of Nursing application (available on the SONDH website);
6. Current unrestricted U.S. RN license in Hawai'i or the state of residence. Your application will be reviewed prior to taking the NCLEX-RN exam but you must have an active license to begin the upper division nursing courses (NURS 400 level courses).
7. A minimum of 2 years work experience as an RN at the time of application.

### Required Upper Division Nursing Courses

#### Nursing Prerequisite Courses\* (required prior to all other courses)

- NURS 301 Introduction to Evidence Based Practice and Health Promotion (3)\*
- NURS 399 Statistics in Nursing\*
- NURS 363 Introduction to Nursing Research (3)

#### 400-Level Nursing Courses

- NURS 450/450L Community, Public, and Global Health/Lab (5/4)\*\*
- NURS 452 Cultural Aspects of Health Management In Populations Indigenous to Hawai'i, the Pacific, and Asia (3)
- NURS 453 Introduction of Genetics in Nursing Practice (3)
- NURS 460/460L IComplex Nursing and Leadership/Lab (4/6)\*\*
- NURS 461 Advanced Pathophysiology/Neurobiology (3)

\*\*An experiential portfolio option is available to students who believe they meet the outcomes of one of these two specific courses through prior learning and/or professional nursing experience. Through the portfolio process, you may be able to meet course requirements by documenting evidence of your nursing skills and experience. (Note: only one course may be used to receive a credit waiver)

For information on the Executive RN to BS in Nursing sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/#nursing](http://www.manoa.hawaii.edu/ovcaa/programsheets/#nursing).

## Graduate Study

### Master's Entry Program in Nursing (MEPN)

The Master's Entry Program in Nursing is designed for adult learners with no prior nursing experience or education and who have a baccalaureate degree or higher in a field other than nursing. The purpose of this alternative entry program is to equip students with entry-level professional nurse competencies as a foundation for advanced practice roles.

The program consists of an intensive pre-licensure year structured as three continuous semesters transitioning into one of the specialty nursing pathways. The length of time necessary to graduate at the Master's level is dependent upon the specialty area selected by the learner.

The first year curriculum is based on a competency model appropriate for graduate level adult learners. Active learning strategies are emphasized including clinical experience, simulation based learning, and evidence-based practice to inform the actions of the nurse. A substantial amount of the curriculum is clinical practicum in community and hospital/health care settings where students are actively engaged in nursing care under the supervision and guidance of faculty.

### Admission Requirements

To be admitted, applicants must meet the following Requirements for Entry:

1. A complete baccalaureate degree in any non-nursing field from an accredited institution by **July 15** of the year admitted to the program.
2. A minimum cumulative GPA of 3.0
3. Completed the prerequisite courses by July 15 prior to fall admission. If you are taking courses after your application has been submitted, please send in a copy of the course registration as soon as you have registered.  
The pre-requisite courses that must be completed prior to entry are:
  - One year of Human Anatomy & Physiology with lab;
  - One semester of General Microbiology lecture (lab not required);
  - One semester of undergraduate Introduction to Research course.
4. Be admitted to both the Graduate Division AND the Department of Nursing MEPN program.

### Admission Procedures

Two separate application forms must be completed: the Graduate Division application form and the Department of Nursing Master's Entry Program in Nursing NCAS, Nursing Centralized Application Services application, including a copy

of the applicant's transcript. The Graduate Division application form, and official transcripts, must be sent directly to:

Graduate Student Services Office  
University of Hawaii at Manoa  
2540 Maile Way, Spalding Hall 354  
Honolulu, HI 96822

## Documentation Requirements

### Graduate Division

1. Graduate Division application form
2. Official transcripts

Please see SONDH website for DON admission and documentation requirements.

## Master's Degree

### Nurse Practitioner

The primary care option in advanced practice nursing prepares students to be family or adult/gerontology nurse practitioners. Special emphasis is placed on the delivery of care to vulnerable populations in a changing health care system.

Specialty advisors from the graduate faculty assist students in developing an individualized program of study and in monitoring progress toward program completion. Part-time study and post-master's certificates are available for these specialties.

The total number of required credits varies depending on the clinical specialty. The program consists of graduate core courses, advance practice nursing courses, and specialty nurse practitioner courses with supervised clinical experiences. All specialty tracks require a minimum of a four semester clinical experience sequence. The number of clinical hours required ranges from 540 to 720 hours depending on the specialty. A thesis option (for a minimum of 6 credits) is available. Graduates of the nurse practitioner specialties are eligible to take national certification examinations in the area of their specialty.

### Adult Gerontology Clinical Nurse Specialist

The Adult Gerontology Clinical Nurse Specialist Program prepares registered nurses for advanced practice in a wide variety of clinical practice areas. Generally, the practice is focused in a clinical area that may be identified in terms of a setting, diseases, or medical subspecialty (e.g. diabetes, oncology, critical care).

Charge Nurse Specialists (CNSs) are expert clinicians that work in a wide variety of health care settings. In addition to providing advanced patient care, the CNS improves patient outcomes through research, education, consultation, and program management. Students who enroll in this 42-credit program progress either part-time or full-time, and will meet the standards set forth by the American Nurses Credentialing Center (ANCC). Students will be required to complete 540 hours of clinical practicum in order to meet the Adult-Gerontology Clinical Nurse Specialist Competencies and take national certification examinations.

### Advanced Public Health Nursing

The Advanced Public Health Nursing (APHN) Program is a distance based masters in nursing degree, which targets registered nurses who wish to practice in Hawai'i, the U.S. Affiliated Pacific Islands or among communities with under-served populations (in the U.S. as well as abroad). Course work is

completed via online learning and fieldwork that is conducted in the student's own local community. The APHN program focuses on population-level health, wellness, health promotion, and disease prevention. The students learn critical population health skills such as community and population assessment; complex project/program management; health services research and health policy analysis. The aim of the program is to educate the future leaders for community and public health nursing in Hawai'i and the Pacific Region. The course work pathway is 36 credits, and designed to be completed in six semesters of part-time study over two years, (fall, spring, summer, fall, spring, and summer). At the conclusion of the program, the graduates are awarded a master's of science (MS) in nursing and will be prepared for certification in advanced public health nursing (APHN-BC).

### **Nursing Executive Leadership**

The Nursing Executive Leadership program provides registered nurses with the knowledge and skill to lead complex integrated healthcare delivery systems. This executive format hybrid program combines face-to-face learning with established on-line learning technology. The 18 month program is delivered in a cohort model designed for adult learners. Community based healthcare leaders, from a variety of settings, partner with academic faculty and complement diverse learning strategies. The program emphasizes leadership skills, healthcare economics, and finance. Courses build towards development of a professional portfolio and graduates are eligible to take American Association of Nurse Executives (AONE) or ANCC certification examinations.

### **Nursing Executive Leadership/MBA**

The Master of Science in Nursing Executive Leadership/ Master of Business Administration (MS/MBA) is a dual degree program jointly sponsored by the School of Nursing and Shidler College of Business. It provides extensive professional preparation in nursing executive leadership and business. It is offered as an integrated curriculum spanning three years of full-time study. Part-time study is available. The dual degree program consists of 57 credits offered in either a full-time (with completion in 3 years) or part-time schedule. The MBA program is taught in a combination of face-to-face classes offered in the evenings and on-line. Class schedules are tailored for working students. The Nursing Executive Leadership component is offered in the executive format combining face-to-face classes with distance learning technologies.

### **RN to MS Program (with non-nursing baccalaureate)**

The RN to MS Program (with non-nursing baccalaureate) targets registered nurses (RNs) who are graduates of an NLN accredited associate degree or diploma program and have a baccalaureate degree in an area other than nursing. The following baccalaureate nursing courses or equivalent are required in the master's program: Research (NUR 363); Community Health (NUR 450); and Management/Leadership (NUR 460). The admission progression and graduation requirements are the same as for options within the master's program.

Applicants to the RN to MS with a non-nursing baccalaureate should have evidence of baccalaureate level knowledge in each of the three areas noted above (research, community health, management/leadership) that may have been obtained

through formal course work, professional training programs, and/or professional or life experience. An experiential portfolio will demonstrate either course work or experience in the required areas and may include, but may not be limited to: transcripts for previous college course work; resume; course syllabi which outline course descriptions and learning objectives; professional training programs' course work that includes learning objectives; a one to two page essay which explains professional or life experience endeavors that demonstrate competence in the area(s) to be evaluated.

### **Admission Requirements**

To be admitted, applicants must meet the requirements of both the Graduate Division and the Graduate Student Affairs Committee of the School of Nursing and Dental Hygiene and other degree programs as appropriate (e.g., MS/MBA). Requirements for the School of Nursing and Dental Hygiene include the following:

1. A baccalaureate degree with a major in nursing from an NLNAC or CCNE-accredited program, except for RN to MS applicants who have a non-nursing baccalaureate degree;
2. A minimum cumulative GPA of 3.0 in the last 60-90 credits of course work;
3. A basic research course or equivalent completed within the past seven years;
4. A current unrestricted RN license/certification in state or jurisdiction of practice;

In addition, the following may be required depending on the MS specialty or program:

1. Interview with a specialty advisor after all application documents are reviewed is optional;
2. Experiential portfolio as indicated by MS specialty or program (see website for details);
3. For international students, TOEFL scores must be 580/92 or above.

### **Documentation Requirements (for RN-MS, MS, and PMC program applicants)**

Submit the following items to NCAS, Nursing Centralized Application Services:

1. NCAS (see website for details);
2. A curriculum vitae or résumé;
3. Two completed reference forms (one from a former faculty member and one from an agency supervisor);
4. A sample of professional writing (see website for details);
5. A copy of a current unrestricted RN license/certification in state or jurisdiction of practice, and
6. YouTube video (see website for details).

Submit the following items to:

Office of Graduate Education  
University of Hawai'i at Mānoa  
2540 Maile Way, Spalding Hall 354  
Honolulu, HI 96822

1. Graduate School Application (available at [manoa.hawaii.edu/graduate](http://manoa.hawaii.edu/graduate))
2. Transcripts from all college or universities previously attended

For more information regarding the Graduate Division admission requirements call (808) 956-8544.

### Admission Procedures (for RN-MS, MS, and PMC program applicants)

Two separate application forms must be completed: the Graduate Division application form and NCAS, Nursing Centralized Application Services online application form (see website for details). The Graduate Division application form and, official transcripts, must be sent directly to:

Office of Graduate Admissions  
University of Hawai'i at Mānoa  
2540 Maile Way, Spalding 353B  
Honolulu, HI 96822

or the online application at [manoa.hawaii.edu/graduate](http://manoa.hawaii.edu/graduate).

Applications to dual degree programs (for example, MS/MBA) also require completed application to the additional college/program (ex., Shidler College of Business/MBA). Completed applications are reviewed and evaluated by the Graduate Student Services Office; completed applications are forwarded to the School of Nursing and Dental Hygiene for comprehensive review by the school's graduate faculty. The school then makes a recommendation to the Graduate Division to either admit the student or deny admission.

Applications are accepted for the fall semester only. The application forms and supporting documents must be received at the designated offices by **December 1**. It is strongly recommended that all documents be submitted by **November 1** to allow time for processing by the Graduate Division. Rolling admissions will be utilized by various program directors.

#### Application Deadlines

- Application period: September 1–December 1
- **December 1**—final deadline for Graduate Division application and materials (any different deadlines listed on the grad division site are not honored)
- **December 1**—final deadline for School of Nursing MEPN application and materials

Materials must be **received**, not postmarked, by the date above. Applications and/or supporting documents (e.g. recommendation letters, etc) received after the application period will NOT be accepted.

#### Post-Master's Certificate (PMC)

After completing a master's degree in nursing, or other health-related field, nurses may select to apply for the post-master's certificate option. This program permits applicants with a current unrestricted RN license in a state or jurisdiction of practice, and a master's degree in nursing or other health-related field, to pursue course work in a second nursing specialty.

The program director for the APRN specialty in which the nurse is planning to enroll provides individual counseling, and develops a program of study based on the nurse's previous academic work. A minimum of 15 credits must be completed to obtain a Post-Master's Certificate, with at least 9 of these credits taken in graduate nursing courses offered at UH Mānoa SONDH. After completion of the Post-Master's Certificate program, the student can sit for the national certification examination in her/his specialty area.

#### Special Requirements

Upon entrance into the program, the student must have the following:

1. Health Clearance;

2. Current BLS/Healthcare Provider CPR Certification\*; and
3. Health insurance.

\*The BLS/Healthcare Provider curriculum includes training for Adult, Child, and Infant CPR; Adult, Child, and Infant Bag-Mask Technique; 2 Rescuer CPR, Rescue Breathing; Adult and Child AED protocols; and foreign object blockage removal for Adults, Children, and Infants.

Students must satisfy the requirements set forth by the clinical agencies; students with deficiencies may not attend clinical courses. Students will need to renew their health clearance for TB. Students will also need to renew their BLS CPR and tetanus/diphtheria/pertussis clearance as needed. The admissions procedures and application are the same as those listed for "Masters Degree."

#### Doctor of Nursing Practice (DNP) Degree

Building on the master's program curriculum, the DNP is designed as a professional practice doctorate integrating evidence based practice, quality improvement, and systems leadership to prepare experts in specialized advanced nursing practice. The DNP is targeted to nurses seeking a terminal degree in nursing practice. Intended for working professionals, the curriculum is designed as a part-time, two-year program, including summer coursework and intensives.

Each DNP student will have two advisors: (1) an academic advisor from the School of Nursing and Dental Hygiene; and (2) an external advisor from the site of the student's Scholarly Inquiry Project (SIP). The program requires 36 credits of post-master's course work (30 didactic credits and a minimum of six DNP Scholarly Inquiry Project credits) to meet the minimum 1000 post-baccalaureate hours of academically-supervised practicum. The online delivered core courses with face-to-face summer intensives are designed to develop leaders in clinical and executive positions who are capable of translating emerging science and develop policy to improve patient and population-based care. The Scholarly Inquiry Project has a strong applied focus, with the expectation that students will conduct projects relevant to their practice. Electives comprise six credits and will be selected by the student to complement their Scholarly Inquiry Project.

DNP graduates will be prepared for a variety of nursing practice roles. Foundational competencies that are core to all advanced nursing practice roles will be integral to the curriculum and are required by the American Association of College's of Nursing: (1) Scientific Underpinnings for Practice; (2) Organizational and Systems Leadership for Quality Improvement and Systems Thinking; (3) Clinical Scholarship and Analytical Methods for Evidence-Based Practice; (4) Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care; (5) Health Care Policy for Advocacy in Health Care; (6) Interprofessional Collaboration for Improving Patient and Population Health Outcomes; (7) Clinical Prevention and Population Health for Improving the Nation's Health; and (8) Advanced Nursing Practice (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006; [www.aacn.nche.edu/publications/position/DNPEssentials.pdf](http://www.aacn.nche.edu/publications/position/DNPEssentials.pdf)).

#### Admission Requirements

Applicants must meet the requirements of both the Graduate Division and graduate admissions committee of the School of Nursing and Dental Hygiene. To meet the minimum qualifications for consideration, applicants must have the following:

- Nursing License: A current RN license/certification in state or jurisdiction of practice.
- Education: A master's degree in nursing or related area with a grade point average (GPA) of 3.0 on a 4.0 scale.
- English Language Proficiency: If an applicant's native language is not English or has not obtained a bachelor's or master's degree from an English speaking college, then the applicant must submit official TOEFL scores with a minimum score of 600.
- Statistics Course Completion: Evidence of successful completion of a graduate-level statistics course in the past seven years or within first year of the program.

### Documentation Requirements

- A current unrestricted RN license/certification in state or jurisdiction of practice
- Official transcript from each post-secondary school attended
- ESL Applicants: Official TOEFL or IELTS exam scores for international applicants
- Evidence of graduate statistics course completion
- A statement of objectives for the Scholarly Inquiry Project
- Identification of an external advisor as mentor for the capstone project
- NCAS, Nursing Centralized Application Services online application (see website for details)
- Curriculum Vitae
- Two letters of recommendation

### Requirements for Clinical Scholarship

- A current unrestricted RN license/certification in state or jurisdiction of practice
- Liability and malpractice insurance
- Practice requirements of the Scholarly Inquiry Project Clinical Site i.e., immunizations, clinical privileges

### Application Procedures

Two separate application forms and procedures must be completed: (1) the Graduate Division application; and (2) the NCAS, Nursing Centralized Application Services online application form (see website for details).

The online Graduate Division application form is available at [apply.hawaii.edu](http://apply.hawaii.edu). The additional required Statement of Objectives form is available at [manoa.hawaii.edu/graduate/sites/manoa.hawaii.edu/graduate/files/documents/forms/sobj.pdf](http://manoa.hawaii.edu/graduate/sites/manoa.hawaii.edu/graduate/files/documents/forms/sobj.pdf). Hard-copies of Graduate Division-required documents and official transcripts must be sent directly:

Graduate Student Services Office  
University of Hawai'i at Mānoa  
2540 Maile Way, Spalding 353B  
Honolulu, HI 96822

Completed applications are first screened by the Graduate Student Services Office. Only applications of students who meet UH Mānoa's minimum requirements are forwarded to the School of Nursing and Dental Hygiene for comprehensive review by the school's graduate faculty. The school then makes a recommendation to the Graduate Division to either admit the student or deny admission.

Applications are accepted for the fall semester only. The application forms and supporting documents must be received by the Graduate Division Admissions Office by **December 1**.

### PhD Degree

The PhD online nursing program prepares independent nursing scholars capable of conducting research that generates new knowledge focusing on the health and well being of diverse populations primarily from Hawai'i and the Asia/Pacific region. Courses are offered online and communication is facilitated through e-mail and student listserves and other software programs. The PhD program requires a minimum of three years of part-time study plus completion of the dissertation. Academic advisors are selected from the graduate faculty based on students' area of research interest and fit with faculty.

The program requires 48 credits of post-master's course work plus a dissertation. Two core areas make up the program of study: (1) Knowledge Development and Scholarship (39 credits), and (2) Cognates (Interdisciplinary or Nursing Education) (9 credits).

The knowledge development and scholarship component of the program prepares students to conduct culturally appropriate research in nursing. Substantive nursing content is acquired through the disciplinary knowledge sequence of courses. In the research scholarship sequence, students develop skills in methods, design, and measurement in both quantitative and qualitative approaches. The knowledge development and scholarship courses (39 credits) are NURS 702 Philosophical Thoughts, NURS 739 Advanced Nursing Science, NURS 741 Quantitative Methods and Measure, NURS 742 Qualitative Methods I, NURS 743 Qualitative Methods II, NURS 751 Concept Development and Analysis, NURS 767 Culturally Competent Research Methods, NURS 721 Instruments Development and Evaluation in Research, NURS 777 Nursing Research Practicum, NURS 752 and NURS 753, two advanced statistics courses to meet the specific research focus of the student, Ethics, and NURS 699 Research Proposal Development.

Cognate courses are chosen with the assistance of the student's advisor and may be taken after completion of the first year of doctoral courses when the student has a clearly defined research focus. Cognate courses may be taken from any department or school (within or outside of SONDH). The nursing education cognate courses prepare students to teach in nursing programs with a diverse student body. The nursing education courses (9 credits) are NURS 745 Creative Learning Strategies for Adults, NURS 747 Curriculum Development, and NURS 748 Supervised Practicum in Teaching. Doctoral students are encouraged to take graduate level courses (e.g., Masters, PhD, DNP, etc.) in fields of study that will enhance their doctoral education and research focus. These courses may be offered in other UH colleges/schools or departments (e.g., Psychology, Sociology, Medicine, etc.) and/ or courses offered by other universities and colleges including those available via NEXUS. The PhD faculty advisor should provide guidance about the selection of cognates based on the individual student's needs.

### Admission Requirements

Applicants must meet the requirements of both the Graduate Division and graduate admissions committee of the School of Nursing and Dental Hygiene. Requirements for the School of Nursing and Dental Hygiene include the following:

1. PhD Applicants are expected to have:
  - Preferred Educational Qualifications: RN License and Master of Science in Nursing from an NLNAC or CCNE accredited program (not applicable for international students).

- Minimum Education Qualifications: RN License, Bachelor of Science in Nursing from an NLNAC or CCNE accredited program (not applicable for international students), and a Master's Degree in a related health field;
- 2. GPA of 3.0 or above;
- 3. Interview with the PhD faculty (after application is complete); and
- 4. A current unrestricted RN license/certification in state or jurisdiction of practice;
- 5. Positive recommendation from the PhD committee; and
- 6. For international students, TOEFL scores must be 580 or above.

### Documentation Requirements

1. Department of Nursing PhD application;
2. Curriculum vitae or résumé;
3. A scholarly paper (pdf format is required);
4. Statement of research objectives; and
5. Current nursing license in state or jurisdiction of residence or practice.
6. Two professional references (names, title, and contact information).

### Requirements for Clinical Scholarship

1. Current RN license in state or country of residence;
2. Current CPR certificate from an approved American Heart Association Basic Cardiac Life Support;
3. Liability and malpractice insurance provided by the school;
4. Immunizations and other procedures;
5. Health insurance.

### Application Procedures

Two separate application forms must be completed: the Graduate Division application and the School of Nursing and Dental Hygiene PhD program application form. The Graduate Division application form and official transcripts must be sent directly to:

Graduate Student Services Office  
University of Hawai'i at Mānoa  
2540 Maile Way, Spalding 353B  
Honolulu, HI 96822

An on-line application is available through [www.manoa.hawaii.edu/graduate](http://www.manoa.hawaii.edu/graduate).

The School of Nursing and Dental Hygiene PhD program application form is available in the Office of Student Services, Webster 201. In addition, applications can be downloaded from the web at [www.nursing.hawaii.edu](http://www.nursing.hawaii.edu) and mailed to the school. The completed form and all other admission materials must be sent directly to:

School of Nursing and Dental Hygiene  
Office of Student Services  
2528 McCarthy Mall, Webster 201  
Honolulu, HI 96822

Completed applications are first screened by the Graduate Division Admissions Office. Only applications of students who meet UH Mānoa's minimum requirements are forwarded to the School of Nursing and Dental Hygiene for comprehensive review by the school's graduate faculty. The school then makes a recommendation to the Graduate Division to either admit the student or deny admission.

Applications are accepted for the fall semester only. The application forms and supporting documents must be received at the designated office by **February 1**. All documents be submitted by **December 1** to allow time for processing by the Graduate Division.

### **UH Translational Health Science Simulation Center (UH THSSC)**

Web: [hawaiiicenterfornursing.org/](http://hawaiiicenterfornursing.org/)

Please see the information in the "Instructional Support, Research, and Service Units" section

### **Hawai'i State Center for Nursing**

Web: [www.hawaiiicenterfornursing.org/](http://www.hawaiiicenterfornursing.org/)

Please see the information in the "Instructional Support, Research, and Service Units" section.

# School of Ocean and Earth Science and Technology



## Administration

Pacific Ocean Science and Technology 802  
 1680 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-6182  
 Fax: (808) 956-9152  
 Web: [www.soest.hawaii.edu/](http://www.soest.hawaii.edu/)

Dean: Brian Taylor  
 Email: [taylorb@hawaii.edu](mailto:taylorb@hawaii.edu)  
 Associate Dean for Academic Affairs: Charles H. Fletcher, III  
 Email: [cfletche@hawaii.edu](mailto:cfletche@hawaii.edu)  
 Associate Dean for Research: Alexander N. Shor  
 Email: [shor@hawaii.edu](mailto:shor@hawaii.edu)

## General Information

The School of Ocean and Earth Science and Technology (SOEST) was established in 1988. It combines and integrates the Departments of Geology and Geophysics, Meteorology, Ocean and Resources Engineering, and Oceanography, as well as the Hawai'i Institute of Geophysics and Planetology, Hawai'i Institute of Marine Biology, and the Hawai'i Natural Energy Institute. The Sea Grant and Space Grant College Programs, Hawai'i Undersea Research Laboratory, and Joint Institute for Marine and Atmospheric Research, all jointly supported by state and federal funds, are also part of SOEST. In 1997, the International Pacific Research Center was established in SOEST

under the U.S.-Japan Common Agenda. The center is jointly supported by the state, Japanese, and federal funds.

Although the Department of Ocean and Resources Engineering offers several undergraduate courses, baccalaureate degrees are not offered in this area. The Department of Oceanography offers the BS in global environmental science. Baccalaureate degree programs are offered in the Department of Geology and Geophysics and the Department of Meteorology. Those with long-range plans for graduate work in oceanography or ocean and resources engineering should prepare themselves with an undergraduate course of study that will satisfy the entry requirements for admission to these graduate programs. Information on entrance and degree requirements for all SOEST graduate programs (MS and PhD) in geology and geophysics, meteorology, ocean and resources engineering, and oceanography is in this *Catalog*. Candidates for advanced degrees and the graduate certificate program apply through the Graduate Division of UH Mānoa. The school has developed a number of interdisciplinary courses at both the undergraduate and the graduate levels, which are listed under OEST within the "Courses" section of the *Catalog*.

## Mission

The mission of SOEST is to make UH Mānoa a leading center in ocean and earth science and technology. Scientists and engineers of SOEST intend to understand the subtle and complex interrelations of the seas, the atmosphere, and the Earth in order to learn how to preserve the quality of our lives and to bring to Hawai'i an enrichment of intellect and culture along with technological advances well suited to the needs of these islands. To that end, the objectives of SOEST are as follows:

1. Enhance educational opportunities in ocean and earth science and technology for the people of Hawai'i, the nation, and the Pacific Basin;
2. Accelerate the growth of UH Mānoa to preeminence in research and development in ocean and earth science and technology;
3. Build the strength of UH Mānoa for public service and outreach in the Pacific Basin; and
4. Provide a foundation for economic interaction and development of marine-related industries within the State of Hawai'i.

## Degrees

**Bachelor's Degrees:** BA in geology, BS in geology and geophysics, BS in meteorology, BS in global environmental science

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**Master's Degrees:** MS in geology and geophysics, MS in marine biology, MS in meteorology, MS in ocean and resources engineering, MS in oceanography, MGEO in geoscience

**Doctoral Degrees:** PhD in geology and geophysics, PhD in marine biology, PhD in meteorology, PhD in ocean and resources engineering, PhD in oceanography

## Advising

Director: Leona M. Anthony  
SOEST Student Academic Services  
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All undergraduate majors in SOEST are assigned to an advisor in their major upon admission into the school. Mandatory advising for all majors takes place every semester prior to the next semester's registration. All students are encouraged to regularly meet with their advisors throughout each semester to discuss their educational and personal goals and to formulate an academic plan to attain those goals.

**Program goals:** To create and develop a teaching-learning relationship between the advisor/advisee to implement the advisee's educational plan toward his or her intended degree.

**Advising mission:** SOEST values and promotes collaborative relations between academic advisors, faculty advisors, and students to implement a personal education plan that is consistent with the student's goal.

## Undergraduate Programs

Application to the following programs are accepted by the Admissions Office: the BA in geology, the BS in geology and geophysics, the BS in global environmental science, and the BS in meteorology.

### School Requirements

1. Completion of basic course work as specified by their degree programs;
2. Completion of requirements for the major;
3. Completion of 45 upper division credit hours (courses numbered 300 and above);
4. GPA of 2.0 (C average) for all UH Mānoa registered credits;
5. GPA of 2.0 (C average) for all courses applied to the major requirements;
6. Completion of a degree audit (Graduation Worksheet) to the Student Academic Services Office at least two semesters preceding the award of the degree;
7. Completion of an application for graduation to the Student Academic Services Office in the semester preceding the award of the degree; and
8. Completion of an exit interview by the Student Academic Services Office.

### Bachelor of Arts and Bachelor of Science Degrees Requirements

1. Courses required by UH Mānoa Undergraduate General Education Requirements;
2. One year of a second language (101 and 102); and
3. Support science requirements from mathematics, chemistry, and physics vary with degree programs and all courses may

have prerequisites. The following are the minimum required courses (consult program advisor for details).

### Mathematics

- MATH 241 (BA)
- MATH 242 (BS, geology and geophysics)
- MATH 244 (BS, meteorology)
- MATH 243 and MATH 244 or OCN 312 and ECON 321 (BS, global environmental science)

### Chemistry

- CHEM 161/161L, 162/162L

### Physics

- PHYS 151/151L and 152/152L (BA)
- PHYS 170/170L and 272/272L (BS)

Note that introductory chemistry and mathematics courses have placement exams.

Students who have not completed a high school course equivalent to pre-calculus should take MATH 140 during the summer session prior to their first semester. All BA and BS degree candidates should consult with the departmental advisor before registering.

### Major Requirements

See appropriate departments for specific major requirements leading to a bachelor of arts or a bachelor of science degree.

## Graduate Programs

See appropriate departments for specific major requirements leading to MS and PhD degrees.

## Instructional and Research Facilities

### Hawai'i Institute of Geophysics and Planetology

The Hawai'i Institute of Geophysics and Planetology (HIGP) conducts geological, geochemical, geophysical, oceanographic, acoustic, and atmospheric research, as well as remote sensing research, in Earth, space, and marine sciences. Programs embrace research and advanced training in marine geology and geophysics, small satellite development and launch, infrasound, materials science and high-pressure mineral geophysics, evolution of the Solar System, seismology and solid Earth geophysics, planetary geology, meteoritics, volcanology, rock magnetism, geodetics, and petrology. The institute maintains various specialized facilities in support of its research endeavors and has a number of instrument development programs, including the Hawai'i Mapping Research Group who build and operate advanced sonars for seafloor mapping. Other instrument development programs include hyperspectral imagers, Raman spectrometers, and small satellites. HIGP includes the Hawai'i Space Grant Consortium, which runs a wide variety of education and fellowship programs at the K-12, undergraduate, and professional levels in the form of workforce development and also provides outreach to the Hawai'i community. HIGP is also the home of the Pacific Regional Planetary Data Center, and maintains several websites for the community, including "Planetary Science Research Discoveries" and the "Hawai'i MODVOLC Near Real-time Thermal Monitoring of Global Hot-spots."

### Hawai'i Institute of Marine Biology

The Hawai'i Institute of Marine Biology (HIMB) was established on the island of Moku O Lo'e in 1965 when its name was changed from the Hawai'i Marine Laboratory. The

institute is responsible for providing leadership and support for studies in the marine environment, particularly coral reefs. It provides facilities and services for faculty members, graduate and undergraduate students, and visiting scholars for research and education in marine biology and related topics. The core faculty, plus many from other UH departments, study the life processes of marine organisms including plants, animals, and microbes. Research at HIMB covers a broad range of topics including coral reef biology and ecology, the behavior, physiology and sensory systems of marine mammals, tropical aquaculture, the behavior of reef fish, shark ecology and sensory systems, fish endocrinology, pollution and management of marine ecosystems, coastal biogeochemical processes, fisheries, and bioengineering and genetics.

HIMB is unique in that it has modern molecular biology laboratories and immediate access to the reef, Kāneʻohe Bay, and deep ocean waters. It is located on Moku O Loʻe (Coconut Island) in Kāneʻohe Bay (on the east coast of Oʻahu), providing a unique setting for graduate-level topics courses and field-trip demonstration opportunities. Kāneʻohe Bay has many healthy coral reefs. The 28 acre island, located within a 30 minute drive distance from UH Mānoa campus, is surrounded by a 64 acre coral reef dedicated to scientific research. Facilities at the marine laboratory include research vessels and skiffs, protected harbors, a pelagic fish laboratory; Hawaiian fish ponds, aquaria and tanks; a flow-through seawater system; remote environmental monitoring capabilities; reef microcosm systems; a wide array of computerized analytical and acoustic equipment; a floating marine mammal research complex; a functional genomics facility; and the Barbara Pauley Pagen Library and classrooms.

### **Hawaiʻi Natural Energy Institute**

The Hawaiʻi Natural Energy Institute (HNEI) was established by the Legislature in 1974 to develop renewable energy resources and technologies to reduce the state's dependence on fossil fuels, was given a broader mandate by the Hawaiʻi Legislature (ACT 253 in 2006) to also demonstrate and deploy efficient energy end-use technologies and to coordinate closely with the state's energy resource coordinator. Today, with funding from state and federal agencies as well as industry, HNEI conducts basic and applied research on a wide range of topics to address society's critical energy and environmental problems. Current research includes hydrogen fuel cells, ocean energy and resources, fuels and high value products derived from biomass, photovoltaics, and batteries and electric vehicles. The institute conducts studies and assessments to support policy development and conducts testing and evaluation of emerging energy generation, grid enabling, and energy efficiency technologies. Many of these activities are conducted under public/private partnerships managed by the institute, with the goal of supporting increased penetration of renewable technologies onto the electrical grid systems.

### **Hawaiʻi Space Grant Consortium**

The Hawaiʻi Space Grant Consortium (HSGC) is a wide-ranging community educational program supported by the National Aeronautics and Space Administration (NASA) that promotes studies in scientific fields related to space. These fields include astronomy, geology, meteorology, oceanography, mathematics, physics, engineering, computer science, and life sciences. Affiliate campuses are UH-Hilo, all seven community



colleges within the UH System, and the University of Guam. Some of the programs supported by Space Grant include undergraduate fellowship and traineeship programs (approximately 10-20 students per semester are supported); the Future Flight Program for teachers, school students, and their parents; teacher workshops; undergraduate remote-sensing classes; an undergraduate telescope classes facility; a CanSat project geared for community college students to create a satellite similar to UH Mānoa's own CubeSat project; an undergraduate internship program awarded for students to participate in Science, Technology, Engineering, and Mathematics (STEM) related research at local businesses; and outreach to state and federal agencies related to the use of satellite and aircraft remote-sensing data. A significant goal of the program is to encourage interdisciplinary studies and research, and to train future generations of space scientists and engineers. Students, teachers, and researchers in Hawaiʻi are encouraged to contact the UH Mānoa HSGC office at (808) 956-3138 to learn more about the opportunities.

### **Hawaiʻi Undersea Research Laboratory**

The Hawaiʻi Undersea Research Laboratory (HURL) was established in 1980 by a cooperative agreement between the National Oceanic and Atmospheric Administration (NOAA) and the UH. HURL was one of six National Undersea Research Centers sponsored by NOAA's National Undersea Research Program (NURP). HURL operates the *Pisces IV* and *Pisces V* research submersibles to conduct marine research to oceanic depths of 2,000 meters. These underwater vehicles are operated from HURL's dedicated support ship, the 222-foot R/V *Kaʻimikai-o-Kanaloa*. Extensive data archives are available to the scientific and academic community for biology, geology and marine chemistry research from submersible dives dating back to 1980. Principal research projects conducted are those aligned with the mission of NOAA.

### **International Pacific Research Center**

The International Pacific Research Center was established in 1997 under the U.S.-Japan Common Agenda for Cooperation in Global Perspective. Its mission is to provide an international, state-of-the-art research environment to improve understanding of the nature and predictability of climate variability in the Asia-Pacific sector, including regional aspects of global environmental change.

## Joint Institute for Marine and Atmospheric Research

The Joint Institute for Marine and Atmospheric Research (JIMAR) was created in 1977 through a Memorandum of Understanding between the National Oceanic and Atmospheric Administration (NOAA) and UH Mānoa to conduct research of mutual interest. The principal research interests of JIMAR are ecosystem forecasting, ecosystem monitoring, ecosystem-based management, protection and restoration of resources, equatorial oceanography, climate research and impacts, tropical meteorology, and tsunamis and other long-period ocean waves.

## Sea Grant College Program

The University of Hawai'i Sea Grant College Program (UH Sea Grant) supports an innovative program of research, education, and outreach services directed to the improved understanding and stewardship of marine and coastal resources of the state, region, and nation. UH Sea Grant is a partnership of UH Mānoa, the National Oceanic and Atmospheric Administration, and the State of Hawai'i that is facilitated by strong linkages with 32 Sea Grant programs across the nation and affiliations throughout the Pacific.

UH Sea Grant research currently focuses on promoting coastal community sustainability, sustainable aquaculture, marine biotechnology, ecosystem-based use of nearshore resources and habitats, sustainable tourism, coastal water quality, and resilience to natural hazards. Knowledge is disseminated to policy makers, marine agencies, the marine industry, and the general public through UH Sea Grant's extension faculty, outreach activities, and communications program. UH Sea Grant supports educational activities that include K-12 through graduate and postgraduate and professional training. Human resources are built in part through internships, traineeships, and fellowships. The overall goal is to develop knowledge and the will to build Hawai'i's economy and protect its habitats and resources through UH Mānoa's excellence and our cultural heritage.

## Geology and Geophysics

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### Faculty

- \*G. T. Apuzen-Ito, PhD—marine geophysics and geodynamics
- \*J. M. Becker, PhD—geophysical fluid dynamics
- \*C. P. Conrad, PhD—geodynamics, marine geophysics
- \*H. Dulaiova, PhD—coastal hydrology and geochemistry
- \*R. A. Dunn, PhD—marine geophysics
- \*A. I. El-Kadi, PhD—groundwater and watershed hydrology
- \*C. H. Fletcher, PhD—coastal geology
- \*L. N. Frazer, PhD—geophysics
- \*E. J. Gaidos, PhD—geobiology, planetary science
- \*M. O. Garcia, PhD—igneous petrology, volcanology
- \*C. R. Glenn, PhD—coastal groundwater, environmental geochemistry, marine sediments
- \*J. E. Hammer, PhD—physical volcanology
- \*E. W. Hellebrand, PhD—igneous petrology

- \*B. F. Houghton, PhD—physical volcanology
- \*A. H. Jahren, PhD—geobiology, environmental science
- \*K. T. M. Johnson, PhD—geochemistry, petrology, marine geology
- \*J. G. Konter, PhD—solid earth geochemistry, volcano petrology
- \*S. J. Martel, PhD—engineering geology, structural geology, geomechanics
- C. Miller, Ph.D.—isotope geochemistry
- \*G. F. Moore, PhD—exploration seismology, tectonics
- \*B. N. Popp, PhD—isotopic biogeochemistry
- \*G. E. Ravizza, PhD—paleoceanography
- \*S. K. Rowland, PhD—volcanology, Hawaiian geology
- \*K. H. Rubin, PhD—geochemistry, environmental chemistry, volcanology
- K. Ruttenger, PhD—biogeochemistry, geochemistry
- \*T. Shea, PhD—physical volcanology
- \*B. R. Smith-Konter, PhD—geophysics
- \*S. M. Stanley, PhD—paleobiology, geobiology
- \*B. Taylor, PhD—plate tectonics, geology of ocean margin basins
- \*P. Wessel, PhD—plate tectonics, marine geophysics

### Cooperating Graduate Faculty

- R. Butler, PhD—seismology
- E. H. DeCarlo, PhD—marine geochemistry, marine resources
- P. Dera, PhD—mineral physics, mineralogy, petrology, crystallography
- M. H. Edwards, PhD—marine geology and geophysics
- S. A. Fagents, PhD—planetary volcanology
- L. Flynn, PhD—remote sensing of fires and volcanoes
- P. B. Fryer, PhD—marine geology, petrology, tectonics
- M. A. Garcés, PhD—infrasound, wave propagation, volcanology
- J. Gillis-Davis, PhD—planetary geosciences, remote sensing
- B. R. Hawke, PhD—planetary geosciences
- E. Herrero-Bervera, PhD—paleomagnetism, geomagnetism
- R. N. Hey, PhD—marine geophysics and tectonics
- G. R. Huss, PhD—cosmochemistry, early solar system chronology
- K. Keil, DrRerNat.—meteorites, planetary geosciences
- A. N. Krot, PhD—meteorites, planetary geosciences
- B. R. Lienert, PhD—geophysics
- P. G. Lucey, PhD—planetary geosciences
- M. H. Manghnani, PhD—high-pressure geophysics, mineral physics
- F. Martinez, PhD—marine geophysics
- F. W. McCoy, PhD—marine geology, sedimentology
- A. Misra, PhD—LIBS and fluorescence, material science
- P. J. Mouginiis-Mark, PhD—planetary science, remote sensing
- K. Ruttenger, PhD—biogeochemistry
- J. E. Schoonmaker, PhD—marine geology and geochemistry
- N. Schörghofer, PhD—permafrost, planetary surfaces
- E. R. D. Scott, PhD—planetary geosciences
- S. K. Sharma, PhD—Raman and IR spectroscopy in geochemistry
- G. J. Taylor, PhD—planetary geosciences
- R. Wright, PhD—volcanology
- P. Zinin, PhD—geophysics, planetology

### Affiliate Graduate Faculty

- C. Blay, PhD—sedimentology, Hawaiian geology
- B. A. Brooks, PhD—geodetic, GPS
- R.J. Carey, PhD—physical volcanology
- A. Greene, PhD—geochemistry
- C. Gregg, PhD—volcanology
- V. Keener, PhD—climate, hydrological systems
- F. Mackenzie, PhD—sedimentary geochemistry, sedimentology
- D. Oki, PhD—hydrology
- M. Patrick, PhD—volcanology
- A. Pietruszka, PhD—geochemistry
- M. Reid, PhD—hydrogeology
- D. Pyle, PhD—geochemistry, petrology
- K. Rotzoll, PhD—groundwater, hydrogeology
- T. Sale, PhD—hydrology
- B. Schmitz, PhD—geobiosphere, astronomy

D. A. Swanson, PhD—volcanology  
 T. Thordarson, PhD—volcanology  
 F. A. Trusdell, PhD—volcanology, Hawaiian geology  
 D. Weis, PhD—geochemistry, volcanology  
 C. J. Wolfe, PhD—seismology, marine geophysics

**Degrees Offered:** BA in geology, BS in geology and geophysics, Professional Masters in geoscience (MGeo), MS in geology and geophysics, PhD in geology and geophysics

## The Academic Program

The Department of Geology and Geophysics (GG) is centered around the scientific study of the exterior and interior of the Earth and other planetary bodies. Sub-disciplines within GG are many, and offer rich opportunities for multidisciplinary study of problems of great intellectual and practical importance. *Coastal geologists* study processes such as sedimentation and beach erosion, reef growth and degradation, and sea level change. *Hydrologists* and *Hydrogeochemists* study the cycling of fresh water between the atmosphere, land, and ocean. Of particular emphasis is how climate change impacts this cycle; how fresh water supplies are impacted by human activities, including land-use practices and the introduction of contaminants into surface and groundwater; how climate, hydrologic, and terrestrial processes impact the ocean and its ecosystems by way of surface water and submarine groundwater discharge. *Structural geologists* study the physical features in rock units with respect to stress and deformation related to processes such as mountain building, rifting, and earthquakes. *Engineering geologists* provide geotechnical recommendations affecting the design, construction, and operation of engineering activities, based on geologic factors such as material properties, landslides and slope stability, erosion, and flooding. *Mineralogists* and *petrologists* examine the temperature, pressure, and environmental conditions that influence the formation of minerals and rocks. *Geochemists* specialize in the chemistry of earth materials for gaining knowledge about a huge range of aspects including the make-up of the deep earth, the formation of the seafloor, the origin of volcanoes, as well as past and present changes in Earth's climate, ocean environment, and life. *Volcanologists* study how gas, fluid, and magma interact to create different types of volcanic eruptions, and address hazard remediation. *Geophysicists* use seismology, potential fields, sonar, radar, and GPS for studying earthquakes, Earth's surface and internal structure, land deformation, and plate tectonics. They also use mathematics, continuum mechanics, and high performance computing for studying Earth and planetary processes. *Planetary scientists* examine how the Earth and Solar System formed, study active processes on planetary bodies, search for extrasolar planets, and explore planetary conditions needed for life.

Undergraduate and graduate students in GG are instructed and advised by world-class researchers in a variety of the above sub-disciplines. Students participate in a diverse course curriculum involving in-class instruction, laboratory activities, and field trips. They have access to state-of-the-art facilities including a number of different types of mass spectrometers, an electron microprobe, an X-ray fluorescence laboratory, and high-performance computing facilities. Field trips take students to volcanoes on Hawai'i and other islands, as well as geologic settings on the U.S. mainland and around the world. Students also participate on research cruises onboard one of several research vessels that are operated by SOEST. GG students who

are involved in research projects regularly present their findings in scientific conferences and journal publications. These varied activities allow students to take full advantage of Hawai'i's unique geographic location and its rich geologic and environmental setting.

Students graduate from the Department of Geology and Geophysics (GG) with an in-depth understanding of the relevance of the geosciences to society, especially Hawai'i and Pacific islands, as well as the ways human civilization impacts the Earth and environment. Students are able to use basic skills in math, physics, chemistry, and biology as well as technical knowledge in computer applications, laboratory methods, and field techniques for solving real-work problems in the geosciences. Graduates know how to ethically apply the scientific method, and can use basic principles in geoscience for explaining natural phenomenon. GG graduates develop proficiency in communicating their knowledge in oral presentations and in writing professional documents. As a result, GG majors are widely successful in obtaining jobs in fields within or closely related to the geosciences. These fields include environmental assessment and remediation; engineering; geotechnical consulting; oil, natural gas and mineral resources; water resource management; science education; as well as applied and basic research.

## Advising

Students contemplating a major or minor in geology and geophysics should contact the Director of Student Services for SOEST in HIG 135 (tel. 956-8763). There are two undergraduate advisors who may be contacted through the department office (956-7640, ggdept@soest.hawaii.edu). Graduate students are appointed a faculty advisor upon admittance into the program.

## Undergraduate Study

### BA in Geology

#### Requirements

The BA degree in geology is appropriate for students interested in Earth science but not necessarily intending to pursue graduate work or employment in traditional geological sciences. It is more flexible than the BS program and is suitable for students who are considering a double major or teaching.

The BA degree requires completion of 120 credit hours of coursework, the equivalent of four years of full-time study. The BA program requires 35 credits in the geology and geophysics curriculum. This includes one introductory level GG course with a lab, seven non-introductory GG courses, a two-credit research seminar, and at least five credits of approved upper division electives. With the advice and consent of an undergraduate advisor, courses in other natural sciences, mathematics, or engineering may be substituted as electives. A mainland summer field course is an elective that students are strongly encouraged to take. Required support classes include physics, chemistry, biological sciences, and one semester of college calculus; these total 23-24 credits and should be taken as early as possible. A minimum grade of C (not C-) must be achieved in all major and support classes.

#### Geology and Geophysics Courses

- Required Courses (30 credits)
  - GG 101 Dynamic Earth (3), or 103 Geology of the Hawaiian Islands (3), or GG 170 Physical Geology (4)

- GG 101L Dynamic Earth Laboratory (1) (unless GG 170 is taken)
- GG 200 Geological Inquiry (4)
- GG 250 Scientific Programming (3)
- GG 301 Mineralogy (4)
- GG 302 Igneous and Metamorphic Petrology (3)
- GG 303 Structural Geology (3)
- GG 305 Geological Field Methods (3)
- GG 309 Sedimentology and Stratigraphy (4)
- GG 410 Undergraduate Seminar (2)
- Upper Division Science Electives (5 credits)
  - GG 300 Volcanology (3)
  - GG 304 Physics of Earth and Planets (4)
  - GG 312 Geomathematics (3)
  - GG 325 Geochemistry (3)
  - GG 399 Directed Reading (V)
  - GG 402 Hawaiian Geology (3)
  - GG 407 Energy and Mineral Resources (3)
  - GG 413 Geological Data Analysis I (3)
  - GG 420 Coastal Geology (3)
  - GG 421 Geologic Record of Climate Change (3)
  - GG 423 Marine Geology (3)
  - GG 425 Environmental Geochemistry (3)
  - GG 444 Plate Tectonics (3)
  - GG 450 Geophysical Methods (4)
  - GG 451 Earthquakes (3)
  - GG 455 Hydrogeology (4)
  - GG 460 Geological Remote Sensing (3)
  - GG 466 Planetary Geology (3)
  - GG 499 Undergraduate Thesis (3)
- Required Support Courses (23-24 credits)
  - General Chemistry (CHEM 161, 161L, 162, 162L)
  - Calculus I (MATH 241)
  - College Physics (PHYS 151, 151L, 152, 152L)
  - Biological Sciences (BIOL 171, or BOT 101, or ZOOL 101, or MICR 130)

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## **BS in Geology and Geophysics**

### **Requirements**

This BS degree is designed for students interested in pursuing graduate work or employment in the geosciences. It provides essential grounding in computational, analytical, and observational skills needed in earth science. The program is interdisciplinary and emphasizes the integration of biology, chemistry, physics, and mathematics in the study of the Earth.

The BS in geology and geophysics (GG) requires completion of 120 credit hours of coursework, the equivalent of four years of full-time study. Of this, 48 credits are required in the GG curriculum, including one introductory level geology course with a lab, ten non-introductory level GG courses, a two-credit research seminar, and eleven credits of GG electives. With advice and consent of an undergraduate advisor, courses in other natural sciences, mathematics, or engineering can also be taken as electives. Students are strongly encouraged to take a summer field course as an elective. An undergraduate thesis is also encouraged but not required. The required supporting science classes (28-29 credits) include physics, chemistry, biological science, and college calculus, and should be taken as early as

possible. A minimum grade of C (not C-) must be achieved in each major and support classes.

### **Geology and Geophysics Courses**

- Required GG Courses (37 credits)
  - GG 101 Dynamic Earth (3), or 103 Geology of the Hawaiian Islands (3), or GG 170 Physical Geology (4)
  - GG 101L Dynamic Earth Laboratory (1) (unless GG 170 is taken)
  - GG 200 Geological Inquiry (4)
  - GG 250 Scientific Programming (3)
  - GG 301 Mineralogy (4)
  - GG 302 Igneous and Metamorphic Petrology (3)
  - GG 303 Structural Geology (3)
  - GG 304 Physics of Earth and Planets (4) OR 450 Geophysical Methods (4)
  - GG 305 Geological Field Methods (3)
  - GG 309 Sedimentology and Stratigraphy (4)
  - GG 325 Geochemistry (3)
  - GG 410 Undergraduate Seminar (2)
- Upper Division GG Electives (11 credits)

See the Upper Division Science Electives listing under the BA program. With advice and consent of an undergraduate advisor, courses in other natural sciences, mathematics, or engineering may be substituted as electives.

- Required Support Courses (28-29 credits)
  - Chemistry (CHEM 161, 161L, 162, 162L)
  - Calculus I and II (MATH 241 and 242)
  - Physics (PHYS 170, 170L, 272, 272L)
  - Biological Sciences (BIOL 171, or ZOOL 101, or MICR 130)

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### **BS Track Emphasizing Basic Science and Research**

This alternate BS track allows for a more flexible course work program that is tailored to the student's individual goals. It requires the student to work with an advisor on a research thesis.

To apply for this track, the student must have a minimum combined GPA of 3.0 in 24 credits of the required support courses (see below) as well as in GG 170 (or 101 or 103 and 101L), 200, and 250. The application will consist of a one-page statement of the student's objectives and research interests, presented to a GG departmental undergraduate advisor.

The thesis must be carefully planned and meet departmental requirements. A thesis supervisor and topic should be identified in the student's second-to-last year in the program. The thesis work requires at least 6 (but not more than 9) credit hours of GG 499 Undergraduate Thesis. The thesis research is presented in writing, following the style of a scientific article, and orally in a public seminar. The thesis is evaluated by both the research supervisor and a departmental undergraduate advisor.

### **Course Requirements**

- Required GG Courses (22 credits)
  - GG 170 Physical Geology (4) (or 101 Dynamic Earth (3), or 103 Geology of the Hawaiian Islands (3) and 101L Dynamic Earth Laboratory)
  - GG 200 Geological Inquiry (4)
  - GG 250 Scientific Programming (3)
  - GG 410 Undergraduate Seminar (2)

- GG 413 Geological Data Analysis I (3)
- GG 499 Undergraduate Thesis (6)
- Upper Division GG Electives (25 credits, see above)
- Required Support Courses (32 credits)
  - Chemistry: CHEM 161 (3), 161L (1), 162 (3), 162L (1)
  - Calculus I and II: MATH 241 (4) and 242 (4)
  - Physics: PHYS 170 (4), 170L (1), 272 (3), 272L (1)
  - Biology: BIOL 171 (3), 171L (1), 172 (3), 172L(1)

### **Minor in Geology and Geophysics**

The minor requires GG 101 or 103 or 170, 101L (unless 170 is taken), 200, and 11 credits of non-introductory courses at the 300 level or higher. A 2.0 GPA is required in these courses. The minor is flexible and can provide either an introductory survey of geology or emphasize areas of particular interest to the student. A student interested in a minor in geology and geophysics should consult with an advisor from the department to tailor a plan best suited to the student's interest.

## **Graduate Study**

### **Admission Requirements**

All applicants must take the GRE General Test. All students are urged to have completed a course in a computer programming language before entrance. U.S. applications are due by **January 15** for admission in the fall semester or by **September 1** for the spring semester. International applications are due **January 1** and **August 15**, respectively.

Undergraduate deficiencies will be determined from the student's transcripts and intended field of study. Undergraduate course work deficiencies will be assessed at the preliminary conference. GG 611 is intended for students entering from a non-geoscience field to prepare them for graduate studies in the geosciences.

### **Masters in Geoscience for Professionals (MGeo)**

The MGeo is a professional degree for individuals seeking advanced training for careers in geoscience-related industries or federal, state, and local agencies. Key courses are appropriately scheduled or administered for working professionals to obtain an MGeo in as little as two years of half-time study. Applicants must have a bachelor's degree in the natural sciences, mathematics, or engineering, and are normally expected to have completed at least one year each of college mathematics, geology, physics, and chemistry.

### **Requirements**

The MGeo degree requires a minimum of 30 credit hours, including a total of 6 credits of MGeo Professional Project. At least 12 credits will be in GG graduate courses (GG 600-740), excluding GG 699; and 12 credits may be taken from a list of upper-division undergraduate courses that emphasize applied geoscience.

MGeo Seminar is a 1-credit course that must be taken each year, up to three times. Students will participate in a professional work project as an employee, intern, or volunteer with a company or agency (gaining the credits in MGeo Professional Project), and present the outcome of the project in final oral presentation as well as a written report.

### **Master's Degree**

Intended candidates will be accepted from undergraduate majors in the natural sciences, mathematics, and engineering,

and they normally would be expected to have completed at least one year each of college mathematics, geology, physics, and chemistry. Adequacy of each applicant's additional preparation will depend on the particular branch of geology and geophysics being pursued. At the time of application the student should state the field in which he or she intends to study.

### **Requirements**

For MS students, the graduate studies committee of the department will determine suitability of Plan A (thesis) or Plan B (non-thesis) at the preliminary conference. Virtually all students are required to follow Plan A. Plan A requires a minimum of 30 credits, including 6 credits of GG 700 Thesis Research and at least 24 credits of course work (up to 6 course work credits may be in GG 699). Plan B requires a minimum of 30 credit hours of course work and a final exam.

### **Doctoral Degree**

#### **Requirements**

PhD candidates are accepted with either a BS or MS degree. Students without an MS must pass a qualifying examination given at the beginning of their second semester in residence. All PhD candidates must pass a comprehensive examination no later than at the end of the fourth semester of residence for students without an MS degree or at the end of the second semester of residence for students with an MS degree. The comprehensive exam includes oral and written parts that cover in-depth subjects in the student's field of interest and also relevant general information from this and other departments. A final examination in defense of the dissertation is required. Space and financial aid for the program are limited, so each student's progress will be reviewed annually.

#### **Areas of Interest**

The areas of interest listed below are active fields of research in the department. For each, a brief description and the required undergraduate preparation are listed. Students with backgrounds other than these may be accepted in a field if their records and recommendations are strong, but advancement to candidacy may be delayed. A complete statement of the courses and other work in each field necessary for the MS or to prepare for the PhD comprehensive examination will be given to the entering student.

The department can provide further information on research opportunities and financial aid in each of the areas of interest.

**Geophysics and Tectonics.** Studies in geophysics and tectonics at UH Mānoa are interdisciplinary and include experimental and theoretical developments, field-based observations, and computer simulations. Together, they provide students with a background that combines both geology and geophysics for technical and professional work at industrial, governmental, and academic institutions. Subtopics include: (a) Plate Tectonics—rift propagation and plate break-up; initiation and evolution of continental margins and back-arc basins; relative and absolute motion of plates; thermo-mechanical properties of oceanic lithosphere; mantle convection and the driving forces of plate tectonics; and hot spot and intraplate volcanism; (b) Seismology—theory and analysis of seismic waves from active and passive sources; ocean-bottom geophysical instrumentation; multichannel seismic imaging of subduction zones, accretionary prisms, and submarine volcano flanks; (c) Geophysical Fluid Dynamics—mantle flow and plume-plate interaction;

plate generation and rheology from mantle flow; ocean/shore dynamics and nonlinear waves; (d) Rock Fracture Mechanics—field, theoretical, and laboratory analyses of the mechanics of fault growth, rock fracture, dike propagation, landslides, and crustal deformation; these topics are relevant to plate tectonics, structural geology, and engineering geology.

Entrance may be through majors in geophysics, geology, mathematics, physics, or engineering. Students need a background in geology (which can be obtained in graduate school) together with supporting mathematics and physics.

**Marine and Environmental Geology (MEG).** The Marine and Environmental Geology (MEG). The Marine and Environmental Geology program is focused on the dynamic physical, biological, and chemical interactions that characterize Earth surface terrestrial and marine environments and also the history of these interactions over the course of geologic time. Researchers work on problems ranging from those of pure scientific curiosity of global phenomena to pragmatic problem-solving of environmental problems, and including everything in-between. Faculty and students of the MEG group travel to field sites all over the world to study processes and interactions between water, atmosphere, sediments, and living tissues, and their travel also includes several large-scale projects located within the Hawaiian Islands. Research also extends backward through deep time, integrating the biological and physical aspects of earth history through the study of rocks and fossils. Instruction is designed to provide students with hands-on exposure to the most exciting, contemporary issues in environmental science, particularly on topics where the fields of geology and oceanography overlap with other environmental sciences. Laboratories use the newest biogeochemical technologies and instrumentation in order to assess the health and integrity of coastal systems, to reconstruct past climates and life forms, to characterize the movement of precious water resources, and to understand the chemical cycling of both organic and inorganic components of the ocean. MEG research topics carry important implications and benefits for the sustainability of fresh water resources and reserves, agriculture, coastal and marine ecosystems, fisheries, Hawai'i's beaches and economy, and other topics of immediate societal concern.

Many research efforts in this program involve participation in oceanographic expeditions. Graduate students are encouraged to participate in these voyages as a part of their career training. The program is multidisciplinary with cooperating faculty and courses from several other departments including civil engineering, geography, oceanography, and soil sciences. The diverse research and teaching interests of the faculty make it possible to tailor graduate degree work to fit the needs and desires of the student. Requirements for admission typically include an undergraduate major in geology or one of the other natural sciences, along with basic courses in physics, chemistry, and mathematics. Students often study a combination of geology, geophysics, oceanography, biology, civil engineering, and/or geochemistry, as appropriate for his or her optimum intellectual development.

**Volcanology, Geochemistry, and Petrology (VGP).** UH Mānoa is uniquely situated to study all major aspects of volcanic systems. Active Hawaiian volcanoes are natural laboratories of intraplate volcanism and hydrothermal activity; eroded fossil volcanic systems on other islands provide windows into deeper volcanic structures; and Hawai'i is at the center of the Pacific "Ring of Fire." Collectively, the VGP group has active field

programs that are global in scope. The group studies submarine volcanoes with UH Mānoa and other research vessels, and on terrestrial volcanoes around the world, and participates in remote monitoring of volcanoes on Earth and other planets using ground-based and space-borne observatories. Faculty of the VGP group operate a wide range of modern, well-equipped, state-of-the-art analytical laboratories that provide data on the chemical composition and physical properties of rocks and minerals. In addition, VGP covers basic courses in Hawaiian geology, geologic hazards, geochemistry, optical mineralogy, petrology, structural geology, volcanology, geological field methods, remote sensing and GIS techniques.

Specialized topics that members of the group study include (a) geometry and dynamics of mantle flow, melt generation and magma chamber processes at submarine volcanoes from petrologic, geochemical, and isotopic variations at mid-ocean ridges and back-arc basin spreading centers; active volcanism at submarine volcanoes; geochronology of submarine volcanism, and volcano interactions with the submarine environment; (b) physical processes at volcanoes giving rise to degassing, and fragmentation of magma in conduits; transport and deposition from volcanic plumes and pyroclastic density currents; flood basalts and the eruption and emplacement of lavas; caldera volcanoes and ignimbrites; volatile degassing and retention in magma chambers; environmental impact and social consequences of eruptions; and volcanic processes on extraterrestrial bodies. (c) geochemical and isotopic tracing of mantle composition and evolution; geochemical cycling; geosphere-hydrosphere exchanges; (d) petrologic, geochemical, isotopic, and geologic evolution of Hawaiian and other oceanic islands and seamounts; petrologic, seismic, and geodetic monitoring of magmatic systems at active Hawaiian volcanoes; satellite monitoring of volcanic hazards and eruption clouds; remote-sensing observation of extraterrestrial volcanoes.

Entrance through majors in geology or chemistry is most typical. Students need a background in geology (which can be obtained in graduate school) together with supporting mathematics and physics.

**Planetary Geoscience and Remote Sensing.** This program, centered in the Hawaiian Institute of Geophysics and Planetology (HIGP), studies the geology and composition of objects (planets, asteroids, moons, and meteorites) in the Solar System to understand their origin and evolution. It involves research in planetary and terrestrial geology, cosmochemistry, volcanology, planetary astronomy, and scientific instrumentation. Current research areas include: (a) research on extraterrestrial materials from asteroids, the Moon, and Mars as records of processes in the solar nebula; alteration processes; the effects of shock; igneous processes; and planetary crustal compositions and evolution; (b) remote sensing and petrology of the moon, Mars, and Mercury to understand planetary formation, differentiation, and weathering of planetary crusts, volcanic processes, and the mode of formation of impact craters. Faculty are science team members on multiple planetary missions (MESSENGER, Lunar Reconnaissance Orbiter, Mars Odyssey, and Mars Reconnaissance Orbiter); (c) terrestrial remote sensing using spacecraft (Landsat 7, EO-1, Terra, Aqua, GOES), aircraft, and ground observations to study the flux of magma through volcanic systems, eruption precursors, forest fires worldwide and the like. Data from the GOES geostationary satellite are made available on the HIGP website ([goes.higp.hawaii.edu](http://goes.higp.hawaii.edu)) and MODIS thermal alerts for the entire world are made available at [modis.higp](http://modis.higp).

hawaii.edu. Imaging radar remote sensing is also conducted within HIGP. This includes interferometric studies of volcano deformation using ENVISAT and ALOS data for understanding magma emplacement and volcano tectonics. HIGP is a major partner (with the College of Engineering) in the Hawai'i Space Flight Laboratory, which includes preparation for future UH-led space missions involving small satellites; (d) developing instruments for use in studying global and regional problems in Earth and planetary science, such as hyperspectral thermal infrared imagers for use in lithologic mapping, the analysis of temperature anomalies, the flux of sulfur dioxide from volcanoes, an infrasonics array for a global monitoring system for the detection of atmospheric disturbances, and lidar systems for the measurement of atmospheric aerosols and rock compositions.

Typically, an undergraduate major in geology, astronomy, physics, or engineering, along with basic courses in chemistry, physics, and mathematics, would be sufficient for entrance. The student should be prepared to commence or continue course work in whatever combination of geology, geophysics, geochemistry, planetary science, spectroscopy, radar science, or remote sensing is appropriate for optimum development in the field and to satisfy minimum requirements in the Geology and Geophysics department.

## Global Environmental Science

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1000 Pope Road  
Honolulu, HI 96822  
Tel: (808) 956-2910  
Fax: (808) 956-9225  
Email: ges@soest.hawaii.edu  
Web: www.soest.hawaii.edu/oceanography/GES/

### Faculty

- J. E. Schoonmaker, PhD (Undergraduate Chair)—sedimentary geochemistry and diagenesis; interpretation of paleoenvironment and paleoclimate sedimentary records
- J. M. Becker, PhD—geophysical fluid dynamics, nonlinear waves and stability, coastal processes, general ocean circulation
- D. Beilman, PhD—long-term terrestrial ecology, paleoscience approaches to global change science, carbon cycling
- R. R. Bidigare, PhD—bio-optical oceanography, pigment biochemistry, plankton metabolism
- S. Businger, PhD—mesoscale and synoptic meteorology
- B. C. Bruno, PhD—planetary geosciences, geoscience education
- G. S. Carter, PhD—physical oceanography, ocean mixing, tides, internal waves
- M. J. Church, PhD—microbial oceanography, aquatic nitrogen cycling, and microbial physiology
- A. D. Clarke, PhD—physical and chemical properties of aerosol in remote troposphere, aircraft studies of aerosol in free troposphere
- M. J. Cooney, PhD—anaerobic digestion of high strength wastewaters, development of next generation biofilm carriers for use in packed bed anaerobic digesters, solvent based bio-oil extraction from biomass
- E. H. DeCarlo, PhD—aquatic chemistry; metals and their anthropogenic inputs, transformations, fate and transport
- J. L. Deenik, PhD—soil fertility and soil quality, nitrogen and carbon cycling in agroecosystems, traditional agroecosystems, biochar and sustainable agriculture
- S. Dollar, PhD—biogeochemistry, nearshore processes and effects of human activity on the coastal zone
- J. C. Drazen, PhD—deep-sea ecology and fisheries, energetics and trophodynamics, physiological ecology of marine fishes
- A. El-Kadi, PhD—hydrogeology, modeling groundwater systems
- R. C. Ertekin, PhD—hydrodynamics, computational methods, offshore and coastal engineering, oil-spill spreading, fishpond circulation, ocean renewable energy
- E. Firing, PhD—ocean circulation and currents on all scales, with emphasis on observations and dynamics
- P. J. Flament, PhD—dynamics of surface ocean layer, mesoscale structures, remote sensing, water-types formation subduction and thermocline ventilation, mixing process
- C. H. Fletcher, PhD—quaternary and coastal marine geology, sea-level history, coastal sedimentary processes
- P. Fryer, PhD—marine geology, petrology, tectonics
- E. Gaidos, PhD—molecular evolution; microbiology of extreme environments; biosphere-climate feedbacks; critical intervals in Earth history; exobiology; biological networks
- M. O. Garcia, PhD—volcanology, igneous petrology, geochemistry
- T. W. Giambelluca, PhD—interactions between the atmosphere and the land surface, including influences of land use and land cover change on climate and surface hydrology and effects of global climate change on hydrologic processes and terrestrial ecology
- B. T. Glazer, PhD—biogeochemical processes in marine environments; use of molecular methods to characterize and understand synergy of geomicrobiology
- C. R. Glenn, PhD—paleoceanography, marine geology, sedimentology, sediment diagenesis
- E. Goetze, PhD—marine zooplankton ecology; dispersal and gene flow in marine plankton populations; evolution, behavioral ecology and systematics of marine calanoid copepods
- E. G. Grau, PhD—environmental physiology and comparative endocrinology of fish
- M. P. Hamnet, PhD—coastal zone management; fisheries economics; disaster preparedness and mitigation
- D. T. Ho, PhD—air-water gas exchange, tracer oceanography, carbon cycle, and environmental geochemistry
- P. Kemp, PhD—growth, activity and diversity of marine microbes; biosensor applications in microbial oceanography; molecular ecology of marine bacteria
- D. E. Konan, PhD—international trade, microeconomics, computational economics
- K. Lowry, PhD—design, planning and evaluation of ocean and coastal management programs; experience in Hawai'i, Indonesia, Sri Lanka, Philippines and Thailand
- R. Lukas, PhD—physical oceanography, interannual and decadal climate variability
- F. T. Mackenzie, PhD—geochemistry, biogeochemical cycling, global environmental change, Program Coordinator for GES
- S. J. Martel, PhD—engineering and structural geology
- M. A. McManus, PhD—coast circulation, mesoscale processes, physical-biological interactions in the ocean
- G. M. McMurtry, PhD—geochemistry, geology and geophysics
- C. Measures, PhD—trace element geochemistry, shipboard analytical methods, atmospheric deposition to the oceans, elemental mass balances
- M. Merlin, PhD—biogeography, natural history of the Pacific
- M. A. Merrifield, PhD—physical oceanography; coastal circulation; sea level variability; current flows and mixing in the vicinity of coral reefs, islands and seamounts
- T. Miura, PhD—remote sensing of terrestrial vegetation, GIS
- G. F. Moore, PhD—marine geophysics, structural geology
- M. J. Mottl, PhD—hydrothermal processes, geochemical cycles

- P. Mougini-Mark, PhD—volcanology from space, remote sensing of natural hazards
- P. K. Muller, PhD—ocean circulation, waves and turbulence
- A. B. Neuheimer, PhD—quantitative ecology of fish and aquatic invertebrate populations, with applications to evolutionary biology, physiology, ecosystem dynamics, resource management, and climate issues
- B. N. Popp, PhD—isotope biogeochemistry, organic geochemistry
- J. N. Porter, PhD—atmospheric science, use of satellites to study aerosol and cloud forcing, ship measurements of aerosol and cloud optical properties
- B. S. Powell, PhD—numerical modeling, variational data assimilation, ocean predictability, ocean dynamical modes, and ocean ecosystem dynamics
- M. S. Rappe, PhD—ecology of marine microorganisms; genomics; coral-associated microorganisms; ecology of microorganisms in the deep subsurface
- G. Ravizza, PhD—paleoceanography and environmental chemistry; geologic history of chemical weathering; geochemistry of recent and ancient metalliferous sediments; anthropogenic influences on the geochemical cycles of the platinum group elements; chemical signatures of extraterrestrial matter in marine sediments; biogeochemistry of molybdenum in the marine environment
- K. J. Richards, PhD—observations and modeling of ocean processes, ocean dynamics, ocean atmosphere interaction, ecosystem dynamics
- M. A. Ridgley, PhD—resource management and human-environment system analysis
- J. Roumasset, PhD—environmental economics and sustainable growth
- K. Rubin, PhD—isotope geochemistry, chronology
- K. Ruttenger, PhD—biogeochemistry of phosphorus and phosphorus cycling in the ocean, rivers, and lakes; nutrient limitation of aquatic primary productivity; effects of redox chemistry on nutrient cycling; early diagenesis in marine sediments with focus on authigenic mineral formation and organic matter mineralization
- F. J. Sansone, PhD—biogeochemistry of permeable (sandy) sediments, coastal processes, trace-gas biogeochemistry, hydrothermal geochemistry
- N. Schneider, PhD—decadal climate variability, tropical air-sea interaction, coupled modeling
- S. K. Sharma, PhD—atmospheric instrumentation and remote sensing; Lidar, Raman, and infrared spectrometry and fiber-optic environmental sensors
- C. R. Smith, PhD—benthic and ecology, deep-sea biology, sediment geochemistry, climate-change effects on Antarctic ecosystems, marine conservation
- G. F. Steward, PhD—aquatic microbial ecology, molecular ecology and diversity of viruses and bacteria
- A. Timmermann, PhD—tropical climate variability, large-scale ocean circulation, Paleoclimatology, Earth-system modeling
- B. Wang, PhD—atmospheric and climate dynamics
- J. C. Wiltshire, PhD—marine minerals, mine tailings and disposal, remediation and submersible engineering and operations
- R. E. Zeebe, PhD—global biogeochemical cycles, carbon dioxide system in seawater and interrelations with marine plankton, paleoceanography, stable isotope geochemistry

**Degree Offered:** BS in global environmental science

## The Academic Program

Global environmental science is a holistic, scientific approach to the study of the Earth system and its physical, chemical, biological, and human processes. This academic program is designed to educate leaders and citizenry to become wise stewards of our planet. Global environmental science focuses on the global reservoirs of hydrosphere (water, primarily oceans), biosphere (life and organic matter), atmosphere (air), lithosphere (land, sediments, and rocks), and cryosphere (ice);

their interfaces; and the processes acting upon and within this interactive system, including human activities. In the course of their scientific studies, global environmental science students are able to investigate natural as well as economic, policy, and social systems and their response and interaction with the Earth system. Global environmental science has important ties to the more classical sciences of geology and geophysics, meteorology and climatology, oceanography, and ecology as well as to the social sciences. Thus, the scope of global environmental science is extremely broad. This breadth is reflected in the interdisciplinary nature of the faculty, which is primarily drawn from numerous departments and research institutions within the School of Ocean and Earth Science and Technology.

Global environmental science has much to offer the student who is interested in the environment and the effect of humans on the environment. The skills developed in global environmental science can be brought to bear on local, regional, and global environmental issues. Many of the critical environmental problems confronting humankind involve large-scale processes and interactions among the atmosphere, oceans, biosphere, cryosphere, shallow lithosphere, and people. Some of the problems derive from natural causes; others are a result of human activities. Some of the issues that global environmental science students deal with are: climatic changes from anthropogenic inputs to the atmosphere of CO<sub>2</sub> and other greenhouse gases; human interventions and disruptions in the biogeochemical cycles of carbon, nitrogen, phosphorus, sulfur, trace metals, and other substances; emissions of nitrogen and sulfur oxide gases and volatile organic compounds to the atmosphere and the issues of acid deposition and photochemical smog; depletion of the stratospheric ozone layer and associated increase in the flux of ultraviolet radiation to Earth's surface; increasing rates of tropical deforestation and other large-scale destruction of habitat, with potential effects on climate and the hydrologic cycle; disappearance of biotic diversity through explosive rates of species extinction; global consequences of the distribution and application of potentially toxic chemicals in the environment and biotechnology; interannual and interdecadal climate variability, e.g., El Niño/Southern Oscillation; eutrophication; water and air quality; exploitation of natural resources with consequent problems of waste disposal; earthquakes, tsunamis, and other natural hazards and prediction; and waste disposal: municipal, toxic chemical, and radioactive. In all cases, the student is encouraged to understand and appreciate the social, economic, and ultimately the policy decisions associated with these and other environmental issues.

Specifically with respect to learning objectives, the students develop competency in understanding how the physical, biological, and chemical worlds are interconnected in the Earth system. They obtain skills in basic mathematics, chemistry, physics, and biology that enable them to deal with courses in the derivative geological, oceanographic, and atmospheric sciences at a level higher than that of qualitative description. In turn, these skills enable the students to learn the subject matter of global environmental science within a rigorous context. The students develop an awareness of the complexity of the Earth system and how it has changed during geologic time and how human activities have modified the system and led to a number of local, regional, and global environmental issues. They become competent in using computers and dealing with environmental databases and with more standard sources of information in the field. They are exposed to experimental,

observational, and theoretical methodologies of research and complete a senior research thesis in environmental studies using one or more of these methodologies. Field work is encouraged for the senior thesis and, depending on the topic chosen by the student, can be carried out at the Hawai'i Institute of Marine Biology's Coconut Island facility, E. W. Pauley Laboratory, associated He'eia ahupua'a, or elsewhere.

The ultimate objective of the global environmental science program is to produce a student informed in the environmental sciences at a rigorous level who is able to go on to graduate or professional school; enter the work force in environmental science positions in industry, business, or government; enter or return to teaching with knowledge of how the Earth system works; or enter the work force in another field as an educated person with the knowledge required to become a wise environmental steward of the planet.

### Advising

Students contemplating a major in global environmental science should visit the program coordinator at the earliest opportunity. Inquire at the global environmental science office, Marine Science Building 205; tel. (808) 956-2910, fax (808) 956-9225; email: ges@soest.hawaii.edu.

## BS in Global Environmental Science

### University Core and Graduation Requirements

Of the 31 credits of General Education Core Requirements, 10 are in math and science and are fulfilled through the GES degree. Graduation Requirements include 8 Focus courses, 7 of which can currently be taken through the GES program [Contemporary Ethical Issues (OCN 310), Oral Communications (OCN 490), and 4 Writing Intensive courses (BIOL 171L, 172L, OCN 320, 401, and 499)]. GES majors are required to complete one year of Hawaiian/Second Language.

### Global Environmental Science Requirements

Aside from General Education Core and Graduation requirements, the global environmental science program has core requirements of two basic types: basic sciences and derivative sciences. The former provides the foundation to understand and appreciate the latter in the context of basic skills and mathematics, biology, chemistry, and physics. Both global environmental science core requirements provide the necessary cognitive skills to deal with the higher academic level courses within the global environmental science curriculum. These include 7 required foundation courses in global environmental science and a minimum of 4 coupled systems courses. It is within this latter category of course work that the formal course program will be tailored to the individual student's needs. For example, we anticipate that most students will follow closely a natural science track of study, perhaps concentrating on the terrestrial, marine, or atmospheric environment. However, because of the human dimensions issues involved in the subject matter of environmental change, some students may wish to expand their academic program into the social sciences that bear on the issues of global change.

A minimum grade of C must be obtained in all GES required courses.

### Core Basic Sciences Requirement (38 hours)

- BIOL 171/171L, 172/172L
- CHEM 161/161L, 162/162L

- MATH 241, 242
- MATH 243, 244 or OCN/GG 312, ECON 321
- PHYS 170/170L, 272/272L

### Core Derivative Sciences Requirement (11 hours)

- GG 101/101L or GG 170
- MET 200
- OCN 201/201L

### Foundation Course Requirements (18 hours)

- GEOG 411 Past Global Change and the Human Era or GEOG 410 Human Role in Environmental Change
- OCN 100 Global Environmental Science Seminar
- OCN 310/310L Global Environmental Change/Lab
- OCN 320 Aquatic Pollution
- OCN 363 Earth System Science Databases
- OCN 401 Biogeochemical Systems

### Coupled Systems Courses (4 minimum—Examples)

- ASTR 240 Foundations of Astronomy
- BIOC 241 Fundamentals of Biochemistry
- BIOL 265 Ecology and Evolutionary Biology
- BIOL 301 Marine Ecology and Evolution
- BIOL 404 Advanced Topics in Marine Biology
- BOT 350 Resource Management & Conservation in Hawai'i
- BOT 480 Algal Diversity and Evolution
- ECON 358 Environmental Economics
- ECON 458 Project Evaluation and Resource Management
- ECON 496 Contemporary Economic Issues
- ECON 638 Environmental Resource Economics
- GEOG 300 Introduction to Climatology
- GEOG 388 Introduction to GIS
- GEOG 401 Climate Change
- GEOG 402 Agricultural Climatology
- GEOG 404 Atmospheric Pollution
- GEOG 405 Water in the Environment
- GG 301 Mineralogy
- GG 309 Sedimentology and Stratigraphy
- GG 420 Coastal Geology
- GG 421 Geologic Record of Climate Change
- GG 425 Environmental Geochemistry
- GG 444/OCN 444 Plate Tectonics
- GG 455 Hydrogeology
- GG 466 Planetary Geology
- MET 302 Atmospheric Physics
- MET 303 Introduction to Atmospheric Dynamics
- MICR 401 Marine Microbiology
- NREM 301/301L Natural Resources Management/Lab
- NREM 302 Natural Resource and Environmental Policy
- NREM 304 Fundamentals of Soil Science
- NREM 461 Soil and Water Conservation
- OCN 330 Mineral and Energy Resources of the Sea
- OCN 331 Living Resources of the Sea
- OCN 403 Marine Functional Ecology and Biotechnology
- OCN 435 Climate Change and Urbanization
- OCN 480 Dynamics of Marine Ecosystems: Biological-Physical Interactions in the Oceans
- OCN 620 Physical Oceanography
- OCN 621 Biological Oceanography

- OCN 622 Geological Oceanography
- OCN 623 Chemical Oceanography
- OCN 630 Deep-Sea Biology
- OCN 633 Biogeochemical Methods in Oceanography
- OCN 638 Earth System Science and Global Change
- PHIL 315/OCN 315 The Role of Models in Global Environmental Science
- PHIL 316 Science, Technology, and Society
- PLAN 310 Introduction to Planning
- POLS 316 International Relations
- SOC 412 Analysis in Population and Society
- ZOOL 410 Corals and Coral Reefs
- ZOOL 466 Fisheries Science

The student may also wish to take additional courses in fundamental physics, chemistry, biology, or mathematics. Global environmental science currently has three optional tracks (or combination of electives):

1. **Marine science and environment:** In this track, the student concentrates his or her studies in marine/ocean science and the application of their work to environmental problems related to the ocean. The student is encouraged to take as many oceanography courses as practical and to have a senior thesis problem that is related to ocean studies. It is within this track that a student's program can be designed so that the student is able to apply to graduate school in oceanography.
2. **Policy/economics and environment:** this track enables the student, after satisfying the GES science core, to concentrate further course work and the senior thesis in environmental economics, policy, and law. This is probably the best route for a student to take who is going directly into the work place or is simply interested in becoming a wise environmental steward of the planet.
3. **Climate and environment:** this track enables the student to concentrate academic studies and the senior thesis topic on the interactions between climate and the environment, on human impacts on climate, and the causes of climatic change. The student is encouraged to take coupled systems courses in meteorology and climatology.

Majors should consult with their advisor as early as possible to devise a curriculum suited to their particular goals.

#### Directed Reading

- OCN 399 Directed Reading

Course offering with an individual faculty member to do a one-on-one study on a topic of particular interest to you.

This could be used to explore a topic before deciding on a senior thesis, or because you are interested in an area in which there isn't a formal course offering. It can be taken for CR/NC or for a grade and you can register for 1-3 credits. This is not considered a CS class.

#### Senior Research Thesis (5-8 hours)

- OCN 490 Communication of Research Results
- OCN 499 Undergraduate Thesis

Each student is required to complete a senior thesis based on research conducted with one or more chosen advisors, and to make a public presentation of their research results.

## Marine Biology

See the "Interdisciplinary Programs" section of the *Catalog* for more information on the Marine Biology Graduate Program.

## Meteorology

HIG 350  
2525 Correa Road  
Honolulu, HI 96822  
Tel: (808) 956-8775  
Fax: (808) 956-2877  
Email: metdept@hawaii.edu  
Web: www.soest.hawaii.edu/MET

#### Faculty

- \*G. M. Barnes, PhD (Chair)—mesometeorology, hurricanes, and boundary layer meteorology
- \*M. M. Bell, PhD—radar meteorology, tropical cyclones, and mesoscale meteorology
- \*S. Businger, PhD—mesoscale and synoptic meteorology, satellite meteorology, storm structure and dynamics
- \*Y. L. Chen, PhD—mesoscale meteorology, heavy rainfall
- \*P. S. Chu, PhD—climate variability and natural hazards, tropical cyclones, climate prediction
- \*J. D. Griswold, PhD—satellite remote sensing of clouds and aerosol, cloud microphysics, aerosols and climate meteorology
- \*K. P. Hamilton, PhD—dynamical meteorology and climate dynamics
- \*F. F. Jin, PhD—atmospheric dynamics, climate dynamics
- \*T. Li, PhD—climate dynamics and coupled atmosphere-ocean modeling
- \*D. E. Stevens, PhD—atmospheric dynamics
- \*B. Wang, PhD—climate dynamics, geophysical fluid dynamics, and tropical meteorology
- \*Y. Wang, PhD—atmospheric dynamics and physics, climate modeling, tropical meteorology
- \*S. P. Xie, PhD—large scale ocean-atmosphere interaction, climate dynamics
- \*J. Zhao, PhD—atmospheric chemistry and aerosols

#### Cooperating Graduate Faculty

- A. D. Clarke, PhD—marine aerosols, biogeochemical cycles, optical properties
- J. Porter, PhD—satellite and ground-based optical sensing of atmospheric aerosols

**Degrees Offered:** BS (including minor) in meteorology, MS in meteorology, PhD in meteorology

#### The Academic Program

Meteorology (MET) is the study of phenomena in the Earth's atmosphere. These phenomena include the daily weather and climate. Students pursuing the BS in meteorology receive preparation for professional employment in meteorology and are qualified for employment in the federal meteorological agencies. The meteorology major must be well-grounded in the fundamentals of mathematics and physics. Thus BS graduates are qualified to pursue graduate studies both in meteorology and other applied sciences, such as oceanography or computer sciences. Graduate degrees prepare students to pursue research careers both with government and in academia.

The meteorology program at UH Mānoa is unique in its focus on tropical meteorology. The tropics exert critical controls on the global atmosphere. BS students receive comprehensive training in tropical weather analysis and forecasting. Graduate students often pursue thesis research in tropical meteorology; some study topics that take advantage of Hawai'i's unique natural laboratory. Some students pursue graduate thesis research with funding from the National Weather Service, whose Honolulu Weather Forecast Office is housed in the same building as the meteorology department. Meteorology faculty cooperate actively with physical oceanography faculty through the Joint Institute for Marine and Atmospheric Research and the International Pacific Research Center in the study of air-sea interaction and climate variability. Students also have access to both research databases and cooperative employment opportunities at the Joint Typhoon Warning Center, Pearl Harbor.

### Affiliations

UH Mānoa is an active member of the University Corporation for Atmospheric Research.

### Advising

Inquire about the major by contacting the department office (808) 956-8775. Graduate students are assigned individual faculty advisors by the graduate chair after their preliminary conference.

## Undergraduate Study

### Bachelor's Degree

#### Requirements

Students must complete 120 credit hours, including:

- General Education Core (see the "Undergraduate General Education Requirements" section of this *Catalog*).
- MET 101L and 200
- MATH 241, 242, 243, and 244 (Students planning careers with federal meteorological agencies should take MATH 405.)
- PHYS 170/170L and 272/272L
- 21 credit hours in meteorology courses numbered 300 and above, including MET 302, 303, 305, and 402; and MET 412 or 416 (Students planning careers with federal meteorological agencies should take at least two courses from 405, 412 and 416.)
- 15 additional credit hours from physical and mathematical sciences (e.g., engineering, geography, geology and geophysics, information and computer sciences, mathematics, oceanography, physics, and soil science) including (but not limited to) MET 310, 405, 406, and 600; MET 412 or 416; CEE 424 and 626; GEOG 300, 303, 402, and 412; GG 455; ICS 211, 311, and 442; MATH 311, 371, 373, 402, 403, and 405; OCN 620; PHYS 274/274L and 400
- CHEM 161/161L and 162
- ICS 111 or MET 320

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Student Learning Outcomes (BS Meteorology)

1. Apply physical principles to explain the thermal structure of the atmosphere.

2. Describe atmospheric circulation systems.
3. Develop and explain a forecast in the short-to-medium time range.
4. Know the design and use of instrumentation, computer software, and data interpretation methods in atmospheric studies.
5. Be able to explain ideas and results through written, numerical, graphical, oral, and computer-based forms of communication.
6. Be adaptable to new avenues of scientific inquiry, which offer interdisciplinary and practical applications to commercial and public needs for atmospheric studies.

### Minor

#### Requirements

Students must complete 15 credit hours of non-introductory courses, including:

- MET 200, 302, and 303
- 6 credits of electives from MET 305, 310, 405, 406, 412 and 416

### Graduate Study

The department offers MS and PhD degrees. Through courses in dynamic, synoptic, and physical meteorology, students develop a strong foundation in tropical meteorology, the department's special field, and are prepared to do research in the atmospheric sciences.

Candidates should have a thorough preparation in physics (with calculus), chemistry, and mathematics through differential equations. Undergraduate courses in physical, dynamic, and synoptic meteorology are expected, but they can be taken in the first year. The application deadline for fall semester is **January 15** for both U.S. and international applicants. The application deadline for spring semester is **August 15** for international applicants, and **September 1** for U.S. applicants.

### Master's Degree

#### Requirements

Graduation with a master's degree requires completion of an acceptable thesis and a successful defense of the thesis in an oral examination.

A total of 30 official course credit hours must also be earned. This will be made up of:

1. At least 18 credits of regular course work (i.e., excluding MET 699, 700 and 765), with a minimum of 12 credits in courses numbered 600 and above.
2. 1 credit of MET 765
3. 6 credits of MET 700 Thesis Research and
4. 5 more credits either from regular courses or MET 699

#### Directed Research

Our core requirements include MET 600, 610, 620 and one term of synoptic meteorology (MET 412 or 416), unless a student has completed an equivalent synoptic meteorology course elsewhere with at least a B-.

Students must obtain a minimum GPA of 3.0 for the courses counted as our core (MET 600, 610, and 620, plus one of MET 412 or 416, if that is taken by the student).

As well, students must maintain a GPA of at least 3.0 for the courses they take in the MS program.

## Doctoral Degree

The PhD student exhibits a higher level of independence and originality of thought than that required of the MS student.

### Requirements

Students must satisfy several requirements in order to graduate with a PhD degree. Each student is required to pass at least 8 graduate level courses numbered 600 and above with a grade of B- or higher. These courses will be in dynamic, synoptic, physical, tropical meteorology, oceanography, or other closely related fields. At least five of these courses must be completed at the UH Mānoa campus. At the discretion of the graduate chair, a student must be awarded credit for up to three relevant graduate courses taken elsewhere. The courses taken either here or elsewhere need to cover the core requirements MET 600, 610, 620 and one of 412 or 416. A student must pass each of these core courses with a grade of at least B-. A student must obtain a minimum 3.0 GPA in the core courses taken at UH Mānoa. A student must also maintain a GPA of at least 3.0 for all the courses taken in the PhD program at UH Mānoa.

After these 8 courses are successfully completed, but no later than the 24th month in the PhD program, each student must pass a two-part comprehensive examination. The purpose of this exam is to ascertain the student's comprehension of the broad field of meteorology and so to insure that the student is well prepared for PhD research. The first part of the comprehensive examination is a set of written exercises completed on a single day. Within 3 to 7 days after the written exam, the student sits for the oral portion with his or her committee. No later than 12 months after successful completion of the comprehensive examination, each student is required to submit a written research prospectus for approval to his or her dissertation committee.

A PhD student must also successfully complete two semesters of MET 765 during his or her PhD studies (MET 765 taken before the student was admitted to the PhD program cannot be counted towards satisfying this requirement).

Finally, the student must complete an acceptable PhD thesis and successfully defend it in a public final oral defense.

## Ocean and Resources Engineering

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2540 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7572  
Fax: (808) 956-3498  
Email: adminore@hawaii.edu  
Web: www.ore.hawaii.edu

### Faculty

- \*B. M. Howe, PhD (Chair)—acoustical and physical oceanography, tomography, sensors and network infrastructure
- \*J. C. Wiltshire, PhD (Associate Chair)—submersibles, ROV, marine minerals, marine mining technology
- \*K. F. Cheung, PhD (Graduate Chair)—coastal and offshore engineering, marine hydrodynamics, computational methods, water wave mechanics, coastal flood hazards
- \*R. C. Ertekin, PhD—hydrodynamics, ocean renewable energy, offshore engineering, nonlinear waves, computational mechanics
- \*B. D. Greeson, PhD—offshore engineering, hydrodynamics, ROV/submersible operations
- \*Z. Huang, PhD—coastal and ocean engineering, wave-structure interactions, wave energy conversion, natural hazards-tsunamis, coastal sediment transport, coral reef hydrodynamics
- \*G. C. Nihous, PhD—ocean thermal energy conversion, marine renewable energy
- \*E. Nosal, PhD—passive acoustic monitoring methods, ocean ambient noise, sediment acoustics, bioacoustics

### Cooperating Graduate Faculty

- J. M. Becker, PhD—general ocean circulation
- B. S. Bingham, PhD—robotics, autonomous navigation, dynamics and controls
- M. Chyba, PhD—control theory
- R. Ghorbani, PhD—dynamics, controls, design, alternative energy
- B. Glazer, PhD—instrumentation
- S. M. Masutani, PhD—ocean resources engineering
- G. McMurtry, PhD—oceanographic engineering
- M. A. Merrifield, PhD—coastal and near-shore processes
- H. R. Riggs, PhD—structural engineering
- J. R. Smith, PhD—marine survey

### Affiliate Faculty

- E. Pawlak, PhD—coastal mixing processes, fluid dynamics, sediment transport
- D. Rezachek, PhD—ocean energy and engineering design
- J. Van Ryzin, PhD—mechanical and ocean engineering
- D. Vithanage, PhD—coastal engineering, nearshore circulation

**Degrees Offered:** MS in ocean and resources engineering, PhD in ocean and resources engineering

### The Academic Program

Ocean and Resources Engineering is the application of ocean science and engineering design to the challenging conditions found in the ocean environment and to the synthesis of novel products from marine systems. Waves and currents, turbulence, dynamic loads, mobile sediment, high pressure and temperature variations, ocean acoustics, marine instrumentation, as well as chemical and biological processes, are among the considerations that set ocean and resources engineering apart from conventional land-based engineering.

Educational and research emphasis is placed on coastal engineering, offshore engineering, and ocean resources engineering. Coastal engineering deals with coastal and harbor problems, sediment transport, nearshore environmental engineering, and coastal flood hazards due to storm surge and tsunamis. Offshore engineering is concerned with structures and systems used in the deeper parts of the ocean, including the continental shelf. It also includes hydrodynamics of fluid-body interaction, seakeeping and dynamic responses of marine vehicles and platforms, and hydroelasticity of very large floating structures. Ocean resources engineering is concerned with the engineering systems to develop the energy, minerals and living resources of the oceans, the use of the ocean for waste disposal, and the environmental and economic aspects of these activities. The MS program in ocean and resources engineering is accredited by the Accreditation Board for Engineering and Technology (ABET), which provides accreditation services to the first degree offered by engineering programs.

The educational and research programs in the department have a good balance between numerical and laboratory modeling as well as field observation. Computing facilities include 5 Linux systems and a network of Pentium-based PCs. The cluster Kiwi comprises a 44 TB RAID and 22 processing nodes each containing 2 Intel Quad Core X5460 processes with 24 GB RAM. The department also maintains a number of software packages that are available to the students for course work and research.

The department's Environmental Fluid Dynamics Laboratory (EFDL) focuses on the study of coastal marine processes including turbulent dispersal of pollutants and nutrients, wave dynamics, and sediment transport as well as fundamental fluid processes such as vortex breakdown and boundary layer turbulence. In addition, the laboratory is home to the Environmental Fluid Dynamics Education Laboratory, which serves as a center for teaching of fluids phenomena. Laboratory instrumentation includes acoustic Doppler velocimeters (ADVs) which obtain high frequency, single point, 3-component velocity measurements, and a laser-based digital particle imaging velocimetry (DPIV) system that obtains two-dimensional fluid velocity via laser imaging techniques. A pulsed Nd:YAG laser and UV light system with digital still and video cameras are used for flow visualization and measurement. The EFDL houses multiple experiment tanks, which are used for both research and teaching demonstrations. These include a 10-meter long, 30 x 10 cm wave channel, and a small rotating table. The tanks allow demonstration of a range of fluid flow phenomena including wave breaking, downslope currents, internal waves in stratified fluids along with rotational effects such as spin-up, Ekman flow and geostrophy.

The department maintains facilities at Kewalo Basin and Snug Harbor in Honolulu for fieldwork and in-ocean experiments. The department operates the Kilo Nalu Observatory offshore of Kakaako, which provides cabled power and Ethernet for in-ocean experimentation at 10 and 20m depths. Kilo Nalu provides comprehensive, real-time observations of ocean currents, waves and water properties, and hosts multiple ongoing research projects focused on coastal ocean processes and instrument development. Field observational equipment includes a REMUS autonomous underwater vehicle (AUV), an LBV 150 remotely operated vehicle (ROV), an array of wave gauges, acoustic current profilers, and current meters. In addition, the department has access to a 25-ft twin-outboard motorboat, two

ocean-going vessels operated by SOEST, two 2000m depth submersibles operated by the Hawai'i Undersea Research Lab and a new 6000m ROV which services the ALOHA Cable Observatory (ACO). ACO is the deepest operating node (power and internet) on the planet. ACO provides real time acoustic monitoring and communication.

In ocean acoustics, gliders are being used as gateways communicating between underwater mobile and fixed nodes and pilots on shore. Hydrophones on gliders monitor for ambient sound including marine mammals, wind and rain, and shipping. Research on detection, classification, and tracking of marine mammals and divers is underway. Tomographic remote sensing work is being developed for use on small scales in local waters as well as on regional and basin scales.

The graduate program in ocean and resources engineering channels the students' previous engineering or scientific experience to ocean-related careers. Approximately 38% of the students graduating between Fall 2007–Fall 2013 found immediate employment in private industry including oil companies, engineering firms, environmental service firms and construction companies in the U.S. About 13% joined or continued their employment with federal or state agencies. 28% continued studies either by pursuing a higher degree or a post-doctoral position. 6% were employed by UH in engineering research positions. 4% returned to their countries of origin pursuing engineering. 2% received a tenure-track faculty position. 9% decided to pursue non-engineering positions. 62% of the graduates stayed in Hawai'i.

## Graduate Study

### Educational Objectives

The Department of Ocean and Resources Engineering offers a graduate program leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees. The goal of the program is to prepare students for the engineering profession and to conduct research in the support of the educational program. The objectives of the program at the MS level are to produce graduates who, during the first few years following graduation:

1. Are effective and creative engineers applying knowledge of mathematics and science to the solution of practical engineering problems;
2. Have general understanding of and ability to work in the ocean and resources engineering disciplines;
3. Are proficient in one or more of the ocean and resources engineering disciplines;
4. Are aware of professional, managerial, legal, ethical, and other non-technical issues commonly encountered in engineering practice;
5. Can communicate and work effectively with peers, clients, and the general public in promoting new ideas, products, or designs; and
6. Can adapt to the changing needs and technology of the ocean and resources industry.

The program at the PhD level shares these objectives with the additional emphasis to produce graduates who:

7. Are productive researchers conducting original research and developing new technology in ocean and resources engineering; and
8. Have the experience to publish in refereed journals.

This additional emphasis prepares the PhD graduate to pursue research careers in the industry or academia.

### Admission Requirements

Students are admitted for graduate study on the basis of their scholastic records. Degree candidates for the MS program usually have a bachelor's degree in an engineering discipline that provides an adequate background in mathematics, physics, chemistry, and mechanics. Students seeking admission to the PhD program should have an MS in engineering or equivalent qualification. However, exceptionally well qualified students with a BS in engineering, who do not have a master's degree, may petition to be admitted to the PhD program directly. Students with mathematics, physics, or other science backgrounds may be admitted to the program, but are required to take specific undergraduate engineering courses to satisfy the pre-program requirements.

Deadlines to submit applications for admission to the graduate programs are **January 15** for fall semester admission and **August 15** for spring semester admission. The ORE application checklist (available on the ORE website) lists all the forms and supporting documents that need to be submitted; some forms and documents are submitted to the Graduate Division while others are submitted directly to the ORE department.

Detailed Graduate Division requirements and forms are available at [manoa.hawaii.edu/graduate/content/prospective-students](http://manoa.hawaii.edu/graduate/content/prospective-students). Official scores in the GRE General Test are required from all applicants. Official TOEFL scores are required from all non-native English speaking students.

Forms required by the department can be downloaded from the ORE admissions webpage at [www.ore.hawaii.edu/OE/ore\\_admission.htm](http://www.ore.hawaii.edu/OE/ore_admission.htm):

- supplemental information form
- statement of objectives
- letter of recommendation form
- graduate assistantship application

Once an application is complete, the Graduate Division performs an initial screening to assure that admission requirements are satisfied. The Admission Committee and department chair then evaluate the application and determine the admissibility of the applicant to the ORE department.

### Master's Degree

The MS degree in ocean and resources engineering may be earned under either Plan A (thesis) or Plan B (non-thesis). The program requires a minimum of 30 credit hours. At least 24 credit hours must be earned in advanced courses numbered 600 or above. Up to 2 credit hours of directed reading and 6 transferred credits can be counted toward the MS requirements. Students are required to take the general examination during the first semester of their full-time enrollment to test their knowledge in mathematics, science, and basic engineering. Passing the examination advances the student to master's candidacy.

Students generally devote their first semester to the basic disciplines in ocean and resources engineering and then specialize in coastal, ocean resources, or offshore engineering by taking the required courses in the area. The core courses ORE 411, 601, 603, 607, and 609 cover the basic disciplines that include hydrostatics, hydrodynamics, oceanography, water waves, underwater acoustics, and field and laboratory work. One credit of seminars, ORE 792, is also included in the core

requirements. The required courses are ORE 661, 664, and 783B in coastal engineering; ORE 612, 630, and 783C in offshore engineering; and ORE 677, 678, and 783D in ocean resources engineering. The ORE 783 Capstone Design Project is team-taught by faculty members and practicing professional engineers to prepare students for the engineering profession. The core and required courses amount to 25 credit hours and the remaining credits are to be chosen to form a coherent plan of study.

Students complete their study with a Plan A thesis or a Plan B independent project. The thesis option is research oriented and students receive 6 academic credits for the work. The project option focuses on engineering application or design and carries 3 academic credits. Both require a proposal outlining the subject area, objectives, proposed methodology, sources of data, and anticipated results that must be approved by a committee of at least three graduate faculty members. The work results in a thesis or a report that demonstrates both mastery of the subject matter and a high level of communication skills. Students must present and defend the work at a final examination, which provides the faculty an opportunity to test the students' understanding and ability to integrate their work at the MS level.

The general and final examination may be repeated once. The general examination must be taken earlier than the semester in which the final examination is taken.

### PhD Degree

Students pursuing the PhD degree are required to achieve a broad understanding of the principal areas of ocean and resources engineering, as well as a thorough understanding of a specific area. Students must, at a minimum, possess the knowledge covered by the core courses of the MS degree in ocean and resources engineering.

All intended candidates for the PhD degree will take a written qualifying examination before or during the third semester of full-time enrollment. In addition to covering the basic undergraduate fundamentals, the examination tests the students' understanding of the course work at the MS level. After passing the examination and being advanced to candidacy, students must take a comprehensive examination, which tests their ability to carry out original research and preparation for the selected dissertation topic.

The dissertation topic must be approved by a committee consisting of a minimum of five graduate faculty members with at least one outside member. Students are encouraged to publish the research work in refereed journals in order to obtain feedback from the research community and to develop a publication track record prior to graduation. They must present and defend the novelty of the dissertation at a final examination.

The qualifying and comprehensive examinations may each be repeated only once. The final examination may not be repeated, except with approval of the graduate faculty involved and the dean of the Graduate Division.

### Advising

Upon admission, the department chair meets with each incoming student at a preliminary conference to discuss the program requirements and determine any pre-program deficiencies.

The graduate chair serves as the advisor to students without an undergraduate engineering degree until they satisfy the

pre-program requirements. Once pre-program requirements are met, the department chair appoints an academic advisor from the pool of ORE departmental faculty. The academic advisor is tasked with helping students navigate through the requirements of the program and ensuring that the guidelines are met. At the start of the research phase, students select a research advisor to guide their research and serve as their committee chair.

## Oceanography

Marine Science 205  
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Email: ocean@soest.hawaii.edu  
Web: www.soest.hawaii.edu/oceanography

### Faculty

- \*M. J. Mottl, PhD (Chair)—submarine hydrothermal processes, geochemical cycles, sea-water-sea-floor chemical interaction
- \*R. Alegado, PhD—marine microbial ecology and evolution, symbioses, microbial predator-prey interactions, choanoflagellate-bacterial interactions
- \*P. Bienfang, PhD—phytoplankton ecology, ciguatera, aquatic pollution, aquaculture
- \*B. C. Bruno, PhD—planetary geosciences, geoscience education
- \*G. S. Carter, PhD—physical oceanography, ocean mixing, tides, internal waves
- \*M. J. Church, PhD—microbial oceanography, biogeochemistry, plankton biomass and production, ocean ecosystem dynamics
- \*A. D. Clarke, PhD—sea-salt and marine aerosols, global pollution, atmospheric optics, aerosol-cloud studies, biogeochemical cycles
- \*J. P. Cowen, PhD—marine microbial geochemistry, biogeochemistry, deep seafloor biosphere, deep-sea hydrothermal processes, water quality issues particle dynamics
- \*E. H. DeCarlo, PhD—aquatic geochemistry, environmental geochemistry, ocean observation systems, land/ocean/atmosphere interactions, CO<sub>2</sub>/carbonate mineral geochemistry in the coastal ocean and tropical coral reefs, trace element geochemistry
- \*J. Drazen, PhD—deep-sea ecology and fisheries, energetics and trophodynamics, physiological ecology of marine fishes
- K. F. Edwards, PhD—ecology of phytoplankton and other marine organisms; population and community ecology; theoretical ecology
- \*E. Firing, PhD—equatorial circulation, general circulation, physical oceanographic technology
- \*P. J. Flament, PhD—dynamics of the surface layer, mesoscale structures, remote sensing, water-types formation, subduction and thermocline ventilation, mixing processes
- \*B. T. Glazer, PhD—biogeochemical cycling, redox transition zone geomicrobiology, in situ electrochemical techniques
- \*E. Goetze, PhD—marine zooplankton ecology; dispersal and gene flow in marine plankton populations; evolution, behavioral ecology and systematics of marine calanoid copepods
- \*D. T. Ho, PhD—air-water gas exchange, tracer oceanography, carbon cycle, and environmental geochemistry
- \*D. M. Karl, PhD—microbiological oceanography, oceanic productivity, biogeochemical fluxes
- \*C. Kelley, PhD—deepwater habitats, ecology and fisheries, seafloor mapping and GIS
- \*P. Kemp, PhD—growth, activity and diversity of marine microbes; biosensor applications in microbial oceanography; molecular ecology of marine bacteria
- R. C. Kloosterziel, PhD—geophysical fluid dynamics, hydrodynamic, hydromagnetic stability
- \*D. S. Luther, PhD—oceanic waves from infragravity to Rossby, mesoscale variability, eddy-mean flow interaction, topography-catalyzed mixing, instrumentation, ocean observatories initiative
- \*J. P. McCreary, Jr., PhD—equatorial ocean dynamics, coupled ocean-atmospheric modeling, general ocean circulation, coastal ocean dynamics, ecosystem modeling
- \*M. McManus PhD—coastal circulation, mesoscale processes, physical-biological interactions in the ocean
- \*G. McMurtry, PhD—geochemistry of marine deposits, seafloor venting processes, chemical volcanology, stable and radioisotope geochemistry, geochronology, in situ instrumentation development
- \*C. Measures, PhD—trace element geochemistry, shipboard analytical methods, atmospheric deposition to the oceans, elemental mass balances
- \*M. A. Merrifield, PhD—physical oceanography, waves, currents, sea level variability
- \*P. Muller, Dr. rer. nat.—theoretical physical oceanography, foundations of complex system theories
- \*C. E. Nelson, PhD—microbial ecology and ecosystem science in oceans, coral reefs, and freshwater habitats
- \*A. Neuheimer, PhD—quantitative marine ecology of fish and invertebrates
- \*B. S. Powell, PhD—numerical modeling, variational data assimilation, ocean predictability, ocean dynamical modes, and ocean ecosystem dynamics
- \*B. Qiu, PhD—large-scale ocean circulation, ocean atmosphere interaction, satellite observations, and numerical modeling of ocean circulation
- \*K. Richards, PhD—ocean mixing processes, circulation and dynamics, ocean-atmosphere interaction, ecosystem modeling
- \*K. Ruttenger, PhD—biogeochemistry of phosphorus and associated bioactive elements in freshwater and marine aqueous and sedimentary systems, sediment diagenesis, organic matter reactivity and mineral authigenesis, effect of redox chemistry on element cycling, global biogeochemical cycles
- \*F. J. Sansone, PhD—biogeochemistry of permeable (sandy) sediments, coastal processes, trace-gas biogeochemistry, hydrothermal geochemistry
- \*N. Schneider, PhD—decadal climate variability, tropical air-sea interaction, coupled modeling
- \*J. E. Schoonmaker, PhD—sedimentary geochemistry and diagenesis, interpretation of paleoenvironment and paleoclimate sedimentary records
- \*K. Selph, PhD—biological oceanography, microbial ecology, protistan grazer feeding dynamics, phytoplankton distributions, use of flow cytometry in ecological research
- \*C. R. Smith, PhD—benthic ecology, deep-sea biology, sediment biogeochemistry, climate-change effects on Antarctic ecosystems, marine conservation
- \*G. F. Steward, PhD—marine bacteria and viruses, microbial genomics, molecular ecology and biogeochemical cycles
- \*A. Timmermann, PhD—tropical climate variability, large-scale ocean circulation, Paleoceanography, Earth-system modeling
- \*K. Weng, PhD—behavior, migration and habitat use of sharks and fishes, oceanography of key habitats of pelagic nekton, fishery management and conservation
- \*R. E. Zeebe, PhD—global biogeochemical cycles, carbon dioxide system in seawater and interrelations with marine plankton, paleoceanography, stable isotope geochemistry

### Cooperating Graduate Faculty

- W. L. Au, PhD—bioacoustics and ecological acoustics of the marine environment
- J. M. Becker, PhD—geophysical fluid dynamics, coastal processes, general ocean circulation

- R. Bidigare, PhD—bio-optical oceanography, nutrient cycling, phytoplankton pigment biochemistry, intermediary metabolism of marine plankton
- M. Cooney, PhD—isolation of antifouling compounds from marine algae, bioreactor design, and continuous cultivation of marine bacteria and copepods
- E. Gaidos, PhD—evolutionary genomics, geomicrobiology, astrobiology, paleobiology, and Earth history
- R. D. Gates, PhD—regulation and de-stabilization of coral/dinoflagellate symbioses, evolution and development of animal sensory systems
- P. H. Lenz, PhD—neuroecology of zooplankton sensory systems
- B. Popp, PhD—stable isotope biogeochemistry, marine organic geochemistry, isotopic biogeochemistry of individual biomarkers and gases
- M. Rappe, PhD—phylogenetic, genomic, and metabolic diversity of microorganisms including marine plankton, coral reef, and deep subsurface ecosystems
- F. Thomas, PhD—coral reef and coastal ecology, reproductive biology, hydrodynamics and biomechanics
- R. Toonen, PhD—larval ecology, coral reef biology, evolution, phylogeography and conservation genetics of marine invertebrates
- J. C. Wiltshire, PhD—geology and geochemistry of marine mineral deposits, marine mining and processing, minerals policy issues, research-submersible technology

#### Affiliate Graduate Faculty

- J. Aucan, PhD—surface waves and extreme wave events that can cause serious coastal flooding, ocean mixing and turbulence induced by internal waves
- R. Brainard, PhD—tropical reef-ecosystem integration, with a particular emphasis on the role of ocean variability on ecosystem health
- P. Falkowski, PhD—phytoplankton evolution and ecology, photosynthesis, coral biology, and biogeochemical cycles
- J. L. Falter, PhD—coral reef biogeochemistry, near-shore hydrodynamics
- C. M. Holl, PhD—stable isotopes, microbial N and C Cycling
- E. Laws, PhD—phytoplankton ecology, aquatic pollution, aquaculture
- D. W. Moore, PhD—geophysical fluid dynamics, equatorial oceanography
- G. Pawlak, PhD—coastal and estuarine mixing processes, stratified flows, sediment transport and laboratory experimental methods
- J. Polovina, PhD—research in biological oceanography in the Central and Western Pacific with focus on population dynamics of high trophic animals
- J. R. Sibert, PhD—ecology, biology of pelagic fisheries

#### Emeriti Graduate Faculty

- B. J. Huebert, PhD—air pollution, climate change, atmospheric aerosols, global elemental cycles, air-sea gas exchange
- Y. H. Li, PhD—marine geochemistry, marine pollution studies
- F. Mackenzie, PhD—geochemistry, sedimentology, greenhouse effect, biogeochemical cycles and global environmental change
- L. Magaard, Dr. rer. nat.—ocean waves, oceanic turbulence, oceanography of Hawaiian waters, climate and society

**Degrees Offered:** MS in oceanography, PhD in oceanography

### The Academic Program

Oceanography (OCN) is the study of the physics, chemistry, and geology of the ocean and the ecology of organisms that live within the sea. Physical oceanography is concerned with ocean circulation, waves, tides, upwelling, air-sea interactions, and the effect of the oceans on climate. Chemical oceanographers study the distribution of dissolved substances in the ocean and the mechanisms, both natural and anthropogenic, that control their form and abundance. Geological oceanography includes the study of sea-floor spreading, submarine volcanism, beach

formation, deep-seabed mineral resources, sediments, and paleoceanography. Biological oceanographers study the interactions of marine organisms with one another and the environment; topics include coral reef ecology, marine fisheries, hydrothermal-vent communities, plankton ecology, and near-shore and deep-sea benthic communities.

Because Hawai'i is located near the middle of the largest ocean on Earth, oceanography has a special significance for the state and UH Mānoa. At UH Mānoa, the oceanography facilities are among the best in the U.S. and include three ocean-going research vessels and two research submarines. Biological studies are facilitated by the presence of the Hawai'i Institute of Marine Biology on Coconut Island in Kāne'ohe Bay. Computing facilities are based on a growing network of nearly 300 Sun workstations, Macintosh, and personal computers. Precision instruments include mass spectrometers, gas and liquid chromatographs, liquid scintillation counters, a CHN analyzer, a flow cytometer, and a series of atomic spectroscopy-based instruments. The world-class faculty is actively involved in both teaching and research. UH Mānoa ranks fifth among universities in the nation in terms of National Science Foundation research funding for oceanographic research. The location, the facilities, and the faculty all make UH Mānoa an ideal place to study oceanography.

About 40 percent of marine scientists are employed by the U.S. government, especially by the defense, commerce, and interior departments. Another 40 percent teach and do research at academic institutions. About 20 percent are employed by industry.

The MS and PhD in oceanography are recognized WICHE regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

#### Advising

Each student admitted to the oceanography department is assigned an advisory committee by the department chair. The committee initially consists of three graduate faculty members from at least two of the subdisciplines of oceanography. When formed, the student's MS or PhD committee becomes the student's advisory committee. A student must meet with his or her advisory committee at least twice per year. A written report summarizing each meeting must be signed by the student and his or her committee and a copy placed in the student's file.

#### Graduate Study

The department offers master's and doctoral programs with areas of specializations in biological and physical oceanography, marine geology, and geochemistry.

Oceanography courses listed in this *Catalog* may be taken for credit in the degree program. Additional courses may be selected from such fields as botany, chemistry, engineering, geology, mathematics, meteorology, physics, and zoology.

#### Admission Requirements

Applicants must have intensive, rigorous training in one of the basic sciences or engineering. Regardless of major, an applicant must have completed mathematical training, including calculus through first-order ordinary differential equations (equivalent to Calculus IV at UH Mānoa). An applicant must also have a year each of physics and chemistry. The well-pre-

pared student will also have covered classical thermodynamics and applied differential equations and will have had a semester each of biology and geology. GRE test scores (General Test only) are required. Interested students should contact the department chair for further information. For U.S. applicants, the deadline for application for admission is **January 15** for the fall semester and **September 1** for the spring semester. For foreign applicants, the corresponding deadlines are **January 15** and **August 1**.

### **Major Requirements**

All students pursuing a degree program must take OCN 620, 622, and 623. For non-biological students, the sequence is completed by taking OCN 621. Biological students complete the sequence by taking OCN 626, 627, and 628. Marine geology and geochemistry students must take CHEM 351 (if they have not already successfully completed a college-level course in physical chemistry). Students may be admitted to the MS program upon successful completion of the appropriate sequence. To be admitted to the PhD program, a student must receive a positive recommendation from a PhD-qualifying committee.

### **Degree Requirements**

Both the MS and PhD programs require a minimum of 36 credit hours, including 24 credit hours of course work. The 24 semester hours of course work must be in courses numbered 600 or above (excluding OCN 699 and 700 and seminar courses). At least 12 of those semester hours must consist of courses taken from three of the following groups: biological oceanography, geological oceanography, chemical oceanography, physical oceanography, mathematical methods and statistics, and meteorology. MS students are required to take six credits of OCN 699 (Directed Research) and six credits of OCN 700 (Thesis Research).

Prior to completion of their graduate degree, biological oceanography students must have satisfactorily completed either an undergraduate or graduate course in statistics. Students specializing in marine geology and geochemistry must take at least one, and preferably more, advanced biogeochemistry course. All students must complete a seminar requirement, demonstrate computer competency, and accumulate at least 30 days of field experience. PhD candidates must also pass a comprehensive examination. All students must pass a final oral examination in defense of their thesis/dissertation.



# Outreach College

## Administration

Sinclair Library, Room 301  
 2425 Campus Road  
 Honolulu, HI 96822  
 Tel: (808) 956-8866  
 Fax: (808) 956-3752  
 Web: [www.outreach.hawaii.edu](http://www.outreach.hawaii.edu)  
 Interim Dean: William G. Chismar  
 Interim Associate Dean: Harriet Abe

## General Information

Outreach College partners with academic and support units at UH Mānoa to provide for the educational needs of the community through flexible scheduling and innovative methods of program/course delivery. Key program and service activities of the college include:

- Academic Advising and Student Support Services
- Community Service/Public Events Programs
- Credit Programs
- International Programs
- Noncredit Programs
- Summer Sessions

## Mission

Outreach College initiates and provides innovative, diverse, and flexible quality educational opportunities for life-long learners, extending the resources of UH Mānoa to serve the state, nation, and world.

Utilizing a scope of classroom, arts, cultural, and advanced technological modes of delivering learning experiences, the

Outreach College staff is committed to assessing and responding to the educational needs of targeted and under-served learners.

- In addition, Outreach College:
- Provides supportive guidance and services to its participants;
  - Presents programs and collaborations that reflect/enhance the community's educational and cultural diversity; and
  - Serves as a leader in the UH Mānoa development of distance learning.

Through all of its programs, Outreach College inspires and engages learners to recognize education as a valuable lifetime investment.

## Affiliations

Outreach College is affiliated with the University Professional and Continuing Education Association, the Association of University Summer Sessions, the North American Association of Summer Sessions, the Western Association of Summer Session Administrators, Western Arts Alliance, and Association for Continuing Higher Education.

## Degrees and Certificates

Outreach College is a non-degree granting academic support unit, which delivers, in collaboration with departments and colleges, credit courses applicable towards UH Mānoa degrees and certificates. Outreach College offers courses during the day and evening, primarily to serve degree students of UH Mānoa. However, these courses are open to UH System students, qualified residents and non-residents, and in the summer to select high school students. Non-credit certificates are offered in various areas of professional development.

## Advising

Student Services  
 Sinclair Library, Room 301  
 2425 Campus Road  
 Honolulu, HI 96822  
 Tel: (808) 956-7221  
 Fax: (808) 956-3752  
 Email: [ocadvise@hawaii.edu](mailto:ocadvise@hawaii.edu)  
 Web: [www.outreach.hawaii.edu](http://www.outreach.hawaii.edu)

Office of Student Services provides support services to non-degree seeking students. Services include advisement on UH Mānoa admissions procedures and policies, general UH Mānoa policies, degree programs, course selection, and UH System offerings, as well as enrollment and registration for courses delivered by Outreach College.

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## Credit Programs

828 Fort Street Mall, Suite 400  
Honolulu, HI 96813  
Mailing Address: Box 447  
2440 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6780  
Fax: (808) 956-3364  
Email: [jon.matsuda@hawaii.edu](mailto:jon.matsuda@hawaii.edu)  
Web: [www.outreach.hawaii.edu/credit](http://www.outreach.hawaii.edu/credit)

Outreach College credit courses and programs are offered during the days and evenings throughout the year. Offerings are regularly approved UH Mānoa courses as well as any new or experimental courses approved by UH Mānoa. Instructors are UH Mānoa faculty or lecturers approved by the respective academic departments. In addition, the credit programs unit coordinates distance learning credit activity for the UH Mānoa campus, thus extending the resources of the UH Mānoa campus to the neighbor islands, Pacific Basin, and beyond.

The majority of UH Mānoa distance delivered courses are coordinated by Outreach College. Courses and degree programs are delivered via interactive television, the web, and faculty traveling to off-campus sites. Outreach College is represented on the Distance Learning Advisory Council and the Master Scheduling Group, both UH System committees, and the UH Mānoa Distance Learning Committee.

International students studying in the U.S. on the F-1 or J-1 student visa should note that there are credit limits for enrolling in on-line courses or on-line programs. For more information, please click on the Distance Education link on the International Student Services website at [www.hawaii.edu/issmanoa](http://www.hawaii.edu/issmanoa).

## Major Credit Programs

- Baccalaureates and advanced degrees from UH Mānoa colleges of Architecture, Education, Myron B. Thompson School of Social Work, Shidler College of Business, and Nursing are offered.
- Neighbor Island Outreach. The UH Mānoa Outreach on Maui office as well as the University Centers on Kauaʻi, Maui, and in West Hawaiʻi provide on-site support to neighbor island students enrolled in Mānoa Programs. The UH Mānoa Outreach on Maui office also assists students to complete a bachelor of arts degree in Interdisciplinary Studies with a major emphasis in “Human Relations in Organizations.”
- Overseas Program. On-site education courses are offered in American Samoa.
- Credit Specials. These courses are tailored to meet the needs of a target group; they may condense academic work into shorter time periods and adapt it to special locations and more convenient times.
- Dual Listed Courses. Unfilled seats in selected day school courses are made available to qualified community members.

## Summer Sessions

828 Fort Street Mall, Suite 400  
Honolulu, HI 96813  
Mailing Address: Box 447  
2440 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-9246  
Fax: (808) 956-3364  
Email: [summer.programs@hawaii.edu](mailto:summer.programs@hawaii.edu)  
Web: [www.outreach.hawaii.edu/summer](http://www.outreach.hawaii.edu/summer)

The summer period of the UH Mānoa campus offers opportunity for variety and flexibility in instructional programming, while creating a culturally enriching and intellectually stimulating campus environment through special lectures, conferences, and artistic performances that are open to both students as well as the larger public.

Students from almost every state in the nation and more than 50 countries attend classes in the summer, joining resident students to enhance the diversity of the campus. The summer campus also provides a stimulating array of noncredit classes, public programs, and special events.

Summer Sessions has received numerous awards from the Western Association of Summer Session Administrators and the North American Association of Summer Sessions for its exemplary and innovative programs.

## Early Start Program

Web: [www.outreach.hawaii.edu/EarlyStart](http://www.outreach.hawaii.edu/EarlyStart)

The UH Mānoa Early Start Program (ESP) offers newly admitted fall freshmen a smooth transition from high school to college and an early start on their college experience. Students attend classes during the less hectic summer months when there's easier access to faculty and staff, time to explore the campus, and an array of social and cultural activities.

## Summer Scholar Program for High School Students

Web: [www.outreach.hawaii.edu/summerscholar](http://www.outreach.hawaii.edu/summerscholar)

High school sophomores and juniors with at least a 3.5 GPA may enroll in a 100–200 level course in summer sessions at UH Mānoa. Summer scholars are mainstreamed with other summer students. Over 1,500 high school students have successfully participated in this program over the past 21 years. The program enables high school students to earn college credit and learn what college life is like before graduating from high school.

## International Programs (non-credit)

Sinclair Library, Room 301  
2425 Campus Road  
Honolulu, HI 96822  
Web: [www.nice.hawaii.edu](http://www.nice.hawaii.edu)

## University Preparation Program

Tel: (808) 956-3412  
Fax: (808) 956-3421  
Email: [upinfo@hawaii.edu](mailto:upinfo@hawaii.edu)  
Web: [www.outreach.hawaii.edu/up](http://www.outreach.hawaii.edu/up)

The University Preparation Program is a two-semester program designed to prepare college-bound international students for admissions to and success in American undergraduate degree programs. Coursework includes non-credit classes in intensive English, TOEFL and SAT preparation, academic study skills, and intercultural communication, as well as some introductory



credit coursework in the second semester. Program features include mentoring, tutoring, personalized advising and assistance with the university application process. Students may begin the program in either the fall or spring semester.

### **New Intensive Courses in English (NICE)**

Tel: (808) 956-7753  
 Fax: (808) 956-3421  
 Email: ipinfo@hawaii.edu  
 Web: www.nice.hawaii.edu

The NICE Program is a non-credit English language program open to non-native speakers of English interested in improving their English communication and cross-cultural understanding. Study options include English courses for academic, business, and general purposes. Classes are offered to suit the study schedules of a variety of individuals: four 10-week sessions per year (full-time or part-time study), and 3-week sessions in winter and summer. Admission to NICE is open to international students and scholars, and to resident non-native speakers living in Hawai'i.

### **Special English Programs (SEP)**

Tel: (808) 956-3416  
 Fax: (808) 956-3421  
 Email: michikos@hawaii.edu

SEP provides noncredit English language and American culture programs for groups of students from international educational institutions or companies. SEP is uniquely designed to suit the needs, schedules, requirements, and interests of the sponsoring school or organization.

### **International Seminars**

Tel: (808) 956-3416  
 Fax: (808) 956-3421  
 Email: michikos@hawaii.edu

The International Seminars Program provides groups of international students and professionals exposure to current American perspectives and practices in their area of study or profession. Highly qualified professors and community professionals speak on topics requested by the sponsoring organization with translation, or in the participants' native language.

### **Professional and Special Programs (non credit)**

828 Fort Street Mall  
 Suite 400  
 Honolulu, HI 96813  
 Mailing Address:  
 Box 447  
 2440 Campus Road  
 Honolulu, HI 96822  
 Tel: (808) 956-8244

Fax: (808) 956-3364  
 Email: noncred@hawaii.edu  
 Web: www.outreach.hawaii.edu/noncredit

The Professional and Special Programs Office establishes and administers noncredit courses to provide individuals and groups with the opportunity to maintain professional skills, advance in or change careers, or pursue personal development and enrichment. Although noncredit courses do not apply toward the requirements for a college degree, many do qualify for professional continuing education units. Students who complete attendance requirements may receive certificates upon completion of their courses of study.

Courses are held on- and off-campus locations, as well as online. They are often relatively short and are presented in a variety of formats, such as workshops, short courses, studios, lectures, and institutes. In general, noncredit courses are open to anyone who is at least 18 years of age or a high school graduate.

Although most courses are offered during three regularly scheduled terms per year, specialized programs for particular groups (e.g., librarians, teachers, engineers, etc.) or contract training for both public and private organizations, can be arranged. Class length, number of meeting times, and locations vary, depending on program objectives and specific needs of students.

### **Institute for Business and Professional Development**

Tel: (808) 956-8244  
 Email: noncred@hawaii.edu  
 Web: www.outreach.hawaii.edu/ibpd

The Institute for Business and Professional Development offers continuing education programs for business people, entrepreneurs, professionals, and those seeking to meet professional certification requirements, or to improve career opportunities.

### **Pacific New Media**

Tel: (808) 956-3422  
 Email: pnm@hawaii.edu  
 Web: www.outreach.hawaii.edu/pnm

Pacific New Media offers short intensive workshops in film, video, photography, and digital media presented by outstanding professionals from Hawai'i and the continental U.S. Certificates in web design and digital imaging are also offered through the program.

### **Community Services Programs**

Sinclair Library, Room 301  
 2425 Campus Road  
 Honolulu, HI 96822  
 Tel: (808) 956-8246  
 Fax: (808) 956-3752  
 Email: csinfo@hawaii.edu  
 Web: www.outreach.hawaii.edu/community

The Community Services Division coordinates the arts and culture outreach efforts of UH Mānoa. Major projects include the Statewide Cultural Extension Program (SCEP) and University of Hawai'i Presents. Through SCEP, Outreach College presents over 170 performances each year in schools, libraries, nursing homes, prisons, senior centers, and other venues throughout the state. University of Hawai'i Presents produces 15 performances of national and international touring companies for the UH Mānoa campus and the general public.



# School of Pacific and Asian Studies

## Administration

Moore Hall 310  
 1890 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-8818  
 Fax: (808) 956-6345  
 Web: [manoa.hawaii.edu/spas/](http://manoa.hawaii.edu/spas/)  
 Dean: R. Anderson Sutton

## General Information

Strategically located with a multicultural heritage, the state of Hawai'i has always been uniquely international in outlook. Reflecting this perspective, the School of Pacific and Asian Studies (SPAS) represents the ongoing commitment of UH Mānoa to enhance international awareness and intercultural understanding throughout the educational experience. In fulfilling this commitment, SPAS has become one of the largest resource facilities for Asian and Pacific studies in the world.

Established in 1987, SPAS offers academic programs in Asian studies and Pacific Islands studies. SPAS also houses the Centers for Chinese Studies, Japanese Studies, Korean Studies, Okinawan Studies, Pacific Islands Studies, Philippine Studies, South Asian Studies, and Southeast Asian Studies, as well as the initiative on Muslim Societies in Asia and the Pacific (MSAP). Through these centers and programs, SPAS helps to coordinate the efforts across UH Mānoa of some 300 faculty specialists who offer more than 600 courses related to Asia and the Pacific.

Research supported by SPAS appears in a wide range of journals, monographs, and occasional papers published by its

centers and programs. Complementing these publications are monographs, translations, and journals published by SPAS or one of its centers in association with UH Press.

Research and publications, specialized training and instructional programs, conferences, symposia, resources development, and a full schedule of co-curricular activities and cultural programs are all a part of the School of Pacific and Asian Studies. Students electing to focus their studies on Asia or the Pacific at UH Mānoa will discover a unique learning environment especially appropriate to the understanding and appreciation of the peoples and cultures of the region.

## Degrees and Certificates

**Bachelor's Degree:** BA in Asian studies, BA in Pacific Islands studies

**Master's Degrees:** MA in Asian studies, MA in Pacific Islands studies

**Certificate Programs:** Graduate Certificates in Pacific Islands, Chinese, Japanese, Korean, Philippine, South Asian, and Southeast Asian studies

## Advising

### Asian Studies

Undergraduate students  
 Pattie Dunn  
 Moore 407  
 1890 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-7814  
 Email: [pdunn@hawaii.edu](mailto:pdunn@hawaii.edu)

Graduate students  
 Michael Aung-Thwin, PhD  
 Moore 413  
 1890 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-5962  
 Email: [aungthwi@hawaii.edu](mailto:aungthwi@hawaii.edu)

### Pacific Islands Studies

Undergraduate students  
 Julie Walsh, PhD  
 Moore 211  
 1890 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-2668  
 Email: [jwalsh@hawaii.edu](mailto:jwalsh@hawaii.edu)

Graduate students  
 Terence Wesley-Smith, PhD  
 Moore 209  
 1890 East-West Road  
 Honolulu, HI 96822  
 Tel: (808) 956-7700  
 Email: [twsmith@hawaii.edu](mailto:twsmith@hawaii.edu)

Students interested in Asian studies and Pacific Islands studies are urged to consult with the appropriate school advisor listed above and thoroughly check out each website.

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## Undergraduate Programs

### Requirements

- Acquire a minimum total of 120 credit hours.
- Earn at least 60 credit hours in courses numbered 300 or above for the Asian Studies Program; earn at least 45 credit hours in courses numbered 300 or above for the Pacific Islands Studies Program.
- Fulfill the UH Mānoa General Education Core requirements and additional basic course work specified by the degree program.
- Complete writing intensive courses as specified by UH Mānoa.
- Fulfill requirements for the major.
- Earn at least a 2.0 GPA for all UH Mānoa registered credits.

Prospective students interested in the BA in Asian studies or the BA in Pacific Islands studies should contact the respective department or refer to the program listing in the *Catalog*.

### Graduate Programs

Prospective students interested in the MA in Asian studies or the MA in Pacific Islands studies should contact the respective program or refer to the program listing in the *Catalog*.

## Instructional/Research Facilities and Programs

### Center for Chinese Studies

The Center for Chinese Studies (CCS) aims broadly at an increased understanding of contemporary China in light of its history and its hopes for the future. It pursues this goal through instruction from 56 faculty members in 30 departments who teach more than 200 China-related courses; research by faculty, who publish an average of six books and a score of articles on China each year; service publications, such as its quarterly journal *China Review International*, which provides an overview of current world wide scholarship on China; a website ([www.ccs-uhm.org](http://www.ccs-uhm.org)); and community outreach, conferences, and national and international linkages with institutions such as Peking University, Beijing Foreign Studies University, the National Taiwan University, and the Chinese University of Hong Kong. CCS has housed a Confucius Institute, funded by the PRC Ministry of Education to promote Chinese language and cultural studies in Hawai'i and the U.S., since 2006.

By creating a stimulating environment for the faculty and the approximately 150 mainly graduate students specializing in Chinese studies, CCS supplements basic scholarly offerings, and focuses attention on the university's significant resources for the study of China. These include the Asia Collection in Hamilton Library, the Wong Audiovisual Center in Sinclair Library, and the multimedia collection of the Language Telecommunication Resource and Learning Center.

The center is part of the National Resource Center for East Asian Studies, which, together with Japan and Korea, are supported by major funding from the U.S. Department of Education. CCS is also home to one of about 80 Confucius Institutes (CI) in the nation, with funding from the PRC Ministry of Education.

### Center for Japanese Studies

The Center for Japanese Studies (CJS) promotes the study of Japan within a global context, across academic disciplines at UH Mānoa. Japanese studies faculty include 39 professors, 16 Japanese language instructors, 3 library specialists, and a chanoyu (tea ceremony) instructor who offer over 120 courses in 20 instructional or department units to approximately 3,500 students annually. An integral part of CJS is the Dr. Sen Soshitsu International Way of Tea Center, which serves to perpetuate tea culture by offering tea practicum courses and coordinating tea-related outreach projects. CJS coordinates the Title VI National Resource Center East Asia grant, which includes curriculum development, outreach, and library development projects in East Asia. The center's role is to act as a coordinating body for Japanese studies at UH Mānoa and as a clearinghouse for inquiries related to the field; in this role, CJS offers student scholarships and faculty professional development funding, provides student advising, sponsors seminars and conferences on Japan, sponsors visiting scholars, coordinates a summer student internship program in Ehime (along with the Japan-America Society of Hawai'i), and administers partnerships with overseas research institutes.

### Center for Korean Studies

The Center for Korean Studies coordinates and develops UH Mānoa's resources for the study of Korea. The 39 faculty members affiliated represent the disciplines of anthropology, architecture, art, music, business, communicology, economics, English, ethnomusicology, history, language, linguistics and literature, law, political science, social work, sociology, and urban planning. The center promotes interdisciplinary and intercultural approaches to Korean studies, conducts scholarly conferences, sponsors research projects, presents specialists and visiting scholars in colloquia, publishes scholarly works and an interdisciplinary journal *Korean Studies*, and coordinates UH Mānoa resources on Korea and researches the activities of Hawai'i's Korean community. The center maintains a special collection of personal libraries and private papers of distinguished scholars on Korea. It also has a small collection of books, journals, audiovisual materials, and other documents as an adjunct to the UH Mānoa library's Korean collection.

### Center for Okinawan Studies

The Center for Okinawan Studies (COS) was established in 2008, and has the distinction of being the first center of its kind outside of Japan. COS is a coordinating unit with a mission to promote Okinawan Studies. It strives to enhance the study and understanding of the history, culture, environment, and societies of the Okinawan/Ryukyuan peoples, including diaspora. COS is committed to supporting the research and teaching of Okinawa/Ryukyu-related subjects by its faculty, staff, and students, as well as providing outreach to the general community in the form of workshops, lectures, seminars, and conferences. It also supports the student-exchange program with the University of the Ryukyus. Collaborative works with the University of the Ryukyus are also being planned for future projects.

### Center for Pacific Islands Studies

The Center for Pacific Islands Studies brings together people and resources to promote an understanding of the Pacific Islands and issues of concern to Pacific Islanders. Its innovative instructional program is regional, comparative, and interdisciplinary in nature. After 60 years of offering the nation's first

and only MA program for the study of the Pacific Islands, the center launched a BA program in 2011. The center sponsors an annual conference and a seminar series that features a variety of visitors en route to and from other Pacific Islands. The program publishes a blog, a series of occasional papers, and, in collaboration with the UH Press, the Pacific Islands Monograph Series, and *The Contemporary Pacific: A Journal of Island Affairs*.

### **Center for Philippine Studies**

The Center for Philippine Studies at UH Mānoa is the only university center offering a comprehensive academic program for Philippine studies in North America. With an interdisciplinary faculty based in various departments, it promotes a broad understanding of Philippine society and culture, including Filipinos in the diaspora, through course offerings, library resources, lectures and seminars, scholarly conferences, research and publications, visiting faculty, international academic exchanges, cultural presentations, outreach with the Filipino community in Hawai'i, institutional linkages, and other professional activities. UH Mānoa has the largest concentration of internationally known Philippine specialists and experts in various disciplines. The center serves as the Secretariat for the International Committee on Philippine Studies. For more details, visit [www.hawaii.edu/cps](http://www.hawaii.edu/cps).

### **Center for South Asian Studies**

The Center for South Asian Studies at UH Mānoa serves as an intellectual hub in the Pacific for research on and learning about a highly diverse region that encompasses Bangladesh, India, Pakistan, Nepal, Tibet, Sri Lanka, Lakshadweep, and the Maldivian Islands. The objective of the center, since its creation in 1985, is to promote interdisciplinary research on South Asia and the diaspora, and assist undergraduates and graduate students in the humanities, social sciences, and applied sciences to focus on societies and cultures of South Asia and the South Asian diaspora. The center's activities include colloquia, invited lectures and workshops, an annual spring symposium, cultural programs, and outreach. The library's South Asia collection is ranked among the top ten in the U.S. The center draws on the expertise of more than 40 distinguished faculty members who research interests spread over India, Sri Lanka, Bangladesh, Pakistan, and Nepal. For more information, visit [www.hawaii.edu/csas/](http://www.hawaii.edu/csas/).

### **Center for Southeast Asian Studies**

The center is one of only eight National Resource Centers (NRC) for the study of Southeast Asia in the U.S. as awarded by the U.S. Department of Education. It acts as a coordinating body for Southeast Asian studies throughout the university. With more than 55 affiliated faculty members distributed through 21 departments, the center interacts with the largest concentration of Southeast Asia specialists in the U.S.

CSEAS is responsible for administering and awarding the Foreign Language and Area Study (FLAS) fellowships. In support of academic research, the center supports a Southeast Asian language reading test initiative and provides substantial yearly funding to maintain and grow the Southeast Asia Collection at Hamilton Library.

The center works to promote Southeast Asian studies nationally through its support of teacher training by providing in-country learning experiences. CSEAS, with Fulbright Group Program Abroad (FGPA) support, took K-12 teachers to the Philippines and Viet Nam in the summer of 2013. CSEAS also



teams with UH System community colleges by assisting with pre-departure workshops, such as the Summer 2013 Association of Regional Centers for Asian Studies (ARCAS) program on the Chinese diaspora in Southeast Asia helped by Kapiolani Community College.

Locally, CSEAS acts as a clearinghouse initiating and publicizing events on the campus with a Southeast Asia focus including a twice-monthly Speaker Series. Central to this PR effort is its popular website and well-developed social media profile. The center has a strong commitment to outreach programs with its support of Indonesian theatre/dance performance, and continues to broaden public interest in Southeast Asia through a weekly film series now in its 9th season. More information on the UH Mānoa Center for Southeast Asian Studies can be found at [www.cseashawaii.org](http://www.cseashawaii.org).

### **Muslim Societies in Asia and the Pacific**

The Muslim Societies in Asia and the Pacific (MSAP) program is as an educational resource center that serves to broaden and deepen understanding of the diverse Muslim cultures that call Asia home. Established in 2009, at present the bulk of the program's attention is devoted to developing a website and utilizing social media to identify, archive and disseminate quality resources on the Muslim humanities of Asia. The MSAP website is an internationally utilized portal for hosting regularly updated educational and professional opportunities, for highlighting recent developments in the arts and culture, and for featuring select publications and journalism on issues that affect the Muslims of Asia. With Asia home to 60% of the world's Muslims and relations between Muslim and non-Muslim societies often troubled, MSAP focuses on Islam in regions of Asia that receive less public attention and follows topics that contribute useful context to issues that affect Muslim and non-Muslim relations. At UH Mānoa, MSAP hosts a regular series of guest speakers while promoting most Hawai'i-based events on Islam and Muslim societies. MSAP leverages the exceptional pool of scholars at UH Mānoa on Asia, the Pacific and Islam to fulfill its educational mission. Visit [www.msaphawaii.org](http://www.msaphawaii.org).

## Campus Events and Community Programs

SPAS and its centers sponsor lectures, colloquia, teacher workshops, conferences, film festivals, concerts, and special events, such as the Grand Kabuki performance, Chinese martial arts performances, and the Southeast Asian *Randai* theatrical training and performance. The centers' outreach programs take UH Mānoa expertise into the community and secondary schools.

## Asian Studies

Moore 416  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-6085  
Fax: (808) 956-2682  
Web: [manoa.hawaii.edu/asianstudies/](http://manoa.hawaii.edu/asianstudies/)

### Faculty

- \*M. Aung-Thwin, PhD (Chair)—history, Southeast Asia (Myanmar)
- \*P. Abinales, PhD—political science, Southeast Asia (Philippines)
- \*B. Andaya, PhD—history, Southeast Asia (Malaysia, Indonesia)
- \*L. Carlile, PhD—political science, East Asia (Japan)
- \*C. Clayton, PhD—anthropology, East Asia (China)
- \*E. Harwit, PhD—political science, East Asia (China)
- \*R. Kwok, PhD—urban and regional planning, East Asia (China)
- \*V. Lanzona, PhD—history, Southeast Asia (Philippines)
- \*F. Lau, PhD—ethnomusicology, East Asia (China)
- \*C. Ning, PhD—literature, East Asia (China)
- \*Y. Park, PhD—anthropology, East Asia (Korea)
- \*G. Satsuma, PhD—history, East Asia (Japan)
- \*M. Sharma, PhD—anthropology, South Asia (India)
- \*A. Stirr, PhD—ethnomusicology, South Asia (Nepal)

### Affiliate Faculty

- \*M. Das Gupta, PhD—sociology, South Asia (India)
- \*M. McDonald, PhD—geography, East Asia (Japan)
- \*K. Pauka, PhD—theatre and dance, Southeast Asia (Indonesia)

### Cooperating Faculty

The academic program of the Asian Studies Program (ASP) is facilitated and enhanced by the participation and support of the affiliate faculty of seven centers focused on Asia in the school: Chinese, Japan, Korean, Okinawan, Philippine, South Asian, and Southeast Asian studies.

These resources are enhanced by the close cooperation and academic relationship between the ASP and the East-West Center.

**Degrees and Certificates Offered:** BA and MA in Asian studies, MA in Asian studies, Graduate Certificates in Chinese, Japanese, Korean, Philippine, South Asian, and Southeast Asian studies are offered. Students may major or minor in Asian Studies.

## The Academic Program

Asian studies is the study of Asia. At UH Mānoa, it covers a broad arc that begins in the west with South Asia, moves southeastward to Southeast Asia, then eastward to East Asia. The approach to this study is interdisciplinary, taught by faculty trained in the geography, history, anthropology, political

science, sociology, language and literature, ethnomusicology, performing arts, and urban and regional planning of Asia.

In addition to the faculty in SPAS, there are approximately 286 faculty and staff who are Asia specialists in different departments and programs throughout the campus. 600 courses on Asia (or with substantive Asia content) are taught at UH Mānoa, a unique strength the Asian Studies Program utilizes in crafting its BA and MA degrees.

ASP offers an unprecedented opportunity for students to study a wide range of topics, disciplines, and methodologies to design their individual programs to suit their particular interests. This interdisciplinary approach to the study of Asia, focused on the social sciences and humanities, is the heart of the program's mission. Finally, competency in an Asian language commensurate with the student's focus and level is considered fundamental, and is a required part of the program.

### Advising

Graduate students are advised by the appropriate area director or designated faculty. Undergraduates majoring in Asian studies are advised by an undergraduate studies advisor.

## Undergraduate Study

### Bachelor's Degree

The undergraduate program in Asian studies is designed for students desiring a liberal arts education and a broad background in traditional and contemporary Asian cultures.

Students seeking a BA in Asian studies must meet all the requirements for admission established by SPAS.

Asian studies is normally declared as a major at the end of the sophomore year or beginning of the junior year though students may apply for admission to the program at any time. The formal declaration is made through the school's Student Academic Services Office.

### Program Requirements

- Earn at least a 2.0 GPA (C average) for all UH Mānoa registered courses
- Register for all required courses (core, major, minor, and certificates) for a letter grade
- Earn a grade of C (not C-) or better in each course applied to the major, minor, and certificate requirements
- 60 upper division credits of 300+ courses

### Major Requirements

- Total of at least 36 credit hours of Asia-related course work
- ASAN 201 and 202, 310 or 312, and 6 additional credit hours of ASAN courses at the 300 or 400 level
- Two years of an Asian language (excluding conversation or aural comprehension courses), or demonstration of the equivalent level

Majors must also complete one of the following study plans:

#### Plan 1:

- 12 credit hours of Asia-related course work from one of the following disciplines or areas: anthropology, art, economics, geography, history, linguistics, literature, music, philosophy, political science, religion, sociology, communication, or theater and dance
- 9 credit hours of Asia-related courses outside the primary field of concentration, as approved by the advisor

**Plan 2:**

- 12 credit hours of course work on one Asian country or region (e.g., Japan, Southeast Asia)
- 9 credit hours focused on one or more additional Asian countries or regions

ASAN courses used to satisfy General Education Core requirements may not be used to satisfy major requirements or vice versa.

Language study beyond the required level may count toward the major and is encouraged for Asian studies majors.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

**Minor Requirements**

There are no required courses for acceptance into the Asian Studies minor program. Attendance in ASAN 201-202 (Introduction to Asian Studies) is recommended.

Students must complete 15 credit hours including:

- ASAN 310 Asian Humanities or 312 Contemporary Asian Civilization (3 credits)
- ASAN courses numbered 300 and above (minimum 6 credits)
- Asia-related courses in disciplines other than the major field numbered 300 and above (maximum 6 credits)

It is possible to focus on one particular country or region, such as China, Japan, Korea, Philippines, Southeast Asia, or South Asia.

The Asian studies undergraduate advisor will identify Asia-related courses in various disciplines and assist in planning schedules and preparing minor forms.

**Graduate Study****Master's Degree**

The master's program in Asian studies is designed primarily for students who wish to focus their studies on a particular geographical and cultural region of Asia. Such an approach entails interdisciplinary study.

The MA in Asian studies is offered as Plan A (thesis) or Plan B (non-thesis). Although UH Mānoa does not offer a PhD in Asian studies, Asia-focused PhD programs are available in anthropology, East Asian languages and literatures, economics, geography, history, linguistics, music, philosophy, political science, public health, sociology, theater, and tropical agriculture.

Students who wish to pursue a doctoral degree in any of these fields should contact the appropriate department.

A student's academic program should concentrate on one of the regions of Asia as represented by the area centers in SPAS: China, Japan, Korea, Okinawa, the Philippines, South Asia, or Southeast Asia. Regarding the latter two, a student may concentrate on a particular country within those regions if sufficient courses are available. The director of each area center or a designated faculty member serves as the graduate student advisor for his or her respective area.

Students without sufficient academic background in Asia-related course work may be required to take certain preparatory courses to make up this deficiency without credit toward the degree. Prospective students should note that the program requires successful completion of course work or demonstrable proficiency in an Asian language beyond the fourth-year level for students concentrating on Japan, at the fourth-year level for

students concentrating on China or Korea, or the third-year level for students concentrating on the Philippines, South Asia, or Southeast Asia. Students enrolling from an Asian country may have the foreign language requirement waived if they plan to concentrate on their native country or region. If they elect to concentrate on a country other than their own, they must fulfill the language requirement as previously stated.

**Plan A (Thesis) Requirements**

The MA Plan A degree in Asian studies requires the following:

1. A minimum of 36 credit hours. Of these, at least 18 must be earned in courses numbered 600 or higher (including 6 credit hours in ASAN 700 Thesis Research)
2. Full-time study for a minimum of two academic semesters
3. A minimum of 6 credit hours in an Asian language equivalent to the following: Japanese—6 credit hours beyond the 401 and 402 level; Chinese—8 credit hours at the 401 and 402 level; Korean—6 credit hours at the 401 and 402 level; Philippine, South and Southeast Asian languages—6 credit hours at the 301 and 302 level. An entering student who has achieved this level and can demonstrate proficiency through examination may select alternate courses equaling 6 credit hours with the consent of the area advisor.
4. An introductory graduate seminar in the particular area of concentration (ASAN 600), taken at the beginning of the student's program
5. A graduate research seminar in the particular area of concentration (ASAN 750)
6. A minimum of 3 additional credit hours in Asian studies
7. A minimum of 15 credit hours of interdisciplinary study related to the candidate's country or region, with at least 3 credit hours each in the fields of humanities, social sciences, and arts. No more than 9 credit hours in one discipline will be counted. A maximum of 6 credits may be taken outside the country/region of focus, after consultation with academic advisor.
8. Satisfactory completion of a master's thesis and an oral examination on the thesis given by the student's three-member faculty committee

**Plan B (Non-thesis) Requirements**

The MA Plan B degree in Asian studies requires:

1. A minimum of 36 credit hours. Of these, at least 18 credits must be earned in courses numbered 600 or higher
2. Full-time study for a minimum of two academic semesters
3. A minimum of 6 credit hours in an Asian language equivalent to the following: Japanese—6 credit hours beyond the 401 and 402 level; Chinese—8 credit hours at the 401 and 402 level; Korean—6 credit hours at the 401 and 402 level; Philippine, South and Southeast Asian languages—6 credit hours at the 301 and 302 level (an entering student who has achieved this level and can demonstrate proficiency through examination may select alternate courses equaling 6 credit hours with the consent of the area advisor)
4. An introductory graduate seminar in the particular area of concentration (ASAN 600), taken at the beginning of the student's program
5. A graduate research seminar in the particular area of concentration (ASAN 750)
6. A minimum of 3 additional credit hours in Asian studies
7. A minimum of 21 credit hours of interdisciplinary study related to the candidate's country or region, with at least 3

credit hours each in the fields of humanities, social sciences, and arts. No more than 9 credit hours in one discipline will be counted. A maximum of 6 credits may be taken outside the country/region of focus, after consultation with academic advisor.

8. Presentation of a portfolio consisting of two seminar papers, and satisfactory completion of an oral examination based on the papers given by the student's three-member faculty committee

### Certificate Programs

#### Graduate Certificates

SPAS, through its Asia focused centers, offers graduate certificates in the following areas: Chinese studies, Korean studies, Japanese studies, Philippine studies, South Asian studies, and Southeast Asian studies. Regularly enrolled graduate students in non-Asian studies disciplines receive a certificate for completing a program of study that focuses on a particular Asian country or region. MA students in Asian studies also receive a certificate for completing studies in their area of concentration.

#### Certificate Requirements

- 18 credits of course work, in a defined program of study, at UH Mānoa within the chosen certificate area
- Of these, 15 credits must be at 300-level or higher from at least two major divisions (social sciences, humanities, or arts), with no more than 9 credits in a single division, and at least 9 credits in graduate level courses (600 level or higher)
- ASAN 600 Asian Studies Seminar: Scope and Methods or 750 Research Seminar in the chosen certificate area
- A research paper in the chosen certificate area and an oral examination based on the paper; or a thesis or dissertation related to the chosen certificate area in the student's major discipline
- Language requirements:
  - For the Japanese certificate, 4th year competency JPN 407
  - For the Chinese and Korean certificate, 3rd year competency (CHN 301/302 or KOR 301/302); and
  - For the remaining regional certificates, 2nd year competency (201/202 language courses of the chosen certificate area)
- Complete all coursework for certificate within a seven year period

All language competency requirements can be met either through course work or equivalency examinations in the chosen certificate area. Language courses do not count towards certificate credit requirements.

Academic advising is provided by the center of the student's chosen certificate area.

## Pacific Islands Studies

Moore 215  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-7700  
Fax: (808) 956-7053  
Web: [www.hawaii.edu/cpis/](http://www.hawaii.edu/cpis/)

### Faculty

\*T. A. Wesley-Smith, PhD (Chair)—political science  
\*L. Bautista, PhD—sociology  
K. Higgins, PhD—art history  
\*T. Kabutaulaka, PhD—political science  
A. Mawyer, PhD—anthropology  
M. Nepia, PhD—spatial design  
J. Walsh, PhD—anthropology

### Cooperating Faculty

\*W. Chapman, PhD—American studies  
\*M. Hamnett, PhD—anthropology, Research Corporation of UH  
\*D. L. Hanlon, PhD—history  
\*L. K. Kame'eleihiwa, PhD—Hawaiian studies  
\*M. Maaka, PhD—education  
\*J. F. Mayer, PhD—Indo-Pacific languages  
\*J. Moulin, PhD—music  
\*J. Osorio, PhD—Hawaiian studies  
\*Y. Otsuka, PhD—linguistics  
\*B. V. Rolett, PhD—anthropology  
\*N. Silva, PhD—political science  
\*C. Sinavaiana, PhD—English  
\*T. Tengan, PhD—anthropology and ethnic studies  
\*D. Waite, PhD—art  
\*G. M. White, PhD—anthropology

### Affiliate Faculty

\*D. Chappell, PhD—history  
S. Dawrs, MLS—Pacific collections  
L. G. Eldredge, PhD—marine zoology, Bishop Museum  
G. Finin, PhD—EastWest Center  
E. Kleiber, MLS—Pacific collections  
N. Lewis, PhD—EastWest Center  
\*P. Lyons, PhD—English  
\*P. Mataira, PhD—social work  
\*K. Oliveira, PhD—Hawaiian language  
\*K. Rehg, PhD—linguistics  
L. Uperesa, PhD—ethnic studies and sociology

**Degrees and Certificate Offered:** BA in Pacific Islands studies, MA in Pacific Islands studies, Certificate in Pacific Islands studies

### The Academic Program

Pacific Islands Studies at UH Mānoa is an innovative, interdisciplinary program committed to the production and dissemination of a wide range of knowledge about Oceania. The program focuses on the island societies of this vast region, and the dynamic cultural, social, and political interactions that link them to each other as well as to the rest of the world. It seeks to understand the many worlds of Oceania through multiple conceptual lenses, drawn selectively from a range of academic disciplines and from the knowledge systems of the region itself. Pacific Islands studies promotes active, student-centered ap-

proaches to learning and encourages creativity in research and representation of island issues.

With a core and affiliate faculty of about 40 members, and access to one of the finest collections of Pacific materials in the world, the Pacific Islands studies program offers interdisciplinary programs of study leading to the BA and MA in Pacific Islands studies and the Certificate in Pacific Islands studies.

### Advising

Graduate students may see Terence Wesley-Smith or other designated faculty. Undergraduates majoring in Pacific Islands studies are advised by Julie Walsh.

## Undergraduate Study

### Bachelor's Degree

The undergraduate program in Pacific Islands studies is designed for students desiring an interdisciplinary education and an informed understanding of Oceania and issues of concern to Pacific Islanders.

Students seeking a BA in Pacific Islands studies must first complete PACS 108 with a minimum grade of C. Students must also meet all the requirements for admission established by the School of Pacific and Asian Studies.

Pacific Islands studies is normally declared as a major at the end of the sophomore year or beginning of the junior year though students may apply for admission to the program at any time. The formal declaration is made through the School's Student Academic Services Office.

### Program Requirements

- Register for all required courses for a letter grade
- Earn a grade of C (not C-) or better in the 36 credit hours of Pacific Islands-related coursework applied to the major requirements
- 45 upper division credits of 300+ courses

### Major Requirements

- Total of at least 36 credit hours of Pacific Islands-related course work
- PACS 108, 201, 202, 301, 302, 303: 18 credits of PACS core courses
- 9 elective credits selected from a list of courses, including 3 credits in Pacific Islands-related history, anthropology, and other department offerings
- Choose a concentration from 3 choices: 1) Public Policy and Community Development, 2) Contemporary Regional Issues, and 3) Arts, Performance, and Culture
- 6 additional credits selected from a list of concentration-related courses including 3 credits of the required PACS concentration anchor course (PACS 301)
- 4 semesters of an indigenous Pacific Islands language; native speakers may test out upon demonstration of equivalent level
- PACS 401: 3 credits Senior Capstone experience

PACS courses used to satisfy General Education Core requirements may not normally be used to satisfy major requirements or vice versa. For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### Master's Degree

The MA in Pacific Islands studies is intended for students of the region wishing to transcend established disciplinary boundaries and explore innovative approaches to learning, research, and representation. It is the only program of its kind in the U.S. The MA program includes two options, thesis and MA portfolio. Students selecting the first option complete a scholarly research-based thesis on a Pacific-related topic. Normally this is the preferred option for those planning to enter a doctoral program in the humanities, social sciences, or interdisciplinary studies. Those opting for the MA portfolio demonstrate mastery of a specialty area within the field of Pacific Islands studies through an integrated program of activities including course work, research, and writing. Both options can include performance, multimedia, or creative writing components. Some recent graduates are pursuing doctoral or professional degrees in Australia, New Zealand, Europe, Hawai'i, and the U.S. mainland; others are employed in a wide variety of fields, including education, social work, publishing, as well as library and museum work.

### Language Requirement

On entry, or before graduation, students are required to have a second-year level of competence in an indigenous language of the Pacific, or a pidgin/creole language such as Tok Pisin, Solomons Pijin, or Bislama. The language should be related to the student's research interests. Competence in an administrative language of the Pacific such as Spanish, French, German, or Japanese may be used to satisfy the requirement, provided this is not the student's first language, and there is a demonstrated connection with research activities. Language competence is demonstrated by successful completion of appropriate course work, or through an examination conducted by a suitably qualified individual.

### Degree Requirements

All MA students are required to complete a minimum of 30 credits of course work, which must include three core seminars, PACS 601, 602, and 603. The core seminars introduce students to key issues of learning and research in the field of Pacific Studies. The seminars are taught in sequence, with PACS 601 and 602 offered in the fall, and 603 in the spring. In addition, students take at least two focus courses (6 credits) directly related to their research or specialty interests. A list of preferred Pacific-related courses offered across the campus serves as a guide in the selection of other courses that will count toward the degree. Courses are selected in consultation with a faculty advisor to form an integrated program of study that strengthens a student's general knowledge of the region, as well as providing a particular concentration of interests. Students in both the thesis and MA portfolio plans choose a three-person faculty committee to supervise their work, and to evaluate the final product or products. The MA committee must review and approve a comprehensive thesis or portfolio proposal (usually produced as part of the requirements for PACS 603) before the student embarks on the MA thesis or on major components of the portfolio.

All students must pass the MA written examination, which provides an opportunity to demonstrate understanding of significant issues in the field of Pacific studies, as well as general knowledge of the region as a whole. Students normally sit the

examination at the end of the third semester in the MA program. Successful performance on the examination advances the student to candidacy. A student failing the examination may take it one more time. A second failure results in the student being dropped from the program.

### Thesis Requirements

Students selecting the thesis option complete 6 credits of focus course work directly relevant to their research interests, and produce a scholarly, research based thesis on a Pacific-related topic. The thesis should demonstrate an ability to conduct independent research and represent a significant contribution to this interdisciplinary field of study. It should address a significant question, issue, or theme, and include a thorough review of relevant written and other resources. Students are expected to cross established disciplinary boundaries and explore topics using multiple conceptual lenses. The thesis must include a substantial written component that is normally at least one hundred pages (or 30,000 words) in length. It can include performance, creative writing, or multimedia components in dialogue with the text to better communicate the scholarly work.

Students pursuing the thesis option satisfy credit requirements as follows:

■ Core seminars (PACS 601, 602, 603)	09 credits
■ Focus courses	06 credits
■ Elective courses	09 credits
■ Thesis credits (PACS 700)	06 credits
■ Total	30 credits

At least 15 credit hours of this course work must be in courses numbered 600 and above (excluding 700). Normally, only 3 credits of 699 Directed Reading and Research can be used to satisfy the focus requirement.

### MA Portfolio Requirements

Students selecting this option identify and explore a Pacific-related specialty area. Mastery of the specialized subject matter is demonstrated through an integrated program of study that includes: 1) 6 credits of focus course work directly relevant to the specialty area; 2) an essay or research report of at least 25 pages in length (approximately 8,000 words) that explores a central aspect of the specialty area; and 3) a substantial performance, multimedia, artistic, or written product directly related to the specialty area. This component of the portfolio will normally complement the essay or research report described above, and can be combined with it to form a single product of at least 50 pages in length (approximately 16,000 words).

Students pursuing the portfolio option satisfy credits requirements as follows:

■ Core seminars (PACS 601, 602, 603)	09 credits
■ Focus courses	06 credits
■ Elective courses	09 credits
■ MA projects (PACS 695)	06 credits
■ Total	30 credits

At least 18 credit hours of course work must be in courses numbered 600 and above (excluding PACS 695). Normally, only 3 credits of 699 Directed Reading and Research can be used to satisfy the focus requirement. Students earn 3 credits of 695 Master's Portfolio Project for their work on the essay or research report, and a further 3 credits for the third component of the portfolio.

### Performance, Creative Writing, Artwork, and Multimedia Options

Innovative approaches to knowledge production are encouraged. MA projects (thesis or MA portfolio) must include a substantial analytical, text-based component, but can incorporate elements of performance (e.g. dance, theater), creative writing (e.g. fiction or poetry), artwork (eg painting, photography), or multimedia (e.g. video, audio, digital media). Students intending to include performance, creative writing, artwork, or multimedia components must satisfy the MA committee that they have or will acquire the appropriate proficiencies. The issue of proficiency should be addressed in the project proposal with reference to relevant course work, academic background, or prior experience. Performances must be supervised by members of the MA committee, fully rehearsed, and videotaped for submission, along with the written component, to the center and/ or Graduate Division.

### MA Committees

All MA students form a three person committee to supervise their work and evaluate the thesis or MA portfolio products. Graduate Division requires that committee members be on the Graduate Faculty at UH Mānoa, although students can petition for exceptions to this rule. The chair and at least one other member should be members of the core or affiliate faculty of the Center for Pacific Islands Studies. Students normally form the committee towards the end of their first year in residence, or after they have prepared a comprehensive thesis or MA portfolio proposal.

### Certificate Program

#### Certificate in Pacific Islands Studies

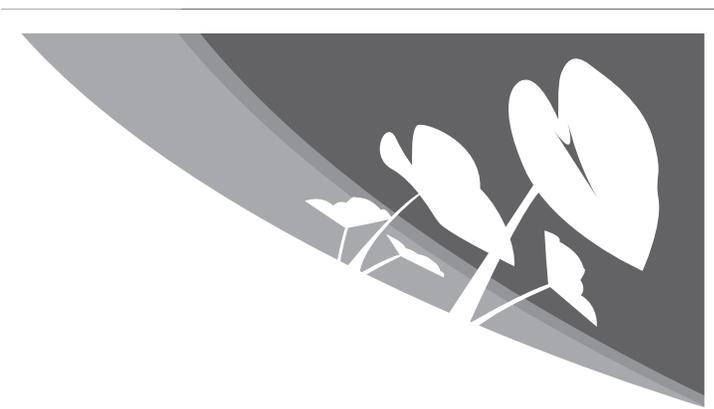
The Certificate in Pacific Islands Studies is designed for students who are pursuing advanced degrees in other areas and whose course of study includes a substantial component of Pacific-related courses and research. The objective of the certificate is to provide recognition of this expertise and to encourage further study of the Pacific region.

Students applying for the certificate must have previously been admitted to the Graduate Division in a field of study. Applications take the form of a letter to the Pacific Islands studies graduate chair that outlines academic objectives, Pacific-related interests, and the proposed course of study in the primary field. Following a diagnostic interview, the certificate student is assigned a two-person advisory committee consisting of one member of the Pacific Islands studies faculty (as appointed by the graduate chair) and the student's departmental advisor.

#### Requirements

A certificate student is required to have 18 credit hours in Pacific-related courses or 12 credit hours in Pacific-related courses and a Pacific-related thesis or dissertation. The courses must constitute a logically related program of study and are normally chosen from the list of preferred courses prepared by the Pacific Islands studies faculty. Certificate students must take at least one of the MA core courses (PACS 601, 602, 603), and sit the MA written examination. The certificate is awarded upon completion of the advanced degree in the primary field of study.

# ROTC Programs



## Aerospace Studies (Air Force ROTC)

### Administration

AFROTC Building  
1460 Lower Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7734  
Web: [manoa.hawaii.edu/undergrad/aerospace/](http://manoa.hawaii.edu/undergrad/aerospace/)



### Faculty

LtCol V. Terrell (Director)  
Maj S. Waters  
Capt Z. Spotts  
Capt. A. Schilling  
MSgt L. James  
SSgt. S. Schroader

### General Information

Aerospace Studies is part of the Air Force ROTC program. Through this program, full-time students pursue a commission in the U.S. Air Force. Once commissioned as a Second Lieutenant, graduates of the Air Force ROTC program serve on active duty for a specified period of time.

### The Academic Program

The Aerospace Studies department offers 3- and 4-year programs to students. Course content includes: Foundations of the U.S. Air Force, Evolution of Airpower, Leadership Studies, and National Security Affairs. All lower division courses are approximately one or two credit hour. Upper division courses are three credit hours.

An integral part of the Air Force ROTC commissioning program is Leadership Laboratory and Physical Training. Students are required to attend both functions and must meet all attendance and academic requirements in order to remain in good standing within the program.

In addition to the academic program, Air Force ROTC offers a wide array of optional activities to enhance students' leadership skills.

### Scholarships

Highly qualified freshmen and sophomores can compete nationally for the In-College Scholarship Program. Express Scholarships may be available to students pursuing degrees the Air Force deems "critical" (Computer/Electrical/Environmental Engineering, Foreign Languages, and Nursing). Scholarships cover tuition and most fees, \$900 annually for textbooks, and include a monthly stipend (\$300-\$500). Four-year scholarships are available for eligible High School Seniors. These applications are due via [www.afrotc.com](http://www.afrotc.com) by **December 1**.

### Advising

For more information about Air Force ROTC or about our scholarship program, log on to [www.afrotc.com](http://www.afrotc.com) or contact our office at (808) 956-7734 or [afrotc@hawaii.edu](mailto:afrotc@hawaii.edu).

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# Military Science Army (ROTC)

## Administration

1311 Lower Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-7766/956-7744  
Fax: (808) 946-2840  
Email: gblt@hawaii.edu or  
Web: manoa.hawaii.edu/undergrad/  
armyrotc/



## Faculty

MAJ J. Carson  
CPT J. Androff  
MSG D. Timmerman  
SFC Campos-Flores  
SFC J. Solano  
Mr. E. Leo  
Mrs. F. Lafitaga  
Mr. E. Davis  
Mr. A. Afuola

## General Information

The Army Reserve Officer Training Corps (ROTC) program provides full-time college students the opportunity to pursue a commission in the U.S. Army, U.S. Army Reserve, or the Hawai'i Army National Guard. Officers may be commissioned on active duty, in a reserve component while pursuing a civilian career, or receive an education delay to earn a graduate or professional degree. There are 4-year, 3-year, and 2-year programs available.

## The Academic Program

The 4-year program is divided into a 2-year basic and 2-year advanced course. The basic course is for students who enter ROTC in their freshman year. With approval, students may enter ROTC in their sophomore year and compress the basic course requirements. This traditional program offers a moderately paced course of military and academic training resulting in completion of ROTC and eligibility for a commission on graduation day. All basic courses are electives, and no obligations are incurred. The advanced course includes a 5-week summer camp between the junior and senior years held at Fort Lewis, Washington. Pay for the advanced course is \$450-500 per month during the school year and approximately \$900 plus free room and board for the 5 weeks at camp. To be eligible for the advanced course, a student must (a) be a U.S. citizen or U.S. national, (b) successfully complete the basic course or its equivalent, and (c) meet other statutory and regulatory requirements.

The 2-year advanced program can be taken without the basic course by students who attend and complete a 4-week summer camp at Fort Knox, Kentucky, for which the student receives approximately \$600. Likewise, veterans of all services, 3-year JROTC graduates, and national guardsmen and reservists may be exempt from the basic course. Should an individual qualify, select, and complete this option, he or she is eligible to receive a commission upon graduation. Students must have 4 semesters of college work remaining after finishing the basic summer



camp (or qualifying for the exemptions). Advanced course students must have completed 60 credits and be full-time students.

In addition to the courses summarized in the course descriptions, cadets will be required to meet professional military education requirements prior to graduation and commissioning. This requirement consists of one course in military history.

## Optional Programs

### Army Reserve/Army National Guard Membership

The Simultaneous Membership Program (SMP) allows cadets to participate in and receive drill pay from an Army Reserve or Hawai'i National Guard unit as an officer trainee while they complete the Army ROTC advanced course. The pay the cadets receive is in addition to the monthly ROTC spending allowance and any GI Bill educational benefits to which they are entitled.

### Scholarships

There are 4-, 3-, and 2-year scholarships available. All Army ROTC scholarships are merit based and cover the full tuition and fees for any university on O'ahu. In addition, scholarships provide \$1,200 per year for books and an additional \$300-\$500 per month spending allowance. 4-year applications are due by **January 10** of the high school senior year. 3- and 2-year scholarships are competed for on campus by current ROTC students.

### Advising

For general information about the Army ROTC program or specifics on eligibility requirements, contact the Enrollment Officer in the Military Science Building at 1311 Lower Campus Road or call Mr. William Johnson, Scholarship Program Advisor at (808) 956-7766/7744.

# Myron B. Thompson School of Social Work



## Administration

Henke Hall 230  
1800 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-7182  
Fax: (808) 956-5964  
Email: [sswadmit@hawaii.edu](mailto:sswadmit@hawaii.edu)  
Web: [www.hawaii.edu/sswork](http://www.hawaii.edu/sswork)

Dean: Noreen Mokuau

## Faculty

- \*N. Mokuau, MSW, DSW—Dean, Asian/Pacific Islander health issues
- K. Bean, MSW, PhD
- K. Bennett, MSW, JD—child welfare policy and law
- \*K. Braun, MPH, DrPH—social behavioral health sciences, gerontology
- \*C. Browne, MSW, DrPH—Chair of Gerontology concentration, women’s issues, health care, gerontology, qualitative research
- N. Chang, MSW—Assistant to the Dean, information technology and diversity programs
- \*B. Coyne, PhD—criminology, sex offender programs
- M. DeMattos, MSW—Chair of BSW program, youth and families, substance abuse, training
- A. Duldulao, MSW, PhD—immigration, mental health disparities, Asian and Pacific Islanders, Filipino health, quantitative research methods, critical theory
- K. Duponte, MSW—Practicum Assistant, cultural awareness, racial disproportionality
- \*M. Godinet, MSW, PhD—Chair of Child and Family concentration, delinquency prevention, social and adjustment issues of Pacific Islander youth, multi and cross-cultural issues
- \*J. Guo, MSW, PhD—social welfare policy, child and family issues, international and comparative social welfare
- \*S. Hong, PhD—neighborhood contexts, immigration, mental health, community-based practice and research methodology
- \*L. Ka’opua, MSW, PhD—Chair of MSW program, Chair of Health concentration, mental health, and health disparities
- M. Kaulukukui, MSW—mental health



*Myron “Pinky” Thompson earned his MSW from UH in 1953. A noted leader in the struggle for the preservation of the Hawaiian culture, he was at the vanguard of the Hawaiian Renaissance movement in the 1970s. While at the Queen Lili’uokalani Children’s Center, he helped revitalize traditional healing practices such as ho’oponopono and dream work. Along with Kumu Mary Kawena Puku’i and others, he helped create Nana I Ke Kumu, a two-volume reference manual on indigenous healing practices. He helped start Alu Like and Papa Ola Lokahi, was a Bishop Estate Trustee, and served as president of the Polynesian Voyaging Society. The UH Board of Regents approved the naming of the School after him in 2008.*

- \*B.J. Kim, MSW, PhD—gerontology, mental health and quality of life among older Asian immigrants
- J.K. Kim, MSW—indigenous evaluation and research, Native Hawaiian culturally based intervention and practice methods, Native Hawaiian holistic health and well-being
- J. Kishida, MEd—PhD and MSW program specialist
- T. Kreif, MSW—community development, social and economic development, international social work
- C. Langworthy, MSW—Practicum Coordinator, gerontology, mental health
- \*P. Mataira, MSW, PhD—strategies for economic and community development, multicultural indigenous issues, working with men, qualitative research
- R. Matayoshi, MSW—Practicum Coordinator, volunteerism, volunteer management, peace, leadership, interdisciplinary education
- \*P. Morelli, MSW, PhD—Chair of Doctoral Program, Chair of Mental Health concentration, social work practice, cross-cultural/minority mental health, social development, qualitative research
- S. Nishimura, MSW, PhD—adolescent substance abuse, behavioral health, youth violence prevention, program evaluation

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\* Graduate Faculty

- M. Ono, MSW—Coordinator of Student Services, mental health, substance abuse, cross-cultural practice
- L. Paglinawan, MSW—indigenous issues
- P. Paul, MSW—child and adolescent mental health
- \*C. Plummer, MSW, PhD—child welfare, child abuse and neglect, program evaluation, prevention, international practice
- \*G. Pugh, MSW, PhD—hospital and medical social work practice, health and mental health, social work ethics, philosophy, and epistemology, privilege and oppression, social work education
- \*R. Stotzer, MSW, PhD—Director of Distance Education, prejudice, stereotypes and hate crimes
- J. Sur, MSW—child welfare, disability studies, substance abuse, social work in educational settings
- C. Tarutani, MSW—children and families, substance abuse, forensic social work

### Emeritus Faculty

- H. Gochros, MS, DSW
- H. Jambor, MA, DSW
- L. Lister, MSW, DSW

## General Information

Social work, one of the fastest growing occupations in the nation, is a profession concerned with the prevention and resolution of problems for individuals, families, groups, and communities. Those who are committed to social justice and improving the quality of life for society's most vulnerable citizens would find this curriculum stimulating. Students graduate with the knowledge, skills, and values that facilitate the prevention or resolution of such problems as mental illness, substance abuse, homelessness, crime and delinquency, and poverty.

The school has been providing quality social work education in Hawai'i for over 74 years. It has a bachelor's, master's, and doctoral program. The BSW and MSW programs are accredited by the Council on Social Work Education (CSWE) and our PhD program is approved by UH Mānoa Graduate Division. Our school is recognized nationally and internationally for its award-winning faculty, research and publications, and specialty areas that focus on the expressed needs of the community (health, mental health, child and family, and gerontology).

### Mission

The mission of the Myron B. Thompson School of Social Work (MBT SSW) is to provide educational excellence that advances social work with its focus on social justice. The principal responsibility is the generation, transmission, and application of knowledge for the global enterprise with special attention to Native Hawaiian, other Pacific Islander, and Asian populations in our state and region.

## Advising

Freshmen and sophomores who are interested in learning more about the social work profession and/or our BSW program have several ways to do this: (1) The Pre-Health/Pre-Law Advising Center is a walk-in resource center staffed with advisors trained to help students clarify career goals, select a major, plan coursework, research professional programs, gain relevant experience, and apply to schools. See: [\[dergrad/pac/\]\(http://dergrad/pac/\). \(2\) Social Work faculty advisors are available by appointment to assist with pre-admissions academic advising. Contact the School of Social Work Admissions Office for more information: \[sswadmit@hawaii.edu\]\(mailto:sswadmit@hawaii.edu\) or \(808\) 956-7182. \(3\) Online resources for BSW, MSW, and PhD programs, admissions, and degree requirements: Myron B. Thompson School of Social Work website \(\[www.hawaii.edu/sswork/programs.html\]\(http://www.hawaii.edu/sswork/programs.html\)\); MBT SSW Bulletin \(\[www.hawaii.edu/sswork/bulletin.html\]\(http://www.hawaii.edu/sswork/bulletin.html\)\). Hard copies of admissions information and materials may be requested from the SSW Admissions Office: \[sswadmit@hawaii.edu\]\(mailto:sswadmit@hawaii.edu\) or \(808\) 956-7182.](http://manoa.hawaii.edu/un-</a></p>
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## Financial Aid

It is important that students seek out information on financial aid, including scholarships, stipends, student employment, etc., as early as possible. Deadline dates can vary and may require additional documentation and/or interviews.

The UH Mānoa Financial Aid Services is dedicated to making it possible for degree-seeking admitted students to attend UH Mānoa regardless of their economic circumstances. See [www.hawaii.edu/fas/](http://www.hawaii.edu/fas/). Please review this website thoroughly as it contains many links to additional and outside sources for financial aid.

The MBT School of Social Work also has a limited number of scholarships available to social work students. This information can be located: (1) under each program's "Financial Aid" and "Forms" sections on the SSW website: [www.hawaii.edu/sswork/](http://www.hawaii.edu/sswork/) (2) in the MBT SSW Bulletin: [www.hawaii.edu/sswork/bulletin.html](http://www.hawaii.edu/sswork/bulletin.html). Hardcopy versions of the bulletin can also be requested through the SSW Admissions Office.

## Undergraduate Program

### Bachelor of Social Work

The primary goal of the BSW program is to prepare students to be competent, beginning level professionals and generalist practitioners capable of integrating the knowledge, skills, and values of social work, based on a liberal arts foundation. The program's secondary goal is to prepare students for advanced social work education. The program combines both academic course work and field practicum in a two-year course of study beginning in the junior year. The curriculum is predicated on and extends the liberal arts perspective.

### Admission Requirements

The applicant must: (a) have been admitted to UH Mānoa; (b) have completed UH's General Education Core requirements (special consideration is given to second semester sophomores for early admission); (c) have completed the knowledge-base courses identified by the school; (d) have a minimum cumulative GPA of 2.5; and (e) provide evidence of motivation for and commitment to social work education (e.g., personal, volunteer, and/or social-work-related experience).

### Application Deadlines

Students are admitted to the BSW program in the fall and spring semesters.

**February 1** for the fall semester; **October 1** for spring.



### Degree Requirements

The student must (a) fulfill all UH Core requirements; (b) complete the required undergraduate social work curriculum listed below; (c) earn an aggregate of no less than 120 credit hours; and (d) have a minimum cumulative GPA of 2.5.

### BSW Curriculum

Candidates must complete the following curriculum requirements:

1. The following social work knowledge-based courses must be included in the General Education Core or as lower division electives: any introductory political science course, PHIL 110 or 111, any psychology course, SW 200, and a biology course that emphasizes human biology.
2. Social work major courses (38 credit hours) including SW 302, 303, 325, 326, 360, 361, 391, 402, 403, 440, 490, and 491.
3. Electives required in upper division liberal arts courses (21 credit hours) including one course in each of the following areas: (a) small group, community, or organizational theory; (b) analysis of a social institution, problem, or issue; (c) ethnic or cultural factors; (d) American values; (e) women's issues; (f) research design and methodology; and (g) other related topics.
4. Other electives (2-4 credit hours).

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Programs

### Master of Social Work

The MSW curriculum prepares students for professional advanced practice and requires 57 credit hours. The course work must be completed within a 4-year period, of which 4 semesters of practicum and completion of the research requirement are mandatory. Students may waive some foundation level courses by examination and thereby, reduce the number of credits necessary to receive their degree.

The foundation curriculum includes courses in social welfare policy, human behavior in the social environment, research, social work practice with individuals, families, groups, and communities, and practicum. The advanced curriculum is organized around four concentrations: behavioral mental health, child and family, gerontology, and health. Elective courses

augment the foundation and concentration curricula; electives may include courses in marriage and family therapy, substance abuse, criminal justice, Native Hawaiian cultural practices, and other offerings relevant to the student's chosen concentration.

Admission requirements are: a bachelor's degree from an accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning, a 3.0 GPA, a liberal arts background, the motivation for a career in social work, and evidence of ability to manage the rigors of graduate school.

### Application Deadline

**February 1** (MSW admission occurs in the fall only).

For further information, write to the school at Henke Hall #230, 1800 East West Road, Honolulu, HI 96822, call (808) 956-7182, email [sswadmit@hawaii.edu](mailto:sswadmit@hawaii.edu), or check the website at [www.hawaii.edu/sswork](http://www.hawaii.edu/sswork).

### Neighbor Island Distance Education MSW Delivery Option

#### Application Deadline

**December 15** for fall admission.

The MSW degree is now available to neighbor island residents via distance education technology. Classes include instruction via interactive television, computer-based delivery, face-to-face onsite, and hybrid or blended approaches. It is a 3-year program.

For more information, call (808) 956-9470 or visit the website at [www.hawaii.edu/sswork/de/](http://www.hawaii.edu/sswork/de/).

### PhD in Social Welfare

The PhD program prepares students for leadership in the advancement of social welfare education, practice, policy development, and research. The program promotes social justice and global understanding through scholarly inquiry using indigenous and mixed method approaches. Emphasis is placed on knowledge development that enhances the well-being of Native Hawaiians and the diverse people and communities of Hawai'i and the Asian-Pacific Region. The curriculum and program of study place highest priority on independent inquiry and the enhancement of intellectual, creative, and analytical abilities. Each student will develop the ability to conduct independent research on a critical social problem.

The program is designed to provide sufficient structure to guide students as well as the flexibility and rigor that are the hallmarks of doctoral education. The curriculum is divided into required courses ensuring that all students are equipped with comparable basic knowledge; specialization work, in which students largely design their own curriculum; teaching and research practica; electives; a dissertation design and proposal requirement; and the dissertation. The PhD in social welfare requires 46 hours of course credit excluding dissertation credits.

#### Application Deadline

**January 15** (PhD admission occurs in the fall only).

For more information, call (808) 956-3831, email [sswadmit@hawaii.edu](mailto:sswadmit@hawaii.edu), or check the website at [www.hawaii.edu/sswork/phd.html](http://www.hawaii.edu/sswork/phd.html).

# School of Travel Industry Management



## Administration

George Hall 346  
 2560 Campus Road  
 Honolulu, HI 96822  
 Tel: (808) 956-8946  
 Fax: (808) 956-5378  
 Email: tim-info@hawaii.edu  
 Web: www.tim.hawaii.edu  
 Interim Dean: Juanita C. Liu

## Faculty

- \*D. J. L. Choy, PhD (Graduate Chair)—tourism economics, tourism development, travel marketing, tourism policy and planning
- \*J. Chi, PhD—transportation economics, transport policy, applied economics
- D. Fitzgerald, MHRM—human resource management
- L. U. Gershuni, MBA—service management, food and beverage, event management, entrepreneurship, sociocultural impacts of tourism
- \*J. H. Hwang, PhD—food service management, consumer behavior
- \*I. Lin, PhD—services/hospitality marketing, services/hotel management, consumer behavior, and human resources management
- \*J. C. Liu, PhD—economic impact of tourism, geography of tourism, sociocultural issues of tourism, ecotourism
- \*K. Seo, PhD—hospitality finance and accounting
- \*P. J. Sheldon, PhD (Emerita)—tourism and hospitality information systems, tourism economics, tourism policy
- \*D. Spencer, PhD—tourism policy, planning and management
- \*H. Wen, PhD—information technology systems, e-commerce, e-consumer behavior, e-marketing, hotel operation management, supply chain management

## General Information

The School of Travel Industry Management (TIM) is recognized as a leading educational institution in hospitality, tourism, and transportation management. TIM pioneered the concept of integrating all aspects of the travel industry under a single discipline. Built on a foundation of management science, TIM also draws on a broad range of disciplines to provide high-quality education at the undergraduate and graduate levels to current and future professionals.

The visitor industry in Hawai‘i provides TIM students many opportunities to gain experience in the field and to study applications of theory to practical business situations. TIM works closely with local, national, and international business organizations, as well as with various government and private professional organizations.

In addition to Hawai‘i’s travel industry environment, students benefit from a curriculum that has an international perspective with special emphasis in the Asia-Pacific region. The global importance of tourism and the increasingly interdependent nature of economic and political systems require a fundamental and multidisciplinary understanding of international issues. TIM’s distinctive curriculum and outstanding faculty, the success and importance of tourism as the leading industry in Hawai‘i, and the international focus of the programs provide students a unique educational environment and experience.

## Mission

As a professional program within a land-grant institution, the School of Travel Industry Management has linked its mission with the state’s economic interest in tourism, Hawai‘i’s largest economic sector. The mission of TIM, as a leading regional professional institution, is to develop and disseminate travel and tourism concepts, knowledge, and skills through excellence and leadership in research, training, outreach, and service that contributes to economic, social, and environmental sustainability as well as supports and enriches the host culture. With this mission, the school’s objectives are threefold: (a) to prepare individuals for leadership and professional positions in the travel industry through education and training, (b) to generate new knowledge in the travel industry through research and graduate education, and (c) to provide service to the community, nation, Asia-Pacific region, and beyond.

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## Goals

Within its mission and objectives, TIM strives for the following goals:

1. Instruction—to provide high-quality education at the undergraduate and graduate levels on a statewide basis;
2. Research—to conduct basic and applied research relevant to the travel industry; and
3. Service—to be the leading travel-industry center for information resources and continuing professional education and training serving the state and the Asia-Pacific region.

## Accreditation

TIM is fully accredited by the Accreditation Commission for Programs in Hospitality Administration (ACPHA).

TIM also has earned the TedQual designation for total education quality from the United Nations World Tourism Organization (UNWTO).

## Degrees

**Undergraduate Certificates:** travel industry management and sustainable tourism

**Bachelor's Degree:** BS in travel industry management

**Master's Degree:** MS in travel industry management

## Advising

TIM Student Services Office

George Hall 346

2560 Campus Road

Honolulu, HI 96822

Tel: (808) 956-8946

Fax: (808) 956-5378

All students are assigned to the student services advisors upon admission to the school. Advisors assist students with the selection of courses appropriate to their career goals, identifying career goals that are appropriate to their interests, understanding UH Mānoa policies and procedures, and identifying co-curricular activities and/or work experiences to help them develop skills and abilities outside the classroom.

Mandatory academic advising is required for all freshmen, sophomores, and new transfer students. All students are encouraged to see an advisor at regular intervals to plan for graduation in a timely manner. The Bachelor Degree Program Sheet and additional advising information can be found on the school's website.

## Seniors

Seniors must complete a degree check and file a diploma application prior to their final semester. Individual advising sessions for graduating seniors are held each semester.

## Academic Policies

### Good Academic Standing

Undergraduate TIM students must meet the following requirements to maintain good academic standing:

1. Cumulative GPA of at least 2.0 for all courses attempted at UH Mānoa for a grade. Transfer credits and courses completed under the CR/NC option are not included.
2. A GPA of at least 2.0 in the upper division TIM core and 2.0 in the TIM emphasis.

3. Satisfactory progress toward completion of degree requirements. This means students must enroll in courses required for the degree and complete these courses with acceptable grades.

### Probation

A student who fails to meet any one of the academic standing requirements at the end of any semester is placed on probation. Probationary students must achieve a current (semester) GPA of at least 2.0 to be allowed continued registration. Failure to correct academic deficiencies may lead to suspension and eventual dismissal from UH Mānoa.

### Withdrawal from Courses

As the semester progresses, it becomes increasingly difficult to withdraw from a course. Withdrawal deadlines are specified by UH Mānoa each semester, and students should take note of the relevant deadlines at the start of the semester.

## Undergraduate Program

### Areas of Emphasis

TIM offers two areas of emphasis within the BS program: hospitality management and tourism/transportation management. These emphases are a selection of courses, which constitute a more focused study in one area of travel industry management of interest to the student. The undergraduate instructional program is committed to the development of competent management personnel for the travel industry through a curriculum that enables students to develop leadership abilities to solve problems of a dynamic industry.

The global nature of the curriculum provides insight into the role and responsibilities of the industry within state, regional, national, and world perspectives, as well as the nature of service-based enterprises, business ethics, and societal constraints. In addition, practical knowledge regarding operational aspects of the industry enables students to develop "reality skills" within the field.

### Hospitality Management

The hospitality management emphasis is intended to provide students with the ability to apply problem-solving, decision-making techniques, and critical-thinking skills to meet current and future industry challenges. Students will study the relationship of the various constituencies (customer, owner, staff) in the management and operation of hospitality businesses, including lodging and food service establishments, as well as event management enterprises.

Courses in this area cover the following areas: management of hotel and food & beverage establishments; food quality management; hospitality financial control; events management; principles of sales and marketing hotels and resorts with a focus on public relations; advertising, pricing, and yield management; operating a commercial food-service facility either as a free-standing operation or as a part of a hotel, club, entertainment/recreation complex, or institution; resort development and management of hotel facilities and design; resort development and management and quantity/quality of food productions.

Graduating seniors take a capstone course in strategic management in the travel industry.



### Tourism/Transportation Management

This emphasis focuses on strategic issues related to the tourism and transportation industries. Students can take a combination of tourism and transportation related courses or choose courses that focus on one of these two areas. Tourism management courses cover destination management; travel distribution systems; marketing and management principles within specific types of businesses, geography, and socio-cultural aspects of tourism; and sustainable tourism, cultural heritage, and destination management by cultural values. In transportation management courses, students will gain an understanding of the characteristics and importance of transportation systems (both domestic and international); major transportation modes; government, promotional, and regulatory activities in U.S. transportation; the role of transportation in tourism; the transportation systems that impact the economics of both Hawai'i and the U.S.; supply chain management; and the management of firms in various transportation modes. Course topics include government regulation and promotion, distribution and industry trends; tourist-related transportation systems, surface passenger transportation systems, and air transportation and the cruise business.

Graduating seniors take a capstone course in strategic management in the travel industry.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Student Learning Objectives for the BS Degree

TIM Student Learning Objectives for the Bachelor of Science degree are: 1) Effective Communication—students can employ communication skills effectively to accomplish organizational and professional objectives; 2) Leadership and Teamwork—students can demonstrate leadership, students can work effectively, respectfully, professionally as a team member; 3) Critical and Creative Thinking—students can analyze situations and develop alternative options to resolve identified issue, students can select appropriate information to develop reliable, valid, and logical arguments; 4) Knowledge and Global Perspective—from a global perspective, students can explain and apply the principles of travel industry management and of hospitality, tourism, and/or transportation management; 5) Ethics and Stewardship—students can demonstrate integrity and ethical behavior, students can comprehend the importance of host cultures to the global travel industry and apply sustainable practices.

## Admission Requirements

### Classified UH Mānoa Students

Applications are available at the TIM office in George Hall 346. Students must meet the following criteria:

1. A minimum cumulative GPA of at least 2.0 for all work attempted at UH Mānoa; and
2. Evidence of potential for success in the travel industry, including, but not limited to, (a) participation in co-curricular activities in school or in the community, (b) personal recommendations, and (c) part-time or summer work experience.

### Transfer Applicants

Students attending other academic institutions must meet the following criteria:

1. Admissible to UH Mānoa with a 2.0 cumulative transfer GPA for Hawai'i residents and a 2.5 cumulative transfer GPA for non-Hawai'i residents, and 24 transferable college-level credits.
2. Evidence of potential for success in the travel industry, including, but not limited to, (a) participation in co-curricular activities in school or in the community, (b) personal recommendations, and (c) part-time or summer work experience.

### Transfer Credits Policy

Please refer to the UH Mānoa Policy for Transfer Credits. Access: [manoa.hawaii.edu/admissions/undergrad/policies.html#credits](http://manoa.hawaii.edu/admissions/undergrad/policies.html#credits).

Definition: Transfer credits are credits received for previous courses completed at another institution of higher education that articulate with UH Mānoa courses.

Eligibility: Declared majors may request an evaluation of credits taken at other institutions of higher education through the Office of Admissions and Office of the Registrar.

All students are reminded that:

- A minimum of 30 credits must be taken at UH Mānoa.
- All courses at the TIM school that are designated at the “upper division” (300/400 level) cannot be satisfied with a course transferred from a two-year school.
- A minimum of 36 upper division TIM credits must be taken at the TIM school.

### Application Procedures

Application forms are available in the TIM Student Services Office for classified degree students at UH Mānoa in other schools and colleges who wish to change majors. Applications must be received by **May 1** for fall admission and **November 1** for spring admission. Applicants who are not currently classified degree students at UH Mānoa must submit the UH System Application Form to the UH Mānoa Office of Admissions by the published fall and spring application deadlines.

### School Requirements

To earn the bachelor of science degree, students must complete the following General Education Requirements:

1. Fulfill the UH Mānoa General Education Foundation Requirements: (12 credits)
  - a. One course in Written Communication FW (3): ENG 100, 100A, 190 or ELI 100.
  - b. One course in Symbolic Reasoning FS (3): BUS 250, NREM 203, MATH 203, 215, or 241.

- c. Two courses in Global and Multi-Cultural Perspectives (FG): TIM 102 for FGB (3) and one course designated FGA or FGC (3)
2. Fulfill the UH Mānoa General Education Diversification Requirements: (16-19 credits)
  - a. Two Arts/Humanities/Literature courses:
    1. TIM requires COMG 151 or 251 for DA (3).
    2. Any course designated Literature DL (3) rec. ENG 270-3.
  - b. Three Natural Sciences courses:
    1. Any course designated Biological DB (3) rec. FSHN 185.
    2. Any course designated Physical DP (3) rec. CHEM 151/151L for hospitality track.
    3. Any course designated Lab DY (1) rec. FSHN 181/181L for hospitality track.
  - c. Two Social Sciences courses
    1. TIM requires ECON 130 for DS (3).
    2. Any course designated DS other than ECON (3). rec. TIM 321, 324, BUS 310 or SOCS 225 (0).
3. Fulfill the UH Mānoa General Education Language (HSL) Requirements. (12-16 credits) TIM requires that students achieve second-year proficiency. See the TIM advisor for information on waivers or earning up to 16 back credits.
4. Fulfill the UH Mānoa General Education Focus Requirements. Most of the eight focus requirements may be met through TIM required courses, e.g., ETH-TIM 301 or 321; OC-TIM 306; and five WI-recommended DL course, TIM 321, 425, 431, and summer session TIM 200 or 300. Non-system transfers should refer to page 28 of the *Catalog* for pro-rated focus requirements.
5. Complete the TIM lower division special requirements (13 credits): TIM 101, ACC 201, ACC 202, and ICS 101B or 101.
6. Complete the internship program, (TIM 100, 200, and 300 or 400B or 400C), including 800 hours with at least one internship in the student's area of emphasis and one in the U.S.;
7. Complete the TIM upper division core courses (21 credits):
  - a. Statistics (BUS 310, ECON 321, NREM 310 or SOCS 225).
  - b. With grades of C- or higher: TIM 301, 302, 303, 304, 305, 306. Statistics and TIM 302 must be completed during the first semester the student is eligible.
8. Complete one of the TIM areas of emphasis with grades of C- or higher for each course:
  - a. Hospitality Emphasis (21 credits): TIM 313, 314, 333, 431, 401 or 403, one hospitality elective, and, one Tourism/Transportation course.
  - b. Tourism/Transportation Emphasis (21 credits): TIM 350; one of (TIM 321, 324, 325 or 420); 431; three Tourism/Transportation electives; and one hospitality course.
9. Earn a minimum of 120 credit hours with a minimum cumulative GPA of 2.0
10. Complete at least 45 credits of upper division coursework numbered 300 or higher.
11. Complete at least 36 upper division credits in TIM.

For more information, please refer to the TIM Degree Requirements Sheet and the UH Mānoa *Catalog* course descriptions.

### **Concurrent Degrees**

TIM students may pursue a concurrent degree with another UH Mānoa college/school. Applicants for concurrent degrees must have a minimum 3.25 UH Mānoa cumulative GPA and submit a statement of purpose and academic plan. Applicants must apply separately and be accepted to both colleges and/or schools. For more information, contact the TIM advisor.

### **Certificate in Sustainable Tourism**

The Certificate in Sustainable Tourism is designed to provide non-TIM undergraduate students with an opportunity to develop knowledge and understanding of sustainable and responsible tourism principles and practices.

Students must apply to the TIM school to be accepted to the certificate program prior to enrolling in upper-division TIM courses. Admission requirements include completion of TIM 101 with a B grade or better, completion of 54 non-TIM credits and a minimum cumulative GPA of 2.5.

Certificate students are required to take 15 credits offered by the TIM school and complete the requirements for a bachelor degree in their area of study. The required courses are TIM 101 and 420. Students will select nine credits from the following courses: TIM 321, 324, 325, 369E, 369J, 415, and 469B.

### **Certificate in Travel Industry Management**

The certificate consists of 5 core courses that provide basic fundamentals in travel industry management for non majors.

Students must apply to the TIM school to be accepted to the certificate program prior to enrolling in upper division TIM courses. Admission requirements include the completion of 24 college-level credits and may include other admissions requirements. The required courses are TIM 101 and four of the following five 300-level courses: TIM 302, 303, 304, 305, 306. Please contact the TIM advisor for more information.

### **Graduate Program**

The master of science (MS) degree program in travel industry management is designed to provide a specialized education through coursework and research to master a broad set of interdisciplinary skills and knowledge. Students develop analytical abilities and the critical thinking skills necessary for careers in the travel industry. Students are also expected to engage in understanding and execution of research activities.

The program prepares students for careers and leadership roles in the travel industry including tourism, hospitality, and transportation management as well as areas covering the entire industry including information technology, international hospitality management, strategic marketing, and global tourism analysis. Students can also explore specific topics of interest including sustainable tourism, electronic commerce, services marketing, and management among others. In addition, the program and faculty have a strong emphasis and expertise in travel and tourism in the Asia-Pacific region. Students come from diverse academic backgrounds, which contribute to a rich and stimulating classroom environment. There are, however, certain subjects that entering students must be familiar with in order to work from a common knowledge base in our courses. These subjects are: 1) introductory economics, 2) introductory financial and managerial accounting, and 3) introductory statistics. If you have not yet taken these courses, they are not required for admission and options are available for meeting this requirement.

## Admission Requirements

The MS in travel industry management is designed for individuals who hold a baccalaureate degree and a demonstrated interest in the travel industry. It is preferred that individuals have an undergraduate degree in the travel-hospitality field, or prerequisites may be required.

Minimum admission standards include a GPA of at least 3.0 in the baccalaureate work and in the last two years of undergraduate work. Applicants must attain a satisfactory score on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). The GMAT is preferred. Students should take the GMAT unless it is not available. Where applicable, the Test of English as a Foreign Language (TOEFL) also is required. The minimum acceptable TOEFL score is 560.

Three letters of reference are required addressing the ability of the applicant to succeed in graduate study and to make future contributions to the travel industry. In addition, two years work experience or equivalent is preferred.

## Degree Requirements

The MS is a 36-credit program. Both Plan A (thesis) and Plan B (non-thesis) options are available. Plan A and Plan B students must earn 21 credits in the following required core courses: TIM 601, 602, 603, 605, 606, 607, and 695.

### Plan A (Thesis)

In addition to the 21 credits in required core courses, Plan A candidates must complete: three elective courses (9 credits) approved by the graduate chair; and TIM 700 Thesis Research (6 credits).

### Plan B (Non-thesis)

In addition to the 21 credits in required core courses, Plan B candidates must complete: four elective courses (12 credits) approved by the graduate chair; and TIM 694 Professional Paper (3 credits).

## Instructional and Research Facilities and Programs

### Center for Tourism Policy Studies

The Center for Tourism Policy Studies (CTPS) was established in coordination with the World Tourism Organization as one of fourteen such centers throughout the world. CTPS conducts research for academic, government, and industry use, offers professional development programs, and provides technical assistance and other community services in tourism-related areas. Through its programs the CTPS has the following five objectives: 1) conducts research of interest to the travel industry and disseminates the findings and results to the academic, governmental, and private sector communities through publications, conferences, and lectures; 2) provides relevant career-oriented courses for Hawai'i residents through continuing education, outreach, and extension services; 3) provides professional development seminars at the regional and international levels; 4) maintains the Sunset Reference Center, a comprehensive tourism resource center; 5) maintains linkages with other research and training units within the university, other educational institutions, and tourism-related organizations in Hawai'i, the Asia-Pacific region, and worldwide.

## Professional Development Programs

The TIM school's professional development programs are designed to improve managerial skills, exchange professional experiences, develop interrelationships among sectors of the travel industry, and increase awareness of the social, cultural, and economic implications of policy decisions. Two summer institutes are held each year:

1. Executive Development Institute for Tourism (EDIT): a two week program for executives and professionals in international tourism; and
2. Hawai'i International Hotel Institute (HIHI): a series of one-week courses for those with one or more years of experience in the hospitality field.

In addition, TIM conducts both short- and long-term education and training programs for tourism professionals in Hawai'i and the Asia Pacific region.

### Gee Technology Learning Center

The TIM school's state-of-the-art information technology center houses an executive video conference suite, a multi-media IT training lab, and the Leong Hop and Bernice C. Loui computer lab.

### The Sunset Reference Center

With more than 10,000 items, including books, reports, statistical publications, article reprints, and subscriptions to more than 200 periodicals, the *Sunset* Reference Center has a comprehensive collection of specialized resource material on tourism in Hawai'i. The *Sunset* Reference Center provides research material for students, supports the research activities of faculty, and serves as a major resource center for the Asia-Pacific region.

### ECO-Hawai'i Educational & Community Outreach

ECO-TIM is designed to extend TIM's expertise in and commitment to responsible tourism to the broader community in Hawai'i through community outreach, service, and continuing education. This program works with community associations, individuals, small- and medium-sized enterprises, and government organizations to provide outreach services and continuing education activities. Activities include outreach projects, lectures, courses, exhibits, forums, conferences, briefing notes, and internet-based information exchange.

## Student Organizations

The TIM school has six student clubs that provide opportunities for students to interact with their peers, meet industry leaders, and practice management skills through a wide variety of activities. These clubs are Travel Industry Management Student Association, Club Managers' Association of America (UH Chapter), Pacific Asia Travel Association (TIM Satellite Chapter), Young SKAL, American Hotel & Lodging Association Student Chapter, and Eta Sigma Delta.

## **Honors and Awards**

The TIM school provides scholarships and awards to qualified students. For a list of these scholarships, see the “Tuition, Fees, and Financial Aid” section of the *Catalog*.

### **Eta Sigma Delta**

Membership in this international honor society for hospitality management is available to undergraduate and graduate students who have achieved outstanding academic records.

### **Outstanding Student Awards**

These awards are given annually to students who have achieved outstanding academic and service performance in the following categories: (a) senior in travel industry management; (b) graduate student in travel industry management; (c) senior in hotel management; (d) senior in tourism/transportation management; (e) junior in travel industry management; (f) TIM International Award of Excellence (awarded by the TIM Alumni Association); (g) Dean’s Scholar award; and (h) Dean’s Spirit of TIM Award.

## **Honors**

For Honors Program information, see the “Honors” section of this *Catalog*. Students may apply for UH Mānoa undergraduate research awards.

### **Dean's List**

For Dean’s List information, see the Academic Honors in the “Undergraduate Education” section of this *Catalog*.

# College of Tropical Agriculture and Human Resources



## Administration

Gilmore Hall 202  
3050 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8234  
Fax: (808) 956-9105  
Web: www.ctahr.hawaii.edu

Dean and Director: Maria Gallo  
Associate Dean: Charles M. Kinoshita  
Interim Associate Dean: Kenneth Grace  
Interim Associate Dean: Carl I. Evensen

## General Information

The College of Tropical Agriculture and Human Resources (CTAHR) was established with the founding of UH in 1907. CTAHR is a leading academic institution in tropical agriculture, biological engineering, food science and human nutrition, fashion design and merchandising, biotechnology, natural resources and environmental management, and family resources. Hawai'i's unique geographic location, ecological diversity, and multicultural population provide students with a living laboratory. The college is the locus of educational opportunities for students preparing to become tomorrow's scientists, technologists, business leaders, family development specialists, fashion designers and merchandisers, nutritionists, and policy makers.

The land-grant mission of CTAHR provides students with an opportunity to study in an environment that blends teaching, research, and extension programs dedicated to discover-

ing the secrets of basic science while addressing contemporary issues. Faculty members bring to the classroom the unique perspective of emerging research issues, coupled with an abiding commitment to education.

Through its extension activities, the college provides off-campus, noncredit educational programs focused on the advancement of agriculture in Hawai'i, protection of the environment, and the strengthening of families and communities.

Through its research activities, the college promotes the advancement of life sciences and applications for productive sustainable agriculture. Investigations cover plant and animal physiology; plant, insect, microbial, aquacultural, bioreactor and environmental biotechnology; diseases, insects, and parasites; agronomy; soils; food science; food processing; environmental management; biological engineering; bioremediation; biochemistry; human and animal nutrition; breeding and genetics; and culture, production, economics, marketing, and quality of life for individuals and families.

### CTAHR Program Goals:

To prepare its students for success, CTAHR's programs focus on four goals that incorporate characteristics desired by prospective employers. Each CTAHR graduate should be able to:

- Communicate appropriately and clearly in a variety of oral and written forms to both professional and non-technical audiences.
- Apply analytical, problem-solving, business management, and technological skills to everyday and discipline-related challenges.
- Develop positive and ethical personal characteristics and appropriate interpersonal and leadership skills.
- Gain a broad understanding of real-world experiences and global issues through the exploration of and involvement in career-related opportunities.

### Degrees and Certificates Offered

**Certificates:** Graduate Resource Management Certificate, Agribusiness Management Certificate

**Bachelor's Degrees:** BS in animal sciences, BS in fashion design and merchandising, BS in biological engineering, BS in family resources, BS in food science and human nutrition, BS in molecular biosciences and biotechnology, BS in natural resources and environmental management, BS in plant and environmental protection sciences, BS in tropical plant and soil sciences

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**Master's Degrees:** MS in biological engineering, MS in entomology, MS in food science, MS in animal sciences, MS in molecular biosciences and bioengineering, MS in natural resources and environmental management, MS in nutritional sciences, MS in tropical plant pathology, MS in tropical plant and soil sciences

**Doctoral Degrees:** PhD in entomology, PhD in molecular biosciences and bioengineering, PhD in natural resources and environmental management, PhD in nutrition, PhD in tropical plant pathology, PhD in tropical plant and soil sciences

## Advising

CTAHR Office of Academic and Student Affairs

Gilmore 210

3050 Maile Way

Honolulu, HI 96822

Tel: (808) 956-8183 or (808) 956-6733

Fax: (808) 956-3706

Email: acadaff@ctahr.hawaii.edu

Web: www.ctahr.hawaii.edu

## Undergraduate Programs

Undergraduate programs in CTAHR provide students with an opportunity to acquire those scientific, professional, and personal competencies emphasized by Hawai'i's business, governmental, community, and scientific leaders. The college provides a balance of educational experiences that include classroom instruction, laboratory sessions, co-curricular activities, supervised internships, and international study. Student exchange programs are also available for those desiring short term exposure to other institutions.

### Admission Requirements

Students may enter CTAHR as freshmen or as transfer students from other departments or academic institutions. Requirements for admission are the same as those for the UH Mānoa campus in general, except for the food science and human nutrition, family resources, fashion design and merchandising, and natural resources and environmental management majors. Transfer students are required to have a minimum GPA of 2.5 for fashion design and merchandising, and natural resources and environmental management majors, 2.6 for family resources majors, and 3.0 for food science and human nutrition majors. Pre-requisite coursework is also required for food science and human nutrition majors. Information on CTAHR undergraduate programs can be obtained from the CTAHR Office of Academic and Student Affairs.

### College Requirements

To be eligible for a BS degree from CTAHR, students must complete the General Education Core requirements, CTAHR requirements, course requirements of the CTAHR major, and 45 credit hours of upper division courses (300+ level courses), earn a minimum cumulative 2.0 GPA in major courses, and maintain a minimum cumulative GPA of 2.0 in a minimum of 120-124 credit hours as prescribed by the major. Some majors may require more credit hours. All CTAHR undergraduates are required to complete a set of interrelated courses: FAMR 380/380L Research Methodology/Lab or NREM 310 Statistics in Agriculture and Human Resources; and an internship or capstone course within their major field. Foreign language require-

ments are specific to each academic program. Check with the departmental advisor for more information.

### Double Major or Second Degree

Students seeking a double major must have a minimum cumulative GPA of 3.25, demonstrate that the proposed majors are substantially different, and obtain approval from undergraduate advisors in both of the relevant programs.

Students seeking a second degree must have a minimum cumulative GPA of 3.0 and demonstrate that the proposed second degree is substantially different from the first degree. At least 30 credit hours are required for the second degree in addition to those associated with the first degree.

### Concurrent Degree

It is the policy of CTAHR to allow CTAHR students and non-CTAHR students to earn undergraduate concurrent degrees in two separate programs. Students applying for an undergraduate concurrent degree in CTAHR must have earned at least 24 credits and have a UH Mānoa minimum cumulative GPA of 3.25. Students also need to meet other requirements for the concurrent degree.

## Graduate Programs

Graduate studies leading to a master of science degree are available in nine fields: animal sciences; biological engineering; entomology; food science; molecular biosciences and bioengineering; natural resources and environmental management; nutritional science; tropical plant pathology; and tropical plant and soil sciences. Doctor of philosophy programs are available in six fields: tropical plant pathology, molecular biosciences and bioengineering, entomology, natural resources and environmental management, nutrition, and tropical plant and soil sciences.

Three of CTAHR's graduate programs in tropical agriculture (entomology, natural resources and environmental management, and tropical plant and soil sciences), have been recognized as distinctive programs by the Western Interstate Commission for Higher Education (WICHE). Qualified students from participating states may enroll in these graduate programs at Hawai'i-resident tuition rates.

CTAHR utilizes general UH Mānoa facilities, including the libraries, which offer extensive collections and information services, and the computing center, which provides access to individual computers as well as large mainframes. Along with the Pacific Biomedical Research Center, CTAHR sponsors the Biotechnology-Molecular Biology Instrumentation Facility for the benefit of researchers throughout UH Mānoa. The college's facilities include a microcomputer laboratory, several research stations, and specialized laboratories with state-of-the-art equipment, all of which support research and instruction in the food and life sciences. On-campus affiliations with the Hawai'i Institute of Marine Biology, Water Resources Research Center, East-West Center, Harold L. Lyon Arboretum, Sea Grant College Program, and Hawai'i Natural Energy Institute extend CTAHR's resources. The college is also affiliated closely with off-campus institutions, such as the Bernice P. Bishop Museum, USDA/ARS Tropical Fruit and Vegetable Research Laboratory, Hawai'i Agriculture Research Center, U.S. Geological Survey, National Marine Fisheries Service, and Hawai'i Department of Agriculture.

Students may contact individual departments, the Graduate Division, 2540 Maile Way, Spalding Hall, Honolulu,



HI 96822, or Financial Aid Services, 2600 Campus Road, Honolulu, HI 96822 for information on grants, fellowships, assistantships, scholarships, tuition waivers, loans, work-study programs, and job opportunities.

Information on CTAHR graduate programs can be obtained from the Office of Academic and Student Affairs, Gilmore 210, (808) 956-8183, or from departmental offices.

### **Admission Requirements**

Students must hold a bachelor's degree from an accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning. Admission requirements for various graduate programs are specified under each department's description. Admission decisions are made by the Graduate Division in consultation with faculty in the field of study.

### **College Requirements**

The requirements associated with the master of science degree vary with each program of study. The master of science Plan A (thesis) and Plan B (non-thesis) options are available in all programs; entomology, tropical plant pathology, and tropical plant and soil sciences programs also offer a Plan C (examinations) option.

The PhD degree culminates in a set of comprehensive and final examinations and a dissertation of original work. Special requirements exist in some fields of study. Contact the Graduate Division or the departments for additional information.

### **Instructional and Research Facilities**

Modern laboratories as well as statewide field laboratories are an important part of undergraduate and graduate instruction. Students are able to learn the latest research methods. Classrooms are well-equipped for learning computer applications.

### **Student Organizations**

CTAHR students are encouraged to join and actively participate in student organizations. CTAHR student organizations provide opportunities for students to gain experience in their professional field through diverse activities. Students can acquire transferable skills and competencies outside of the classroom while gaining invaluable knowledge they can utilize in the work force. Developing lasting friendships with peers

and faculty are also benefits of active participation in student organizations. Current CTAHR student organizations include:

- Innovators of Fashion
- Pre-Veterinary Club
- Food Science and Human Nutrition Council
- Tropical Plant and Soil Sciences Horticulture Society
- Friends of the Family
- CTAHR Student Ambassadors
- Natural Resources and Environmental Management Graduate Student Organization
- Ka Mea Kolo (Entomology Club)
- SOFT: Student Organic Farm Training
- Tropical Plant Pathology Graduate Student Organization
- Biological Engineering Student Association
- CTAHR Club

Exceptional students may also be recommended for membership to honorary societies such as: Gamma Sigma Delta and Phi Upsilon Omicron.

### **Honors and Awards**

The College of Tropical Agriculture and Human Resources and its departments provide scholarships and awards to its students. For a list of these scholarships, see the "Tuition, Fees, and Financial Aid" section of this *Catalog*. More information on scholarships and awards can be obtained from the CTAHR Academic and Student Affairs Office, Gilmore 210, (808) 956-8183.

## **Family and Consumer Sciences**

Fashion Design and Merchandising  
Miller 201  
Tel: (808) 956-8133

Family Resources  
Krauss Annex 7  
Tel: (808) 956-6519

2515 Campus Road  
Honolulu, HI 96822  
Email: FCS@ctahr.hawaii.edu  
Web: www.ctahr.hawaii.edu/FCS

### **Faculty**

- B. W. K. Yee, PhD (Chair)—Asia and Pacific Islander adult development and aging, women's health, Southeast Asians, minority career paths
- Y. Bahng, PhD—retailing, international merchandising, and entrepreneurship
- R. A. Caulfield, PhD—infancy, childhood, life span development
- M. Cheang, DrPH—family resource management, children's savings, family caregivers
- D. R. Ching, PhD—agricultural leadership
- J. L. Chong, MEd—adult and youth volunteer and leadership development, 4-H youth development (Hawai'i Cooperative Extension Service)
- P. Chow, MS—family resource management (O'ahu Cooperative Extension Service)
- M. A. Cristi, MS—merchandising management; consumer behavior and sociology

- B. De Baryshe, PhD—child development, early childhood education, family resilience
- K. D. Everett, MPA—youth development and volunteer management (Maui Cooperative Extension Service)
- G. F. Fong, EdD—family resource management
- H. Greenwood, MS—intergenerational and aging programs (Maui Cooperative Extension Service)
- J. Kang, PhD—2D/3D computer-aided design; consumer behavior in digital commerce
- L. J. Kawamura, MPH—4-H youth development, foods and nutrition (Kaua'i Cooperative Extension Service)
- T. N. Le, PhD, MPH—risk and resilience of Asian and Indigenous youth; mindfulness-based interventions
- S. Lewin-Bizan, PhD—parenting and father-child relationships; child and youth development within the contexts of family, school, and economic resources
- S. Lin, PhD—textile/costume conservation, production lifecycle management
- M. I. Martini, PhD—parenting and family relationships across cultures
- D. M. Masuo, PhD—consumer and family economics
- C. M. Nakatsuka, MEd—4-H youth division-military 4-H partnerships (O'ahu Cooperative Extension Service)
- A. H. Reilly, PhD—social psychology of appearance including body image
- R. W. Saito, MA—4-H youth development (O'ahu Cooperative Extension Service)
- R. L. Settlege, MS—4-H youth development livestock (Hawai'i Cooperative Extension Service)
- L. A. Yancura, PhD—stress and aging, research methodology, grandparents raising grandchildren, family caregivers

**Degrees Offered:** BS in fashion design and merchandising, minor in merchandising, BS in family resources, MEd in early childhood education in conjunction with the College of Education

## The Academic Program

The Department of Family and Consumer Sciences has been an integral part of the land-grant system and of UH since 1907. The department offers two bachelor of science degree programs: Fashion Design and Merchandising (FDM) and Family Resources (FAMR).

The FDM program integrates theoretical and applied knowledge regarding apparel design, consumer textiles, historic costume, apparel production, and apparel marketing and merchandising theory and practice, both domestic and international. The program fosters the development of professionals prepared for management-level positions in business and industry, such as apparel designer, buyer, merchandise manager, sales representative, costume designer, manufacturer, and store owner. An internship providing work experience related to a student's career interests is required. Majors complete a core of courses in subjects integral to apparel product development careers.

FAMR is a Bachelor of Science degree program that provides students with a comprehensive, ecological systems-based program of study in life span development and family resource management. The FAMR curriculum emphasizes the study of child, adolescent, adult development; family development (such as marriage and parenting); family resource management (such as consumer and family economics and family management); community needs; and leadership in human services occupations.

The program requires an internship providing work experience related to a student's career interests. Students are prepared

for bachelor-level careers in human and family services, and for graduate training in child and family studies, early childhood education, life span development, family life education, family and consumer sciences, and marriage and family therapy.

With supplementary course work, students may pursue graduate training in other social science disciplines such as social work, educational counseling, public health, urban and regional planning (e.g., community development), sociology, psychology, and law.

In addition to courses offered in the department, there are professional and honor society organizations. *Phi Upsilon Omicron* is a national honor society in family and consumer sciences with membership by invitation. *Friends of the Family (FOF)* provides service and professional experiences for FAMR majors while *Innovators of Fashion (IF)* does the same for FDM majors. Majors from any discipline are welcome to join FOF and IF.

## Undergraduate Study

### Advising

Fashion Design and Merchandising  
Miller 201  
2515 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8133  
Email: fcs@ctahr.hawaii.edu

Family Resources  
Krauss Annex 7  
2515 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-6519  
Email: fcs@ctahr.hawaii.edu

Students are encouraged to come for initial advising before registering for the first year at UH Mānoa or prior to their application for admission as a transfer student.

As part of the college program requirements, all FDM and FAMR degree candidates must fulfill one of the following Symbolic Reasoning courses: BUS 250, ICS 141, ICS 241, MATH 100, 112, 140\*, 161, 203\*, 215\*, 241\*, 251A\*, NREM 203, PHIL 110, 110A, 111, or SOCS 150. (Please note that MATH 103, 104, and 135 do not fulfill the symbolic reasoning requirement for FDM and FAMR.)

\* Math Department's Precalculus Assessment required.

### Fashion Design and Merchandising Program

Fashion Design and Merchandising (FDM) is a comprehensive undergraduate program whose mission is to prepare students with appropriate knowledge and skills for career positions in apparel and fashion-related industries. Classroom work is enhanced by one of the largest costume collections at a university in the U.S., giving students and faculty a rich source of items to draw upon for their classes and projects. In addition, students have the opportunity to use web-based technologies to supplement classroom activities. Access to modern computer labs within the college make learning to do fashion illustration fun and challenging. Opportunities to study at other universities and to participate in study tours to fashion centers of the world are another plus. A strong foundation for graduate study in apparel and related areas is provided.

All FDM majors take a core set of courses that provides them with:

- An understanding of and appreciation for the impact of global production and distribution of apparel;
- The ability to plan, develop, and merchandise apparel product lines and to evaluate apparel quality;
- An understanding of the role of dress and fashion in their lives and the lives of others;
- An understanding of the design, manufacture, marketing, retailing, and consumption of textile and apparel products;
- The ability to demonstrate personal attitudes and skills appropriate to career positions in apparel.

### The Curriculum

A strong FDM core includes required courses in the fashion industry, aesthetics, textiles, fashion illustration, historic costume, the social psychology of dress, and apparel construction. The core prepares students for career positions in both creative and business management areas of local and global fashion industries. Upon completing the core requirements, students take classes in 3 of 4 tracks: Design, Merchandising, Cultural, and Production Management.

### Entrance Requirements

New students may be admitted directly into the program when they apply to UH Mānoa. Students transferring from other colleges within the UH System or from other universities must have a minimum GPA of 2.5 to be considered for admission to FDM.

### Minor

The merchandising minor gives students who are not FDM majors the opportunity to gain the required theory and applied skills to understand the merchandising/retailing function and skillfully employ techniques that encourage consumers to interface with products and services locally or internationally. Merchandising/retailing is the largest private employer segment of Hawai'i's business community. Minimum GPA of 2.5 needed to be considered.

### Degree Requirements

A summary of degree requirements is available in Miller 201, (808) 956-8133 or Miller 110, (808) 956-8105.

### Goals

From the core courses required of all FDM majors will develop:

1. The ability to evaluate textile and apparel product quality in terms of fiber and fabric performance, product standards and specifications, and consumer needs and preferences;
2. The ability to conduct comprehensive analyses of aesthetic elements in textile and apparel products and to estimate the effect of design decisions on target consumer markets;
3. The ability to apply theories, concepts, and principles to predict the direction of fashion change, to plan seasonal apparel product lines for discrete consumer groups, and to generate creative solutions to design and/or apparel merchandising and marketing problems;
4. The ability to describe current issues in textile and apparel design, production, and distribution systems; to assess the impact of global textile and apparel production and distribution practices on workers, consumers, and the environment; and to relate theories regarding markets, trade, and economic development to issues in the production, consumption, and disposal of textile products;

5. An understanding of concepts, theories and principles regarding the impact of dress on human behavior and its role in sustaining culture and in reflecting and fostering social change, and the ability to analyze and identify aspects of dress in historic and socio-cultural context;
6. The ability to identify, locate, analyze, and synthesize relevant information and to effectively communicate ideas in written, oral, and visual forms using appropriate technologies;
7. The ability to demonstrate personal attitudes and skills appropriate to career positions in fashion-related business and industry, and in related education and service organizations.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Family Resources Program

The Family Resources (FAMR) Program provides students with a comprehensive education in family development and resource management, including course work and study in the areas of family relations, parenting, family economics and resource management, consumer economics, human development, and community leadership and resource development. The curriculum prepares students to work proactively in multicultural settings to enhance the quality of family life, providing students with an understanding of:

- The changing needs and dynamics of families over time;
- The management of personal, family, and community resources to meet these needs;
- The growth and development of individuals over the human life cycle;
- The interrelationship of individuals, families, and communities in the context of diverse socio-economic and cultural systems.

Students gain a social systems perspective of how families operate by studying the theoretical and applied literature that addresses the biological, social, cultural, psychological, and economic well-being of individuals and families and the environments in which they live. Students also study the changing functions of the family, the roles of its members, and the community programs and policies that affect the decisions and well-being of families and consumers. FAMR courses provide students with knowledge that they can apply to their personal development and family life. An internship in the student's area of interest is an integral part of the curriculum.

### Entrance Requirements

New students may be admitted directly into the program when they apply to UH Mānoa. Students transferring from other colleges/schools within the UH System or from other universities must have a minimum GPA of 2.6 to be considered for admission to FAMR.

### Degree Requirements

A summary of degree requirements is available in Krauss Annex 7, (808) 956-6519 or Miller 110, (808) 956-8105.

### Goals and Objectives

Students completing the FAMR degree are expected to achieve the following goals and objectives:

Goal 1: Acquire a knowledge base in human development.

- Objective 1. Demonstrate criterion level knowledge of stages, processes, and ranges of typical human development
- Goal 2: Acquire a knowledge base in family science and resource management.
- Objective 1. Demonstrate criterion level knowledge of family diversity in the global community.
- Objective 2. Demonstrate criterion level knowledge of family resource management processes.
- Goal 3: Acquire a knowledge base of the community context in which family functioning and development take place.
- Objective 1. Demonstrate criterion level knowledge of the effects of context (social, economic, political, historical, and cultural environment) on family functioning and development.
- Goal 4: Acquire professional skills
- Objective 1. Demonstrate criterion level skills in written communication.
- Objective 2. Demonstrate criterion level skills in oral communication.
- Objective 3. Demonstrate a basic level of computer literacy.
- Objective 4. Demonstrate basic competence in “helping” skills.
- Objective 5. Demonstrate basic research skills.
- Goal 5: Apply knowledge and professional skills to address issues encountered in professional settings.
- Objective 1. Demonstrate critical thinking skills and problem solving abilities.
- Objective 2. Demonstrate commitment to professional values and ethical behavior.
- Objective 3. Demonstrate a satisfactory level of preparation for the world of work and responsibility for continued professional growth.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Additional Opportunities

### Provisional Certified Family Life Educator

The National Council on Family Relations (NCFR) has approved the family resources undergraduate program as meeting the standards and criteria required for the Provisional Certified Family Life Educator (CFLE) designation. Fully certified Family Life Educators work in the areas of program development, implementation, evaluation, teaching, training, and research related to individual and family well-being. Among other activities, they conduct workshops in parenting, marital relationships, and resource management, in hospitals, HMOs, clinics, and schools. FAMR graduates who complete the specified courses in ten family life substance areas can apply to NCFR for Provisional Certification. Once a graduate has completed two years of work experience in preventive, educational activities related to family well-being, the graduate can apply for full CFLE certification. FAMR internships, which include documented FLE activities may be used as part of the required work experience.

### Master of Education in Early Childhood Education

The Department of Family and Consumer Sciences in the College of Tropical Agriculture and Human Resources and the College of Education Departments of Curriculum Studies and Special Education offer an interdisciplinary program leading to the degree of master of education in early childhood education.

MEd in early childhood education requirements are located in the College of Education Departments of Curriculum Studies and Special Education section of this *Catalog*.

## Human Nutrition, Food and Animal Sciences

Agricultural Sciences 216  
1955 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-7095  
Fax: (808) 956-4024  
Email: [hnfas@ctahr.hawaii.edu](mailto:hnfas@ctahr.hawaii.edu)  
Web: [www.ctahr.hawaii.edu/hnfas/](http://www.ctahr.hawaii.edu/hnfas/)

### Faculty

- \*D. L. Vincent, PhD (Chair)—reproductive physiology and endocrinology
- \*M. A. Dunn, PhD (Graduate Chair, Nutritional Sciences MS program)—nutritional biochemistry, vitamins and minerals
- \*Y. Li, PhD (Graduate Chair, Food Science MS program)—food microbiology, food safety and probiotics
- \*R. Novotny, PhD, RD (Graduate Chair, Nutrition PhD program)—community and global nutrition, nutritional epidemiology
- \*J. Yang, PhD (Graduate Chair, Animal Sciences MS program)—molecular biology and animal biotechnology
- \*J. Banna, PhD, RD—community nutrition, nutrition education in minority populations
- \*B. A. Buckley, PhD—beef production and breeding
- \*T. Delormier, PhD, RD—global and indigenous nutrition and public health
- A. Ditzler, RD—dietetics
- \*J. Dobbs, PhD—food composition, nutrition, domestic animals, avian and wildlife nutrition
- M. W. DuPont, MS—livestock extension education (Hawai'i Cooperative Extension Service)
- \*M. Fialkowski, PhD, RD—obesity in indigenous populations
- G. K. Fukumoto, MS—livestock extension education (Hawai'i Cooperative Extension Service)
- C. Y. Hu, PhD—animal growth, adipose differentiation, lipid metabolism
- \*A. S. Huang, PhD—food chemistry, taro processing
- \*R. Jha, PhD—feed evaluation and animal nutrition
- \*S. Jun, PhD—food engineering, biosensors and processing control
- N. A. Kanehiro, MS, RD—human nutrition extension education (O'ahu Cooperative Extension Service)
- \*Y. S. Kim, PhD—meat science, muscle biology, animal growth, biotechnology
- \*C. N. Lee, PhD—dairy production management and reproductive physiology
- \*J. Leslie, PhD, RD—native Hawaiian health
- \*S. R. Malecha, PhD—aquaculture production and breeding
- \*S. T. Nakamoto, MBA, PhD—marketing of perishable products, agricultural economics
- L. C. Nakamura-Tengan, MS—consumer food safety, extension education and resource management (Maui Cooperative Extension Service)

- \*T. B. Ron, PhD—aquaculture extension and training
- M. A. Segobiano, MS, CEC, CCE, CHE—chef instructor
- \*A. C. Shovic, PhD, RD—dietetics
- M. H. Stevenson, MS—livestock extension education (Kaua'i Cooperative Extension Services)
- \*M. L. Stewart, PhD—nutrition, dietary fiber, gut health
- \*A. M. Stokes, DVM, PhD—veterinary medicine, cardiovascular physiology
- \*M. S. Thorne, PhD—range production and ecology (Hawai'i Cooperative Extension Service)
- \*C. A. Titchenal, PhD—nutrition and human performance, dietary supplements, nutrition journalism
- \*H. M. Zaleski, PhD—swine production and management, reproductive physiology
- J. M. Zee, MPH, RD—human nutrition extension education (Hawai'i Cooperative Extension Service)

### Cooperating Graduate Faculty in Animal Sciences

- E. G. Grau, PhD—fish endocrinology
- B. W. Mathews, PhD—aquaculture and nutrition

### Affiliate Faculty in Animal Sciences

- \*S. Atkinson, PhD—marine mammals
- J. Carpenter, PhD—livestock and marine mammal nutrition
- C. Laidley, PhD—aquaculture reproductive endocrinology
- K. R. Longnecker, PhD—invertebrate taxonomy and dietary analysis of Hawaiian monk seals
- S. Moss, PhD—shrimp aquaculture
- \*B. Okimoto, DVM—exotic animal husbandry and diseases
- L. Polasek, PhD—marine mammal biology, wildlife and fisheries sciences
- L. C. Rawson, DVM—animal diseases, health and welfare
- M. Snover, PhD—reptile, wildlife management and conservation biology
- K. L. West, PhD—marine mammal science and biology
- L. A. Woodward, PhD—fish, wildlife management and conservation biology
- T. M. Work, DVM—fish and wildlife, health and conservation biology

### Cooperating Graduate Faculty in Food Sciences

- \*H. Ako, PhD—nutritional biochemistry, aquaculture, lipid metabolism
- \*D. Borthakur, PhD—microbiology, biotechnology
- \*L. Gautz, PhD—instrumental quality evaluation
- \*Q. Li, PhD—analytical methodology to identify environmental toxins
- \*P. Q. Patek, PhD—microbiology
- \*R. Paull, PhD—fresh fruit and vegetable physiology and handling
- \*A. S. Saulo, PhD—food technology extension, food safety and quality
- \*W. W. Su, PhD—bioprocess engineering
- \*C. S. Tamaru, PhD—live feed, aquaculture

### Cooperating Graduate Faculty in Nutritional Sciences

- \*M. J. Berry, PhD—selenoproteins, antioxidants and human diseases
- C. J. Boushey, PhD—nutritional epidemiology, obesity and cancer
- \*A. Franke, PhD—analytical chemistry, phytochemicals
- \*R. Hetzler, PhD—exercise physiology, sports nutrition
- \*D. Jenkins, PhD—bioengineering
- \*L. Le Marchand, MD, MPH, PhD—nutritional epidemiology, genetic markers
- \*G. Maskarinec, MD, MPH, PhD—nutritional epidemiology, soy, hormones and cancer
- \*P. V. Nerurkar, PhD—medical biochemistry
- \*C. R. Nigg, PhD—exercise behavior

### Affiliate Graduate Faculty in Nutritional Sciences

- R. Leon-Guerrero, PhD—obesity and chronic disease prevention, diet assessment

### Cooperating Graduate Faculty in Nutrition PhD Program

- C. L. Albright, PhD—intervention research on energy balance; weight control; physical activity; dietary fat, fiber, and fruits/vegetables
- M. J. Berry, PhD—selenoproteins; antioxidants and human disease
- C. J. Boushey, PhD—nutritional epidemiology, obesity and cancer
- R. Cooney, PhD—tocopherols, carotenoids and coenzyme Q-10 mechanisms of action in health and disease
- T. Delormier, PhD, RD—public health nutrition, indigenous health
- A. Franke, PhD—analytical chemistry, lab assessments, phytochemicals
- R. Hetzler, PhD—exercise physiology, sports nutrition
- J. D. Latner, PhD—clinical psychology, eating behaviors and disorders, obesity
- L. LeMarchand, MD, MPH, PhD—nutritional epidemiology, genetic markers
- Q. X. Li, PhD—environmental biochemistry, proteomics
- G. Maskarinec, MD, MPH, PhD—nutritional epidemiology, soy, hormones and cancer
- P. Nerurkar, PhD—metabolic disorders and alternative medicine
- C. R. Nigg, PhD—theory of health behavior change, intervention, physical activity/exercise and nutrition behavior, research design

### Affiliate Graduate Faculty in Nutrition PhD Program

- H. Turner, PhD—cell biology and immunology

**Degrees Offered:** BS in animal sciences, BS in food science and human nutrition, MS in animal sciences, MS in food science, MS in nutritional sciences, PhD in nutrition

### The Academic Program

The Department of Human Nutrition, Food and Animal Sciences (HNFAS) offers both undergraduate and graduate programs leading to BS, MS, and PhD degrees. Two BS degrees are available: animal sciences (ANSC) and food science and human nutrition (FSHN). The pre-veterinary medicine program is located in the department to provide advising for students seeking to attend veterinary professional training after college. Three MS degrees are offered: animal sciences, nutritional sciences, and food science. The department is also the home locus for the inter-college PhD program in nutrition. The MS and PhD programs are described under graduate study.

Animal science is the application of experimental investigation, cutting edge technology, and other scientific principles for the advancement of efficient and environmentally friendly animal agriculture and improved food quality and safety. Students receive training in both basic and applied agricultural systems, as well as in animal sciences. One focus of the animal science program is on pre-veterinary training but the program also emphasizes preparation for work in production and management systems for the major farm animals such as swine, sheep and goats, beef and dairy cattle, and aquatic/aquaculture animals. Students are also exposed to the challenges of proper care/welfare and management of pets and companion animals (including horses), marine mammals, exotic wildlife and/or zoo animals, and aquaculture animals. Unlike most continental U.S. institutions, the emphasis of the present program is on tropical production systems with particular reference to the Pacific Basin or other subtropical regions. Animal scientists have careers in management and production, veterinary medicine, food processing and marketing, animal biotechnology, zoo and wildlife management, the pharmaceutical and feed and aquaculture industries, teaching, extension education, and research. Those positions require skills in disciplines such as nutrition, genetics, physiology, environmental and waste management, meat science and growth biology, animal health, feed and forage/browse

utilization, engineering, business management/marketing, and salesmanship. Other skills of critical importance are computer proficiency, written and oral communication, problem solving, and ability to build effective interpersonal relationships.

The undergraduate curricula in food science and human nutrition (FSHN) have a strong science base that is applied to food and human nutrition. Options in the curricula include dietetics, human nutrition, and science education. Interest in nutrition, food, and the relationship of food to human health and fitness has never been greater than today. Students majoring in any of the curriculum options are prepared for diverse careers in the food industry, health-care and fitness facilities, hospitals, nutrition education and communication enterprises, government or private-sector food and nutrition agencies, science related research laboratories, and science education. Students learn problem-solving skills, approaches to critical thinking and basic principles in two related disciplines. The dietetic option has been approved by the American Dietetic Association. The human nutrition option can be directed toward nutrition education, sports nutrition, or other interests. The human nutrition option can serve as a pre-professional program in medicine, dentistry, nutrition, or other scientific graduate programs. The science education option provides students with a curriculum that fulfills the academic requirements for a chemistry, biology, or general science certification as a secondary school science teacher. To complete certification requirements, a student can apply for the College of Education Post-Baccalaureate Certificate in the Secondary Education Program.

Students are strongly encouraged to take required chemistry and biological sciences courses prior to entering the program. Students who want to transfer into the food science and human nutrition (FSHN) program are required to have a minimum GPA of 3.0 and to have completed FSHN 185 with a grade of B (not B-) or better and to have completed the following courses with a grade of C (not C-) or better: MATH 140, PHYL 141/141L, PHYL 142/142L, CHEM 161/161L, and CHEM 162/162L.

Upon entering either program, animal sciences (ANSC) or food science and human nutrition (FSHN), students will be assisted by academic advisors to identify their career objectives and select an appropriate option for study.

### Advising

All FSHN and ANSC majors are required to report for advising prior to registration each semester.

## Undergraduate Study

### BS in Animal Sciences/Pre-Veterinary Medicine

#### Degree Requirements

- Course work in the basic sciences, mathematics, economics, and animal sciences including the following:
  - MATH 140 or above
  - PHYS 151/151L
  - CHEM 161/161L, 162/162L, and 272/272L
  - NREM 220 or ECON 131
  - MBBE 402/402L
  - BIOL 171/171L
- Animal sciences required courses:
  - ANSC 200, 201, 244, 301, 321, and 445

- Four of the following: ANSC 446, 451, 453, 454/454L, 462, and 472
- One of the following production courses: ANSC 431, 432, 433, and 450
- Additional electives to make a total of 120 credit hours

In order to enroll in animal science courses, all prerequisite courses must be passed with a grade of C (not C-) or higher.

Because of the diversity among fields of specialization within animal sciences, specific course requirements will vary considerably among students. On the recommendation of the student's major advisor, courses will be selected from those offered in animal sciences, as well as in natural resources and environmental management, bioengineering, anatomy and reproductive biology, biochemistry and biophysics, chemistry, environmental biochemistry, food science and human nutrition, genetics, tropical plant and soil sciences, information and computer sciences, microbiology, oceanography, physiology, and zoology.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Veterinary Medicine

Students interested in becoming veterinarians generally major in animal sciences within the Department of Human Nutrition, Food and Animal Sciences, and participate in CTAHR's Pre-Veterinary Medicine Program. A BS degree in a science-related field is desirable but not required for veterinary schools. The CTAHR Pre-Veterinary Program advisor assists students in meeting the admission requirements of veterinary schools, including academic requirements and veterinary/animal experience requirements. The Pre-Veterinary Medicine Program offers opportunities to gain experience through mentorship with local veterinarians and those in the various animal industries of Hawai'i. The department also sponsors the Pre-Veterinary Medicine Club of Hawai'i, which offers students opportunities to interact with other students interested in veterinary medicine as well as participate in hands-on activities and other club events. Hawai'i residents are eligible to apply for participation in the Western Interstate Commission for Higher Education (WICHE) program that includes agreements with Colorado State University, Washington State University, and Oregon State University to preferentially accept students from the Western Region as a subset of each entering veterinary class. Hawai'i students are also encouraged to make applications to other continental U.S. veterinary schools that accept nonresident students. Students should contact the website of the Association of American Veterinary Medical Colleges for information about the Veterinary Medical College Application Service at [www.aavmc.org/](http://www.aavmc.org/) and for more information about specific requirements for admission to veterinary schools. Students seeking additional information and advising should contact the Pre-Veterinary Medicine Program [prevetprogram@ctahr.hawaii.edu](mailto:prevetprogram@ctahr.hawaii.edu) or the Department of Human Nutrition, Food, and Animal Sciences, Agricultural Sciences Building, 1955 East-West Road, Room 216, Honolulu, HI 96822 (808) 956-7095.

### BS in Food Science and Human Nutrition

#### Admissions

Incoming freshmen are admitted directly to the major. Transfer student from other majors and transfer students from other institutions with interest in the Food Science and Human Nutrition (FSHN) major must meet admission criteria

prior to being accepted into the FSHN major. A student will be accepted into Human Nutrition Options within the FSHN major when the following criteria are met: minimum 3.0 GPA; CHEM 161/161L and 162/162L, PHYL 141/141L and 142/142L, and pre-calculus or higher calculus completed with a C grade or better, and FSHN 185 completed with a B grade or better. A student will be accepted into Food Science Options within the FSHN major when the following criteria are met: minimum 2.5 GPA; FSHN 185 with B grade or better and CHEM 161/161L, 162/162L, and MATH 140 (or higher math) with C grade or better. Students interested in the Food Science option may be admitted directly into FSHN; please contact the undergraduate advising coordinator (Maria Stewart, PhD; mstew@hawaii.edu, (808) 956-9114 for more information.

### Degree Requirements—All Human Nutrition Options

Course work in the basic sciences and mathematics for all human nutrition options include the following: MATH 140 or above, CHEM 161/161L, 162/162L, 272, PHYL 141/141L, 142/142L, MBBE 375 or 402, BIOL 171/171L, NREM 310. COMG 151 or 251 is also required.

Course work within the major include the following: FSHN 181/181L, 185, 370, 389, 485, 486, 492. To fulfill degree requirements, students must also complete the coursework designated in one of the options listed below.

Contact the Human Nutrition, Food, and Animal Science Department for current degree requirements, Ag Sci 216, 1955 East-West Road, (808) 956-7095.

### Human Nutrition Dietetics Option

Students choosing a professional career as a registered dietitian (RD) and who desire to do nutrition counseling should select the academic course work outlined in this option. The Didactic Program in Dietetics at UH Mānoa is currently granted accreditation by the Accreditation Council for Education in Nutrition and Dietetics (ACEND), 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (800) 877-1600 ext. 5400. Upon receiving a bachelor of science degree, students must be accepted into an accredited internship or an approved pre-professional practice program. Upon successful completion of a 6 to 11 month internship, or Preprofessional Practice Program, the student is eligible to take the national dietetic registration examination administered by the Commission on Dietetic Registration. Students generally need to have a GPA of 3.2 or above to be competitive for internship programs. Students may contact Dr. Anne Shovic ((808) 956-3847, email: shovic@hawaii.edu), the Dietetics Program Director, and are encouraged to refer to the Dietetics Option Student Handbook for more information about this option ([www.ctahr.hawaii.edu/hnfas/degrees/undergrad/DSH2012.pdf](http://www.ctahr.hawaii.edu/hnfas/degrees/undergrad/DSH2012.pdf)). Work and/or volunteer experience in the field of interest is highly recommended. Courses required for the Dietetics Option include BIOL 340 or CMB 411, PHRM 203, SOC 100, PSY 100, FSHN 311, 312, 322, 381, 440, 451, 452, 467, 468, 469, 480, and 488.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Human Nutrition Pre-professional Option

This course of study allows students to prepare for post-baccalaureate study in nutrition and nutrition-related disci-

plines. With guidance from their advisor, students can design a course of study to prepare them for post-baccalaureate studies in health professional programs (medicine, dental, pharmacy, etc.), or a graduate degree program in nutrition or other biomedical science. This course of study does not meet all of the undergraduate academic requirements of the Academy of Nutrition and Dietetics to apply for a dietetic internship. Students in the Pre-professional option must take the following: a minimum of 9 credits selected from the following FSHN courses: 244, 381, 451, 452, 467, 468, 469, 480, 488; and MICR 130/140L or FSHN 440; and MBBE 402L; and a course in genetics or molecular biology; and 17 credits of approved electives selected with an advisor.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Human Nutrition Sports and Wellness Option

Students who are interested in pursuing a career in sports and wellness, are encouraged to complete course work in Applied Musculo-skeletal Anatomy, Exercise Physiology (KRS 353, 354, and 354L), and Nutrition in Exercise and Sport (FSHN 480). These recommended courses can be added to the dietetics program option if the student desires to do professional nutritional counseling or be taken as electives in the human nutrition option if the student intends to pursue graduate studies. Students in the Sports and Wellness option must take the following: a minimum of 9 credits selected from the following FSHN courses: 244, 381, 451, 452, 467, 468, 469, 488; and MICR 130/140L or FSHN 440; and KRS 353, 354/354L, FSHN 480, and 8 credits of approved electives selected with an advisor.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Degree Requirements—Food Science Option

This study track educates and develops skills in students who desire to work in food processing, regulation, and food business arena, both in the public and private sector. This track also prepares students for managerial positions since there is a high demand for people with skills in food science and knowledge of business, accounting, and interpersonal skills. Students learn about food chemistry, microbiology, structure, engineering, safety, regulation, sanitation, quality control, and business-oriented courses.

Course work in the basic sciences and mathematics for all food science options include the following: MATH 140 or above, CHEM 161/161L, 162/162L, 272, PHYL 151, MICR 130, 140L, MBBE 375 or 402, BIOL 171/171L, NREM 310. COMG 151, or 251 is also required.

Students in the Food Science option must take the following FSHN courses: FSHN 181/181L, 185, 381, 403, 411, 430/430L, 440, 445, 460, 477/477L, 494. All FSHN majors selecting the Food Science Option must select one of the following specialties to complete degree requirements:

- Business: ACC 201, BUS 312, 315, ECON 130, IS 250
- Pre-professional: CHEM 272L/273, MATH 215, 216, PHYS 152.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Requirements

A total of at least 120 credits are required for graduation. Students seeking additional information and advising should contact the Department of Human Nutrition, Food and Animal Sciences, Agricultural Sciences Building, 1955 East-West Road, Room 216, Honolulu, HI 96822; (808) 956-7095, email: hnfas@ctahr.hawaii.edu.

## Graduate Study

The department offers graduate programs leading to MS and PhD degrees. Students can choose from three MS degree options: animal sciences, nutritional sciences, or food science. The department is also the home locus for the inter-college PhD program in nutrition. Admission and degree requirements for each program are listed below, but are subject to change. For current information, contact the Department of Human Nutrition, Food and Animal Sciences, Agricultural Sciences Building, 1955 East-West Road, Room 216, Honolulu, HI 96822; (808) 956-7095, email: hnfas@ctahr.hawaii.edu.

### MS in Animal Sciences

The MS in animal sciences is offered in both the basic and applied areas of genetics, nutrition, physiology, reproduction, animal health, molecular biology of growth and metabolism, and animal muscle biology.

Specialty areas consist of beef-cattle nutrition, grazing management, and genetics; dairy-cattle nutrition and physiology (especially the management of cattle in a hot climate); swine management; reproductive physiology and endocrinology of sheep, cattle, fish and swine; molecular biology of animal growth and metabolism; muscle biology and meat science; reproduction, animal health; nutrient/waste management; and freshwater and saltwater shrimp breeding and production, nutrition, and pond management systems. Emphasis is placed on the application of scientific methods for both the development and improvement of animal industries in subtropical and tropical environments. There is also the opportunity for cooperative studies in the areas of care/welfare and management of pets and companion animals (including horses), marine mammals, exotic wildlife, and/or zoo animals. Candidates wishing to specialize in animal breeding and genetics should be particularly strong in mathematics, including statistics, with a good biological background.

### Admission Requirements

To be considered for admission to the animal sciences program, an applicant must: (1) hold a bachelor's degree with a major in animal science (or the equivalent thereof) from an accredited institution of higher learning with a GPA of 3.0 or higher, (2) provide evidence of superior scholarship in previous academic work, (3) arrange for three letters of recommendation, (4) submit GRE general test scores, (5) submit an application including a statement of objectives, (6) submit a resume, and (7) submit a TOEFL score of 580 minimum, 600 recommended (250 computer) if a foreign student. Interviews by phone or in person in Hawai'i may be requested by the admissions committee. An applicant with a bachelor's degree in a major other than animal or veterinary sciences who otherwise qualifies for admission will be required to take ANSC 200 or 201, one production course, and such other undergraduate courses deemed necessary by the department as essential background to the applicant's studies. The ANSC 200 or 201 requirements may be satisfied through meeting the teaching experience requirement.

The deadlines for receipt of all application materials are **February 1** for fall applicants, and **September 1** for spring semester applicants.

## Degree Requirements

### Plan A (Thesis)

Students must complete a minimum of 30 credit hours, including:

- At least 18 credits of course work at the graduate level, 12 of which must be at the 600 level or above (excluding 699 and 700) including two credits of ANSC 641 (Seminar in Animal Sciences) and FSHN 601;
- a maximum of 2 credits of Directed Research (ANSC 699); and
- 10 credits of Thesis Research (ANSC 700).

### Plan B (Non-thesis)

Students must complete a minimum of 30 credit hours, including:

- At least 18 credits in course work numbered 600 and above (excluding 699), including two credits of ANSC 641 and FSHN 601.
- 6-9 credits of Directed Research (ANSC 699).
- Remaining credits must be at the graduate level.

### Both Plan A and B

A general exam on basic knowledge in the animal sciences is required of all students to advance to candidacy for the MS degree. A final exam based on the student's Plan A Thesis Research or Plan B Directed Research is also required. Students are required to attend weekly seminars each semester and present a minimum of three formal seminars during their graduate training (including their thesis defense). A maximum of 2 credits is allowed for graduate seminar (ANSC 641). The following courses are recommended as a core for most graduate students in animal sciences: ANSC 642, 643, 644, 650, 652, 657, 687, and a graduate-level statistics course.

Each student will be required to serve as a teaching assistant (TA), in either a paid or non-paid status, for a minimum of one course for one semester. This experience must include leading laboratory or discussion sections, and evaluation by the instructor.

In both plans (on the recommendation of the student's graduate committee), the graduate credit hours will be selected from the graduate courses offered in animal sciences or other related disciplines such as anatomy and reproductive biology, biochemistry, chemistry, genetics, microbiology, physiology, public health, and zoology. Because of the diversity of specializations within animal sciences, specific course requirements will vary considerably among students. Further information is available at [www.ctahr.hawaii.edu/hnfas/degrees/grad/ANSC.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/ANSC.html).

### MS in Nutritional Sciences

The MS in nutritional sciences prepares students to understand the scientific basis of nutrition, its application to health and fitness, and the skills needed to conduct basic and applied nutrition research. Subject areas of concentration include clinical nutrition, obesity, dietary fiber, functional fiber and bioactive food components, diet and cancer, mineral nutrition and toxicology, sports nutrition, nutrition education, nutritional product development, community and international nutrition, nutritional biochemistry, and nutritional epidemiology.

The program does not include an RD internship. Cooperating programs include public health, kinesiology and rehabilitation science, food science, animal sciences, physiology, John A. Burns School of Medicine, and the University of Hawai'i Cancer Center.

Depending on the area of focus, students are prepared for diverse careers in nutrition and food-related industries, government agencies, and academic institutions. Graduates have found employment as college instructors; nutrition educators or consultants in the private sector; nutritionists in the food industry, fitness facilities, or health-related government agencies; and as research scientists in the health-care industry, private sector, government, or academic research institutions. Many have pursued PhD or other professional degrees at major universities around the country.

### Admission Requirements

Academic prerequisites include a bachelor's degree in nutrition or a closely related field, a minimum grade point average of 3.0, and undergraduate course work in nutrition, physiology, biochemistry, and statistics. Motivated students without a nutrition related degree may apply, but will be expected to make up undergraduate course deficiencies if admitted into the program. Students are strongly encouraged to take introductory science courses prior to applying to the program including at least two of the above mentioned prerequisites (one preferably being introductory nutrition). Additional requirements include submission of GRE General Test scores (no minimum score required), two confidential recommendations (using our program's recommendation forms), a TOEFL score of 580 minimum, 600 recommended (250 computer, 100 internet) if a foreign student; a personal resume; and a completed Graduate Admissions Application including statement of objectives. Interviews by phone (or in person if in Hawai'i) may be requested by the admissions committee. The deadlines for receipt of all application materials are **February 1** for fall semester applicants, and **September 1** for spring semester applicants.

Further information is available at [www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRms.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRms.html).

### Degree Requirements

Two MS degree options are available: Plan A (thesis) and Plan B (non-thesis). Generally, students are expected to follow Plan A unless the Plan B option is approved by the graduate chairperson and the student's advisor.

#### Plan A (Thesis)

Students must complete a minimum of 30 credit hours, including:

- 18 credit hours of course work at the graduate level, 12 of which must be at the 600 level (excluding 699 and 700);
- 2 credits of 699; and
- 10 credits of 700.

#### Plan B (Non-thesis)

Students must complete a minimum of 30 credit hours, including:

- At least 18 credit hours of course work at the 600 level or above (excluding 699) and
- 6-9 credits of Directed Research (699); and
- Remaining credits are fulfilled by graduate level electives that are selected in consultation with the graduate advisor.

### Both Plan A and B

All students are required to pass an oral exam of basic nutrition knowledge to advance to candidacy for the MS degree, and pass a final exam/oral defense of their Thesis Research (Plan A) or Directed Reading and Research (Plan B). The following courses are required as a core for most graduate students in nutritional sciences: FSHN 601, 681, 685, 689, a graduate-level statistics course, and at least one of the following: FSHN 668, 682, 784, or 785. FSHN 681 Seminar in Food and Nutritional Sciences, must be taken at least four times, including at least twice for a letter grade (A-F). Each student will be required to serve as a teaching assistant (TA), in either a paid or non-paid status, for a minimum of one semester. This experience must include a significant instructional component and evaluation by the instructor.

In both plans (in consultation with the student's graduate committee), the graduate credit hours will be selected from the graduate courses offered in nutritional sciences as well as other related disciplines such as food science, cell and molecular biology, epidemiology, genetics, physiology, public health, kinesiology, and statistics. Because of the diversity of specializations within nutritional sciences, specific course requirements will vary among students. Please see our website at [www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRms.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRms.html).

### MS in Food Science

The MS in food science offers areas of concentration in food safety and quality, food processing and engineering, food chemistry and biochemistry, food microbiology, product development, and food science education. Graduates have found employment as college instructors, technical personnel in the food industry, regulatory or other governmental agencies, and researchers. Others have pursued further postgraduate studies.

### Admission Requirements

Academic prerequisites include a bachelor's degree in food science or a closely related field, a minimum grade point average of 3.0, and undergraduate course work in introductory foods, biochemistry, introductory nutrition, and statistics. Motivated students without a food science-related degree may apply, but will be expected to make up undergraduate deficiencies if admitted. Students are strongly encouraged to take chemistry and introductory food courses prior to applying to the program.

Additional requirements include: submission of GRE General Test scores (no minimum score required); two confidential recommendations (using our program's recommendation forms); a TOEFL score of 580 minimum, 600 recommended (250 computer) if a foreign student; a personal resume; and a completed Graduate Admissions Application including statement of objectives. Interviews by phone or in person if in Hawai'i may be requested by the admissions committee. The deadlines for receipt of all application materials are **February 1** for fall semester applicants, and **September 1** for spring semester applicants.

### Degree Requirements

#### Plan A (Thesis)

Students must complete a minimum of 30 credit hours, including:

- At least 18 credit hours of course work, 12 of which must be at the 600 level or above (excluding 699 and 700)

- 2 credits of Directed Research (699); and
- 10 credits of Thesis Research (700)

### Plan B (Non-thesis)

Students must complete a minimum of 30 credit hours, including:

- At least 18 credit hours of course work at the 600 level or above (excluding 699); and
- 6 to 9 credits of Directed Research (699); and
- Remaining credits are fulfilled by graduate level electives that are selected in consultation with the graduate advisor.

### Both Plan A and B

All students are required to pass an oral exam of basic knowledge in food science to advance to candidacy for the MS degree, and a final exam/oral defense of their Thesis Research (Plan A) or Directed Research (Plan B). Students are required to register for Seminar in Food and Nutritional Sciences (FSHN 681) during four semesters, and present a minimum two seminars for a letter grade (A-F) during their graduate program. The following courses are required as a core for graduate students in food science: FSHN 601, 607, 608, 681, 701, and a graduate-level statistics course. Each student will be required to serve as a teaching assistant (TA), in either a paid or non-paid status, for a minimum of one course for one semester. This experience must include a significant instructional component and evaluation by the instructor.

In both plans (in consultation with the student's graduate committee), the graduate credit hours will be selected from graduate courses offered in food science as well as other related disciplines such as biochemistry, nutrition, microbiology, genetics, biotechnology, cell and molecular biology, and statistics. Because of the diversity of specializations within food science, specific course requirements will vary among students. Further information is available at [www.ctahr.hawaii.edu/hnfas/degrees/grad/FSHN.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/FSHN.html).

### PhD in Nutrition

In today's world, the relationship between diet and health is of great interest among consumers, medical professionals, research scientists, government policy makers, and private industries related to food, agriculture, and healthcare. To serve these clients and improve human health, especially in Hawai'i and the Asia-Pacific region, the PhD program in nutrition is designed to prepare future leaders and innovators who can expand our knowledge about food and health, solve nutrition-related problems, propose effective nutrition policies, guide new product and service development, and be ethical and effective researchers, communicators, and educators. To ensure that graduates are prepared for these roles, students will be expected to demonstrate:

1. Comprehensive understanding of core nutrition knowledge;
2. Advanced scholarship in a specialty area (i.e., expertise in a least one overlapping biomedical discipline e.g., biochemistry, physiology, cell and molecular biology, food science/functional foods, epidemiology, biostatistics, medicine, etc.);
3. Appropriate exposure to social and career-building disciplines (e.g., education, communications, information technology, technical writing, social sciences, etc.);
4. Ability to conduct original scholarly research, develop skills in research methodologies and grant writing, understand research ethics, and effectively disseminate research find-

ings via peer-reviewed publications, seminars, and practical applications such as teaching.

To accomplish these goals, the PhD program integrates faculty and resources from the instructional and research programs housed in the College of Tropical Agriculture and Human Resources (CTAHR), John A. Burns School of Medicine (JAB-SOM), and University of Hawai'i Cancer Center to create an inter-college PhD program that will produce highly marketable, interdisciplinary graduates that can assume leadership roles in the field of nutrition.

### Admission Requirements

The admission process is considered a critical step in insuring the success and quality of the program and its graduates; therefore, applicants will be carefully evaluated and selected. The admissions committee is chosen and led by the graduate chair and is made up of graduate faculty with proven records in mentoring successful graduate students. To insure consistent quality of training and financial support, the number of applicants admitted will be kept in line with the availability of high-quality dissertation advisors and available support. Students will not be admitted without a plan to support them and evidence of a faculty member's willingness to serve as a dissertation advisor.

Applicants should have a BS or MS degree in nutrition or a closely related biological science; however, highly motivated students with other degrees may be considered if they have excellent academic backgrounds and demonstrated strength in the biological sciences. Applicants are expected to demonstrate adequate preparation in nutrition, biochemistry, physiology, and statistics. If admitted without sufficient preparation in these areas, these prerequisites must be made up early in the student's program. The admissions committee will determine course deficiencies in an applicant's background.

Additional admission requirements include a minimum grade point average of 3.4 out of 4.0 for applicants with a BS, and 3.6 out of 4.0 for applicants with a MS or other advanced degree; submission of GRE general test scores that demonstrate performance above the 50% percentile in all areas; three letters of recommendation from individuals that can comment on academic and research potential, a personal resume, and a completed Graduate Admissions Application including a personal statement of objectives that includes reasons for wanting to attend graduate school, research interests, and career goals. Foreign applicants must obtain a minimum TOEFL score of 600 (paper), 250 (computer), or 100 (internet). Interviews (in person or by phone) are required of all applicants deemed admissible by the admissions committee. In selecting applicants for admission, particular attention will be paid to the quality and depth of the personal statement, the strength of the letters of recommendation (i.e., they must indicate exceptional potential), and the professional qualities and academic depth presented in the personal interview.

The deadline for receipt of all application materials are **February 1** for fall and **September 1** for spring applicants. The resume and personal statement of applicants should be sent electronically to the graduate chair PhD in Nutrition at [hnfas@ctahr.hawaii.edu](mailto:hnfas@ctahr.hawaii.edu).

Further information is available at [www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRphd.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRphd.html).

## Degree Requirements

The principal requirements for the PhD degree are:

1. Pass a qualifying examination,
2. Complete required course work,
3. Pass a comprehensive exam to demonstrate advanced scholarship in the field, and
4. Defend a doctoral dissertation that presents original, independent research.

In addition, all PhD candidates are required to participate in a substantial teaching project with a graduate faculty mentor during at least one semester of their program (if entering with a BS, two semesters are required).

**Qualifying exam.** The purpose of the qualifying exam is to evaluate the student's basic knowledge in nutrition-related fields, determine if the student has a strong enough background to proceed successfully with their doctoral program, and enable advisors to assist the student in planning an appropriate program of study. The areas covered by the exam include basic nutrition, biochemistry, physiology, statistics, epidemiology, and experimental design. The exam may be oral and/or written as decided by the examining committee. The committee will consist of at least three members of the graduate faculty chosen by the student in consultation with their advisor, and must be approved by the graduate chair. The exam is repeatable once after successful petition to the graduate chair. Students failing the exam twice must withdraw from the program. Students entering the program with a BS degree will be required to pass the qualifying exam within the first two years of their program. Candidates entering with a MS or other advanced degree must pass the exam within one year. Extensions can be made for students with course deficiencies to make up. Students entering from the nutritional sciences MS program at UH Mānoa within five years of receiving their MS degree are exempt from the exam, as suitability for the PhD program will be assessed during their MS program via the candidacy exam and thesis defense/final exam.

**Dissertation proposal defense.** Students entering with a BS degree are required to defend their dissertation research proposal to the satisfaction of their dissertation advisor. They must do this after they pass their qualifying exam and after they have met all other requirements for the Plan A master's degree in nutritional sciences except the completion of a formal thesis. The proposal should consist of a written and oral presentation of the proposed dissertation research. This proposal defense serves as a capstone, similar to a MS thesis defense, and assures that the student can demonstrate sufficient research skills and knowledge of the research plan to proceed with the dissertation research. The dissertation committee will consist of the student's advisor and at least four members of the graduate faculty chosen by the student in consultation with their advisor, and must be approved by the graduate chair. The student must pass the proposal defense to be eligible for the comprehensive exam. The defense is repeatable once after successful petition to the graduate chair.

**Required course work.** PhD students are required to have at least 18 credits of graduate level course work (excluding research credits) beyond their MS degree. If entering with a BS degree, at least 36 credits of graduate level course work (excluding research credits) beyond the BS are required. These course requirements are described below.

Students entering with a BS degree are required to meet all requirements for the Plan A master's degree in nutritional sciences, excluding the production of a formal written thesis. The course requirements include any course deficiencies recommended by the admissions committee plus the following 18 credits of graduate level coursework:

- 11 credits of required nutrition courses [FSHN 601, 685, 689 and at least one of the following: FSHN 668, 682, 784, or 785], including 2 credits of FSHN 681
- 3 credits in statistics at the graduate level (e.g. PH 655)
- 4 credits of advisor-approved electives

In addition, at least 12 credits of 699 are required.

Students entering with a MS or other advanced degree are required to make up any course deficiencies in their background prior to taking the qualifying exam. Course deficiencies will be assessed by the admissions committee. Credits obtained by making up course deficiencies cannot be used to meet the 18 credit course requirements for the PhD.

After the above requirements are met by students entering with a BS or MS, all continuing PhD students must take a minimum of 18 credits of course work (excluding research credits) consisting of at least:

- 6 credits of graduate nutrition courses including 2 credits of FSHN 681
- 6 credits in graduate level courses that will foster development of a specialty area in a field overlapping with the discipline of nutrition. For example: biochemistry, cell and molecular biology, epidemiology, medicine, biostatistics, functional foods/food science.
- 6 credits in graduate level courses from career-building disciplines such as communications, education, information technology, technical writing, or social sciences.

The student in consultation with his or her dissertation advisor will decide on the specific courses used to meet the above 18-credit requirement. An example of a model course of study for a student entering with a BS in nutrition, and examples of available specialty area courses and career-building courses are available on our program website at: [www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRPhd.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRPhd.html).

**Required teaching experience.** To foster teaching skills, all PhD candidates must participate in a substantial teaching project during at least one semester of their program. All students who are not paid teaching assistants are required to develop, with an instructor of their choice, an instructional experience equivalent to a quarter time teaching assistantship (10 hours per week) that includes in-class lectures/instructional activities, or laboratory instruction. At the conclusion of the experience, their instructional mentor must submit a written evaluation of their performance to the graduate chair. Unsatisfactory evaluations will result in the need to repeat the experience until a favorable evaluation is achieved. Students entering with a BS must additionally fulfill the instructional experience required as part of the MS in nutritional sciences (6 hours per week for one semester) prior to sitting for their dissertation proposal defense.

**Comprehensive exam.** When candidates have completed all, or most of their course work toward the PhD, they must pass a comprehensive exam to verify that they can function as a professional in the field. The timing of the exam will be decided upon by the student in consultation with their advisor. The purpose of this exam is to determine the student's comprehension of fundamental nutrition knowledge, expertise in an overlapping

discipline, and competence in research, communications, and critical thinking skills. The form of the exam is both written and oral. It will be conducted by an examination committee composed of at least three members of the graduate faculty (excluding the student's advisor) with collective expertise to cover the range of expectations listed above. The composition of the committee is proposed by the student in consultation with their advisor. To insure the quality and consistency of exam committees, its composition must be approved by the graduate chair. The time frame and grading of the exam will be decided by the committee. The examination criteria and procedures will conform to the Graduate Division's standards for all Mānoa doctorate programs. A student must pass this exam to achieve candidacy and remain in the PhD program. The exam is repeatable once after successful petition to the graduate chair. After passing the exam the student is eligible to formally select their doctoral committee as described below.

### Dissertation

All PhD candidates must conduct scholarly, independent, original research that contributes new knowledge to the field. The candidates develop and conduct research projects under the direction of their dissertation advisor and doctoral committee. The doctoral committee is selected by the student in consultation with their dissertation advisor, and must be approved by the graduate chair. The dissertation advisor (chair of the doctoral committee), and a majority of the committee members must come from the nutrition graduate faculty. The committee must have at least 5 members, with one member being from a graduate faculty outside the student's field of study and area of specialization. At the conclusion of the research process, students write a dissertation, i.e., a scholarly presentation of their research in publication form. The student's doctoral committee then conducts a final examination to assess the student's ability to orally present their dissertation in a seminar format, and defend their research and written dissertation. The final exam is repeatable once after successful petition to the graduate dean. The dissertation, final exam criteria and procedures will conform to the Graduate Division's standards for all UH Mānoa doctorate programs. Further information is available at: [www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRPhd.html](http://www.ctahr.hawaii.edu/hnfas/degrees/grad/NUTRPhd.html).

### Honors and Awards

The department has several teaching assistantships, research assistantships, and scholarships that are awarded to deserving qualified students.

## Molecular Biosciences and Bioengineering

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Web: [www.ctahr.hawaii.edu/mbbe/](http://www.ctahr.hawaii.edu/mbbe/)

### Faculty

- \*D. Christopher, PhD (Chair)—photosynthesis, plant biotechnology, gene regulation, genomics, protein folding
- \*H. Ako, PhD—aquaculture, environmental biochemistry and biotechnology
- \*J. P. Bingham, PhD—peptide synthesis, marine neurotoxins
- \*D. Borthakur, PhD (Graduate Chair)—plant-microbe interaction, plant biotechnology
- \*L. D. Gautz, PhD—bioproduction control and automation, electromechanical systems engineering
- \*A. Hashimoto, PhD—bioengineering, bioenergy
- \*D. M. Jenkins, PhD, PE—biosensors and bioinstrumentation
- E-S. Kan, PhD—environmental engineering, bioremediation, and bioenergy
- \*S. Khanal, PhD, PE—bioenergy and bio-based products; waste to energy heat and mass transport in chemically reacting ecosystems, energy conversion, bioremediation
- \*C. Kinoshita, PhD—heat and mass transport in chemically reacting systems, energy conversion, bioremediation
- \*Q. Li, PhD—bioremediation, environmental biotechnology
- \*P. Nerurkar, PhD—carcinogen-induced metabolic disorders and biochemical mechanisms of environmental carcinogenesis
- \*G. Presting, PhD—bioinformatics
- \*W-W. Winston Su, PhD—biochemical engineering, cell culture engineering

### Graduate Faculty in Molecular Biosciences and Bioengineering

All faculty of the department are regular graduate faculty in Molecular Biosciences and Bioengineering.

### Cooperating Graduate Faculty

- R. Allsopp, PhD—stem cells, regulation of telomerase expressor in cells
- A. Alvarez, PhD—plant-pathogen interactions, biocontrol of plant diseases
- A. S. Bachmann, PhD—tumor growth and cell differentiation
- M. Carbone, MD, PhD—cancer biology
- S. Chang, PhD—vaccine development, molecular immunology
- E. D. H. Cheng, PhD—hydrology, hydrolics, wind engineering
- M. Cooney, PhD—marine biotechnology
- H. G. de Couet, PhD—molecular biology, invertebrate biology, biotechnology
- M. Dunn, PhD—molecular nutrition
- T. Ernst, PhD—magnetic resonance imaging
- G. Grau, PhD—marine biology
- C-E. Ha, PhD—biochemistry, human serum albumin
- T. Hoang, PhD—molecular microbiology
- J. Hu, PhD—plant virology
- S. Jun, PhD—food engineering
- Y. S. Kim, PhD—animal biotechnology
- C. C. Liu, PhD—bioengineering
- P. S. Lorenzo, PhD—cancer biology

S. M. Masutani, PhD—thermal conversion of biomass  
 C. Morden, PhD—molecular systematics  
 V. Nerurkar, PhD—molecular virology and epidemiology  
 J. Ramos, PhD—cancer biology  
 C. Ray, PhD—ground water hydrology, bioremediation  
 R. Shohet, MD—molecular medicine  
 V. A. Stenger, PhD—magnetic resonance imaging  
 C. Tamaru, PhD—aquaculture  
 S. Q. Turn, PhD—biomass gasification  
 G. Wang, PhD—marine microbial biotechnology  
 A. A. Yanagihara, PhD—biochemistry, peptide toxins  
 J. Yang, PhD—animal molecular biology and biotechnology  
 J. Yu, PhD—bioengineering, marine bioproduct development

### Affiliate Graduate Faculty

H. H. Albert, PhD—plant molecular biology and biotechnology  
 P. H. Moore, PhD—sugarcane biotechnology, plant molecular biology  
 A. J. Stokes, PhD—cell biology  
 J. Zhu, PhD—plant transformation, biotechnology

**Degrees Offered:** BS in biological engineering, BS in molecular biosciences and biotechnology, MS in biological engineering, MS in molecular biosciences and bioengineering, PhD in molecular biosciences and bioengineering

### The Academic Program

The Molecular Biosciences and Bioengineering Department (MBBE) features a multidisciplinary faculty having a broad spectrum of interests in biotechnology, molecular biology, biochemistry, and biological engineering. The department's strong basic and applied research programs and its active, internationally recognized faculty combine to provide students with exciting learning opportunities. The department houses degree-granting programs in biological engineering (BS and MS) and in molecular biosciences and bioengineering (MS and PhD) and participates in the interdepartmental Plant and Environmental Biotechnology Program (BS).

### Biological Engineering Program

The mission of the biological engineering (BE) program is to provide engineering students a unique opportunity to study biological systems from the engineering perspective. The biological engineering program teaches the importance of the systems approach to problem solving. Undergraduate (BS) and graduate (MS) degrees are offered in biological engineering.

### Undergraduate Study

#### BS in Biological Engineering

The mission of the biological engineering program is to provide students a unique opportunity to study the fundamentals of engineering and biology and the application of engineering to biological systems. Example applications in biological engineering include processing of biomass for alternative energy uses or added value, bioreactor design for producing high-valued biologically-based products, bioremediation and biological treatment of wastes, and sensors and control engineering for biological systems. Undergraduates complete a comprehensive curriculum including the basic sciences (biology, chemistry, and physics), engineering mathematics, core engineering (civil, electrical, and mechanical), and fundamental and specialized biological engineering courses. Students receive integrated

training in biology and engineering, culminating in a two-semester engineering design sequence.

To fulfill its mission, the BE program has three educational objectives, each associated with several outcomes:

1. Graduates enter professional careers where they apply fundamental engineering concepts to solve real-world problems;
  - a. the graduate has the ability to solve physics problems involving mechanics, electromagnetics, and optics; chemistry problems involving inorganic and organic chemistry; problems involving general and microbiology;
  - b. the graduate has the ability to solve engineering problems related to statics, dynamics, fluid mechanics, and thermodynamics.
2. Graduates serve the needs of the society by designing, manufacturing, evaluating, and/or operating systems in which living organisms or biological products are a significant component; and
  - c. the graduate has the ability to design a system, component, or process in which biology plays a significant role;
  - d. the graduate has the ability to design and conduct experiments to gather information for engineering designs;
  - e. the graduate has the ability to use modern engineering techniques, skills, and tools to define, formulate, and solve engineering problems.
3. Graduates contribute to their communities by continuing to engage in professional development, ethical decision making, and thoughtful discourse on contemporary issues.
  - f. The graduate has the ability to function effectively on multi-disciplinary teams.
  - g. The graduate has the ability to identify professional and ethical responsibilities when practicing engineering.
  - h. The graduate has the ability to communicate effectively in large and small groups.
  - i. The graduate has the background to understand the impact of engineering solutions on the surrounding context.
  - j. The graduate recognizes the need to engage in life-long learning through participation in professional conferences, workshops, and courses, and by reading and writing in the relevant literature.
  - k. The graduate has the ability to intelligently discuss contemporary issues.

The bachelor of science in biological engineering is the only undergraduate degree offered by the program. Students benefit from small class size and one-on-one interactions with faculty.

### Requirements

#### General Education Requirements, including the following:

- ENG 100 or approved FW course (FW)
- Two approved courses in Global and Multicultural Perspectives (FG)
- ECON 120 or 130 or 131 (DS)
- CHEM 161/161L and 162/162L (DP/DY)
- PHYS 170/170L and 272/272L (DP/DY)
- BIOL 171/171L (DB/DY)
- MATH 241, 242, 243, and 244 (FS)
- One Social Science course (DS)
- Six credits Humanities, Arts, and Literatures course (DH, DA, or DL)
- One course with focus on Contemporary Ethical Issues (E)

- One course with focus on Hawaiian, Asian, or Pacific issues (H)
- One course with focus on Oral Communication (O)
- Five Writing Intensive courses (W)
- Hawaiian or Second Language (HSL) is not required for the Bioengineering degree

#### College Requirements:

- NREM 310

#### Basic Engineering Requirements:

- EE 160 and 211
- CEE 270 and 271
- ME 311
- CEE 320 or ME 322

#### Bioengineering Requirements:

- BIOL 172/172L or MICR 351/351L or BE 120
- Biology elective (BIOL 275/275L, MICR 351/351L, or MICR 485/485L)
- CHEM 272/272L
- BE 260, 350/350L, 373, 481, and 482
- At least 15 credits from courses BE 405, 410, 411, 420, 431, 437, 460, 470, CEE 355, or ME 371

Students must have completed a cumulative total of at least 124 credit hours and take (but not necessarily pass) the NCEES Fundamentals of Engineering exam in the semester they intend to graduate.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### MS in Biological Engineering

The research areas in biological engineering open to MS students include management of wastes and wastewater; engineering for cell culture, fermentation, micropropagation, and bioconversion; engineering-intensive horticultural and aquatic biosystems; modeling and optimization of bioresource production and processing systems; water management and irrigation system design; spatial decision support systems for environmental protection and resource development; bioremediation; biological and thermochemical conversion; control, automation and mechanization of biological systems. Graduates of the program have entered careers in industry and public agencies or have undertaken further study in a PhD degree program. Intended candidates for the MS must present a bachelor's degree from an accredited engineering program or the equivalent.

#### Plan A Requirements

- 21 course credits and 9 thesis research credits.
- MBBE 699 and 700 cannot be used to satisfy course credit requirements.
- 12 or more course credits must be at 600 level or above.
- 12 or more course credits must be in biological engineering; of these 9 must be earned in courses numbered 600-698.
- One graduate seminar in biological engineering or equivalent.
- Pass a final oral examination administered by a committee of three or more graduate faculty, chaired by the student's thesis advisor.

- Enrolled in the graduation semester. If all other course work is completed, one credit of BE 700 must be taken in the graduation semester.

#### Plan B Requirements

- 27 course credits and 3 credits of MBBE 699 on a design or research project.
- 699 cannot be used to satisfy course credit requirements.
- 18 or more course credits must be at 600 level or above.
- 18 or more course credits must be in biological engineering; of these 12 must be earned in courses numbered 600-698.
- One graduate seminar in biological engineering or equivalent.
- Pass a final oral examination administered by a committee of three or more graduate faculty, chaired by the student's advisor.
- Enrolled in the graduation semester. If all other course work is completed, one credit of BE 500 must be taken in the graduation semester.

#### Contact Information

Samir Khanal, Graduate Chair, Bioengineering  
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### Graduate Program in Molecular Biosciences and Bioengineering

The Molecular Biosciences and Bioengineering graduate program offers both MS and PhD degrees. The MBBE research and graduate training center around understanding the biochemical, nutritional, and molecular-biological processes that underlie growth, development, bioenergy, photosynthesis, and stress, especially as related to tropical agriculture, aquaculture, plant and environmental biotechnology, and bioengineering. Many MBBE graduate students are supervised and supported by cooperating and affiliate graduate faculty from John A. Burns School of Medicine, University of Hawai'i Cancer Center, Pacific Biomedical Research Center, Queens Medical Center, Hawai'i Agricultural Research Center, Oceanic Institute, Sea Grant College Program, School of Ocean and Earth Science and Technology, College of Engineering, and several departments including microbiology, zoology, human nutrition, food and animal sciences, and plant and environmental protection sciences.

#### Entrance Requirements

- Minimum qualifications for admittance as a regular student are an undergraduate degree from an accredited U.S. college or university or equivalent degree from a recognized foreign institution of higher learning and a GPA of at least 3.0 on a 4.0 scale.
- All prospective students must submit scores from the GRE General Test. In cases where foreign students encounter difficulty in taking the examination, submission of scores may be delayed with permission from the Graduate Division. Foreign students must also submit TOEFL scores (see Graduate Bulletin for exceptions.) A minimum TOEFL score of 250 in computer-based test or 100 in internet-based test is required.

- All applicants are expected to have completed courses or equivalents in physics, chemistry, basic biology, genetics, biochemistry, physiology, and one additional upper division course in cellular or molecular biology. While not a requirement, physical chemistry is highly recommended. Students may be accepted with deficiencies in one or more of these areas, however, deficiencies must be made up during the first year as a graduate student. Such courses may not be used for graduate credit.

#### General Guidelines and Requirements for MS Plan A

- Minimum course requirements: 12 credits of 600-level courses (not including MBBE 699), 6 credits of 400 level courses (not including 499), 6 credits of 699 and 6 credits of 700. Graduate students are encouraged to take one credit seminar (610 or equivalent) each academic year. They require at least one seminar credit for MS degree. The thesis proposal or defense seminar cannot be used to meet this requirement. All courses must be approved by the committee and the graduate chair.
- Two-page proposal. Like PhD students, MS students also need to discuss with their major advisors about their research projects and write a two-page proposal within the first semester.
- A thesis proposal seminar: MS students need to present their preliminary results and the plan of work in a proposal seminar. MS students who conduct research in laboratories outside the Mānoa campus may present their proposal seminars in their laboratory locations.
- Presentation at the CTAHR symposium. MS Plan A students must make at least one presentation in the CTAHR symposium. They are encouraged to make presentations in other national and international conferences.
- Thesis defense. MS Plan A students must present a public presentation of work in the final semester. Students should consult with their committee and the graduate chair for a convenient date for this presentation at the middle of the final semester.
- Publication. Students are encouraged to publish a paper before defense.

#### General Guidelines and Requirements for MS Plan B

- Minimum course requirements: 18 credits of 600-level courses (not including MBBE 699), 9 credits of 400 level courses (not including 499), 3 credits of 699. Graduate students are encouraged to take one credit seminar (610 or equivalent) each academic year. They require at least one seminar credit for MS degree. The final research presentation cannot be used to meet this requirement. All courses must be approved by the graduate chair.
- Research report, final presentation and oral exam. The Plan B students also do a research project for at least one semester. The results of this research should be written as a 'research report' and submitted to a committee composed of the research advisor, another faculty, and the graduate chair. The results also must be presented as a seminar in the final semester. At the end of the presentation, the committee will ask questions about the research project and other related subject. The written report should be about 10–20 pages, double space, and should contain the following sections: abstract (200–300 words), introduction (background and justification, 1-page), literature review (3–7 pages), objec-

tives, materials and methods (3–7 pages), results and discussion (3–10 pages), and references. For graduation, a student must obtain satisfactory grades in the research report, oral presentation, and the oral exam.

#### General Guidelines and Requirements for PhD Degree

- A temporary committee: graduate chair appoints a temporary committee for each PhD student. The committee comprises the student's supervisor (major advisor), graduate chair, and a faculty member. The committee advises on course work and other academic and research related matters.
- Course work. Students are required to take a minimum of three high-level courses. The courses must be pre-approved by the major advisor and graduate chair. Graduate students are encouraged to take one credit seminar (610 or equivalent) each academic year. They require at least two seminar credits for PhD degree. The dissertation proposal or defense seminar cannot be used to meet this requirement.
- Two-page proposal. Students need to discuss with their major advisors about their research projects and write a two-page proposal. The proposal must be submitted to the graduate chair within the first semester. The proposal should have the following sections: (i) Introduction (background and justification), objectives, and approach. If the scope and objectives of the project are changed or modified later, the temporary committee should be informed and a copy of the revised proposal should be submitted to the graduate chair.
- Qualifying exam: PhD students have to take a qualifying exam within the first, second, or third semester. As a part of this exam, students are asked to write a manuscript from the results obtained within the first one or two semesters.
- Permanent committee: After completing the qualifying exam, a PhD student can form a permanent committee in consultation with his supervisor and the graduate chair.
- CTAHR Symposium: Students are encouraged to make a poster presentation in the CTAHR symposium in the first year. They must make a presentation in the second year and should continue to make presentations in subsequent years until graduation.
- Other presentations: Students are encouraged to make oral and poster presentations in other national and international conferences. A number of travel scholarships are available from the Graduate Student Organizations. Often the supervisors provide funds for student travel. Students can also make presentations in a number of research symposia organized at UH Mānoa. These include Tester Symposium, Microbiology Symposium, and BioMed Symposium.
- The first manuscript: Students should try to complete the manuscript that was started as a part of the qualifying exam and get it published as soon as possible.
- Committee meetings: Students should meet at least once a year with the committee.
- Proposal seminar: Frequent discussions are encouraged between the student and the major advisor about the progress and direction of research. When a student and the major advisor both agree that the project is going well and there are some good data, the student may be allowed to write a full proposal and then present a proposal seminar. All graduate faculty and students are invited to the proposal seminars. A proposal seminar must not be delayed beyond three years.

If it is delayed beyond three years, the graduate chair will discuss with the committee and consider transferring the student to the MS program.

- Revision of dissertation proposal. Sometimes, a project may not go as expected and run into unexpected problems. Under such a situation, the project may have to take a new direction and some of the objectives may have to be modified. The student should invite a committee meeting and present a revised proposal.
- Comprehensive exam: It is an oral exam given by the committee and the graduate chair. The graduate chair or a representative appointed by him serves as the moderator for the exam. The committee will ensure that the student has learnt molecular biosciences or bioengineering and mastered the subject well. The comprehensive exam must not be delayed beyond three years. If it is delayed beyond three years, the graduate chair will discuss with the committee and consider transferring the student to MS program.
- Review of literature: The students are encouraged to conduct an extensive literature review related to his or her research subject. He or she should discuss with his or her supervisor about the main focus of the “review of literature” chapter of his or her dissertation. This must be completed and forwarded to the committee within the first three years.
- Publications: Publications are essential requirements of a PhD degree in MBBE. Students are encouraged to publish several papers in refereed journals. There must be at least one publication as the first author in a standard refereed journal. Only under an exceptional situation, where research subject is very problematic, and the supervisor assures and convinces the committee and the graduate chair that a publication is forthcoming, a student may be considered for graduation without a publication on the day of defense.
- Submission of dissertation to the committee: Students are encouraged to write and submit the ‘Review of Literature’ chapter to the committee well in advance, preferably one year before submitting the complete dissertation. They can also write the chapters ‘Introduction’ and ‘Materials and Method’ in advance. All chapters of the dissertation must be first submitted to and corrected by the major advisor before submitting to the rest of the committee. The committee members may refuse to read the chapters if these were not previously read, corrected, and approved by the major advisor.
- Final dissertation defense: The final dissertation defense seminar is perhaps the most important event for PhD. Therefore, a student must prepare well for this presentation. A student must get approval of the major advisor and the committee for presenting a defense seminar. The Graduate Division must be notified in advance by the student through the graduate chair about the date, time, and place of dissertation defense. Graduate faculty and students must be invited to the defense seminar.

#### List of Approved Courses for MBBE Graduate Students

The following 400-level courses are recommended:

- MBBE 401, 402, 405, 408, 412, 483,
- BE 410, 420, 431, 460,
- BIOL 407

The 600-level courses can be selected from the following list of courses. Students can select other courses after obtaining approval from the committee and the graduate chair.

- MBBE 601, 620, 625, 650, 651, 683, 687,
- BE 606, 622, 625, 634, 638,
- CMB 621, 622,
- MICR 625, 632, 671,
- PEPS 630, 646, 681,
- TPSS 604, 614, 640

#### Financial Assistance

All students in the MBBE program are currently supported through teaching assistantships, research assistantships, or fellowships. In addition, tuition is waived for all assistantships and most fellowships. It is recommended that students interested in research assistantships contact faculty working in their area of interest regarding availability. Additional fellowship support is available from the East-West Center, which offers scholarships to Asian, Pacific, and American students for affiliation in one of their programs.

#### Contact Information

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## Molecular Biosciences and Biotechnology Program

Gilmore 211  
3050 Maile Way  
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Fax: (808) 956-3706  
Email: acadaff@ctahr.hawaii.edu  
Web: [www.ctahr.hawaii.edu/site/programmmbb.aspx](http://www.ctahr.hawaii.edu/site/programmmbb.aspx)

#### Participating Faculty

- H. Ako, PhD (Coordinator)—biochemistry, aquaculture
- A. M. Alvarez, PhD—bacterial diseases
- D. Borthakur, PhD—molecular genetics of bacteria and their interactions with plants
- D. A. Christopher, PhD—plant molecular biology, regulation of gene expression
- J. S. Hu, PhD—transgenic disease resistance
- D. Jenkins, PhD—biosensors
- C. M. Kinoshita, PhD—bioremediation
- P. S. Leung, PhD—biotechnology economics
- Q. Li, PhD—environmental biochemistry
- R. M. Manshardt, PhD—tropical fruit breeding and genetics
- P. Nerurkar, PhD—metabolic disorders, signal transduction, alternative medicine
- W. W. Su, PhD—cell culture, biochemical engineering
- A. Wiczorek, PhD—molecular systematics, public education on biotechnology
- J. Yang, PhD—animal molecular biology and biotechnology
- J. Zhu, PhD—plant and biotechnology transformation biotechnology

**Degrees Offered:** BS in molecular biosciences and biotechnology

## Program Goals

- To provide education leading to biotechnology literacy;
- To provide broad training in the methods of biotechnology;
- To enable students to work as members of interdisciplinary teams; and
- To staff Hawai'i's emerging biotechnology industries.

## The Academic Program

Biotechnology is dramatically influencing the agricultural, environmental, and pharmaceutical sciences. Molecular Biosciences and Biotechnology (MBB) is an interdisciplinary Bachelor of Science degree program designed to educate students in the exciting and growing field of biotechnology, which promises to be a predominant science of the 21st century. MBB graduates will be qualified for employment in agricultural, pharmaceutical, environmental clean-up, forensics, and biotechnology industries; to work in government agencies, environmental groups, and consulting firms; to teach secondary education, or to embark on graduate studies to prepare for advanced research and teaching positions.

The program provides a thorough foundation in molecular biology, biochemistry, genetics, biotechnology, and the life sciences. It serves as excellent and rigorous training for graduate and professional school.

Students tailor their studies to meet their interests by choosing electives and senior research projects in the following subjects: environmental and microbial biotechnology, plant biotechnology, insect and pathogen biotechnology, and aquaculture and bioreactor biotechnology. Students participate in hands-on laboratory courses culminating in research and a senior thesis. Graduates are competent for employment using modern methods such as molecular diagnostics, forensics, tissue culture, genetic engineering, microbial detection, bioremediation, algal bioenergy, marine biotechnology, proteomic, bioinformatic, and genomic analyses. They will have the skills for employment in the burgeoning biotechnology industry and for entering graduate or professional school.

## Undergraduate Study

### BS in Molecular Biosciences and Biotechnology

#### Requirements

Students must fulfill the General Education Requirements of UH Mānoa and the college.

Among the courses they must include in these requirements are:

- PHYS 100/100L or 151/151L; 152/152L
- CHEM 161/161L; 162/162L; 272/272L
- BIOL 171/171L; 172/172L; 275/275L
- MATH 215 or 241
- NREM 220
- NREM 310

In addition, students must complete the following major core requirements:

- MBBE/BIOL 304
- ANSC 446 or PEPS/TPSS 371 or BIOL 375
- MBBE/BIOL 401
- MBBE 402
- MBBE 483
- MBBE 499

## Electives

Students are required to take 18 credits of electives in the various sciences related to their interests in the environment, animals, microbiology, plants, the health sciences, crop protection, or aquaculture. The following are the approved list of electives:

- BE 150 Introduction to Biological Engineering
- BE 373 Transport Phenomena
- BE 410 Biomass Conversion to Biofuels and Bioenergy
- BE 420 Sensors and Instrumentation for Biological Systems
- BE 431 Environmental Biotechnology
- BE 440 Bioremediation Principles and Practices
- BIOL 407 Molecular Cell Biology I
- BIOL 408 Molecular Cell Biology II
- BOT 101/101L General Botany
- BOT 470/470L Plant Physiology
- CHEM 273/273L Advanced Organic Chemistry
- MICR 351/351L Biology of Microbes
- MICR 461 Immunology
- MICR 475 Bacterial Genetics
- MICR 485/485L Microbes in the Environment
- MBBE 412 Environmental Biochemistry
- PEPS 363 General Entomology
- PEPS 405 Plant Pathogens and Disease
- PEPS 421 Foundations of Pest Management
- PEPS 422 Biocontrol of Invasive Species
- TPSS 453 Plant Breeding
- TPSS 440 Tissue Culture and Transformation
- ZOOL 320/320L Vertebrate Zoology

## Natural Resources and Environmental Management

Sherman Lab 101  
1910 East West Road  
Honolulu HI 96822  
Tel: (808) 956-7530  
Fax: (808) 956-6539  
Email: nrem@ctahr.hawaii.edu  
Web: www.ctahr.hawaii.edu/nrem/

#### Faculty

- \*C. Chan-Halbrecht, PhD (Chair)—agricultural and international development and environmental economics, marketing
- J. Azuma, PhD—remote sensing of global vegetation
- \*L. J. Cox, PhD—community economic development
- \*S. E. Crow, PhD—soil ecology and biogeochemistry
- \*C. I. Evensen, PhD—natural resource management, environmental quality
- \*J. B. Friday, PhD—tropical forestry/agroforestry extension
- \*P. V. Garrod, PhD—marketing and production economics
- \*S. E. Grow, PhD—soil ecology and biochemistry
- \*T. W. Idol, PhD—tropical forestry/agroforestry
- F. Inman-Narahari, PhD—tropical tree improvement and conservation genetics
- \*J. K. Leary, PhD—invasive species control
- \*C. Lepczyk, PhD—ecosystem management, wildlife ecology, landscape ecology
- \*P. S. Leung, PhD—production, fisheries, and aquaculture economics
- \*C. M. Litton, PhD—forest ecology and management, biogeochemistry

- \*T. Miura, PhD—geospatial analysis, remote sensing  
 S. Y. Nagano, MS—4-H youth program, county extension  
 \*K. L. Oleson, PhD—ecosystem service valuation, environmental ethics, policy analysis  
 A. Pierce, PhD—wildfire science and management  
 P. C. Selmants, PhD—forest ecology  
 A. Strauch, PhD—aquatic ecology  
 P. C. Trauernicht, PhD—wildfire management extension  
 M. D. B. Vaughan, PhD—collaborative resource management and environmental education  
 J. Wang, PhD—environmental remote sensing  
 \*J. F. Yanagida, PhD—production economics, price analysis, international trade  
 A. Youkhana, PhD—carbon sequestration and agroforestry

### Cooperating Graduate Faculty

- K. M. Burnett, PhD (SSRI)—invasive species assessment and management  
 J. Cusick, PhD (Environmental Center)—sustainable tourism  
 J. DeFrank, PhD (TPSS)—herbicide management  
 A. El-Kadi, PhD—groundwater hydrology  
 T. Giambelluca, PhD—climatology, hydrology  
 M. Habte, PhD (TPSS)—soil ecology, microbiology  
 N. V. Hue, PhD (TPSS)—organic cycling  
 Q. Li, PhD (MBBE)—environmental chemistry  
 Y. Li, (UH Hilo)—tropical forest ecology and management  
 T. Radovich, PhD (TPSS)—sustainable farming  
 C. Ray, PhD (CEE)—ground water hydrology and chemistry  
 H. Valenzuela, PhD (TPSS)—vegetation physiology and management

### Affiliate Graduate Faculty

- J. Fox, PhD (East-West Center)—social forestry  
 A. Friedlander, PhD (Charles Darwin Foundation)—biogeography, fisheries  
 S. Gray, PhD (U of Massachusetts)—human ecology  
 R. Mackenzie (USDA Forest Service)—aquatic ecology  
 M. Pan (NOAA Fisheries)—fishery economics  
 S. Pooley, PhD (NMFS)—marine resource economics

**Degrees and Certificates Offered:** BS, MS, and PhD in natural resources and environmental management.

## The Academic Program

The Natural Resources and Environmental Management (NREM) program emphasizes the science and management of natural resources and their interlinks to environmental quality. It provides students with scientific knowledge of the physical, chemical, biological, economic, social, and policy elements of natural resources management and allows them to understand the principles that underpin productive, sustainable natural resource use, and enhanced environmental quality. Graduating students will be able to solve contemporary resource use problems and assist in sound decision making for optimizing land use and managing agricultural and forestry systems, watersheds, coastal ecosystems, and landscapes in an ecologically sound manner. Graduates will also be skilled in addressing resource and environmental policy issues and the needs of diverse stakeholders and communities including policy makers and planners. Scientific objectivity will be emphasized as an important element of environmental planning. Thus, students will be trained in the use of quantitative models and such tools as decision aids for optimizing natural resource management and ecosystem stewardship.

## Undergraduate Study

### BS in Natural Resources and Environmental Management

The bachelor of science degree in natural resource and environmental management is a science-based interdisciplinary degree emphasizing the management of natural and environmental resources, that is, decision-making and actions to modify the resource base in order to achieve specified goals. The focus is on tropical island ecology and terrestrial and coastal ecosystems, with special consideration given to Hawai'i's unique physical and social environment. The program gives students the ability to conceptualize and critically analyze environmental problems, identify management options, implement suitable interventions, and evaluate their effectiveness. Students receive comprehensive training in basic and applied natural and social sciences, management skills and techniques, and real-life problem-solving including community experiences. Students also develop an individual specialization in an upper division study area of their choice. Graduates have challenging and rewarding career opportunities with government agencies, non-profit organizations, and private businesses in resource-based industries and environmental protection. The BS degree also provides solid academic preparation for post-baccalaureate professional training and graduate study in natural resources and related environmental fields.

### Advising

Undergraduate majors are required to report for advising prior to registration each semester. An entering student must meet with the undergraduate program chair to determine the student's interest and preparation for the NREM major. The student is then assigned to an advisor, with whom he or she meets every semester to plan courses and chart progress toward graduation. After a student decides on a track specialization, the advisor assists the student in arranging an internship (NREM 492), selection of elective courses, career advising, and his or her professional development.

### Entrance Requirements

Freshmen may be admitted directly into the program when they apply to UH Mānoa. Students transferring from another program in the UH System or other universities must have a minimum 2.5 GPA for transferable credits.

### Degree Requirements

The BS degree requires a total of 120 credit hours, with at least 45 credits in upper division (i.e., 300+ level). Regardless of selected specialization, all students must complete a set of basic core courses. Many of these courses also satisfy General Education Core requirements. Required basic courses include:

- CHEM 151/151L or 161/161L
- BIOL 171/171L and 172/172L
- One course from MATH 203, 215, 241, or NREM 203

All students must also complete an applied science program core, which requires the following courses:

- NREM 210
- NREM 220 or ECON 130
- NREM 301/301L, 302, and 310
- NREM 492/492L and 494

## Specializations and Their Requirements

Students have a choice between two tracks within which to develop an upper-division specialization. Both tracks require a set of specific courses and selected electives totaling 30 credits. Some electives, however, may require additional prerequisite courses and credits.

### Specialization in Resource Management and Conservation

This track focuses on the biological/physical and natural science aspects of resource management. Course requirements include:

- PHYS 151/151L
- CHEM 162/162L
- NREM/TPSS 304
- NREM 477
- 18 upper division credits in a natural resource specialization area, with at least one course that emphasizes analytical lab, or field research methods (course selection requires advisor approval).

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Specialization in Resource Development and Policy

This track emphasizes the social sciences and business/public management skills. Course requirements include:

- NREM 341 or 351 or 429
- FAMR 352 or NREM 420
- One course from NREM/TPSS/ECON 429, NREM 358 or 477, or GEOG 413
- 12 upper division credits from social science disciplines such as anthropology, economics, geography, political science, or sociology (course selection requires advisor approval)
- 3 upper division credits in social science analytical/field research methods or in advanced communication (COM, COMG, JOUR)
- 9 upper division credits in natural resource area(s) or field study methods

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Options for Meeting UH Mānoa Hawaiian/Second Language Requirement

As part of the graduation requirements for all undergraduate students at UH Mānoa, NREM majors will select one of the following three options for Hawaiian/Second Language study, in consultation with the faculty advisor:

**Option 1:** Show proficiency in Hawaiian/Second Language at a 202 course level. Native and bilingual speakers of a second language may be granted a waiver for the foreign language requirement by the College of Languages, Linguistics, and Literature.

**Option 2:** Show proficiency in Hawaiian/Second Language at a 102 course level and take one additional course each in the Social Sciences (3 credits) and in the Natural Sciences (3–4 credits).

**Option 3:** Take two additional courses each in the Social Sciences (total 6 credits) and in the Natural Sciences, including at least one course with a laboratory (total 7–8 credits). The additional Social and Natural Science courses can be chosen from any 100–200 level UH Mānoa courses in the respective area but cannot be used to meet other UH Mānoa General Educa-

tion requirements (except focus) or NREM major requirements.

## Graduate Study

NREM offers the following graduate degrees: MS (Plans A, B, and C), and PhD degrees in Natural Resources and Environmental Management; a university-wide Graduate Resource Management Certificate; and a university-wide graduate degree specialization in Ecology, Evolution, and Conservation Biology.

The NREM graduate program brings together natural and social scientists to offer an integrative and interdisciplinary program to understand and manage tropical and sub-tropical terrestrial and aquatic ecosystems. Emphasis is placed on island settings and their relevance to managing land and seascapes. Studies in NREM incorporate the various components and scales (spatial and temporal) that determine ecosystem structure and function, and that bear upon the social and economic welfare of residents in diverse communities and environmental settings. The NREM curriculum emphasizes the application of physical, biological, and social sciences to the conservation and sustainable management of natural, environmental, and economic resources. The program also provides a science-based foundation to assess the processes that control the structure and function of terrestrial and aquatic ecosystems, and the human behaviors and policies that impact those processes.

Students are expected to acquire quantitative reasoning, critical thinking, and other advanced skills that enable them to solve contemporary resource use and environmental problems and to assist in sound policy development and implementation. NREM graduates should be skilled in addressing natural resources and environmental policy and management issues of the competing needs of diverse clientele and communities. NREM graduates are expected to serve as professional leaders in natural resources and environmental management and policy, academic teaching and research, and applied research and extension in educational and governmental institutions, international, national, and state technical assistance and policy agencies, agricultural and forestry industries, consulting firms, and private nonprofit and non-governmental organizations.

Natural resources and environmental management issues are attracting considerable national and global attention, as well as growing donor interest, especially in the Asia-Pacific and tropical and subtropical regions. Graduate training, therefore, features collaboration with national and international institutions to foster programs that provide students with opportunities to learn about the ways in which people from other countries and cultures manage their natural resources and interact with their environments. As such, NREM has a diverse mix of domestic and international graduate students.

To underscore its integrative and global nature, the NREM Graduate Program features strong collaboration with other academic departments within and outside of CTAHR, as well as collaborating institutions in and outside of Hawai'i such as transitional economies in Asia, eastern Europe, and the Middle East. In addition, cooperating and affiliate graduate faculty in NREM complement and supplement departmental expertise.

### Specialization Areas

NREM is an interdisciplinary department that offers integrative graduate curricula necessary for quality decision-making and solution-oriented natural resource and environmental management. As a foundation for graduate training, all NREM

students are expected to acquire a common base of knowledge embodied in a set of core courses. Beyond that, students are expected to develop knowledge and skills within a chosen specialization area. This helps to ensure that students have the real-world skills needed to perform specific tasks, analyze resource management and policy issues, carry out original and meaningful research, and effectively perform outreach and educational activities.

Examples of specialization areas include, but are not limited to: aquaculture economics and management; coastal watershed management; contaminant hydrology; contaminant sources and transport in watersheds; ecological and environmental economics; economics of sustainable resource utilization; fishery economics and management; forest economics; forest ecosystem management; integrated resource management; irrigation and water management; land and water use policy assessment; land degradation processes and models; land resource inventory and interpretation; land, soil, and water conservation reclamation and remediation; landscape ecology; natural resource and environmental non-market valuation; restoration ecology; remote sensing and geospatial analysis; sustainable community economic development; sustainable land and resource management; tropical forestry and agroforestry; water quality; watershed hydrology; and wildlife.

The student's advisor and thesis/dissertation committee will assist in choosing appropriate coursework and research, or other activities, to develop a specialization area. Students are expected to declare a specialization area by the completion of their first year in the department.

### Admission and Deficiencies

Regular, probationary, and conditional status is determined based on student's academic performance at the time of application. If you are admitted as regular status, you may start your formal graduate program immediately. If you are admitted as probationary or conditional status, you have specific criteria that must be fulfilled such as a BS or MS degree, course deficiencies, expected minimum GRE score of 302–308 combined Verbal and Quantitative Reasoning (equivalent to 1,100–1,200 on the prior scale), or other documents. These criteria are specified in your letter of acceptance, and should be discussed immediately with your advisor upon matriculation. It is expected that a student will move from probationary and/or conditional status to regular status by the end of their first year by completing Form I. Applicants for the MS degree are required to have a BS or equivalent degree and applicants for the PhD degree are required to have an MS or equivalent degree (but see below for admission to the PhD degree without a BS degree).

The minimum required TOEFL score (for foreign applicants only) is: (a) MS student: 550, 213, or 80 for paper-based, computer-based, or internet-based examinations, respectively; and (b) PhD student: 600, 250, or 100 for paper-based, computer-based, or internet-based examinations, respectively. The TOEFL requirement applies to all foreign students, except those who are native speakers of English or have received a bachelor's degree or an advanced degree from an accredited/recognized college within the last five years in the U.S., U.K., Ireland, Canada, New Zealand, Singapore, or Australia are exempt from the TOEFL requirement. Students with low TOEFL scores are required to enroll in remedial ELI (English Language Institute, [www.hawaii.edu/eli/index.html](http://www.hawaii.edu/eli/index.html)) courses.

NREM requires prior completed coursework (with a grade of C or higher) that is equivalent to or higher than NREM 203, 220 (or ECON 130), 310, CHEM 151, and BIOL 171. Students who do not have coursework in one or more of these areas may be accepted into the program, but will be expected to make up course deficiencies within their first 1–2 semesters on campus and complete Form 1.

### Students Applying to PhD Program

#### (1) Admission to PhD After Finishing NREM MS

An NREM PhD student who also completed his or her MS in NREM and has subsequently been accepted into the NREM PhD program has the option to take directed reading (NREM 699) for half of the required elective credits (12 of the 24) if NREM courses that are applicable to the student's degree have already been taken as part of the MS degree plan. At least 6 of the non-NREM 699 credits must be for graduate research methods courses. Also, the student is still required to take all 7 credits of NREM PhD core classes. In the case where a student took some/all of these core credits as electives during their MS degree program, an equivalent number of 600-level credits (but not NREM 699) must be taken.

#### (2) Admission to PhD Without Finishing NREM MS

A currently enrolled NREM MS student can be admitted into NREM's PhD program prior to completing their MS degree if ALL of the following criteria are met:

- Unanimous approval by the student's MS committee
- Record of excellent academic achievement including, at a minimum:
  - Maintaining a GPA >3.5 in the MS NREM program
- The student has the proven ability to undertake independent research, which can be demonstrated by ALL of the following:
  - Authored/co-authored (student as 1st author) ≥ 1 presentation at a national or international professional conference
  - Authored/co-authored (student as 1st author) ≥ 1 peer reviewed journal article
  - Accrued ≥ 2 years of meaningful research experience at school, jobs etc.

#### (3) Admission to PhD From BS

A student with a BS degree can be admitted directly into NREM's PhD program if ALL of the following criteria are met:

- A faculty member agrees to advise the student and commits to at least 3 years of funding
- Record of excellent academic achievement including, at a minimum:
  - Undergraduate GPA >3.5
  - Average verbal, quantitative and written GRE scores >75th percentile
- The student has the proven ability to undertake independent research, which can be demonstrated by ALL of the following:
  - Authored/co-authored (student as 1st author) a minimum of 1 presentation at a national or international professional conference
  - Authored/co-authored (student as 1st author) a minimum of 1 peer reviewed journal article
  - Accrued at least 2 years of meaningful research experience at school, jobs, or internships

## Advising

Admitted students will check in with his or her advisor upon arriving on campus. An advisor has been identified for every student based on the student's stated interest and consent of the advisor. If you do not know who your advisor is, check with the NREM office staff or the graduate chair immediately. The primary responsibilities of the advisor during your first semester are to verify entrance and background deficiencies, prescribe remedial courses as early as possible in the student's program, and provide guidance in course selection. All of these items should be completed by the end of the student's first year. Submit Form I to the graduate chair upon fulfilling all deficiencies. If there are no deficiencies, Form I should be submitted at the beginning of the first semester.

## Degree Requirements

A "NREM graduate course" is defined as a NREM course at the 500-level or above. A maximum of six credits of upper-division (400-level) undergraduate course work can be used towards the "other than NREM graduate courses" degree requirement for MS Plan A, Plan C, and PhD students, or towards any of the concentration areas for MS Plan B students. For additional course applicability criteria, refer to: [manoa.hawaii.edu/graduate/content/course-applicability](http://manoa.hawaii.edu/graduate/content/course-applicability).

## MS in Natural Resource and Environmental Management

NREM offers three options for the MS degrees: Plan A is a thesis-driven research degree, and a student will be accepted into this plan if a faculty sponsor has agreed to advise the student; Plan B is a course driven, professional degree that also requires an integrating capstone experience; and Plan C is only for students with exceptional prior work experience that requires a minimum of two semesters of full-time resident study at UH Mānoa and a final written and oral comprehensive examination.

Once admitted, MS students must select a specialization (Plan A) or concentration (Plan B) area with the approval of their advisor. To meet the integrative, interdisciplinary intent of the NREM program, a set of graduate level courses (the Primary MS Core) will be required of every student, regardless of his or her selected Plan option or specialization/concentration area.

The course requirements for each plan are:

### Plan A

In addition to the Primary MS Core, a set of electives and thesis credits are required for a total of 30 credits. Electives provide background in research methods and depth in the student's area of specialization. The remaining credit requirements will be met with thesis credits (NREM 700) for conducting the research project. Once the thesis topic is finalized, a research proposal must be approved by the committee. An oral defense of the proposal in front of the thesis committee is also required for final approval of the thesis topic. A public thesis defense is also required, and an announcement with thesis abstract, defense date, and location must be sent to the graduate program chair, departmental secretary, and Graduate Division at least 2 weeks in advance.

### Primary MS Core (9 credits):

NREM 600 (3); 601 (3); 605 (2); 701 (1)

### Electives (15 credits):

Course in graduate research methods (3); NREM graduate courses (6); Other graduate courses for specialization from within or outside of NREM (6); a maximum of 6 credits of upper-division undergraduate course credits (400-level) allowed

### Thesis Option (6 credits):

NREM 700 Thesis (6)

### Plan B

Plan B is a course-driven professional degree that requires a total of 36 credits. Students are required to declare a concentration from one of four possible concentration areas (see below). Courses include the Primary MS Core (9 credits), research methods (3 credits), a minimum of 9 elective credits from the chosen concentration area, a minimum of 3 elective credits from each of the other three concentration areas, and a 6 credit capstone experience. Of the 18 elective credits required: (i) at least 12 credits must be NREM courses; and (ii) a maximum of 6 credits of upper-division undergraduate course credits (400-level) are allowed.

### Primary MS Core (9 credits):

Same as Plan A.

### Research Methods (3 credits):

course in graduate research methods (3).

### Concentration Areas (total 18 credits):

All students must select a concentration area from the following: Geospatial Analysis and Modeling, Natural Resources Economics and Environmental Planning, Land and Water Resource Management, and Applied Terrestrial Ecology. Students are required to take a minimum of 9 credits from their concentration area and 3 credits from each of the other areas. The list is not comprehensive, and substitutions will be considered via a written petition from the faculty advisor to the graduate committee.

#### Geospatial Analysis & Modeling

■ NREM 477, 664, 677, GEOG 470, 472, PLAN 673, GEOG/TPSS 680,

#### Environmental Policy and Economics

■ NREM 420, 611, 627, 637, 671, NREM/ECON/TPSS 429, GEOG 413, 621, 622, GEOG/PLAN 637, PLAN 620, 625, 628, 640, 671

#### Land & Water Resource Management

■ NREM 461, 463, 467, 612, 660, 662, 665, LWEV 588

#### Applied Terrestrial Ecology

■ NREM 450, 480, 680, 682, 685, NREM/BOT/ZOOL 690, TPSS 481, 604

### Capstone Experience (6 credits):

A capstone experience is required for all Plan B students. The capstone experience consists of: (i) NREM 695 (1 cr), to be taken when the student is preparing their proposal; and (ii) NREM 696 (3 cr) and NREM 699 (2 cr; register with faculty advisor), to be taken when the student has completed their capstone experience and is writing up their final document. All capstone experiences require approval from the Plan B Capstone Panel, which consists of the faculty advisor, the NREM 695 course instructor, and an at-large Panel member.

The Capstone Experience requirement may be fulfilled in a number of ways, based on each individual student's interests. In as much, it will vary from student to student, but typical

capstone experiences will involve: (i) an internship/coop/special field experience; (ii) an investigation of a special topic; and/or (iii) development of a project, directed readings/study, or a research project. Each student is expected to take the primary role in identifying and organizing their capstone experience. In meeting this requirement, it will be important for students to demonstrate that they are getting an “integrative” experience in natural resources and environmental management. Each student will be required to give a public proposal and defense presentation, and provide a written proposal and final document on their capstone experience, both of which will be evaluated by the Plan B Capstone Panel.

### Plan C

Students with exceptional prior work experience. Requirements include residence for two semesters of full-time study, a minimum of 18 graduate credit hours, and a final examination (written and oral). This option is only available to students who are mid-career professionals, having at least 5 years of relevant work experience in natural resources and environmental management.

#### Primary MS Core (9 credits):

Same as Plan A.

#### Electives (9 credits):

NREM graduate courses (with no more than 3 credits of NREM 699)

### PhD in Natural Resource and Environmental Management

The PhD degree in NREM is awarded only to students with outstanding scholarly achievement. Applicants for the PhD program with academic records that do not match NREM core requirements will be expected to incorporate these into their PhD program. To meet the integrative, multi-disciplinary intent of this program, a set of graduate level courses (Primary PhD Core) will be required of every student regardless of his or her selected specialization area. In addition, a set of electives will also be required. These electives are meant to provide background in research methods and depth in the student’s specialization area. The remaining degree requirements will be met by dissertation credits (NREM 800). All PhD students must pass a written and oral comprehensive examination (described below) before being advanced to candidacy. The student’s dissertation committee is responsible for designing and administering the comprehensive examination.

#### Primary PhD Core (7 credits)

- NREM 611 (3)
- NREM 612 (3)
- NREM 701 (1)

#### Electives (24 credits)

- Graduate research methods (6)
- NREM graduate courses (9)
- Other graduate courses for specialization from within or outside of NREM (9); a maximum of 6 credits of upper-division undergraduate course credits (400-level) allowed from within or outside of NREM

#### Dissertation (1 credit)

- NREM 800 (1)

### Comprehensive Examination

The final outcome of the comprehensive examination is the acceptance of the student to the PhD candidacy in NREM. Based on this examination, the student’s committee will determine if the student: (i) is ready, (ii) needs to take more courses to remediate deficiencies in her or his training, or (iii) that the student is not fit for the NREM PhD program. In the process of administering the examination, the committee will test the rigor of the student’s training as: (i) a scientist in general (that the student can follow the scientific method and procedure to address a research problem and also has the analytical skills to conduct research), (ii) a scientist in NREM (has in-depth knowledge of what makes her or him unique compared to other graduates of UH that might have similar interests; in other words, a NREM student focusing on hydrology should not only be trained to deal with a hydrology problem but also should be able to address the natural resources and environmental management implications of that problem as compared to a hydrology graduate from Civil and Environmental Engineering, Geology and Geophysics, or Geography), and (iii) a scientist in her or his specialty area (for example, a NREM PhD student with a specialty in hydrology should have more in-depth expertise in hydrology than other NREM PhD students working in other specialty areas).

Based on this understanding, the comprehensive examination questions can cover: (i) his or her specialty (i.e., hydrology, forest ecology and management), (ii) general topics related to NREM (i.e., core courses, background knowledge), (iii) knowledge of general research methods (i.e., statistics, analysis methods, etc.), and (iv) the proposed dissertation research.

## Plant and Environmental Protection Sciences

Gilmore 310  
3050 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-6737  
Fax: (808) 956-2428  
Email: peps@ctahr.hawaii.edu  
Web: www.ctahr.hawaii.edu/peps/

### Faculty

- \*M. G. Wright, PhD (Chair)—integrated pest management, tropical fruits and nuts, insect ecology, biological control
- \*A. M. Alvarez, PhD—bacterial diseases
- \*W. B. Borth PhD—plant virology, micoplasmas
- R. H. Ebesu, MS—extension education (Kaua’i Cooperative Extension Service)
- \*S. A. Ferreira, PhD—crop protection, extension education
- \*J. K. Grace, PhD—urban entomology, termite and social insect biology and control, insect behavior
- R. T. Hamasaki, MS—fruit and vegetable crops extension education (Hawai’i Cooperative Extension Service)
- \*A. H. Hara, PhD—horticultural entomology, post-harvest insect control, regulatory entomology (Komohana Agricultural Research Center, Hilo)
- \*J. Hu, PhD—virology
- \*M. Kawate, PhD—pesticide registration
- \*P. Krushelnycky, PhD—entomology, invasion biology

- \*R. H. Messing, PhD—insect ecology and biological control (Kaua'i Agricultural Research Center)
- \*S. C. Nelson, PhD—epidemiology, extension education
- \*D. Rubinoff, PhD—insect systematics and ecology, invasive species, conservation biology
- K. T. Sewake, MS—extension education (Hawai'i Cooperative Extension Service)
- R. Shimabuku, MS—vegetable crops production and disease management extension education (Maui Cooperative Extension Service)
- \*B. S. Sipes, PhD—nematology, alternative control methods
- \*H. Spafford, PhD—integrated pest management, biological control
- J. S. Sugano, MS—extensions education (O'ahu Cooperative Extension Service)
- M. Tian, PhD—molecular pathogen, host interactions
- \*J. Y. Uchida, PhD—fungal pathology, biological control of diseases, environmental impacts
- \*H. Valenzuela, PhD—sustainable, organic products
- \*E. Villalobos PhD—pollinator management, honeybee health
- \*K. H. Wang, PhD—nematology, ecological pest management
- \*J. R. Yates III, PhD—urban pest management, termite biology and control

### Cooperating Graduate Faculty

- L. Arita-Tsutsumi, PhD—insect behavior, honeybee ecology (UH Hilo)
- D. Borthakur, PhD—molecular biology
- K. Hayes, PhD—evolution and conservation biology
- B. Holland, PhD—EECB
- K. Y. Kaneshiro, PhD—systematics, evolution, insect behavior
- M. Shintaku, PhD—virology (UH Hilo)

### Affiliate Graduate Faculty

- R. Cabos, PhD—nematology (USDA-ARS, Hilo)
- R-S. Chen, PhD—plant pathology (National Chiayi U, Taiwan)
- N. Evenhuis, PhD—systematics of Diptera (Bishop Museum)
- P. A. Follett, PhD—commodity quarantine treatments, tropical tree fruit IPM (USDA-ARS, Hilo)
- D. Gonsalves, PhD—plant virology (USDA-ARS, Hilo)
- C. R. R. Hooks, PhD—entomology (University of Maryland at College Park)
- F. G. Howarth, PhD—systematics (HDOA, Honolulu)
- E. B. Jang, PhD—insect physiology, fruit fly control (USDA-ARS, Hilo)
- L. Keith, PhD—phytobacteriology (USDA-ARS, Hilo)
- N. J. Reimer, PhD—ant biology and control, biological control of weeds (HDOA, Honolulu)
- R. I. Vargas, PhD—ecology, mass-rearing techniques (USDA-ARS, Hilo)

**Degrees Offered:** BS in plant and environmental protection sciences, MS in entomology, MS in tropical plant pathology, PhD in entomology, PhD in tropical plant pathology

### The Academic Program

Agriculture, urban, and natural environments are severely affected by established and invasive plants, animals, arthropods, and disease-causing organisms. Management of these pests and pathogens is essential to preserve the economic and ecological future of Hawai'i and the Pacific Basin. Societal concerns about protecting our natural resources and the environment have resulted in a plant and resource protection focus stressing biological control, integrated pest management, cultural, traditional, and genetically based methods. Hawai'i's location in the Pacific basin provides students with an ideal setting for tropical and environmental studies. The unique island ecosystem also encompass many cropping niches from humid tropical environ-

ments to arid temperate conditions. In addition, the multitude of agricultural and landscape plants produced provides a natural laboratory to study a diversity of urban and agricultural inputs. The multicultural aspect of the human population further adds to the intriguing plant, human, and pest interactions that are a part of the PEPS academic and research program. Students are presented with great educational opportunities to understand plant and environmental protection and pest management. Students will be prepared for employment in agricultural and urban pest management, science education, government, industry, and environmental resource management. Undergraduate students will be well prepared for professional and graduate studies.

### Affiliations

Studies in Plant and Environmental Protection Sciences (PEPS) at UH Mānoa are strengthened by cooperative relationships with Ecology, Evolution, and Conservation Biology Program; Harold L. Lyons Arboretum; Hawai'i Agriculture Research Center; B. P. Bishop Museum; Agricultural Research Service of the U.S. Department of Agriculture; Animal and Plant Health Inspection Service of the U.S. Department of Agriculture; U.S. Geological Service; and Hawai'i Department of Agriculture.

### Advising

Students are assigned an academic advisor upon acceptance into the PEPS program. Undergraduates are required to consult with their advisor prior to registration each semester.

### Undergraduate Study

#### BS Degree

PEPS is a multidisciplinary science degree that promotes the understanding of complex agricultural and urban problems created in the global ecosystem. Students receive interdisciplinary exposure to entomology, plant pathology, weed science, and environmental science and can focus on one of these areas in their upper division studies. This holistic program is developed so each student has the opportunity to learn pest management, crop protection, biotechnological approaches, environmental regulations, toxicology, and rural and urban sociology as these relate to their focus areas.

The instructional program is structured to achieve the following student learning outcomes: (1) students will demonstrate growth in the ability to analyze and communicate an environmental issue; (2) students will recognize and be able to explain the biology of at least 10 insect orders; (3) students will recognize and be able to describe biology and management methods for at least five significant plant pathogens in each category: fungi, viruses, bacteria, nematodes; (4) students will be able to describe the biology and damage of at least five invasive insects, pathogens, or plants (weeds), and explain the limitations and implications of control strategies; (5) students will be able to explain and provide examples of economic injury level and threshold based pest management options; (6) students will demonstrate ability to apply skills learned to a real world situation or employment experience and effectively describe the experience; and (7) students will demonstrate the ability to clearly communicate the results of self analysis and critical thinking.

## Requirements (120 credit hours)

PEPS offers a flexible and individualized degree program that allows students to select among several different options to fulfill university core requirements. In accord with their own particular interests and in consultation with their advisor, students also choose from a variety of departmental courses and general electives. PEPS 499 (Directed Research) is a unique requirement that provides students with the opportunity to work individually with faculty members throughout their program.

Specific requirements are:

- CHEM 161/161L, 162/162L
- BIOL 171/171L or BOT 101/101L or ZOOL 101/101L
- NREM 310 or FAMR 380/380L
- PEPS 210 or 250
- PEPS 363/363L, 405, 481 and 495; 2 courses numbered from 200 to 391; 6 credits of 499; and 9 credit hours of courses numbered from 400 to 491.
- 29 credit hours of approved electives based upon students' academic interests.
- Additional credit hours as necessary to meet UH Mānoa General Education Core and graduation requirements.
- Hawaiian/Second Language Requirement: Undergraduate students in PEPS, in consultation with their undergraduate advisor, will be asked to select one of the following three options:
  - Option 1: Show proficiency in a Hawaiian/Second Language at the 202 level;
  - Option 2: Show proficiency in a Hawaiian/Second Language at the 102 level, and take one additional 3-credit semester course in the Social Sciences and one additional 3 or 4-credit semester course in Natural Sciences;
  - Option 3: Take two additional 3-credit semester courses in Social Sciences and two additional 3 or 4-credit semester courses in Natural Sciences. One of the courses in the Natural Sciences must include a laboratory.

Prospective majors should consult with the department to design an appropriate curriculum tailored to their interests.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

## Graduate Study

### Entomology

MS and PhD degrees are offered in the entomology program. Courses are offered in biological control of insect and weed pests, insect ecology, insect physiology, insect transmission of plant pathogens, pest management, systematics, urban entomology, and tropical pest management. Thesis and dissertation research can be selected from any of these subject areas.

Students applying for graduate programs in entomology are expected to have acquired a bachelor's degree with credit hours in entomology and biology, including general biology, general entomology, integrated pest management; one year of chemistry; and an appropriate course in mathematics and/or statistics. Deficiencies in undergraduate preparation can be satisfied during the graduate program. The statement of objectives submitted with your application should describe your goals and interests in entomology. Applicants should also arrange to have three confidential letters of reference sent directly to the graduate program chair.

The MS and PhD degrees in entomology are recognized by the Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

### Master's Degree

The MS degree program is offered under either Plan A (thesis) or Plan B (non-thesis). A total of 30 credit hours are required for each degree option. An advisory committee composed of at least three members of the graduate faculty provides guidance to the student. For a general description of these options, see "Requirements" for each option.

The program provides an education in general knowledge of entomology, including basic principles of insect identification, biology, and control and prepares the student for employment in private industry, government agencies, and research institutions. Expected student learning outcomes are: (1) acquire and demonstrate competency/skills as a biologist; (2) acquire and demonstrate entomological knowledge necessary for professional success; (3) acquire and demonstrate communication and literacy skills; (4) write and defend a thesis of entomological research; and (5) present findings of their research in oral and/or poster formats in scientific form and publish the results of their research in peer-reviewed journals. Students shall develop into competent and knowledgeable biologists. They demonstrate this competency by having a basic understanding of entomology, insect ecology, phylogeny, and pest management.

#### MS Plan A (Thesis)

- 16 credit hours of course work including seminars
- 2 credit hours of PEPS 690
- 12 credit hours of PEPS 700
- 2 credit hours of PEPS 799
- Final oral defense and submission of acceptable thesis

#### MS Plan B (Non-thesis)

Students preparing for a career in research or admission to a doctoral program are advised to enroll in MS Plan A (thesis).

- 23 credit hours of course work including seminars
- 2 credit hours of PEPS 690
- 1 credit hour of PEPS 799 (CR/NC) during the semester in which a proposal for the directed research project is given.
- Final defense of the directed research project and examination on other aspects of entomological training before the advisory committee.

### Doctoral Degree

Intended candidates for the PhD program should have earned the MS degree in entomology or equivalent from a recognized institution. Those with a BS or BA may petition for admittance into the PhD program only after enrolling in the MS program.

The goal of the PhD program is to have students possess broad general knowledge in all areas of entomology, in-depth knowledge in at least one area of specialization and develop the capability for original independent research. Employment options for PhD graduates are in teaching, research, and extension at universities and in research, consulting, or management with private industries and government agencies. Expected student learning outcomes are: (1) acquire and demonstrate compe-

tency/skills as a biologist; (2) acquire and demonstrate entomological knowledge necessary for professional success; (3) acquire and demonstrate communication and literacy skills; and (4) demonstrate the ability to apply creative and critical thinking in the independent development and conduct of research.

### Requirements

- 3 credit hours of PEPS 690
- 2 credit hours of PEPS 799 (CR/NC)
- 1 credit hour of PEPS 800 during semester of graduation
- Additional course work as determined by the doctoral advisory committee
- Oral, or oral and written comprehensive examination administered by the doctoral committee.
- Final oral defense of the dissertation research and submission of an acceptable dissertation.

### Tropical Plant Pathology

Plant pathology is the study of plant diseases, their causes, and the interactions with the environment. The primary thrust in the program focuses on agricultural crops of economic importance; however, opportunities exist for discovery research in natural ecosystems and the laboratory. The field consists of several sub-disciplines including phytopathology, plant virology, bacteriology, nematology, epidemiology, crop protection, and molecular biology of host-pathogen interactions.

Tropical plant pathology has three student learning outcomes. Students in the program will communicate effectively; write and defend a thesis of original phytopathological research; present findings of their research in oral and/or poster formats in scientific forums; publish the results of their research in peer-reviewed journals; and assist others in learning plant pathology. Students are competent and knowledgeable biologists. They demonstrate this competency by having a basic understanding of molecular biology and genetics; with a general knowledge of the four major pathogen groups, by possessing understanding of plant disease epidemiology; having strong knowledge of their specialized field of study; and conducting research in plant pathology. Students will propose and formulate research objectives to address relevant plant pathological questions; and will conduct research using appropriate design and methods.

Students should have their undergraduate preparation in botany, horticulture, agronomy, microbiology, or plant and environmental protection sciences. Plant pathology has its foundation in biology and agriculture and offers wide opportunities in both basic and applied areas of biology, plant sciences, and agriculture. The tropical plant pathology program at UH Mānoa offers students a unique opportunity to gain knowledge of plant diseases on a vast diversity of tropical crops and native plants as well as the impacts of plant protection practices on the environment.

Please see the Graduate Education website for general graduate admissions requirements and procedures. Applications for admission must include GRE scores for verbal and quantitative aptitude. Candidates may need to demonstrate evidence of adequate preparation in other subject areas as well. Deficiencies may be corrected during the graduate program. In addition, applicants must: (1) submit a Statement of Objectives describing their goals and interests in plant pathology directly to the graduate program chair, and (2) arrange to have three confi-

dential letters of reference sent directly to the graduate program chair.

### Master's Degree

The MS degree program is offered under either Plan A (thesis) or Plan B (non-thesis). A total of 30 credit hours are required for each degree option. An advisory committee composed of at least three members of the graduate faculty provides guidance to the student. For a general description of these options, see "Requirements" for each option.

The MS degree in tropical plant pathology provides a basic education and understanding of the pathogen groupings. Employment opportunities exist in industry, government agencies, research institutions, consulting, and farm management.

#### MS Plan A (Thesis)

- Research: 12 credits in PEPS 700 and submission of acceptable thesis.
- Courses: 16 credits in courses approved by the candidate's committee, including 10 credits in courses numbered 600-698, excluding 660 and 699, including at least 6 credits selected from 616, 630, 646.
- Seminars: Minimum of 2 credits in 660, which is required each semester except when enrolled in 799; 2 credits in 799 (CR/NC). CR/NC credits are not counted towards degree credit requirements.

#### MS Plan B (Non-thesis)

- Research: 6-9 credits in PEPS 699, preferably taken in 2-3 different laboratories.
- Courses: 19-22 credits in courses approved by the candidate's committee, including 16 credits in courses numbered 600-698, excluding 660 and 699, including at least 6 credits selected from 616, 630, 646.
- Seminars: Minimum of 2 credits in 660, which is required each semester except when enrolled in 799; 1 credit in 799 (CR/NC). CR/NC credits are not counted towards degree credit requirements.

### Doctoral Degree

Intended candidates for the PhD program should have earned the MS degree in plant pathology or equivalent from a recognized institution. Those with a BS or BA may petition for admittance into the PhD program only after enrolling in the MS program.

Employment options for PhD graduates are in teaching, research, and extension at universities and in research, consulting or management with private industries and government agencies.

### Requirements

- No minimum course requirement. A candidate's committee develops a course plan together with the student.
- 1 credit hour of PEPS 660 each semester, except when enrolled in 799.
- 2 credit hours of 799 (CR/NC).
- Comprehensive and final defense examinations.
- 1 credit hour of 800 during semester of graduation.
- Submission of acceptable dissertation.

# Tropical Plant and Soil Sciences

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Tel: (808) 956-8351  
Fax: (808) 956-3894  
Email: tpss@ctahr.hawaii.edu  
Web: www.manoa.hawaii.edu/ctahr/tpss/

## Faculty

\*R. S. Yost, PhD (TPSS Chair)—soil-plant relations, soil management, geospatial analysis  
\*A. M. Wieczorek, PhD (Graduate Chair)—molecular ecology, population genetics, biotechnology  
\*T. D. Amore, PhD—floriculture breeding  
H. C. Bittenbender, PhD—coffee, kava and cacao physiology and management  
\*J. L. Brewbaker, PhD—plant breeding, biochemical genetics  
\*K. T. Cheah, PhD—tissue culture, ornamental horticulture, business management  
\*R. A. Criley, PhD—floriculture, flowering physiology, plant propagation (Emeritus)  
\*J. Deenik, PhD—soil fertility, soil management (Emeritus)  
\*J. DeFrank, PhD—weed science  
\*M. Habte, PhD—soil microbiology-biochemistry  
\*N. V. Hue, PhD—soil chemistry  
\*A. Kaufman, MLA, PhD—landscape systems, design and management, environmental psychology  
\*H. J. Kim, PhD—floriculture, ornamental production  
\*K. D. Kobayashi, PhD—floriculture and fruit physiology, computer modeling  
B. A. Kratky, PhD—vegetable physiology and management (Emeritus)  
\*K. L. Leonhardt, PhD—floriculture  
\*R. M. Manshardt, PhD—tropical fruit breeding and genetics  
\*S. C. Miyasaka, PhD—alternative crops, plant nutrition  
M. A. Nagao, PhD—development physiology, growth regulation (Emeritus)  
\*M. Nickum, PhD—sustainable fruit and nut production  
\*R. Ogoshi, PhD—biofuels  
\*R. E. Paull, PhD—plant growth & development, postharvest handling  
\*T. Radovich, PhD—vegetables, sustainable farming  
Y. Sagawa, PhD—developmental morphology, cytogenetics, tissue culture (Emeritus)  
\*A. A. Saulo, PhD—food technology extension, food safety and quality  
\*B. Turano, PhD—biofuels

## Cooperating Graduate Faculty

D. Borthakur, PhD—plant-microbe interactions, plant biotechnology  
C. I. Evensen, PhD—water quality extension, environmental education  
A. El-Kadi, PhD—hydrology  
J. Leary, PhD—invasive weed management  
W. S. Sakai, PhD—ultrastructure, physiological plant anatomy  
M. J. Tanabe, PhD—in vitro propagation, turf management, plant propagation

## Affiliate Graduate Faculty

M. Austin, PhD—crop breeding, hybrid seed production  
M. M. Fitch, PhD—tissue culture, genetic engineering  
M. C. Jackson, PhD—biochemistry, economics  
T. Matsumoto, PhD—horticulture

J. J. McHugh, PhD—vegetable management, integrated pest management  
P. Moore, PhD—plant development, sugar metabolism  
C. N. Nagai, PhD—sugar cane genetics and tissue culture  
D. Ragone, PhD—ethnobotany, conservation  
C. Stiles, PhD—soil science  
F. Zee, PhD—plant breeding, genetics

**Degrees Offered:** BS, MS, and PhD in tropical plant and soil sciences, minor in plant production and management, agribusiness certificate

## Program Goals

Upon graduation, students will be able to:

- Integrate discipline- and thematic-specific knowledge of basic and applied plant and soil sciences for its analysis, evaluation and application in the improvement, management, and production of managed and natural ecosystems.
- Demonstrate an awareness of practices that minimize damage to the environment and ensure a safe food supply.
- Perform competitively in the diverse professions available to them and to take advantage of the opportunities afforded by changing situations.

## The Academic Program

The Tropical Plant and Soil Sciences (TPSS) program at UH Mānoa is unique. Students have an opportunity to take courses in tropical flower, fruit, and vegetable crop production, turf and landscape management, plant physiology, breeding and genetics, and soil science. They learn about the full spectrum of subjects and activities required to understand and responsibly manage land, water, crops, and their environments for the benefit of humankind. In addition, they learn about the adaptation and application of new technologies, such as molecular biotechnology, computer-based systems, and the internet, to enhance plant production systems, assure a safe food supply, and protect the environment.

Our students come from many backgrounds including those with little practical environmental or agricultural experience. They have in common a keen interest in applying science for the purpose of finding practical solutions to problems. Mature students are especially welcome. A host of career prospects await our students. The comprehensive undergraduate program affords students the opportunity to study molecules to whole plants to managed agro-ecosystems. Students majoring in TPSS prepare for careers including plant production and management, plant breeding and genetics, services, marketing, extension, research, and teaching. UH Mānoa students trained in tropical plant and soil sciences have embarked on successful careers in international organizations and governmental agencies, in ecological and environmental protection, in agricultural extension as individual entrepreneurs and teachers at all levels, in farming, in golf course/sports field management, park administration, landscape contracting, and as middle and upper management in corporate agriculture. They work in increasing the food supply, improving food quality, and assuring food safety while protecting the environment and improving the quality of life. Undergraduates are encouraged to obtain practical experience, which involves research under the direction of a faculty member and work in a commercial industry via our internship program. Students have found satisfaction in applying their course work and research studies to challenging

problems in business, environmental protection, land-use, and agricultural crop production.

### Advising

Tropical Plant and Soil Sciences  
St. John Hall Room 102  
3190 Maile Way  
Honolulu, HI 96822-2279  
Tel: (808) 956-8351  
Fax: (808) 956-3894  
Email: leonhard@hawaii.edu

Students are advised by the department's undergraduate advisor: Dr. Ken Leonhardt. Undergraduate options are detailed in the following section. Each student may identify a faculty member to act as a mentor in the student's area of interest and specialization. All students in TPSS must receive approval of their program of courses from their advisors prior to registration each semester.

Graduate students are advised initially by an advisor or by the department's graduate program chairman.

### Undergraduate Study

The program offers a BS degree in tropical plant and soil sciences with specializations in: (1) plant physiology and genetics, (2) plant production and management, (3) environmental soil science, and (4) landscape horticulture. A student is required to complete 128 credits to graduate with a BS in TPSS.

### Requirements

Students must complete the General Education Requirements (Core) of UH Mānoa. An updated list of the courses recommended to satisfy the UH Mānoa General Education Requirement is available from the undergraduate advisor. The UH's Hawaiian/Second Language graduation requirement can be met by language and certain natural science courses.

The College has a core consisting of the following courses:

- NREM 310 or FAMR 380/380L
- TPSS 492

### Option in Plant Physiology and Genetics

The option crosses the traditional boundaries that have separated genetics, plant physiology, molecular biology, and traditional crop production areas. The option links laboratory approaches and plant production systems through the application of plant biotechnology to solve multi-disciplinary problems. Students can select courses that allow concentration on genetic engineering to address real-world problems or to whole plant physiology and plant breeding.

Students selecting this option must take MATH 140 or NREM 203, BOT 101/101L, and CHEM 161/161L, 162/162L will fulfill the Natural Science requirement of the UH Mānoa General Education Requirement.

### Major Courses (Option in Plant Physiology and Genetics)

Take the following 2 courses:

- TPSS 200
- TPSS 351

Take a minimum of 12 credits from the following courses:

- TPSS 371
- TPSS 440
- TPSS 453
- TPSS 470

- BIOL 340
- MBBE 304
- MBBE 401

Additional supporting courses are available on the Bachelor Degree Program Sheet. For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Electives (variable number of elective credits)

While students may choose from the array of courses offered at UH Mānoa, an advising list of courses will be available to assist students in selecting courses that prepare students for a career in plant sciences and genetics.

The advising list includes courses in botany, chemistry, biology, physics, geography, business, history, and philosophy. Undergraduate advisors will assist students considering enrollment in graduate school in the selection of appropriate courses.

### Option in Plant Production and Management

This option prepares students to produce, manage, and market plants grown as crops or in landscapes. The aim is to enable graduates to perform competitively in their chosen profession and to have a sufficiently broad educational background to take advantage of the opportunities afforded by changing situations.

Students selecting this option need to take MATH 140 or NREM 203, BOT 101/101L, and CHEM 161/161L and 162/162L to fulfill the Natural Science requirement of the UH Mānoa core.

### Major Courses (Option in Plant Production and Management)

Take all 10 of these courses

- TPSS 200
- TPSS 300
- TPSS/NREM 304
- TPSS 351
- TPSS 364
- TPSS 420
- TPSS/PEPS 481
- PEPS 363
- PEPS 363L
- PEPS 405

The student must take 4 courses from a list of over 30 choices.

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Elective Courses (variable number of elective credits and other courses approved by the undergraduate advisor)

While students may choose from the array of courses offered at UH Mānoa, an advising list of courses will be available to assist students in selecting courses that prepare students for a career in horticultural crop production and management.

The advising list includes courses in botany, chemistry, biology, physics, geography, business, and courses in other departments; PEPS, MBBE, NREM, and HWST. Undergraduate advisors will assist students considering enrollment in graduate school in the selection of appropriate courses.

### Option in Environmental Soil Science

The environmental soil science option will prepare students to effectively manage soil for the production of agricultural

commodities and preserve this important natural resource for the benefit of man and the protection of the environment.

Students selecting this option need to take BOT 101/101L or BIOL 172, CHEM 161/161L and 162/162L (or their equivalent), PHYS 151, and Calculus I (MATH 215). Some of these courses will fulfill part of the Natural Science requirement of the UH Mānoa General Education Requirement. These courses are considered prerequisite to some courses in the major.

### Major Courses (Option in Environmental Soil Science)

The following courses need to be taken for this major.

- TPSS 200
- TPSS 300
- TPSS/NREM 304
- TPSS 351
- TPSS 435
- TPSS 450
- NREM 301

### Electives

The student must take 12 credits from following electives for this option:

- TPSS 460
- TPSS 463
- TPSS 499
- GEOG 101/101L
- ICS 101/ 101L
- MET 101
- NREM 461
- MICR 485

For information on a Bachelor Degree Program Sheet, go to [www.manoa.hawaii.edu/ovcaa/programsheets/](http://www.manoa.hawaii.edu/ovcaa/programsheets/).

### Option in Landscape Horticulture

The Department of Tropical Plant and Soil Science's Landscape Horticulture Option prepares students for exciting and diverse careers in the landscape industry. UH Mānoa is centered within the Pacific rim, and is the only U.S. landscape program for sub-tropical and tropical environments, making studying at UH Mānoa a unique experience.

The landscape horticulture option will prepare students to effectively design, install, and maintain landscapes that include trees, shrubs, flowers, house plants, and turf grass that are used to enhance the environment. Students of the program learn theoretical foundations, which lead to a practical understanding and implementation of how to produce environmentally and economically sustainable landscapes.

The landscape industry in Hawai'i is a multi-million dollar business incorporating landscape nurseries, landscape architects, landscape contractors, arborists, and landscape maintenance, and interior landscape companies. Hawai'i has lush resorts, parks, recreation and athletic fields, world-class golf courses, master planned residential communities, and a variety of commercial projects, which offer TPSS students excellent opportunities to choose from upon graduation.

Students selecting this option need to take MATH 140 or NREM 203, BOT 101/101L (or their equivalent) and CHEM 161/161L and CHEM 162/162L (or their equivalent) to fulfill the natural science requirement of the UH Mānoa Core. These are considered prerequisite to some upper division courses in the major.

### Major Requirements (Option in Landscape Horticulture)

The following courses need to be taken for this major:

- TPSS 200
- TPSS 304
- TPSS 351
- TPSS 463
- TPSS 481
- PEPS 363/363L
- PEPS 405

### Electives

The student must take 7 courses from a list of over 30 choices.

### Certificate in Agribusiness Management

This certificate fulfills business and management needs for undergraduate students in the technical fields of agriculture and for business/economics students who want to concentrate in agriculture. Faculty from four departments within the college coordinate and manage the program. The certificate is open to undergraduate majors in any CTAHR program, economics and business. NREM 220 or ECON 130 are prerequisites for the program.

The certificate program consists of courses concentrating on the applications of business, management, and economic principles to agribusinesses with particular emphasis on the factors that differentiate agriculture and related products and services from other businesses. The certificate program includes four core agribusiness courses:

### Core Courses (12 credits)

- TPSS 322 or BUS 312
- TPSS 341
- TPSS 351
- TPSS 429

### Academic Minor in Plant Production and Management

A minimum of 15 credits of upper division level courses must be completed with a grade of C (not C-) or higher for each course. Transfer credits toward the minor will be accepted if an appropriate UH Mānoa course is determined to be equivalent, and if the grade is C (not C-) or higher. Required courses are TPSS 200, 300, and 364. Several optional courses can be selected. See the TPSS academic advisor for details (Dr. Ken Leonhardt, email: [leonhardt@hawaii.edu](mailto:leonhardt@hawaii.edu)).

## Graduate Study

### Tropical Plant and Soil Sciences

In order to solve the complex problems facing agricultural plant production systems, many disciplines must be integrated successfully. Candidates may specialize in genetics and breeding of tropical fruits, vegetables, or ornamentals; physiology, culture, and management of tropical fruits, vegetables, or ornamentals; morphogenesis; crop and stress physiology; post-harvest physiology; growth regulation; plant biochemical genetics; plant cytogenetics; weed science; computer modeling; or turf and landscape management, cropping systems, plant-soil relationships, soil chemistry, soil physics, soil management, soil and water conservation, soil fertility, and soil microbiology. Courses offered in botany, biochemistry, plant pathology, food science, genetics, microbiology, and zoology, combined with courses offered in TPSS, will provide considerable flexibility

in the development of a program suited to a student's career objectives.

The department offers graduate study leading to MS (Plan A, Plan B, and Plan C) and PhD degrees. The TPSS graduate program offers a degree in TPSS and an option in TPSS (horticulture). The degrees emphasize the development of problem-solving skills that integrate molecular, biochemical, physiological, chemical, genetic, and ecological approaches to collaborative research in plant and soil sciences.

The TPSS degree aims to provide the student with a thorough hands-on understanding of the principles and techniques in the adaptation and application of biotechnology to tropical crop plant production, and the role of soils in supporting the whole system of crop production systems. The option requires understanding of fundamental biological processes, molecular and organism biology, genetics, plant physiology, chemistry, physics, and microbiology. Soil is studied both for intrinsic properties, as well as its role in supporting crop growth and as an environmental resource.

The horticulture option explores the many facets of tropical food and ornamental crop production and requires the understanding of agricultural systems, plant production, soil fertility, and protection of the environment, as well as supporting disciplines such as crop ecology, plant physiology, and molecular biology.

The MS and PhD in TPSS are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

### Entrance Requirements

For admission to the TPSS graduate programs, applicants must present a bachelor's degree with a GPA of 3.0 (4.0 equals A scale) or the equivalent in the last four semesters or approximately 60 semester credits of the applicant's undergraduate record. The GRE is required for all applicants. A minimum CBT TOEFL score of 173 is required of all foreign students. All applicants must submit 2 letters of recommendation at the time of application.

### Transfer of Credits

The transfer of credits to meet the requirements of the MS or PhD is not automatic. The student must petition the graduate program chairman, certifying that the transfers make programmatic sense and that the courses to be transferred are equivalent in rigor and scholastic content to graduate-level (600 level) courses offered at UH Mānoa. The graduate program chairman may consult with the graduate faculty as to the certification. The maximum number of credits that can be transferred is 12.

Only those credits that have not been applied towards the fulfillment of a previous degree may be transferred. An exception may be made if the subject matter area could not be met by course offering at UH Mānoa, provided the courses transferred meet the rigor and programmatic appropriateness criteria described above.

### Graduate Committee

Upon entering the graduate program, students will meet with their advisor. If a faculty advisor has not been selected, the

graduate chairman or his representative will perform this function. The selection of an advisor must be made before the end of the first semester in residence. The advisor, with the approval of the graduate chairman, shall guide the student on course selection matters, insure progression in the program, and advise the student until the permanent graduate program committee is established.

Students shall meet their permanent graduate program committee at least once each semester to access academic and research progress and to establish goals for the next semester. It is the student's responsibility to schedule this meeting and to file the Academic Progress Report with the graduate chairman.

### Master of Science Degree , Plan A (thesis) and B (without thesis)

The intended study of the MS Plan A program is to further a student's graduate studies leading to the PhD degree or successful entry to careers as researchers and technicians. Graduates of the MS Plan B program typically enter careers in education, agribusiness, extension service, and other agricultural related occupations.

### Requirements

**Master of Science Plan A:** Students must complete a minimum of 24 credits hours of course work and 6 credit hours of thesis preparation. A final oral examination is also required.

**Master of Science Plan B:** Students must complete a minimum of 30 credits as follows: at least 6 credits in TPSS 600+; 6 credits in TPSS/CTAHR/Botany 600+ (see graduate chair for list of allowed courses), 6 credits in other 600+; 6 credits of 699; 6 credits in other 400/600 level classes

**Proposal defense:** Master of Science Plan A students are required to give a thesis proposal seminar, preferably in the second semester.

**Seminar:** All students must take TPSS 654 (Communications in Science) during their graduate study and register for TPSS 667 (Graduate Seminar) once every academic year in which they are registered as full-time student or equivalent. An exception can be made during the final semester, in which the dissertation defense or Plan B project report is given in place of TPSS 667.

**Lecture Requirement:** All MS students are required to give one lecture in a TPSS course during their program. The student will be evaluated by the faculty teaching the course, and this evaluation will be added to the student's file.

**Master of Science-Thesis Plan A:** See graduate chair on thesis preparation. Upon development of a thesis proposal in conjunction with your advisor and the selection of graduate committee, the student will advanced to candidacy. The thesis topic must be submitted and approved by your graduate committee prior to mid-term of the semester after you have been advanced to candidacy. You may register for TPSS 700 only after your thesis topic has been approved by your committee.

**Final Examination-Master of Science Plan A:** A final oral examination on course of study and project is required. The first part of the examination consists of a seminar presentation and defense of the research, which is open to the public and is one hour in length. Following the presentation, student will be examined in detailed on the conduct and results of the thesis by the committee.

**Final Examination-Master of Science Plan B:** A final oral examination on the thesis is required. The examination consists

of a seminar presentation which is open to the public and is one hour in length. The seminar will be presented on a topic agreed upon by the student and their advisor/committee chair. Topics presented included the research conducted under the advisor's direction in TPSS 699.

### **Master of Science Degree Plan C**

The Graduate Division and TPSS in CTAHR allow for a Plan C Masters degree. See the graduate chair for more information.

### **Doctor of Philosophy Degree**

PhD graduates are expected to enter careers as researchers and/or educators in institutions of higher learning, both in public and private institutions. The PhD is awarded only for original scholarly achievement. The dissertation, which is a significant original contribution to basic knowledge in the candidate's field is required. Only students with above average academic records in pre-doctoral programs will be accepted in the program.

#### **Requirements**

For all PhD students, a minimum of 12 credit hours in courses numbered 400 or above is required for the major, not including seminar, directed research, thesis/dissertation research. Course requirements are established by the student's Graduate Committee.

**Proposal defense:** PhD students are required to give a thesis proposal seminar within the first year of their program.

**Seminar:** Candidates must register for TPSS 667 (Graduate Seminar) once every academic year in which they are registered as full-time or equivalent. An exception is made in the final semester in which the dissertation defense can be substituted for seminar. All students must take TPSS 654 (Communications in the Sciences) or its equivalent during their first year as a substitute for one semester of TPSS 667.

**Lecture Requirement:** All PhD students are required to give three lectures in TPSS courses during the course of their program. The student will be evaluated by the faculty member teaching the course, and this evaluation will be added to the student's file.

**Comprehensive Examination:** An oral or oral and written comprehensive examination is conducted by your graduate committee for all PhD candidates. This examination may cover any subject thought pertinent by your committee members. The comprehensive examination may be repeated once at the option of your committee. If the student fails to pass the exam the second time, the student will be dropped from the program.

**Dissertation:** The PhD is awarded only for original scholarly achievement. The dissertation, which is a significant original contribution to basic knowledge in the candidate's field is required. For further information, see the graduate chair. The dissertation proposal must be submitted and approved by your graduate committee during the semester following completion of the qualifying examination. You may register for TPSS 800 (Dissertation Research) only after approval of your dissertation proposal.

**Final examination:** A final oral examination on student's dissertation is required. The first part of the examination consists of a seminar presentation and defense of your research, which is open to the public and is one hour in length. Following the open seminar presentation, there will be more thorough examination of the research and results of the dissertation by the members of your committee and any other members of the graduate faculty who wish to attend.

# Courses



This listing describes the large range of courses available. Please note that this list of courses changes due to the dynamic nature of academic disciplines.

Each semester, the courses available are listed in the *Registration Guide* (formerly *Schedule of Classes*) and online at [www.hawaii.edu/myuh/manoa/](http://www.hawaii.edu/myuh/manoa/). Summer classes are listed in the *Summer Session Catalog/MyUH Portal*.

The course headings are abbreviated and include a two- to four-letter department code, course number (including alpha suffix, if applicable), title, level, credits, description, repeatability, major restrictions, grade option, prerequisites, co-requisites, frequency, cross-listings, and core designation. For further clarification, please refer to the sample course description.

## Sample Course Description

**ABCD 123 Introduction to Courses (3) (2 Lec, 1 3-hr Lab)** This sample describes an introductory course. Open to nonmajors if space available. Repeatable one time. CR/NC only. Pre: 122, HIST 101 and COMG 188 (or concurrent); or consent. Co-requisite: 123L. (Cross-listed as DCBA 123) **DA**

**Course number** (ie. **123**) reflects course level (see “Course Numbering System” below). An “A” following the number designates a Selected Studies (honors) section. An “L” following the number designates a laboratory course that is companion to a lecture course bearing the same number. All other suffixes (“B–K,” “M–U,” and “W–Z”) mark separate sections of an “Alpha” course, each having a distinctive content that a student may earn credit toward the degree for each section taken.

**Course titles** will be entered exactly as they appear on UHM forms, so it is important to use appropriate punctuation and capitalization. Diacritical and other punctuation marks that are not included on a keyboard are not available in the online *Catalog*. Two or more courses within the same subject should not share the same title. An exception is for honors courses and their non-honors counterparts. The word “online” should not be included in a course title to indicate that the course is offered via the internet.

**Roman numerals (I, II)** indicate the level of a course in a sequence, e.g., Calculus II is a more advanced course following an introductory-level course.

**Credit hours** (ie. **(3)**) are shown in parentheses following the course title. Variable credit courses are designated “(V).” Some classes break down the time spent in lecture and laboratory. (e.g., 2 Lec, 1 3-hr Lab)

**Description** includes class size/format (e.g., lecture, discussion, seminar, lab, workshop, studio) and major subjects covered. Other features may include learning experiences (e.g., term papers, guest lecturers).

**Repeatable how many times** indicates that a course may be taken again for additional credit toward a degree.

**Grade option A-F only** indicates that the course is offered only for grade. **CR/NC only** indicates that the course is offered only for credit (CR) or no credit (NC). Credit is given if a student achieves a passing grade. **Satisfactory only** indicates

whether the course is satisfactory or unsatisfactory. **No Grading (NG)** is for graduate courses only.

**Pre:** indicates the **prerequisites necessary** to register for a course, which may include courses, general education designation, class standing, consent of the instructor or instructor approval (consent), or departmental approval. Some prerequisites may be taken concurrently. When a department has a prerequisite common to a large group of courses, that fact is noted in italics preceding these course listings as a blanket statement.

**Co-requisite** indicates that the course must be taken in conjunction with another course.

**Frequency of course** will determine how often the course is offered. **(Fall only)** means that the course is offered only in the fall, **(Spring only)** means the course is offered only in the spring. **(Alt. years)** means that the course is offered only every other year.

**Cross-listed courses** (Cross-listed as ABCD 123) indicates that the course fulfills a requirement in more than one department and specifies the alternate departmental course listing.

**Non-Introductory (NI)** courses are 200-level with an explicitly stated course prerequisite, or 300-level or higher.

**Upper Division Courses** Junior- and senior-level courses, numbered 300–499, which generally have prerequisites.

**General Education designation** (e.g., **DA**) indicates that the course meets a General Education Core requirement. See the key in the right column for designations. Courses that meet the Focus requirement are not designated in the *Catalog*. Focus-designations are in the *Registration Guide*.

## Course Numbering System

### Undergraduate Courses (1–499)

- 1–99 Courses not applicable for credit toward a bachelor’s degree
- 100–199 Initial or introductory courses
- 200–299 Second-year courses in a sequence or development in a field of study.
- 300–499 Third- and fourth-year courses in a sequence of courses or first courses in professional curricula. May be accepted by Graduate Division to fulfill graduate degree requirements (petition may be required). Courses numbered 300 or above are upper division and count toward the 45 upper division credit requirement.

### Post-Baccalaureate Courses (500–800)

- 500 Directed Study (master’s Plan B)
- 500–599 Courses applicable toward first professional degrees (architecture, law, and medicine) and in-service training programs in education
- 600–699 Graduate courses
- 700 Thesis Research (master’s Plan A)
- 700–799 Advanced graduate courses
- 800 Dissertation Research

**Special Numbers:** Courses ending in -99 are directed research or directed study. Experimental courses ending in -97 or -98 and single course offerings are **not** listed in the *Catalog*.

## Departments Offering Diversification Courses

Arts - DA	Humanities - DH	Literatures - DL	Social Sciences - DS
<p>Academy for Creative Media (ACM) (1) p. 366</p> <p>Architecture (ARCH) (6) p. 375</p> <p>Art &amp; Art History (ART) (70)* p. 377</p> <p>Asian Studies (ASAN) (1) p. 380</p> <p>Communication (COM) (1) p. 395</p> <p>Communicology (COMG) (4)* p. 397</p> <p>Dance (DNCE) (58)* p. 400</p> <p>English (ENG) (6) p. 412</p> <p>Fashion Design &amp; Merchandising (FDM) (2) p. 417</p> <p>Hawaiian (HAW) (1) p. 427</p> <p>Hawaiian Studies (HWST) (1) p. 429</p> <p>Honors (HON) (4) p. 434</p> <p>Kinesiology &amp; Rehabilitation Science (KRS) (5)* p. 444</p> <p>Music (MUS) (18)* p. 467</p> <p>Theater (THEA) (51)* p. 503</p> <p>Tropical Plant and Soil Sciences (TPSS) (2) p. 509</p>	<p>Academy for Creative Media (ACM) (2) p. 366</p> <p>American Studies (AMST) (49)* p. 368</p> <p>Anthropology (ANTH) (20)* p. 372</p> <p>Architecture (ARCH) (6)* p. 375</p> <p>Art &amp; Art History (ART) (33)* p. 377</p> <p>Asian Studies (ASAN) (15)* p. 380</p> <p>Chinese (CHN) (5) p. 391</p> <p>Dance (DNCE) (2) p. 400</p> <p>East Asian Languages &amp; Literatures (EALL) (6)* p. 403</p> <p>Economics (ECON) (1) p. 404</p> <p>English (ENG) (6) p. 412</p> <p>Ethnic Studies (ES) (12) p. 416</p> <p>Filipino (FIL) (2) p. 418</p> <p>French (FR) (4) p. 421</p> <p>Geography (GEOG) (1) p. 422</p> <p>German (GER) (4) p. 426</p> <p>Hawaiian (HAW) (9) p. 427</p> <p>Hawaiian Studies (HWST) (4)* p. 429</p> <p>History (HIST) (135)* p. 430</p> <p>Honors (HON) (12) p. 434</p> <p>Ilokano (ILO) (1) p. 435</p> <p>Indo-Pacific Languages (IP) (3) p. 436</p> <p>Indonesian (IND) (2) p. 437</p> <p>Interdisciplinary Studies (IS) (1) p. 441</p> <p>Japanese (JPN) (3) p. 442</p> <p>Korean (KOR) (1) p. 449</p> <p>Languages &amp; Literatures of Europe &amp; the Americas (LLEA) (11)* p. 450</p> <p>Latin American &amp; Iberian Studies (LAIS) (8) p. 451</p> <p>Linguistics (LING) (6)* p. 456</p> <p>Management (MGT) (1) p. 457</p> <p>Music (MUS) (10)* p. 467</p> <p>Pacific Islands Studies (PACS) (1) p. 478</p> <p>Peace Studies (PACE) (6)* p. 479</p> <p>Philosophy (PHIL) (35)* p. 480</p> <p>Political Science (POLS) (3) p. 484</p> <p>Religion (REL) (37)* p. 492</p> <p>Second Language Studies (SLS) (1) p. 494</p> <p>Spanish (SPAN) (4) p. 499</p> <p>Thai (THAI) (2) p. 503</p> <p>Theater (THEA) (7)* p. 503</p> <p>Tropical Plant &amp; Soil Sciences (TPSS) (1) p. 509</p> <p>Women's Studies (WS) (10) p. 512</p>	<p>American Studies (AMST) (3) p. 368</p> <p>Asian Studies (ASAN) (2) p. 380</p> <p>Chinese (CHN) (1) p. 391</p> <p>East Asian Languages &amp; Literatures (EALL) (14)* p. 403</p> <p>English (ENG) (79)* p. 412</p> <p>Ethnic Studies (ES) (2) p. 416</p> <p>Filipino (FIL) (3) p. 418</p> <p>French (FR) (11) p. 421</p> <p>German (GER) (9) p. 426</p> <p>Greek (GRK) (4) p. 427</p> <p>Hawaiian (HAW) (3)* p. 427</p> <p>Hawaiian Studies (HWST) (2) p. 429</p> <p>Honors (HON) (5) p. 434</p> <p>Indo-Pacific Languages (IP) (11) p. 436</p> <p>Indonesian (IND) (1) p. 437</p> <p>Institute for Teacher Education (ITE) (3) p. 439</p> <p>Japanese (JPN) (3) p. 442</p> <p>Korean (KOR) (2) p. 449</p> <p>Languages &amp; Literatures of Europe &amp; the Americas (LLEA) (15)* p. 450</p> <p>Latin (LATN) (7) p. 451</p> <p>Latin American &amp; Iberian Studies (LAIS) (2) p. 451</p> <p>Maori (MAO) (2) p. 458</p> <p>Pacific Islands Studies (PACS) (1) p. 478</p> <p>Philosophy (PHIL) (1) p. 480</p> <p>Russian (RUS) (7) p. 494</p> <p>Samoan (SAM) (4)* p. 494</p> <p>Spanish (SPAN) (10) p. 499</p> <p>Thai (THAI) (2) p. 503</p> <p>Theater (THEA) (5) p. 503</p> <p>Vietnamese (VIET) (1) p. 512</p> <p>Women's Studies (WS) (7) p. 512</p>	<p>American Studies (AMST) (12)* p. 368</p> <p>Anthropology (ANTH) (52)* p. 372</p> <p>Architecture (ARCH) (5)* p. 375</p> <p>Asian Studies (ASAN) (10) p. 380</p> <p>Botany (BOT) (1)* p. 386</p> <p>Business (BUS) (2) p. 388</p> <p>Communication (COM) (10)* p. 395</p> <p>Communicology (COMG) (24) p. 397</p> <p>Curriculum Studies (EDCS) (1) p. 398</p> <p>Economics (ECON) (40)* p. 404</p> <p>Ed. Foundations (EDEF) (4) p. 407</p> <p>Ed. Psychology (EDEP) (4) p. 408</p> <p>Ethnic Studies (ES) (23)* p. 416</p> <p>Family Resources (FAMR) (10)* p. 417</p> <p>Fashion Design &amp; Merchandising (FDM) (1)* p. 417</p> <p>Geography (GEOG) (31) p. 422</p> <p>Global Health Protection &amp; Security (GHPS) (5) p. 427</p> <p>Honors (HON) (13) p. 434</p> <p>Human Resources Management (HRM) (1) p. 435</p> <p>Indo-Pacific Languages (IP) (1) p. 439</p> <p>(1) p. 442</p> <p>Interdisciplinary Studies (IS) (3) p. 441</p> <p>Journalism (JOUR) (4)* p. 444</p> <p>Kinesiology &amp; Rehabilitation Sciences (KRS) (2) p. 444</p> <p>Latin American &amp; Iberian Studies (LAIS) (1) p. 451</p> <p>Linguistics (LING) (10)* p. 456</p> <p>Management (MGT) (1) p. 457</p> <p>Marketing (MKT) (2) p. 458</p> <p>Microbiology (MICR) (1) p. 465</p> <p>Molecular Cell Biology (MCB) (1) p. 467</p> <p>Natural Resources &amp; Environmental Mgmt. (NREM) (5)* p. 470</p> <p>Pacific Islands Studies (PACS) (7) p. 478</p> <p>Peace Studies (PACE) (6)* p. 479</p> <p>Political Science (POLS) (53)* p. 484</p> <p>Psychology (PSY) (31)* p. 487</p> <p>Religion (REL) (3) p. 492</p> <p>Second Language Studies (SLS) (4) p. 494</p> <p>Social Sciences (SOCS) (3) p. 495</p> <p>Social Work (SW) (5) p. 496</p> <p>Sociology (SOC) (55)* p. 497</p> <p>Special Education (SPED) (2) p. 500</p> <p>Travel Industry Mgmt. (TIM) (4) p. 506</p> <p>Tropical Plant &amp; Soil Sciences (TPSS) (4) p. 509</p> <p>Urban &amp; Regional Planning (PLAN) (4) p. 510</p> <p>Women's Studies (WS) (35)* p. 512</p>
<p><b>(#) Total number of courses the department offers in this category.</b></p> <p><b>* Departments offering introductory level course(s) in this category.</b></p>			

### General Education Designations

Courses that meet the UH Mānoa General Education Core Requirements are identified with one of the following designations at the end of the course description:

Biological Sciences - DB	Physical Sciences - DP	Laboratory (science) - DY
Animal Science (ANSC) (16)* p. 371	Anthropology (ANTH) (1) p. 372	Animal Science (ANSC) (2) p. 371
Anthropology (ANTH) (6)* p. 372	Architecture (ARCH) (1) p. 375	Anthropology (ANTH) (1)* p. 372
Biochemistry (BIOC) (2) p. 383	Astronomy (ASTR) (12)* p. 382	Astronomy (ASTR) (3)* p. 382
Bioengineering (BE) (1) p. 383	Biochemistry (BIOC) (2)* p. 383	Biochemistry (BIOC) (1) p. 383
Biology (BIOL) (25)* p. 384	Bioengineering (BE) (11) p. 383	Bioengineering (BE) (3) p. 383
Botany (BOT) (22)* p. 386	Chemistry (CHEM) (16)* p. 390	Biology (BIOL) (9)* p. 384
Cell & Molecular Biology (CMB) (2) p. 389	Civil & Environmental Engineering (CEE) (15) p. 392	Botany (BOT) (14)* p. 386
Chemistry (CHEM) (1) p. 390	Electrical Engineering (EE) (20)* p. 409	Chemistry (CHEM) (12)* p. 390
Dental Hygiene (DH) (10)* p. 401	Fashion Design & Merchandising (FDM) (2) p. 417	Civil & Environmental Engineering (CEE) (1) p. 392
Food Science & Human Nutrition (FSHN) (12)* p. 419	Food Science & Human Nutrition (FSHN) (3) p. 419	Dental Hygiene (DH) (5)* p. 401
Geography (GEOG) (2) p. 422	Geography (GEOG) (9)* p. 422	Electrical Engineering (EE) (4) p. 409
Honors (HON) (2) p. 434	Geology & Geophysics (GG) (27)* p. 424	Fashion Design & Merchandising (FDM) (1) p. 417
Kinesiology & Rehabilitation Science (KRS) (8)* p. 444	Honors (HON) (7) p. 434	Food Science & Human Nutrition (FSHN) (4) p. 419
Medical Technology (MEDT) (1) p. 463	Mechanical Engineering (ME) (26) p. 461	Geography (GEOG) (1)* p. 422
Microbiology (MICR) (10)* p. 465	Meteorology (MET) (9)* p. 464	Geology & Geophysics (GG) (7)* p. 424
Molecular Biosciences & Bioengineering (MBBE) (5) p. 466	Natural Resources & Environmental Management (NREM) (3) p. 470	Honors (HON) (1) p. 434
Molecular Cell Biology (MCB) (2) p. 467	Ocean & Earth Science & Technology (OEST) (1)* p. 476	Mechanical Engineering (ME) (2) p. 461
Natural Resources & Environmental Management (NREM) (3)* p. 470	Ocean & Resources Engineering (ORE) (3)* p. 476	Meteorology (MET) (1)* p. 464
Oceanography (OCN) (2) p. 476	Oceanography (OCN) (8)* p. 476	Microbiology (MICR) (9)* p. 465
Pharmacology (PHRM) (2)* p. 480	Physics (PHYS) (22)* p. 481	Molecular Bioscience & Bioengineering (MBBE) (2) p. 466
Physiology (PHYL) (11)* p. 483	Tropical Plant & Soil Sciences (TPSS) (1) p. 509	Molecular Cell Biology (MCB) (2) p. 467
Plant & Environmental Protection Sciences (PEPS) (11)* p. 483		Natural Resources & Environmental Management (NREM) (2) p. 470
Psychology (PSY) (4) p. 487		Oceanography (OCN) (2)* p. 476
Tropical Plant & Soil Sciences (TPSS) (21)* p. 509		Physics (PHYS) (8)* p. 481
Women's Studies (WS) (2) p. 512		Physiology (PHYL) (6)* p. 483
Zoology (ZOOL) (20)* p. 514		Plant & Environmental Protection Sciences (PEPS) (1) p. 483
		Tropical Plant & Soil Sciences (TPSS) (3) p. 509
		Zoology (ZOOL) (12)* p. 514

### Foundations Requirements

Written Communication .FW  
 Symbolic Reasoning .....FS  
 Global and Multicultural Perspectives .....FG  
**FGA, FGB, FGC** (see p. 27-28)

### Diversification Requirements

Arts ..... DA  
 Humanities ..... DH  
 Literatures ..... DL  
 Social Sciences.....DS  
 Biological Sciences .....DB  
 Physical Sciences ..... DP  
 Laboratory (science) ..... DY

### UH Mānoa

#### Graduation Requirements

Hawaiian/Second Language  
**HSL**

For more information, see the “Mānoa Undergraduate General Education Requirements” section of this *Catalog*.

#### Please Note:

- **Consult your college advisor for a list of updated General Education courses. Additional courses may have been approved after the publication of this *Catalog*.**
- **Some programs specify which courses their students must take to fulfill the Core requirements or to fulfill lower division college/school requirements. For these programs, students should consult an advisor from their intended college/ school, or department prior to selecting courses.**

## Academy for Creative Media (ACM)

*College of Arts and Humanities*

*A grade of C or better in the prerequisite courses is required for continuation.*

**ACM 215 3D Scene Design (3)** Students will design, build, light and render 3D elements for animation scenes. A-F only. Pre: consent.

**ACM 216 3D Animation (3)** Artistic/acting and technical/computer aspects of character animation. Special emphasis on techniques for imbuing computer generated characters with the illusion of life. Project-based. A-F only. Pre: consent.

**ACM 220 Advanced Rendering (3)** Computer animation directing and cinematography in a 3D environment. A-F only. Pre: 215 and 216.

**ACM 255 Cinema and Digital Media (3)** Introduction to the study of cinema and digital media: history, aesthetics and production of cinema, computer animation and video game design. A-F only. **DH**

**ACM 310 Cinematic Narrative Production (4)** Production-intensive course with collaborative as well as individual projects. Theories and application of basic digital cinema productions, including camera, lighting, sound, and editing. ACM majors only. A-F only. Pre: B or better in 255, or consent. **DA**

**ACM 312 Cinematography (3)** Comprehensive course in visual styles supporting screen narratives through a study of principles of camera elements, operations, lighting, color and composition. Professional role and responsibilities of cinematographer. Project-oriented. Must have access to manually controlled still camera. ACM majors only. A-F only. Pre: 310 or consent.

**ACM 315 Narrative Game Design (3)** Storytelling through computer games. Effect of interactivity on narrative. Interactive plot structures, conceptual design, artwork, audio, cinematography, two- and three-dimensional computer graphics. Design and programming of game narrative using scripting languages. ACM majors only. A-F only. Pre: 215 and 216 and B or better in 255, or consent.

**ACM 316 3D Character Animation (3)** Creating the illusion of life through the principles of animation. Application of theory to practical scene work with emphasis on acting and personality in animated characters. ACM majors only. A-F only. Pre: 215 and 216 and B or better in 255 and ART 113, or consent.

**ACM 317 3D Cinematography and Dynamics (3)** Computer animation directing and cinematography for the design and creation of visual effects. Using particles and dynamics systems to simulate natural phenomena. Compositing of visual layers. ACM majors only. A-F only. Pre: 215 and 216, or 215 and 310 and consent.

**ACM 318 Classical 2D Full Animation (3)** Hand drawn full animation techniques; rough animation, inbetweening, clean up animation and digital color processes. Digital line testing, sync dialog and other advanced skills for classical 2D full animation. ACM majors only. A-F only. Pre: 216 and 255 and ART 113, or consent.

**ACM 320 Computer Animation Production I (3)** 3D computer graphics production projects. Students will write, plan, execute, and deliver a 30 second computer-animated short film. Emphasis on visual storytelling and character animation. ACM majors only. A-F only. Pre: 316. (Fall only)

**ACM 325 Visual Effects (3)** Introduction to the history, theory, design and execution of visual effects for the screen. Project-based learning in traditional photographic and digitally-generated special effects. ACM majors only. A-F only. Pre: 215 and 216, or 310, or consent.

**ACM 350 Screenwriting (3)** Research, development, style and structure of the narrative and documentary for the screen. ACM majors only. A-F only. Pre: 310 (or concurrent) or 315 (or concurrent) or

316 (or concurrent), and minimum B- in FW or ENG 200; or consent.

**ACM 352 Screening Asian Americans (3)** Survey of Asian and Asian American representations in American film and television from the silent era to the present, with an emphasis on Orientalism and multiculturalism, as well as performance and spectatorship. ACM majors: A-F only. Pre: junior standing or consent. (Cross-listed as AMST 352) **DH**

**ACM 355 Oral Tradition to Screenplay (3)** Adapting the stories, styles, and cultural values of oral tradition storytelling to cinematic narratives. A-F only. Pre: 255 (or concurrent), or consent.

**ACM 360 Indigenous Aesthetics (3)** Aesthetic theories and practices of indigenous cultures of the Pacific and their adaptation to the screen in cinematic storytelling. A-F only. Pre: 255 (or concurrent), or consent.

**ACM 370 Directing the Actor on Screen (3)** Introduction of the screen-director to the craft of acting for the camera. Students will develop collaborative communication skills and learn practical techniques to elicit spontaneous and relaxed performances from actors. ACM majors only. A-F only. Pre: 310 (or concurrent).

**ACM 372 Editing for Cinema (3)** Advanced course examining the theory, techniques, and practices of motion picture editing; use of non-linear digital editing systems; and practical experience in digital editing projects. ACM majors only. A-F only. Pre: 310 (or concurrent) or 316 (or concurrent), or consent.

**ACM 374 Post Production Sound (3)** Practical course on the theory, art, and techniques of sound recording, editing, and design for cinema. Students work on projects involving dialogue and sound effects in post production. ACM majors only. A-F only. Pre: 310 or 316.

**ACM 375 Directing the Camera for the Screen (3)** Detailed analysis of cinematic grammar, placement, movement, focus, and effects of the camera to create the mise en scene. Practical exercises and projects to apply theory to individual creative work. ACM majors only. A-F only. Pre: 310 (or concurrent) or consent.

**ACM 380 Genre and Narrative Theory in Creative Media (3)** Focus on the concept of genre, genre films, genre film criticism and popular genres such as Western, film noir, documentary, and Chinese martial arts. A-F only. Pre: 255 or consent.

**ACM 382 Authors in Creative Media (3)** In-depth study of the auteur theory and specific application to authors in creative media, such as film directors, animators, screenwriters or game designers. A-F only. Pre: 255 or consent.

**ACM 384 Study Abroad (3)** Intensive study of selected topics, genres, filmmakers, or digital media production in the host country in a UH Mānoa- approved study abroad location. Repeatable one time. A-F only. Pre: 255 and consent.

**ACM 385 Topics in Creative Media (3)** Topics of interest to faculty and students; taught by regular and visiting faculty. Repeatable one time on different topics. ACM majors only. A-F only. Pre: 255 and junior standing, or consent.

**ACM 386 Techniques in Creative Media (3)** Specialized techniques in the creation of digital media: taught by regular and visiting faculty. Repeatable one time in different topics. ACM majors only. A-F only. Pre: 310 or 316, or consent.

**ACM 390 Workshop in Creative Media (V)** Short-term intensive workshop in focused area of media production. Repeatable up to six credits. ACM majors only. A-F only. Pre: 255 or consent.

**ACM 399 Independent Group Project (V)** Participation in a group production project under supervision of ACM faculty member. A-F only. Repeatable up to six credits. ACM majors only. Pre: 310 or 316, and 350, departmental approval, and consent.

**ACM 405 Documentary Production (3)** Analysis and practical knowledge of the documentary process including, but not limited to, research, organization and story structure, shooting, camera coverage, and editing. ACM majors only. A-F only. Pre: 310 and 350, or consent.

**ACM 410 Advanced Cinematic Production (4)** Production of a major cinematic/digital narrative project. Working in groups, each student takes on creative and technical role and responsibilities of a principle crew position. Emphasis on artistic form in narrative development; timely execution from pre- to post-production. Repeatable one time with instructor approval. ACM majors only. A-F only. Pre: 310 and 350, or consent.

**ACM 415 Computer Game Production (3)** Students will work as a team to produce to design and produce a computer game: 2D and 3D elements, animation, story, music, audio, and project software. ACM majors only. A-F only. Pre: 315 or ICS 313, or consent.

**ACM 420 Computer Animation Production II (3)** Student teams produce a short, animated film. Prior knowledge of 2D and 3D media authoring tools and animation techniques is necessary. ACM majors only. A-F only. Pre: 320 and 350 or consent.

**ACM 450 Advanced Screenwriting (3)** Application of narrative principles of character development, story structure and thematic spine to students' short and feature-length screenplays. ACM majors only. A-F only. Pre: 350 or consent.

**ACM 455 Indigenous Filmmaking (3)** Theories and studies of indigenous films and creation of a cinematic project based in indigenous cultural and value systems. Students must complete a certification workshop in camera and editing processes to be enrolled in this course. ACM majors only. A-F only. Pre: 310, and 350 or 355; or consent.

**ACM 460 Ethics and Film (3)** Ethical theory and dilemmas as reflected in film and filmmaking. Social responsibility for filmmakers. ACM majors only. A-F only. Pre: junior standing and 255.

**ACM 480 Oceanic Media and Culture (3)** Involves close textual analysis of film, TV and multimedia content. The course includes cinematic and television screenings. ACM majors only. A-F only. Pre: 255 or consent.

**ACM 482 The American Documentary (3)** In-depth study of the nature and impact of documentary filmmaking in America, focusing on the interplay between filmmaker, subject, and audience. Will critically examine documentaries for their use of rhetoric, ethics, and narrative voice. ACM majors only. Junior standing or higher. A-F only. Pre: 255.

**ACM 485 Seminar in Creative Media (3)** Intellectual issues in creative media. Conducted by regular and visiting faculty with extensive student participation and scholarly presentation. Repeatable one time on different topics. ACM majors only. A-F only. Pre: 255 and junior standing, or consent.

**ACM 490 Global Media (3)** Involves close textual analysis and strategic analysis of the globalism phenomenon, with an emphasis on transnational media corporations. ACM majors only. A-F only. Pre: 255 or consent. (Fall only)

**ACM 495 Creative Media Internship (V)** Internship in professional cinematic, television and/or digital media production company under professional and faculty supervision. Repeatable one time. ACM majors only. A-F only. Pre: 310 or 315 or 316, and 350, and consent.

**ACM 499 Directed Study (V)** Independent research or creative project under supervision of ACM faculty member. Repeatable two times. ACM majors only. Pre: 310 or 315 or 316, and 350, and consent.

## Accounting (ACC)

*Shidler College of Business*

**ACC 201 Introduction to Financial Accounting (3)** Introduction to financial accounting and meth-

ods used to record and report financial information to decision makers external to the firm. Use and limitations of financial reports. Pre: sophomore standing.

**ACC 202 Introduction to Management Accounting (3)** Introduction to managerial accounting and methods used to report information to decision makers internal to the firm. Cost accounting, budgeting, standard cost systems, reporting and analyzing performance. Pre: 201 with C- or better.

**ACC 305 Management Accounting (3)** Information for managerial decision-making, planning, and control: job order and process costing, direct and absorption costing, normal and standard cost systems. Problem solving and application. Pre: 202 with C- or better.

**ACC 321 Intermediate Financial Accounting I (3)** Accounting process and the application of GAAP to the recognition and measurement of cash, receivables, inventories, property plant and equipment, depreciation and depletion, intangibles, and current liabilities. Pre: 202 with C- or better.

**ACC 323 Intermediate Financial Accounting II (3)** Application of GAAP to the recognition and measurement of long-term liabilities, investments, contributed capital, retained earnings, accounting changes and errors, income recognition, accounting for income taxes, pensions, leases, and statement of cash flows. Pre: 321 with C- or better.

**ACC 395 Accounting Internship (V)** On-the-job experience in the accounting community. Term paper and meetings with faculty advisor required. C/NC only. Pre: consent.

**ACC 399 Directed Reading and Research (V)** Reading and research of a special area in major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty advisor.

**ACC 401 Federal Individual Income Taxation (3)** Examines federal income tax concepts, such as gross income, exclusions, deductions, exemptions, and tax credits, especially for sole proprietors. Introduces taxation of property transactions. Development of professional writing skills is integral to this course. Pre: 202 or BUS 624 with C- or better.

**ACC 407 Taxation of Business Entities (3)** A survey of the general concepts, rules, and practices involved in the taxation of sole-proprietorships, corporations, partnerships, and subchapter S corporations. Pre: 401 with C- or better.

**ACC 409 Accounting Information Systems (3)** Accounting systems analysis, control and design in manual and computerized environments. Knowledge and skills of information technology for auditing AIS systems. Hands-on experience with microcomputers and a computerized accounting system. A-F only. Pre: 323 with C- or better (or concurrent).

**ACC 413 Law for the Accountant (3)** Intensive study of areas of law of importance to accountants. Particular attention is given to principles of law relating to contracts, sales, commercial paper, secured transactions, property, legal entities, agency, securities, and accountant's legal liability. Pre: BLAW 200 or consent.

**ACC 415 Advanced Financial Accounting (3)** Accounting topics relating to consolidation requirements and introduction to the fundamentals of fund accounting, including the general fund, restricted funds, debt service funds, enterprise funds, general long-term account group, general fixed assets accounting group, and accounting entries for encumbrances. Pre: 323 with C- or better.

**ACC 416 Special Topics in Accounting (3)** Addresses current issues impacting the accounting profession. Topics vary each semester. Repeatable three times. Pre: 323.

**ACC 418 Auditing (3)** Auditing concepts including standards, objectives and ethics for external auditors. Emphasis on reporting standards, internal control,

evidence, statistical sampling, IT audits and assurance. Development of professional writing skills is an integral part of this course. Pre: 323 and 409, both with C- or better.

**ACC 460 International and Managerial Accounting (3)** Integration of numerous elements of the accounting program from an international perspective. Examines information for managerial decision-making, planning and control. Current accounting issues discussed. Lectures, discussions, case analysis. Oral presentations with individual feedback required. ACC majors only. A-F only. Pre: 418 (or concurrent), no waiver.

**ACC 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**ACC 581 Financial Accounting I (5)** Accounting process and the application of GAAP to the recognition and measurement of cash, receivables, inventories, property plant and equipment, depreciation and depletion, intangibles, current liabilities, and long-term liabilities. A-F only.

**ACC 582 Financial Accounting II (5)** Application of GAAP in recognition and measurement of investments, pensions, retained earnings, and other topics related to financial statements. Other topics include consolidation and mergers and acquisitions. A-F only. Pre: 581.

**ACC 583 Cost Accounting (5)** Information for managerial decision-making, planning and control, job order and process costing, direct and absorption costing, standard and normal cost systems. Will also cover Government and Not-for-profit topics. A-F only.

**ACC 584 Regulation and Accounting (5)** Will cover tax accounting topics for individuals, estates, and business entities. Also will cover business law and professional responsibility topics important for the professional accountant. A-F only. Pre: 581.

**ACC 585 Auditing and Attestation (4)** Concepts include standards, objectives, and ethics for external auditors. Emphasizes reporting standards, internal control, statistical sampling, EDP audits, and assurance. Also covers information systems and relevant measurement topics. A-F only. Pre: 581.

**ACC 609 Advanced Accounting Information Systems (3)** The development, implementation and operation of enterprise-wide resource planning systems, with an emphasis on implications to accounting information. Also covers current and emerging issues relating to accounting information systems. Pre: 409 with C- or better.

**ACC 616 Accounting Theory and Development (3)** History and theoretical background of accounting standards. Including accounting theories, formulating and testing theories; scientific, pragmatic, syntactic and semantic theories; normative and positive theories. Literature supportive and critical of accounting theories and standards. Pre: 323 or 582 with C- or better, or consent.

**ACC 619 Advanced Auditing (3)** Advanced auditing course using research, critical thinking and communication skills applied to contemporary accounting and auditing. Pre: 418 or 585 with C- or better, or consent.

**ACC 620 Global Accounting (3)** Theory and fundamental causes of international variations in accounting. Special emphasis on problems such variations create for financial reporting, control, and decision-making within multinational business enterprises. Pre: 323 or 582 with C- or better, or consent.

**ACC 625 Accounting and Tax Research (3)** In-depth examination of tax and accounting research, IRC, and SEC procedures. Extensive practice in issue identification, reading and analyzing primary authority, and communicating results. Credit not given for both 606 and 625. Pre: 401 or 584 with C- or better, orientation program, or consent.

**ACC 631 Tax of Partners/Partnerships (3)** Examines advanced topics in federal taxation of partners and partnerships regarding the contribution, operation, and distribution from partnerships and transfers of partnership interests. Pre: 407 with C- or better.

**ACC 635 Advanced Public Sector Accounting (3)** Provides the tools necessary for understanding the principles of fiscal accountability and reporting in governmental and not-for-profit organizations. Pre: 415 or 582 with C- or better, or consent.

**ACC 638 Estate and Gift Taxation and Planning (3)** Examines estate and gift tax provisions and basic estate planning techniques to save taxes and avoid probate. Overviews generation-skipping transfer taxes and income taxes on estates and trusts. Pre: 401 or 584 with C- or better, or consent.

**ACC 639 Multijurisdictional Taxation (3)** Examines international, state, and local tax issues. Topics include U.S. International taxation of in- and out-bound transactions, sourcing of income and deductions and nexus. Pre: 401 with C- or better.

**ACC 640 International Auditing and Assurance (3)** Advanced topics in assurance and audit in an international assurance and auditing standards environment. Subject matter includes evidential reasoning and decision making, audit planning, internal control frameworks, audit evidence, strategic systems audit, audit judgment and international group audits. A-F only. Pre: 418 with C- or better.

**ACC 660 Analysis and Decision-Making (3)** Integrates learning through analysis and communication of comprehensive business problems. Stresses research, critical thinking, and analytical and communication skills applied to contemporary accounting and tax issues. Pre: 625 with C- or better and last semester of master's program.

**ACC 690 Current Topics in Accounting (3)** Concentration on current issues impacting the accounting profession. Topics vary each semester. Repeatable unlimited times.

**ACC 695 Accounting Internship (3)** On-the-job experience in the accounting community. Necessary evaluation reports and meetings with faculty advisor required. Pre: consent.

**ACC 700 Thesis Research (V)** Required for Plan A candidates only; six credit hours required, one must be taken during semester that degree is being awarded. Repeatable up to six credits. ACC majors only. Satisfactory only. Pre: MAcc student and School of Accountancy Director approval.

**ACC 701 Financial Accounting Research (3)** Provides an overview of financial accounting research. Specific research studies are examined as to their theoretical basis, design, implications, methodology, relevance, etc. Repeatable one time. A-F only. Pre: PhD student status in international management or consent.

**ACC 702 Managerial Accounting Research (3)** Provides an overview of managerial accounting research. Specific research studies are examined as to their theoretical basis, design, implications, methodology, relevance, etc. A-F only. Pre: PhD student status in international management or consent.

**ACC 703 Research in Behavioral Accounting (3)** Provides an overview of accounting research in behavioral accounting topics. Specific research studies are examined as to their theoretical basis, design, implications, methodology, relevance, etc. A-F only. Pre: PhD student status in international management or consent.

**ACC 704 Research in Accounting Information Systems (3)** Provides an overview of accounting research in accounting information systems topics. Specific research studies are examined as to their theoretical basis, design, implications, methodology, relevance, etc. A-F only. Pre: PhD student status in international management or consent.

**ACC 705 Research in Taxation (3)** Provides an overview of accounting research in taxation topics. Specific research studies are examined as to their

theoretical basis, design, implications, methodology, relevance, etc. A-F only. Pre: PhD student status in international management or consent.

**ACC 799 Directed Reading and Research (V)** Reading and research in an area of accounting under the direction of faculty member(s). A-F only. Pre: PhD student status in international management or consent.

## Aerospace Studies (AS)

### ROTC Programs

*The leadership laboratory is required for all courses. Conducted within the framework of organized cadet corps with progression of experiences designed to develop leadership potential. Involves Air Force customs and courtesies, drills, and career progression.*

**AS 101 Foundations of the United States Air Force (1)** Study of the total force structure, strategic offensive and defensive, general purpose, and aerospace support forces of the Air Force in the contemporary world. A-F only.

**AS 101L Initial Military Training I (1)** Laboratory consists of activities that focus and promote the Air Force way of life. Instruction will include leadership and followership development, teamwork, physical fitness training, and activities designed to build camaraderie and esprit de corps. Course is open to all majors. CR/NC only.

**AS 102 Foundations of the United States Air Force (1)** Continuation of 101. A-F only.

**AS 102L Initial Military Training II (1)** Laboratory consists of activities that focus and promote the Air Force way of life. Instruction will include leadership and followership development, teamwork, physical fitness training, and activities designed to build camaraderie and esprit de corps. Course is open to all majors. CR/NC only.

**AS 201 Evolution of USAF Air and Space Power (2)** Study of Air Force heritage, Quality Air Force principles, ethics, and an introduction to leadership and group leadership problems. Application of written and verbal communication skills is included. A-F only.

**AS 201L Field Training Preparation I (1)** Laboratory consists of preparing second-year AFROTC cadets with the skills needed to successfully complete AFROTC Field Training. Students will learn basic military skills, Field Training skills, and participate in physical fitness training. CR/NC only. Pre: consent.

**AS 202 Evolution of USAF Air and Space Power (2)** Continuation of 201. A-F only.

**AS 202L Field Training Preparation II (1)** Continuation of 201L. CR/NC only. Pre: consent.

**AS 251L Leadership Laboratory (1)** Laboratory on the basic skills of leadership and followership. Lab includes application of leadership/followership skills, various field trips to military installations, group projects, and physical training. Repeatable one time. A-F only. Pre: 101, 102, 201, 202; or consent. (Fall only)

**AS 351 Air Force Leadership Studies (3)** Integrated management course emphasizing the military officer as a manager in Air Force, including individual motivational and behavioral processes, leadership, communication and group dynamics. A-F only.

**AS 351L Intermediate Cadet Leader I (1)** Laboratory consists of demonstration of leadership and management skills needed to successfully function as an Air Force officer. Instruction will include lessons covering planning, organizational and communication skills, and the ability to use available resources to complete an assigned task. CR/NC only. Pre: must have completed AFROTC Field Training; or consent.

**AS 352 Air Force Leadership Studies (3)** Continuation of 351. A-F only. Pre: must have completed 351.

**AS 352L Intermediate Cadet Leader II (1)** Continuation of 351L. CR/NC only. Pre: must have completed AFROTC Field Training; or consent.

**AS 401 National Security Affairs (3)** Study of the national security process, regional studies, advanced leadership, ethics, and Air Force doctrine. Special focus placed on preparation for active duty and current issues affecting professionalism. A-F only. Pre: 352 or consent. (Fall only)

**AS 401L Senior Cadet Leader I (1)** Laboratory consists of providing prospective Air Force officers opportunities to continue to develop leadership, managerial, and supervisory skills. Instruction will include preparation for active duty. CR/NC only. Pre: must have completed 351 and 352L; or consent.

**AS 402 National Security Affairs (3)** Continuation of 401. A-F only. Pre: 401 or consent.

**AS 402L Senior Cadet Leader II (1)** Laboratory consists of providing prospective Air Force officers opportunities to continue to develop leadership, managerial, and supervisory skills. Instruction will include preparation for active duty. CR/NC only. Pre: must have completed 351 and 352L; or consent.

## Agricultural and Resource Economics (AREC)

*College of Tropical Agriculture and Human Resources, see also Natural Resources and Environmental Management (NREM)*

**AREC 610 Biosystems Modeling (3)** Introduction to system thinking, procedures for developing system models, characteristics of important agricultural system modes, computer approach to evaluation and optimization of system models. Pre: one of MATH 215, MATH 241, MATH 251A; or consent. (Cross-listed as BE 638)

**AREC 626 Econometrics I (3)** Review of probability, estimation, small sample and asymptotic properties. Bivariate and multiple regression and matrix algebra formulation. Regression diagnostics. Introduction to heteroskedasticity, autocorrelation, simultaneity, dichotomous variables, advanced topics. Pre: NREM 310 or ECON 321, and MATH 241; or consent. (Cross-listed as ECON 628)

**AREC 634 Econometrics II (3)** Specification, statistical estimation, inference, and forecasting of economic models. Includes advanced topics for single-equation models, pooled models, qualitative dependent variables, simultaneous systems, distributed lags, and time series. Pre: 626 and ECON 628, or consent. (Cross-listed as ECON 629)

**AREC 700 Thesis Research (V)** Repeatable unlimited times.

**AREC 800 Dissertation Research (V)** Repeatable unlimited times.

## American Studies (AMST)

*College of Arts and Humanities*

*The minimum required grade for prerequisites is a grade of C (not C-) or better.*

*Sophomore standing or consent is required for all 300-level courses except as noted.*

### AMST 110 Introduction to American Studies

(3) Introduction to different types of college-level writing through analyses of contemporary American culture and to the main themes and approaches used in American studies and the humanities. **DH**

**AMST 150 America and the World (3)** Examines America's role in world history and the influence of world affairs on U.S. culture and society. Focuses on U.S. interdependence with African, European, Native American, Asian, and Polynesian civilizations, from 1492 to present. **FGB**

**AMST 201 American Experience: Institutions and Movements (3)** Interdisciplinary course that examines diversity and changes in American values and institutions—political, economic, legal, and social. **DH**

**AMST 202 American Experience: Culture and the Arts (3)** Interdisciplinary course that examines diversity and changes in American values and

culture—literature, film, visual arts, and architecture. **DH**

**AMST 211 Contemporary American Domestic Issues (3)** Interdisciplinary exploration of such current American domestic issues; topics such as politics, economics, civil rights, family life, the justice system, and the environment. **DS**

**AMST 212 Contemporary American Global Issues (3)** Interdisciplinary exploration of such current global issues as international diplomacy, economic development, national security, demographic change, and environmental protection. **DS**

**AMST 220 Introduction to Indigenous Studies (3)** Interdisciplinary survey that examines the histories, politics, popular representations, self-representations, and contemporary issues of the indigenous peoples of the U.S. and its territories, including Native Americans, Alaska Natives, Kanaka Maoli, Chamorro, and Samoans. **DH**

**AMST 301 Hip-Hop and American Culture (3)** Survey tracing hip-hop from its Afro-Caribbean musical beginnings to contemporary adaptations and interpretations. Students will analyze various materials and will pay attention to the relationships between hip-hop and contemporary social forms. Pre: sophomore standing or consent. **DH**

**AMST 310 Japanese Americans: History, Culture, Lifestyles (3)** Explores the experiences of Japanese Americans in Hawai'i and the U.S. at large: historical and cultural heritage, biographical portraits, changing family ties, ethnic lifeways, gender relations, local identity, and the future of island living. **DH**

**AMST 313 African Americans: Issues, Culture, History (3)** Traces the history and culture of African Americans and outlines contemporary issues. Topics include: slavery and racism, community formation and resistance, cultural expression, African American diversity, civil rights, gender and class relations. **DH**

**AMST 316 U.S. Women's History (3)** History of U.S. women and gender relations. Topics include women's work in and outside the household, women's involvement in social movements, changing norms about gender and sexuality, and shared and divergent experiences among women. (Cross-listed as HIST 361 and WS 311) **DH**

**AMST 317 American Popular Music and Culture (3)** Analysis of a variety of American musical genres and histories through focused writing assignments (record and performance reviews, personal narratives, interviews, research proposals, research papers). Pre: second year standing or consent. (Alt. years) **DH**

**AMST 318 Asian America (3)** History of selected Asian immigrant groups from the 19th century to the present. Topics include: immigration and labor history, Asian American movements, literature and cultural productions, community adaptations and identity formation. (Cross-listed as ES 318) **DH**

**AMST 319 America, Hawai'i and World War II (3)** Examines WWII as a watershed in American and Hawai'i history and culture. Topics include: Pearl Harbor, Japanese American internment, sex and racial tensions, Anti-Semitism and the Holocaust, and the dawn of the Atomic Age. **DH**

**AMST 320 American Environments: Survey (3)** Survey of social, political, and cultural relations in diverse, contemporary American environments, including: island societies, urban centers, suburbs, Indian reservations, farming communities, and national parks. Special emphasis on contemporary environmental issues in Hawai'i. **DS**

**AMST 325 Religion and Law in the U.S. (3)** Surveys church-state jurisprudence since the 1940s, with special attention to difficulty of defining religion, and applies the religion clauses to current issues. A-F only. Pre: sophomore or higher standing, or consent. (Once a year) (Cross-listed as POLS 325) **DH**

**AMST 326 American Folklore and Folklife (3)** Examination of the history and ethics of folklore studies and the dynamics and social functions of traditional culture in diverse communities through topics such

as ritual, storytelling, games, gossip, belief, music, and cultural tourism. Junior standing or higher. (Cross-listed as ANTH 326) **DH**

**AMST 334 Digital America: Online Communities and Virtual Worlds (3)** Seminar on the impact of the digital revolution and virtual communities on American culture and society, with an emphasis on questions of identity and participatory democracy. Open to nonmajors. Pre: one DH, DA, or DL course, sophomore standing, or consent. **DH**

**AMST 339 Religions in America (3)** Examination of American religious traditions, both historical and contemporary, with an emphasis on the principles of religious liberty, non-establishment, and pluralism. Pre: sophomore standing or consent. **DH**

**AMST 340 War and Media (3)** Examination of a range of media, including photography, film, print journalism, television, video games, and the internet, as they have shaped popular representations and experiences of war in America from the Civil War through the present. A-F only. (Alt. years) **DH**

**AMST 343 American Thought and Culture (3)** Politics, family, philosophy, technology, etc.; their interrelationship with the total society. Pre-Colonial to end of Reconstruction. Pre: 150 or 201 or 202 or 211 or 212 or HIST 151 or HIST 152; or consent. (Cross-listed as HIST 373) **DH**

**AMST 344 American Thought and Culture (3)** Continuation of 343: 20th century. Pre: 150 or 201 or 202 or 211 or 212 or HIST 151 or HIST 152; or consent. (Cross-listed as HIST 374) **DH**

**AMST 348 American Design: An Historical Survey (3)** Examination of design in American culture over the last century. Readings in industrial, graphic, interior, architectural, landscape, and user interface design used to study issues of gender, race, and class in the U.S. Open to all class standings. A-F only. (Alt. years) **DH**

**AMST 349 Contemporary American Design (3)** Investigates design in contemporary American culture. Graphic, industrial, urban, and user-interface design practices are situated within broader social and economic forces. Modes of design practice, production, and consumption studied as reflection of American society today. A-F only. (Alt. years) **DH**

**AMST 350 Culture and Art in America: Survey (3)** Popular attitudes toward arts, travel, fashions, craft and industrial productions, recreation. Past used to explain the present. **DH**

**AMST 352 Screening Asian Americans (3)** Survey of Asian and Asian American representations in American film and television from the silent era to the present, with an emphasis on Orientalism and multiculturalism, as well as performance and spectatorship. ACM majors: A-F only. Pre: junior standing or consent. (Cross-listed as ACM 352) **DH**

**AMST 353 Indigenous Topographies (3)** Examines indigenous practices born of and located in Indigenous places. Analyzes how indigenous knowledge of place informs Indigenous cultural, linguistic, intellectual, and political survivance and sovereignty, and resistance. **DH**

**AMST 354 American Travel Writing (3)** Survey examines the roles that travel writing plays in American identity- and nation-formation, from early colonial history to the present. A-F only. Pre: HIST 110, 150, 201, 202, 211, or 212. (Alt. years) **DH**

**AMST 360 American Cinema (3)** Introductory history of American cinema from the silent to the digital era, with an emphasis on criticism, genre and style, as well as cultural and sociopolitical context. **DH**

**AMST 365 American Empire (3)** Examines the interplay between an "American culture of empire" and the rise of the U.S. as a superpower. Topics: imperialism and political culture, social movements and international affairs, race, gender and class relations. (Cross-listed as HIST 379) **DH**

**AMST 373 Filipino Americans: History, Culture and Politics (3)** An introduction to the study of

Filipino Americans in the U.S. and the diaspora. The course pays special attention to labor migration, cultural production and community politics. Pre: sophomore standing. (Cross-listed as ES 373) **DS**

**AMST 381 Junior Seminar (3)** Materials and methods for the study of American life and thought. For American studies majors and minors only. **DH**

**AMST 382 Junior Seminar (3)** Continuation of 381. For American studies majors and minors only. **DH**

*Junior standing or consent required for all 400-level courses.*

**AMST 401 Filipino Americans: Research Topics (3)** A research seminar on the study of Filipino Americans. Special themes in film/video/media, the performing arts, or literature may be offered. Pre: junior standing or consent. (Cross-listed as ES 443)

**AMST 405 Native Literatures and Cultures (3)** Interdisciplinary, comparative course examining native literary texts (novels, short fiction, poetry), films, etc. that address issues of representation and how native peoples actively resist colonial ideology. **DH**

**AMST 410 Asian American Music Cultures (3)** An exploration of how Asian American music making is related to community formation, labor migration, and cultural sensibilities throughout the 20th century. **DH**

**AMST 411 Japanese Americans: Research Topics (3)** Research and thematic seminar on Japanese American culture, issues, and history. Pre: junior standing or consent. **DH**

**AMST 413 Regionalism: The South (3)** Definition of a Southern identity and its relation to the larger U.S. culture, using literary and polemical works of 19th- and 20th-century. **DH**

**AMST 418 Hawai'i's Multiculturalism (3)** A multidisciplinary examination of the dynamics of the Hawaiian Islands' racial and cultural diversity from the perspectives of historical trends, social processes, and contemporary political, social, and economic issues as they impact interracial relations. **DS**

**AMST 420 American Ideas of Nature (3)** The natural world in American thought from Native Americans to modern ecologists. **DH**

**AMST 423 History of American Architecture (3)** History of American architecture in terms of style, techniques, and symbolic meaning. (Cross-listed as ARCH 473) **DH**

**AMST 425 American Environmental History (3)** Survey history of the complex relations between American societies and diverse U.S. ecosystems, from European contact and colonization to the present. (Cross-listed as HIST 480) **DH**

**AMST 431 History of American Workers (3)** Conditions of labor in major phases of American development; response of labor and community to changing work environment. Capitalism, unionism, race, gender, law, etc. Emphasis on 20th century. (Cross-listed as HIST 477) **DH**

**AMST 432 Slavery and Freedom (3)** Examines the history of slavery, race, and abolition in the Americas from a comparative, global perspective, and traces the legacy of slavery in the post-emancipation societies of the New World. (Cross-listed as HIST 473) **DH**

**AMST 434 Politics in Hawai'i (3)** Discussion of modern politics against the background of recent history and major contemporary issues. **DS**

**AMST 435 History of Crime and Punishment (3)** History of American crime and punishment from 18th century to the present. Topics: changing crime patterns, evolving punishment methods, penal reform movements, convict resistance, growth of prison industrial complex, racism, class, and gender. Repeatable one time. Pre: junior standing or consent. **DS**

**AMST 436 Gender, Justice and Law (3)** Exploration of landmark U.S. Supreme Court cases related to sex and gender. Topics may include sex discrimination, sexual orientation discrimination, privacy,

and reproductive freedom. A-F only. Pre: one of WS 151, WS 175, WS 176, WS 202, WS 360, WS 381, or consent. (Cross-listed as POLS 436 and WS 436) **DS**

**AMST 438 Asian Women (3)** History, culture, and contemporary reality of Asian women in Asia and the U.S. Includes critical analysis of American feminist methodology and theory. Pre: one of 310, 316, 318, 373, 455, POLS 339, WS 360, WS 361, WS 439; or consent. (Cross-listed as POLS 372 and WS 462) **DS**

**AMST 440 Race and Racism in America (3)** Racial ideas and ideologies, and their effects throughout American history. (Cross-listed as HIST 476) **DH**

**AMST 442 Radical Traditions (3)** Varieties of radicalism that have provided a continuing critique of prevailing values and structures. **DH**

**AMST 445 Racism, American Culture and Film/Media (3)** An exploration of the critique of racial ideologies in American film. The course also examines how aggrieved communities develop cultural sensibilities, aesthetic choices and politicized identities through film, video and media work. **DH**

**AMST 450 Victims, Virtue, and Violence (3)** Examination of the history and significance of melodrama as a dominant mode of American cultural production from the early republic to the present, with a focus on issues of race, gender, and national identity. **DH**

**AMST 451 Popular Culture (3)** Major themes, modes, and media of popular or mass culture in the U.S.; emphasis on cultural trends and social implications. **DH**

**AMST 452 The '20s and '30s (3)** Novelists, painters, poets, jazz musicians as examples of culture of the 1920s and 1930s in America. **DH**

**AMST 453 Culture, Society, and Literature (3)** Literary and non-fictional exploration of the intellectual and moral response of Americans to institutions and culture of 20th-century marketplace economy. **DL**

**AMST 454 Fashioning America (3)** Examines linkages between American identity, representation, labor and capital through fashion theory, clothing discourses and other practices of textile production over history. A-F only. Pre: junior standing or consent. **DS**

**AMST 455 U.S. Women's Literature and Culture (3)** Reading of selected works of U.S. women's literature and cultural texts (such as art and film). Emphasis on historical and cultural context and diverse expressions of women's gendered identities. (Cross-listed as ENG 455 and WS 445) **DL**

**AMST 456 Art of the United States (3)** Emphasis on the 18th and 19th centuries. Pre: 202 or ART 176, or consent. (Cross-listed as ART 472) **DH**

**AMST 457 Museum Interpretations (3)** Studies the interpretive strategies and methods used by museums to communicate with visitors in museums, art galleries, historic sites, parks, and related places. Considers how interpretations contribute to cultural knowledge. Repeatable one time. Pre: consent. (Cross-listed as ART 481) **DH**

**AMST 458 Film in American Culture (3)** Comprehensive survey of varieties of film experience from historical and contemporary points of view. **DL**

**AMST 459 Sports in America (3)** Sports as reflected in literature, films, and TV. **DS**

**AMST 460 Early 20th Century American Art (3)** American art in the first half of the 20th century and its impact on American culture. Junior standing or higher. Pre: ART 176 or consent. (Alt. years: fall) (Cross-listed as ART 460)

**AMST 461 America's World Role (3)** Examination of America's role in modern world affairs, against the background of history, perceptions, and values. **DS**

**AMST 464 America and Africa (3)** American attitudes toward Africa, as well as how Africa has functioned within the dynamics of American culture and history. **DH**

**AMST 465 American Experience in Asia (3)** Comparison of American experiences in Japan, China, and Southeast Asia within historical and perceptual framework. **DH**

**AMST 469 Religion and Homosexuality in American Public Life (3)** Examines the roles of religious groups and religious values with regard to homosexuality in American public culture. Pre: junior standing or consent. **DH**

**AMST 474 Preservation: Hawai'i, Asia, and the Pacific (3)** Lectures and discussions on historic preservation issues in Hawai'i, Asia, and the Pacific. Emphasis on indigenous and national expressions. Pre: junior standing or consent. (Cross-listed as ARCH 474) **DH**

**AMST 475 Documentation of Historic Architecture (V)** Study and documentation of existing buildings, structures, sites of historic and/or cultural significance, including field measurements and drawings, historical research, photo documentation, and preparation of archival drawings to be deposited in the Library of Congress. Documentation conducted according to standards of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER). Repeatable three times. Pre: consent. (Cross-listed as ARCH 472)

**AMST 480 Approaches to American Studies (3)** Required seminar in American Studies methods in preparation for the senior research seminar or the senior capstone project. AMST majors only. A-F only. Pre: 382. (Fall only)

**AMST 481 Senior Research Seminar (3)** Capstone course for American studies students to undertake a major research and writing project. Requires a 20 page minimum final research paper. For AMST majors only. Pre: consent.

**AMST 482 Senior Capstone Project (3)** Capstone for American Studies majors to undertake a non-thesis project. AMST majors only. A-F only. Pre: 480 and consent. (Spring only)

**AMST 489 World Maritime History (3)** Survey of world maritime history from earliest times to the present, with emphasis on the evolution of nautical technology, motives from maritime enterprises, and the impact of cross-cultural encounters between oceanic peoples. (Cross-listed as HIST 489) **DH**

**AMST 490 (Alpha) Topics in American Studies (3)** Themes, problems, and issues not addressed in other American studies undergraduate courses, focused within these areas: (B) social structure and interaction; (D) arts and environment. Repeatable one time. Pre: junior standing or consent for (D).

**AMST 499 Readings in American Studies (V)** Directed readings and research for majors. Pre: consent.

**AMST 500 Master's Plan B/C Studies (1)**

*Graduate standing or consent required for all 600-level courses.*

**AMST 600 Approaches to American Studies (3)** Introductory survey of methodological issues underlying research in American studies.

**AMST 601 Patterns of American Cultures (3)** American cultural origins and development. Beginnings to civil war.

**AMST 602 Patterns of American Cultures (3)** American cultural origins and development. Civil war to present.

**AMST 610 Early America (3)** Interdisciplinary approach to understanding early American culture and history. Repeatable one time. Pre: graduate standing or consent. (Alt. years) (Cross-listed as HIST 632B)

**AMST 611 Asian America (3)** The Asian American experience from an interdisciplinary and humanities perspective. Asian American history, literature, media, and theater arts. Comparative study of Hawai'i and the Continental U.S.

**AMST 612 Women in American Culture (3)** Historical/contemporary status of women in the U.S.; women's roles as defined by legal, educational, political, economic, and social institutions; implications for social science method. (Cross-listed as WS 612)

**AMST 614 Advanced Topics: American West (3)** Examination of the U.S. colonization of the American West. Topics include: European-indigenous relations, migration and labor, regional literature, frontier ideology, ethnic conflict, and new community formation. A-F only. Pre: graduate standing and consent. (Cross-listed as HIST 639F)

**AMST 615 Performance, Culture, and Theory (3)** Survey of major critical works in fields of performing arts and public culture (e.g., dance, theater, music, commemoration). Topics include: theoretical application for the discipline of American studies, and the impact of social movements and labor migration on the performing arts.

**AMST 616 Gender and the African Diaspora in the Americas (3)** Explores the impact of the African Diaspora on the cultures and histories of the Americas through interdisciplinary and feminist scholarship and cultural sources including fiction, foodways, film, poetry, religion, music, and dance. A-F only. Graduate standing only. (Spring only)

**AMST 617 Social and Cultural Diversity in America (3)** Examination of selected subcultures in America.

**AMST 618 American Sexualities (3)** Aspects of sexual identity within the context of American culture.

**AMST 620 Indigenous Identity (3)** Interdisciplinary and comparative focus on how Indigenous identity is constructed, negotiated, asserted, ascribed, and deconstructed within and without Indigenous communities with attention to the U.S. Graduate students only. Pre: graduate level standing or higher.

**AMST 623 American Architecture (3)** Cultural analysis of the evolution of American architecture from the Colonial period to the present involving sociopolitical and economic, as well as aesthetic, considerations.

**AMST 624 Wilderness in America (3)** American wilderness as both physical setting and social construction. A-F only. Pre: graduate standing or consent.

**AMST 625 Material Culture (3)** Physical artifacts considered as documents of American cultural and regional development.

**AMST 626 Environment and Society (3)** Technological development in cultural perspective; its relation to the American environment, science, capitalism, public policy, and values.

**AMST 632 Mass Media (3)** Appraisal of major media of communications in American society with attention to political, educational, cultural, and ethical implications.

**AMST 635 Public History and Commemoration (3)** Approaches to public presentations of history and examination of various ways in which historic memory is constructed in sites such as museums, memorials, and theme parks.

**AMST 638 American Punishment (3)** Examines the history of American criminal punishment, from the birth of the penitentiary to the rise of the prison-industrial complex. A-F only. Pre: graduate standing. (Cross-listed as SOC 638)

**AMST 640 Writing for Publication (3)** Advanced seminar designed to convert graduate research projects into publishable scholarly articles. Repeatable one time. A-F only.

**AMST 643 Critical Traditions in America (3)** Examination of various dissident movements in American history.

**AMST 645 Historic Preservation (3)** Federal, state, and local laws and regulations that regulate and provide protection to significant archaeological and historical resources in Hawai'i and the region. (Alt. years: spring only) (Cross-listed as ANTH 645)

**AMST 646 Advanced Topics: Social/Cultural/Intellectual (3)** Readings and research on American social and intellectual history. Repeatable one time.

Pre: graduate standing and consent. (Cross-listed as HIST 639B)

**AMST 647 Advanced Topics: Business/Labor/Technology (3)** Readings and research on American business, labor, and technological history. Repeatable one time. Pre: graduate standing and consent. (Cross-listed as HIST 639K)

**AMST 649 American Intellectual Traditions (3)** Examination of intellectual figures and movements in American history.

**AMST 656 Film in America (3)** Examination of various roles of motion picture film in America with particular respect to art form, cultural artifact, document, and myth.

**AMST 659 Arts in America: Modern to Post-Modern (3)** Survey of the literature of the field.

**AMST 664 America in Asia (3)** Topics in U.S. economic, political, military, and cultural relations with East and Southeast Asia, from the 18th century to the present.

**AMST 668 Globalization and Transnationalism (3)** Examines the socioeconomic and cultural meanings of globalization and transnationalism. Emphasis on how the deployment and flows of power beyond the nation-state have an impact on regional, national, and/or local communities and cultures.

**AMST 669 Advanced Topics: America and the World (3)** Historical and contemporary issues in America's global relationships.

**AMST 670 Comparative Methods in American Studies (3)** Examines approaches to American studies that use comparison as a primary method. Comparison of histories, institutions, of phenomena between the U.S. and another country as well as among communities in the U.S. Graduate standing only. Co-requisite: 600 or 601 or 602, or consent. (Every 2-3 years)

**AMST 672 20th Century U.S. Literature (3)** Selected works of 20th-century literature as cultural documents.

**AMST 673 African American Literature (3)** Cultural and social imagination of blacks and whites as revealed in literature, poetry, and drama.

**AMST 675 Preservation: Theory and Practice (3)** History and philosophy of historic preservation movement. Analysis of values and assumptions, methodologies and tactics, implications for society and public policy. (Cross-listed as ARCH 628 and PLAN 675)

**AMST 676 Recording Historic and Cultural Resources (3)** Techniques in recording and evaluation of historic buildings and other resources, with an emphasis on field recordings and state and federal registration procedures. (Cross-listed as ANTH 676 and PLAN 676)

**AMST 677 Historic Preservation Planning (3)** Local-level historic preservation, with an emphasis on historic districts, design guidelines, regulatory controls, and community consensus-building. (Cross-listed as PLAN 677)

**AMST 679 Elements of Style (3)** The manifestations, visual characteristics, and social/cultural meaning of "style" in American architecture and decorative arts from the early settlement period through the present. (Cross-listed as ARCH 679)

**AMST 680 Historic Building Technology (3)** History of buildings, building technologies, materials, and finishes, including construction techniques and methods of investigating older buildings. Emphasis on North American building practices c.1600–c.1960.

**AMST 681 Vernacular Architecture (3)** Methods and approaches in the study of vernacular architecture, cultural landscapes, and material culture, with an emphasis on traditions and innovations in the Americas. (Cross-listed as ARCH 650)

**AMST 683 Museums: Theory, History, Practice (3)** History and theory of museums and related institutions (art galleries, historic houses, zoos, parks).

Relationship between museums, collections, and communities. Introduction to governance, planning, legal, and ethical concerns.

**AMST 684 Museums and Collections (3)** Work of museums and professionals (registrars, collections managers, conservators, curators and others) in the care of collections, interpretive studies of museum displays and collections and field trips. Pre: 683 (or concurrent) or consent.

**AMST 685 Museums and Education (3)** Overview of museum education including museum learning theories, informal learning programs, audience research, national and international policies and reports, and community projects. Pre: 683 (or concurrent) or consent. (Cross-listed as EDCS 685)

**AMST 686 Museum Studies Practicum (3)** Applies coursework in museum studies to hands-on activities under the direction of practicing professionals and university faculty. Museum studies certificate students only. Pre: consent.

**AMST 690 Research Seminar (3)** Themes, problems, and issues not addressed in other American studies graduate courses; emphasis upon research methods. Repeatable unlimited times.

**AMST 695 Historic Preservation Practicum (3)** Applies course work in historic preservation to hands-on activities under the direction of practicing professionals and University faculty. Historic preservation certificate students only.

**AMST 696 (Alpha) Preservation Field Study (6)** On-site historic preservation field study. Site will rotate. Academic and hands-on preservation training. (B) Hawai'i; (C) Asia; (D) Pacific. Each alpha repeatable up to 18 credits. Pre: consent.

**AMST 699 Directed Reading/Research (V)** Repeatable unlimited times.

**AMST 700 Thesis Research (V)** Repeatable unlimited times.

**AMST 800 Dissertation Research (V)** Repeatable unlimited times.

## Anatomy (ANAT)

*School of Medicine*

*The minimum grade required for undergraduate prerequisites is a D or better, and graduate prerequisites is a C (not C-) or better.*

**ANAT 499 Directed Reading Research (V)**

**ANAT 545 (Alpha) Unit VII Anatomy Electives (V)** Advanced study of human anatomy by dissection and individual observation of surgical procedures. (C) topics in reproductive biology. Repeatable two times. CR/NC only. Pre: FMCH, MED, OBGN, PED, PSTY, SURG 531 or 532; or consent.

**ANAT 599 Independent Study in Anatomy (1)** Elective course for advanced medical students. (B) independent study of human gross anatomy; (C) histology; (D) research in anatomy and developmental biology. CR/NC only. Repeatable three times for (B) and (C); repeatable one time for (D). Pre: consent for (B) and (C); MDED 551 for (D).

**ANAT 603 Lower Extremity, Thorax, and Abdomen (3)** Human gross anatomy dissection of the lower extremity, thorax, and abdomen. Emphasis is placed on muscles, function, innervation, and vascular supply. Repeatable one time. Enrolled in DRB or KRS graduate programs (including Biomed Sci-Anat/RepoBiol & Phys majors) only or consent. A-F only. (Spring only) (Cross-listed as KRS 603)

**ANAT 604 Upper Extremity, Head, Neck, and Spine (3)** Human gross anatomy dissection of the upper extremity, head, neck, and spine. Emphasis is placed on muscles, function, innervation, and vascular supply. Repeatable one time. Enrolled in DRB or KRS graduate programs (including Biomed Sci-Anat/RepoBiol & Phys majors) only or consent. A-F only. (Fall only) (Cross-listed as KRS 604)

**ANAT 607 Human Embryology (2)** Systematic study of human development, including implantation, placentation, basics of development of each

organ system with reference to pertinent congenital anomalies and their surgical repair. Pre: 603 or 604. Recommended: gross anatomy course.

**ANAT 612 Seminar in Anatomy Teaching (V)** Effective teaching methods, organization of courses in anatomical sciences, development and evaluation of exams, experience in teaching with audiovisual/computer aids. Open to graduate students in physiology or KRS. Repeatable eight times. Pre: 603 and 604.

**ANAT 699 Directed Research (V)** Repeatable unlimited times.

**ANAT 700 Thesis Research** Repeatable unlimited times. (V) Pre: admission to candidacy (master's program).

**ANAT 800 Dissertation Research (V)** Repeatable unlimited times.

## Animal Sciences (ANSC)

*College of Tropical Agriculture and Human Resources*

**ANSC 101 Success Skills Development in Human Nutrition, Food and Animal Sciences (1)** Combined lecture discussion intended to provide majors in ANSC and FSHN with opportunities to learn about skills, competencies, and university resources necessary to succeed in college. FSHN and ANSC majors only. A-F only. Pre consent. (Cross-listed as FSHN 101)

**ANSC 200 Humans, Animals, and Agriculture (3)** (2 Lec, 1 3-hr Lab) Introduction to animal agriculture, animal science, and the use of animals by humans. Ethics and importance of human use of animals in agriculture are emphasized. **DB**

**ANSC 201 Principles and Practices of Animal Science (3)** Biology, behavior, and management of animals of economic and social importance. Topics include physiology, genetics, nutrition, reproduction, behavior, care, and management to achieve productivity, performance, and welfare. (lecture, discussion, and field trips) **DB**

**ANSC 244 Comparative Nutrition (3)** Digestive systems and nutrient functions, interrelationships and metabolism are compared among animal species, including humans. An intermediate, general nutrition course for Food Science and Human Nutrition and Animal Science majors. Pre: 200 (or concurrent), CHEM 161/L or higher. (Cross-listed as FSHN 244) **DB**

**ANSC 301 Anatomy of Agricultural Animals (4)** (3 Lec, 1 3-hr Lab) Micro and gross anatomical arrangements of tissues and organ systems of domestic animals. Pre: 200 (or concurrent). **DB**

**ANSC 321 Applied Animal Nutrition (3)** (2 Lec, 1 3-hr Lab) Application of the principles of nutrition to feeding of farm animals; composition and nutritional value of feed stuffs; nutritional requirements of beef cattle, dairy cattle, horses, poultry, and swine. Pre: 201 (or concurrent), and 244 or FSHN 244. **DB**

**ANSC 350 Humans, Food, and Animals: Ethics, Issues, and Controversies (3)** (2 Lec, 1 3-hr Lab) Ethical issues and other controversies related to human and animal needs; their impact on resource sustainability and quality of life are explored from scientific perspectives. Pre: 200 or 201 or FSHN 181 or FSHN 185. (Cross-listed as FSHN 350)

**ANSC 353 Horses and Horsemanship (3)** (2 Lec, 1 3-hr Lab) Origin of species, breeds, nutrition, care, management. Lab on management practices with work on light horses. Pre: 200, or 201 (or concurrent). **DB**

**ANSC 431 Beef Production (3)** (2 Lec, 1 3-hr Lab) Principles of economic beef production, including beef breeds, selection, breeding, management systems, feeding, and marketing under tropical conditions. Pre: 321 and 445. **DB**

**ANSC 432 Swine Production (3)** (2 Lec, 1 3-hr Lab) Principles of efficient pork production, including comparative breed evaluation, breeding, feeding,

management, marketing, and business aspects. Problems and practices associated with tropical environment emphasized. Pre: 321 and 445. **DB**

**ANSC 433 Tropical Dairying (3)** (2 Lec, 1 3-hr Lab) Principles involved in economical milk production in the tropics, including management, record-keeping, breeds, breeding, selection, culling, feeding, housing, milking, quality control, and raising young animals. Pre: 321 and 445. **DB**

**ANSC 445 Genetics and Animal Breeding (3)** Review and application of genetic principles to livestock, poultry, companion, aquatic, and laboratory research animals. Current practices and future developments. Pre: BIOL 171/L or ZOOL 101/L, and MATH 140 or higher. Recommended: biochemistry and genetics or equivalent. **DB**

**ANSC 446 Genes and Animal Biology (3)** An understanding of animal biology at the level of genes and their regulations; emphasis on gene structure, recombinant DNA, transgenic animals and functional genomics being used for agricultural, nutritional and biomedical sciences. Open to nonmajors. A-F only. Pre: 301, BIOL 171 or ZOOL 101; or consent.

**ANSC 450 Aquaculture Production (3)** Theory and practice of aquaculture: reproduction, yield trials, management, economics and business case studies of fish, crustaceans, and molluscs. Field classes held at commercial farm and hatchery. Pre: 321 and 445; or BIOL 172/L and CHEM 162/L or higher. (Cross-listed as OCN 450) **DB**

**ANSC 451 Physiology of Domestic Animals (3)** Functions and relationships of organs and organ systems of domestic animals excluding reproduction and lactation. Problem-based learning and case studies are emphasized. Pre: 301 or consent. **DB**

**ANSC 453 Animal Diseases and Their Control (3)** Disease problems of livestock, poultry, and companion animals; their economic significance, causes, public health implications, and control. Pre: 200 (or concurrent), and BIOL 171/L or ZOOL 101/L. **DB**

**ANSC 454 Meat Science and Muscle Biology (3)** Development, growth, function, carcass evaluation of muscle tissue. Pre: 301 (or concurrent). **DB**

**ANSC 454L Meat Science and Muscle Biology Lab (1)** (1 3-hr Lab) Livestock and poultry slaughter, carcass evaluation, meat chemistry, muscle physiology and biochemistry, meat microbiology, and meat processing. Pre: 454 (or concurrent). **DY**

**ANSC 455 Companion Animals and Society (3)** Explore human and companion animal relationships in biological, social, cultural, economic, legal, health, and welfare contexts to prepare students for careers in the various animal-related fields in Hawai'i, the Pacific rim, and worldwide. ANSC majors only. A-F only. Pre: 200, 201, 301 (or concurrent), and 321 (or concurrent); or consent. (Fall only)

**ANSC 460 Biology and Culture of Shrimp and Prawns (2)** Aspects of the biology and culture of the freshwater prawn *Macrobrachium rosenbergii* and marine shrimp *Penaeus* (sp) species. Scientific research results and case studies presented and analyzed. Pre: 450 or consent.

**ANSC 462 Reproduction and Artificial Insemination (3)** Introductory exploration of anatomy, development, and physiology of reproduction of domestic animals and artificial insemination. Repeatable one time. Pre: 301. **DB**

**ANSC 462L Reproduction and Artificial Insemination Lab (1)** Reproductive anatomy and physiology of domestic animals, estorus synchronization, breeding soundness, and artificial insemination laboratory, field trips. One week off-island field trip. Repeatable one time. ANSC majors or consent. Pre: 301 and 462.

**ANSC 465L Aquaculture Production Laboratory (4)** Intensive, hands-on course involving the culture of larvae and juveniles of marine shrimp, freshwater prawns, molluscs, fish, and their food. Must have strong interest in hands-on rearing and flexible time for continuous live animal care. Lab fee required.

**ANSC 472 Endocrinology of Domestic Animals (3)** Physiology of secretion and actions of hormones of pituitary, thyroid, adrenal, pancreas, parathyroid, thymus, other endocrine organs excluding reproduction. Pre: 301. **DB**

**ANSC 490 Aquaculture Business Planning and Entrepreneurship (2)** Practical aspects of planning and developing an aquaculture business from conceptualization to a final business plan. Topics include species/technology, project planning, business structuring, permitting, contracts, production plans, financial planning and analysis, market/competition analysis, capital acquisition, intellectual property and legal issues. Pre: 450 or OCN 450. Must have strong interest in hands-on rearing aquaculture animals and flexible time for live animal care.

**ANSC 491 Topics in Animal Sciences (V)** Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable up to 18 credits. Pre: junior or senior standing.

**ANSC 492 Field Experience (4)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. A-F only. Pre: senior standing in ANSC. (Cross-listed as FSHN 492)

**ANSC 499 Directed Study or Research (V)** Limited to exceptional undergraduate students, generally with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in major. Exceptions may be granted for students with high achievement in last three semesters. Repeatable unlimited times. Pre: junior or senior standing.

**ANSC 500 Master's Plan B/C Studies (1)**

**ANSC 601 The Science of Food Systems (2)** (1 50-min Lec, 1 2-hr Discussion) Discussion of food systems as they apply to animal science, food science, and human nutrition. Repeatable one time. Pre: graduate standing or consent. (Cross-listed as FSHN 601)

**ANSC 603 Experimental Design (4)** (3 Lec, 1 3-hr Lab) Design of experiments and variance analyses in biological and agricultural research. Pre: graduate standing or consent. Recommended: ZOOL 632. (Cross-listed as TPSS 603)

**ANSC 641 Seminar in Animal Sciences (1)** Topics of current interest and current research related to nutrition, genetics, and physiology. Repeatable three times. Pre: consent.

**ANSC 642 Advanced Animal Nutrition (3)** An advanced course in the nutrition of mono-gastric, ruminant, avian, and aquatic species. Topics include digestive system structures, utilization of nutrients, energy metabolism, and experimental techniques used in the study of animal nutrition. Pre: graduate standing or consent.

**ANSC 643 Physiology of Reproduction (3)** Comparative differentiation, development, growth, and function of the reproductive systems of mammals and birds; external factors that influence response; artificial insemination. Pre: graduate standing or consent.

**ANSC 644 Growth Biology of Meat Animals (2)** Growth and development of meat-producing animals; skeletal muscle, adipose tissue, and bone; protein turnover, lipid metabolism, and bioenergetics; regulation of animal growth. Pre: graduate standing or consent.

**ANSC 650 DNA and Genetic Analysis (2)** Combined lecture-lab for students interested in genetic analysis of humans, animals, and other species. Molecular techniques, such as PCR, DNA marker identifications, transgenics, expression analysis and functional genomics, are included. Open to nonmajors. Pre: graduate standing or consent. (Cross-listed as FSHN 650 and MBBE 650)

**ANSC 652 Information Research Skills (1)** Examines the use of libraries and information technology for scholarly investigation in support of scientific

research; provides experience utilizing and critically evaluating a variety of print and electronic sources in basic and applied sciences. Pre: consent. (Cross-listed as FSHN 652, NREM 652, and TPSS 652)

**ANSC 657 Grant Writing for Graduate Students (1)** Combined lecture/discussion on grants and grant writing. Designed to introduce graduate students to grants and grant proposal writing through lectures, class discussion, writing assignments, and peer review. Open to CTAHR graduate students only; others with consent. (Cross-listed as FSHN 657 and TPSS 657)

**ANSC 687 Advanced Laboratory Techniques (3)** (1 Lec, 2 3-hr Lab) Advanced laboratory techniques used in food science and human nutrition research. Pre: graduate standing or consent. (Cross-listed as FSHN 687 and MBBE 687)

**ANSC 699 Directed Research (V)** Pre: consent. Repeatable unlimited times.

**ANSC 700 Thesis Research (V)** Repeatable unlimited times.

## Anthropology (ANTH)

### College of Social Sciences

*Most 300- and 400-level courses have as a prerequisite one of the 200-level courses. Additionally, 300- and 400-level courses may be taken for graduate credit with prior approval of the student's advisor. A grade of C or better in the prerequisite courses is required for all courses. (A C- is not acceptable.)*

**ANTH 151 Emerging Humanity (3)** Introduction to human biological evolution and the archaeology of culture in the world prior to AD 1500. Open to non-majors, recommended for majors. **FGA**

**ANTH 151A Emerging Humanity (3)** Introduction to human biological evolution and the archaeology of culture in the world prior to AD 1500. Restricted to students in the Honors Program. **FGA**

**ANTH 152 Culture and Humanity (3)** Introduction to cultural anthropology. How humans create, understand, order and modify their natural, social, supernatural and physical environments, and make meaning and order. Open to non-majors, required for ANTH majors. A-F only. **FGB**

**ANTH 152A Culture and Humanity (3)** Introduction to cultural anthropology. How humans create, understand, order and modify their natural, social, supernatural and physical environments, and make meaning and order. Restricted to students in the Honors Program. **FGB**

**ANTH 165 Heritage Sites in Archaeology (V)** Combined lecture-lab-fieldwork to introduce the concepts and practices of archeology, historical research, historic site preservation, and heritage management. Repeatable one time. A-F only. **DS**

**ANTH 210 Archaeology (3)** Introduction to prehistoric archaeology; methods and techniques of excavation and laboratory analysis; brief survey of theory in relation to change and diversity in prehistoric human groups. **DS**

**ANTH 215 Physical Anthropology (3)** Human evolution, primatology, human genetics, biological variation, human adaptability, growth and development. Co-requisite: 215L. **DB**

**ANTH 215L Physical Anthropology Laboratory (1)** Laboratory to accompany 215. Co-requisite: 215. **DY**

**ANTH 300 Study of Contemporary Problems (3)** Significance of anthropology for contemporary affairs, particularly American ethnic and minority group relations. Relevance to various professions, governmental policy, political action, and accomplishment of change. Pre: 152 (or concurrent). **DS**

**ANTH 307 Theory in Contemporary Anthropology (3)** Theoretical issues that have generated current research and controversies in more than one specialty within social/cultural anthropology; historical roots. Pre: 152. **DS**

**ANTH 308 American Culture (3)** Contemporary culture of the U.S. Variations in kinship, family, work, play, values, religion; selected topics such as ethnicity, alternate lifestyles, consumerism, addiction. Pre: 152. **DH**

**ANTH 310 Human Origins (3)** Theory of evolution, evolutionary systematics, and taxonomy; evolutionary biology of primates; fossil records for primate and human evolution. Laboratory included. Pre: 215, ZOOL 101; or consent. **DB**

**ANTH 313 Visual Anthropology (3)** Historical development of documentary films of non-Western peoples; critical examination of ways in which ethnographic films represent different cultures. Pre: 152 (or concurrent). **DH**

**ANTH 315 Sex and Gender (3)** Cross-cultural theories and perceptions of sexual differences; linkage between biology and cultural constructions of gender; relationship of gender ideology to women's status. Pre: 152 (or concurrent). (Cross-listed as WS 315) **DS**

**ANTH 316 Anthropology of Tourism (3)** Anthropological perspectives on the subject of the global phenomenon of tourism. Includes issues of cultural performance, identity, and commoditization. Open to nonmajors. **DS**

**ANTH 321 World Archaeology I (3)** Archaeology of human origins, early cultures, and origins of agriculture. Pre: sophomore standing or consent. **DH**

**ANTH 322 World Archaeology II (3)** Archaeology of complex societies, including the rise of urbanism, state-level society, historical and industrial archaeology. Pre: sophomore standing or consent. **DH**

**ANTH 323 Pacific Island Archaeology (3)** Origins of Pacific peoples; chronology of settlement; sequences of culture in Australia, Melanesia, Micronesia, and Polynesia. Pre: sophomore standing or consent. **DH**

**ANTH 325 Origins of Cities (3)** Combined lecture/discussion on the emergence and development of ancient cities in comparative perspective and the dynamics of (pre)modern urban life. Examples are drawn from the Near East, Mediterranean, Africa, India, China, and the Americas. A-F only. Pre: 322 (or concurrent), SOC 301 (or concurrent), GEOG 421 (or concurrent), or consent. (Alt. years) **DS**

**ANTH 326 American Folklore and Folklife (3)** Examination of the history and ethics of folklore studies and the dynamics and social functions of traditional culture in diverse communities through topics such as ritual, storytelling, games, gossip, belief, music, and cultural tourism. Junior standing or higher. (Cross-listed as AMST 326) **DH**

**ANTH 327 Ethnohistory (3)** Review of ethnohistory, i.e., the interdisciplinary, holistic and inclusive investigation of the histories of native peoples drawing not only on documented sources, but also on ethnography, linguistics, archaeology, ecology and other disciplines as an alternative to conventional Eurocolonial history. A-F only. Pre: HIST 152, or consent. (Alt. years) (Cross-listed as IS 322) **DS**

**ANTH 330 Social Organization (3)** Systematic study of human institutions; general principles of social interaction formulated from ethnographic data. Pre: 152. **DS**

**ANTH 341 Anthropology of Virtual Worlds (3)** Anthropological study of computer mediated interaction. Focus on the ethnography of massively multiplayer online games, text-based chat rooms, and blogs. Pre: 152 or consent. (Once a year)

**ANTH 345 Aggression, War, and Peace (3)** Bio-cultural, evolutionary, and cross-cultural perspectives on the conditions, patterns, and processes of violence, war, nonviolence, and peace. Pre: 152. (Cross-listed as PACE 345) **DS**

**ANTH 350 Pacific Island Cultures (3)** Introduction to cultures of Polynesia, Micronesia, and Melanesia from time of first settlement to emergence of modern nation states. Pre: sophomore standing or consent. **DH**

**ANTH 368 Households in Cross-cultural Perspective (3)** Study of cross-cultural patterns in household and community level organizations in Latin America and elsewhere. Topics may include gender relations, kinship structures, political economy, impacts of colonialism, modernization, and globalization on households. Sophomore standing or higher. (Cross-listed as LAIS 368) **DS**

**ANTH 370 Ethnographic Field Techniques (V)** Problems and techniques of social-cultural anthropological fieldwork; ethnographic literature; work with informants. Repeatable one time. Pre: 152. **DS**

**ANTH 372 (Alpha) Indigenous Peoples of Latin America (3)** Survey of the history and culture of the indigenous peoples of Latin America through a study of their literature, texts and practices. (B) Mesoamerica; (C) Andean Region. Repeatable one time for different alphas. Pre: sophomore standing or consent. (Cross-listed as LAIS 372 (Alpha)) **DH**

**ANTH 375 Race and Human Variation (3)** Human genetic and physical variation; latitudinal, longitudinal, and altitudinal variation across human populations; history of racism; contemporary issues in race and racism. Pre: sophomore standing, recommend 152 and 215; or consent. (Once a year) **DS**

**ANTH 380 Archaeological Lab Techniques (4)** Laboratory analysis and evaluation of field data; preservation and restoration of artifacts. Preparation for publication. Repeatable two times. Pre: 210 or consent. (Once a year) **DS**

**ANTH 381 Archaeological Field Techniques (V)** Archaeological survey and excavations; field trips, mapping, photography. May focus on terrestrial or underwater. May be taught entirely in the field at a national or international archaeological site. Repeatable one time with consent. Pre: 210.

**ANTH 384 Skeletal Biology (3)** Introduction to the human skeleton and methods for analyzing archaeological human remains including age, sex, ethnicity, paleodemography, skeletal and dental variation, paleopathology, population studies. Co-requisite: 384L. **DB**

**ANTH 384L Skeletal Biology Laboratory (1)** Laboratory to accompany 384. Co-requisite: 384. **DY**

**ANTH 385 (Alpha) Undergraduate Seminar (3)** Selected problems in current research. (B) archaeology; (C) ethnography; (D) social anthropology; (E) applied; (F) psychological; (G) biological. Repeatable nine times. Pre: consent.

**ANTH 399 Directed Reading or Research (V)** Repeatable nine times. Pre: major or minor in Anthropology.

**ANTH 408 History and Memory (3)** Lecture/discussion on the culture and politics of collective memory. Pre: junior standing or consent. (Once a year)

**ANTH 410 Ethics in Anthropology (3)** Seminar surveying ethical cases, problems, issues and questions from the inception of anthropology to the present. Pre: 152. (Alt. years)

**ANTH 411 Museum Anthropology (3)** Anthropological study of museums and related sites of cultural production (historic sites, memorials, theme parks). Junior standing or higher. (Alt. years) **DS**

**ANTH 412 Evolutionary Anthropology (3)** Lecture-discussion providing an overview of evolutionary theory in anthropology: focus on the evolution of culture, behavioral ecology, and cultural diversity; emphasis on archaeological and ethnographic research and explanatory models. Pre: 210 or 215, or consent. (Once a year)

**ANTH 413 Language and Gender (3)** The role of language in the construction of gender and in the maintenance of the gender order. Field projects explore hypotheses about the interaction of language and gender. No previous knowledge of linguistics required. A-F only. (Cross-listed as LING 415) **DS**

**ANTH 414 Introduction to Linguistic Anthropology (3)** Introduction to the ethnographic study of

speech and language. Pre: 152 or consent. (Once a year) (Cross-listed as LING 414 and IS 414) **DS**

**ANTH 415 Ecological Anthropology (3)** Relationship of humans with natural environment; role of culture in ecological systems. Pre: 152. **DS**

**ANTH 416 Economic Anthropology (3)** Analysis of economic activities in non-Western, non-industrial societies; production, distribution, and consumption of goods and services in a variety of cultures. Pre: 152. **DS**

**ANTH 417 Political Anthropology (3)** Character of political institutions and their development in non-Western and non-industrial societies. Pre: 152. **DS**

**ANTH 418 The Anthropology of Sexuality (3)** Explores the intersection of sexuality research and queer theory with other anthropological concerns such as identity, race, gender, religion, economy, politics, and globalization. A-F only. Pre: junior standing or consent. **DS**

**ANTH 419 Indigenous Anthropology (3)** Exploration of how anthropology studies indigenous groups throughout the world. An examination of the changing contexts of anthropological practice as calls for reflexivity lead anthropology of all backgrounds to bring insights from their "homes." Issues include the question of objectivity, the emicetic distinction, and the ethics of different kinds of anthropological research and the role of anthropologists in indigenous self-determination. Repeatable one time. Pre: 152. **DS**

**ANTH 420 Communication and Culture (3)** Anthropological introduction to communication; intercultural and interspecies comparisons; verbal and nonverbal. Ethnography of communication, discourse and structural analyses, ethnomethodology. Pre: 152. **DS**

**ANTH 421 Anthropology and Mass Media (3)** Anthropological critique of mass media research; role of mass media in social and cultural processes of authority, economic exchange, and identity formation in Western, nonwestern, and global contexts. A-F only. Pre: 152. **DS**

**ANTH 422 Anthropology of Religion (3)** Cults, legends, millennial movements, myths, possession, rituals, sacred healing, shamanism, sorcery, spirits, symbolism, witchcraft, and other forms of religious and symbolic expression and experience, from small scale to highly urban societies. Pre: 152. (Cross-listed as REL 422) **DH**

**ANTH 423 Social and Cultural Change (3)** Various approaches to examples of social and cultural change in non-literate societies; evolution, diffusion, acculturation, revolution, etc. Historical features and social processes of colonialism. Pre: 152. **DH**

**ANTH 424 Culture, Identity, and Emotion (3)** The interrelation of culture, thought, emotion, and social realities. Role of language and culture in shaping emotional experience and self-understanding, including the formation of social identities such as gender, ethnicity and nationality. Pre: 152. **DS**

**ANTH 425 Medical Anthropology (3)** Social and cultural aspects of medicine; the relationship of medicine to the beliefs, social systems, ecological adaptations, and cultural changes of human groups. **DS**

**ANTH 427 Food, Health, and Society (3)** How human groups identify, collect, create, and transform foods; how they shape those into dietary behaviors, and the influence of those behaviors on health. Pre: junior standing or higher or consent. **DS**

**ANTH 428 Anthropology of the Body (3)** Exploration of the history and development of theories of the body via topics such as phenomenology, perception, bodily rituals, gender, sex, race, colonialism, power, pain, medicalization, immunology, reproductive health and cyborgs. Pre: 152. **DS**

**ANTH 429 Anthropology of Consumer Cultures (3)** Examines the practices and meanings of consumption in the contemporary world. Topics include

social class, branding, fandom, global-local nexus. A-F only. Pre: 152 or consent. (Alt. years) **DS**

**ANTH 430 Human Adaptation to the Sea (3)** How people from prehistoric to modern times have sailed, fished, or otherwise exploited and enjoyed the sea; how the sea has molded human life. Pre: 152. **DS**

**ANTH 435 Human Adaptation to Forests (3)** Cultural ecology of human societies in forest habitats. Emphasis on case studies of traditional and changing adaptations in the tropics. Pre: 152 (or concurrent), or consent. **DS**

**ANTH 440 The Agriculture of Identity: Food and Farming in Anthropological Perspective (3)** Exploration of agriculture from the perspective of anthropology, with a focus on alternatives to industrial agriculture, especially in the context of Hawai'i. Readings include academic writing and also literary non-fiction and journalism. AF only. Pre: 152. (Alt. years) **DS**

**ANTH 442 Globalization and Identity in the Himalayas (3)** Examines the influence of local culture and global flows on identity formation in the Himalayan region. Topics include: Hindu caste and gender, constructions of ethnicity, Tibetans and tourists, Sherpas and mountaineers, development ideologies, and consumerism. Junior standing or higher. Pre: 152 or 425 or ASAN 202 or consent. (Alt. years: fall) **DS**

**ANTH 443 Anthropology of Buddhism (3)** Selected aspects of national, regional and local manifestations of Buddhism are explored through the perspective of anthropology with an emphasis on the daily lives of monks, nuns and lay persons in their socio-cultural contexts. Pre: 422, REL 207, REL 475, or consent. (Alt. years) (Cross-listed as REL 443)

**ANTH 444 Spiritual Ecology (3)** Lectures and seminars provide a cross-cultural survey of the relationships between religions, environment and environmentalism. Pre: junior standing or consent. (Cross-listed as REL 444) **DS**

**ANTH 445 Sacred Places (3)** Lectures and seminars provide a cross-cultural survey of sites which societies recognize as sacred and their cultural, ecological and conservation aspects. Pre: junior standing or consent. (Alt. years) (Cross-listed as REL 445) **DS**

**ANTH 446 Southeast Asian Cultures (3)** Cultures of Southeast Asia from hunting and gathering groups to high civilizations; kinship, economic, political, and religious systems; recent developments. Pre: junior standing or consent. **DS**

**ANTH 447 Polynesian Cultures (3)** Analysis of Polynesian cultures from their origins to contemporary states. Pre: junior standing or consent. **DS**

**ANTH 449 Anthropology of Melanesia (3)** Close study of cultures of Papua New Guinea, Vanuatu, Solomon Islands, New Caledonia, and Fiji through anthropological ethnography. Pre: 152 or consent. (Once a year) **DS**

**ANTH 455 Human Biology of the Pacific (3)** Human biology of prehistoric and living populations of the Pacific: mainland and island Southeast Asia, Australia, Melanesia, Micronesia, and Polynesia. Fossil humans, micro-evolution, human variation, origins. Pre: 215. **DB**

**ANTH 458 Forensic Anthropology (3)** Application of physical anthropology to problems in human identification. Determination of age, sex, ancestry, etc., of the skeleton and preparation of reports for legal medicine. Pre: 384 (or concurrent). **DB**

**ANTH 460 Asian Paleoanthropology (3)** Neogene-Quaternary paleoenvironmental reconstructions; human evolution in East Asia during the Pleistocene; Out of Africa I; modern human origins. Pre: sophomore standing, recommend 310, or consent. (Alt. years) **DB**

**ANTH 461 Southeast Asian Archaeology (3)** Prehistory and protohistory of Southeast Asia and of Southeast Asian contacts with East Asia, India,

- Australia, and Oceania. Pre: junior standing or consent. **DH**
- ANTH 462 East Asian Archaeology (3)** Prehistory and protohistory of China, Japan, and Korea from earliest human occupation to historic times. Geographical emphasis may vary between China and Japan/Korea. Pre: junior standing or consent. **DH**
- ANTH 463 Anthropology of Global Health and Development (3)** Seminar explores the definitions and histories of development and global health initiatives in developing countries from an anthropological perspective. Reading materials include scholarly and popular texts that propose and critique solutions to global poverty. Junior standing or higher. A-F only. Pre: 152 or 425. (Alt. years: spring) **DS**
- ANTH 464 Hawaiian Archaeology (3)** Archaeological perspective in Hawai'i's past; origins of Hawaiians; early settlement and culture change; settlement patterns and material culture; historic sites preservation. Pre: junior standing and consent. **DH**
- ANTH 465 Science, Sex, and Reproduction (3)** Explores anthropology's critical analysis of approaches to reproductive health and procreation, primarily in developing countries. Examines sex and reproduction as sites of intervention from public health, development, and biomedical specialists, while also considering local strategies. A-F only. Junior standing or higher. Pre: 152 or 425 or WS 151. (Alt. years: Fall) (Cross-listed as WS 465) **DS**
- ANTH 466 Quantitative Archaeology (4)** Combined lecture/lab. Introduction to the basic principles of statistics as applied to the analysis of archaeological data. Exploratory data analysis approach. A-F only. ANTH majors only. Junior standing or higher. Pre: 210. (Alt. years)
- ANTH 467 Biomedicine and Culture (3)** Examination of the social and cultural foundations of, and responses to, the values, technologies and practices of modern medicine. Pre: junior standing or higher, 152, or consent. (Alt. years) **DS**
- ANTH 468 Archaeological Theory and Interpretation (3)** Introduction to theory in archaeology; interpretive paradigms; the relation of archaeological methods to interpretation and evaluation of theories. Pre: 210. **DH**
- ANTH 469 History of Archaeological Thought (3)** Historical survey of archaeology as a discipline; focusing on theoretical, methodological, and substantive advances that changed archaeology. Pre: 210. **DS**
- ANTH 471 Assemblage Analyses in Archeology (4)** Lecture and laboratory surveying methods for conducting analyses of archaeological assemblages. Focus on classification, quantitative techniques, including reliability, precision, and accuracy. Students complete projects on existing assemblages or data from assemblages. Repeatable one time. Pre: 210.
- ANTH 472 Ceramic Analysis in Archaeology (3)** Concepts, methods, and approaches used in the analysis of ancient pottery. Emphasis placed on ceramic technology, stylistic analysis. Pre: 210. **DH**
- ANTH 473 Lithic Artifact Assemblage Analysis (4)** Combined lecture/lab on the manufacture and analysis of stone tools. Students work with experimental collections and engage in stone tool production. The ways in which lithics enlighten us about past human behavior are discussed. Pre: 210 and 380, or consent. **DS**
- ANTH 474 Geoarchaeology (3)** Field and laboratory analysis of sediments and soils in archaeological context. Emphasis on depositional environments, site formation, post-depositional processes, landscape change, and paleogeomorphic reconstruction. Pre: 210. **DP**
- ANTH 475 Faunal Analysis in Archaeology (3)** Analysis of archaeologically recovered faunal collections with emphasis on identification and interpretation of nonhuman vertebrate remains. Pre: 210. **DH**
- ANTH 477 Spatial Analysis in Archaeology (3)** Lecture/lab. Introduction to the use of Geographical Information Systems (GIS) and spatial statistics in archaeological research. Topics include: map creation; spatial database management; spatial analysis; image processing, data reporting; and data display. Pre: 466. (Alt. years)
- ANTH 478 New World Rituals and Ideologies (3)** Study of cross-cultural patterns in ritual behaviors and creolization of African, indigenous, and Iberian ideological frameworks in the Americas. Topics may include syncretic religions (voodoo, candomble), Andean Christianity, spiritual conquest, conceptions of death, etc. Sophomore standing or higher. Minimum C- required grade for prerequisites. Pre: LAIS 360, or consent. (Fall only) (Cross-listed as LAIS 478 and REL 478) **DH**
- ANTH 481 Applied Anthropology (3)** The application of anthropological methods and concepts to solving practical human problems such as homelessness, domestic violence, maternal morbidity, conflict over resources, and the loss of indigenous languages. Includes a significant service-learning component. Pre: 152. **DS**
- ANTH 482 Anthropology and the Environment: Culture, Power, and Politics (3)** Investigates environmental problems from an anthropological perspective, and examines the cultural politics of contestations over resources, rights, and the meanings of nature. Pre: 415 or consent. (Alt. years) **DS**
- ANTH 483 Japanese Culture and Behavior (3)** Sociocultural factors in Japanese behavior. Social structure; traditional institutions. **DS**
- ANTH 484 Japanese Popular Culture (3)** Explores contemporary Japanese popular culture through themes such as gender, consumerism, globalization and nostalgia. Rather than a survey of popular culture genres, the course is organized thematically around issues and problematics. **DS**
- ANTH 485 Pre-European Hawai'i (3)** Pre-European society and culture from an anthropological viewpoint. Pre: junior standing or consent. **DH**
- ANTH 486 Peoples of Hawai'i (3)** Critically examines the historical and contemporary experiences of various people of Hawai'i and utilizes anthropological and ethnic studies approaches to study identity, race, ethnicity, culture, language, gender, sex, class, land, and residence. Pre: junior standing or consent. (Once a year) (Cross-listed as ES 486) **DS**
- ANTH 487 Okinawa and Its Diaspora (3)** Explores the ties of identity that exist within and between Okinawa and its diasporic populations. Pre: 152. (Alt. years)
- ANTH 488 Chinese Culture: Ethnography (3)** Critical interpretations of ethnographic and biographic texts depicting individual and family lives in different socioeconomic circumstances, geographical regions, and historical periods of modern China. **DS**
- ANTH 490 History of Anthropology (3)** Development of anthropological ideas, focusing on theoretical issues concerning culture, society, and human nature. Required of majors. Pre: 152. **DS**
- ANTH 491 Special Topics in Southeast Asian Art History (3)** Focused study of particular periods, regions and critical themes in Southeast Asian art and architectural history. Monuments and nationalism in Southeast Asia. A-F only. Pre: ART 175, or consent. (Once a year) (Cross-listed as ART 490D) **DH**
- ANTH 493 Oral History: Theory and Practice (3)** Literature and methodology; project design. Students develop and execute an oral history project. Junior standing or consent. (Cross-listed as ES 493) **DH**
- ANTH 495 Senior Thesis (3)** Preparation of a major paper with a committee of one chairperson and one other member; paper on topic of interest in anthropology. Optional for majors. Pre: 490 and senior standing. **DS**
- ANTH 496 Senior Thesis (3)** Preparation of a major paper with a committee of one chairperson and one other member; paper on topic of interest in anthropology. Optional for majors. Pre: 490 and senior standing. **DS**
- ANTH 500 Master's Plan B/C Studies (1)**
- ANTH 601 Ethnology (3)** Survey, in historical perspective, of theory in social and cultural anthropology. A course in the graduate core of anthropology. Pre: graduate standing.
- ANTH 602 Linguistic Anthropology (3)** Investigation of mutual influences of linguistic theory and methodology and anthropological theory and methodology. A course in the graduate core of anthropology. Pre: graduate standing.
- ANTH 603 Archaeology (3)** Development of critical and analytical skills in assessment of archaeological literature; emphasis on the science, theory, explanation, and paradigms that comprise archaeology. A course in the graduate core of anthropology. Pre: graduate standing.
- ANTH 604 Physical Anthropology (3)** Human evolution and human variability in extant and previously existing populations; emphasis on history of physical anthropology, evolutionary systematics, primate biology and behavior, paleontology, anthropological genetics, climatic adaptation, growth, and nutrition. A course in the graduate core of anthropology. Pre: graduate standing.
- ANTH 605 Discursive Practices (3)** Emphasizes linguistic, semantic, and interactional aspects of culture, exploring ways that discourse constructs social action and social realities, examining processes by which culture is produced as meaningful behavior in actual situations. Pre: graduate standing.
- ANTH 606 Anthropology of Infectious Disease (3)** The role of human behavior, including its social and cultural determinants, in understanding the distribution of infectious diseases and in shaping preventive and therapeutic strategies. Pre: graduate standing.
- ANTH 607 The Media and Discursive Practice (3)** Role of the mass media in constructing meaning in social cultural processes such as nationalism, ritual, identity, and collective memory. Attention to interactional and post-structural theories of discourse that link the mass media to discursive practice. A-F only.
- ANTH 608 History and Memory (3)** History and collective memory as culturally formed and politically contested realities. The role of narrative, ritual, and media technologies in shaping representations of the past. Pre: graduate standing.
- ANTH 609 (Alpha) Culture and Leadership (3)** Multicultural perspectives on the theory and practice of leadership. (B) service learning and leadership; (C) applied leadership internships; (D) contemporary leadership profiles; (E) film and leadership. A-F only. Pre: graduate standing and consent.
- ANTH 610 Anthropology of Tourism (3)** Social and cultural analysis of tourism practices, with emphasis on Hawai'i, Asia and the Pacific. Tourism in relation to consumer culture, transnational flows of people and images, post-colonial politics, performance and identity formation.
- ANTH 611 Contemporary Anthropological Theory (3)** Graduate seminar that examines the history of theory in sociocultural anthropology from 1960 to present. Designed to be taken in sequence after 601. Pre: 601 or concurrent. (Once a year)
- ANTH 620 (Alpha) Theory in Social and Cultural Anthropology (3)** Major theoretical problems in (B) kinship; (C) cognitive systems; (D) religion; (E) political institutions; (F) law and social control; (G) economics; (H) ecology; (I) other to be announced. Repeatable nine times. Pre: graduate standing.
- ANTH 640 (Alpha) Methods and Theory in Archaeology (3)** Focused seminars pertaining to distinct areas of archaeological method and theory. (B) analytical; (C) environment/landscape; (D) applied archaeology; (E) economic/resources; (F) survey/location. Repeatable two times. Pre: 603.
- ANTH 645 Historic Preservation (3)** Federal, state, and local laws and regulations that regulate and

provide protection to significant archaeological and historical resources in Hawai'i and the region. (Alt. years: spring only) (Cross-listed as AMST 645).

**ANTH 660 Paleoanthropology of Asia (3)** Survey of the Asian paleoanthropological record, particularly in its paleoenvironmental setting; Out of Africa I; modern human origins. Pre: graduate standing and relevant background in anthropology or related field. (Alt. years)

**ANTH 663 Anthropology of Global Aid (3)** Examines ideologies of development, humanitarian, and global health interventions from an anthropological perspective. Explores the disjunction between discourses that portrays global aid as easing suffering and those that accuse it of maintaining relationships of domination. A-F only. (Alt. years: spring)

**ANTH 667 Biomedicine and Culture (3)** Examination of the social and cultural foundations of, and responses to, the values, technologies, and practices of modern medicine. Pre: graduate standing. (Alt. years)

**ANTH 668 Archaeology Field Methods (V)** (5 7-hr Lab) Laboratory and field training in the principles and practice of methods of archaeology—survey, mapping, excavation, conservation. Repeatable one time. Pre: graduate standing.

**ANTH 670 Applied Archaeology Practicum (V)** Applies course work in archaeology to hands-on activities under the direction of practicing professionals and university faculty. MA track in Applied Archaeology students only. Repeatable up to 12 credits. Pre: consent.

**ANTH 671 Applied Method and Theory in Hawaiian Archaeology (3)** Graduate seminar focused on method and theory in the practice of applied archaeology in Hawai'i. Pre: graduate standing or consent. (Alt. years)

**ANTH 676 Recording Historic and Cultural Resources (3)** Techniques in recording and evaluation of historic buildings and other resources, with an emphasis on field recordings and state and federal registration procedures. (Cross-listed as AMST 676 and PLAN 676)

**ANTH 681 Applied Cultural Anthropology (3)** Theory, methods, and results of application of cultural anthropological concepts to practical problems. Graduate students only.

**ANTH 682 Applied Cultural Anthropology Practicum (3)** Applies course work in cultural anthropology to hands-on activities under the direction of practicing professionals and university faculty. Repeatable one time. ANTH majors only. Graduate students only. Pre: 681.

**ANTH 695 Professional Skills Develop in Anthropology (3)** Seminar prepares graduate students for entry into profession, including employment opportunities, research, presentations, ethics and outreach. Required of all Plan B students. Pre: graduate standing.

**ANTH 699 Directed Reading or Research (V)** Repeatable nine times. Pre: graduate standing and consent.

**ANTH 700 Thesis Research (V)** Research for master's thesis. Repeatable nine times.

**ANTH 710 Seminar in Research Methods in Cultural Anthropology (3)** Ethnographic research methods. Introduction to the approaches and techniques of participatory research, including the collection, analysis, and interpretation of social and cultural data. Politics and ethics of research practice. Repeatable one time. Pre: graduate standing in anthropology or consent.

**ANTH 711 Seminar in Research Design and Proposal Writing (3)** Research design and proposal writing. For students preparing for advanced research. Pre: graduate standing in ANTH or consent. (Fall only)

**ANTH 720 Anthropology of Japan (3)** Japan examined through three dimensions of cultural anthropology: cultural/symbolic, social/organizational, and individual/psychological. Selected topics

analyzed and interpreted in terms of conjunctions of these dimensions. Pre: 483 or 484.

**ANTH 750 (Alpha) Research Seminar (3)** Selected problems in current research. (B) archaeology; (C) medical; (D) ethnography; (E) social; (G) biological. Repeatable nine times. Pre: graduate standing.

**ANTH 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable nine times.

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## Arabic (ARAB)

*College of Languages, Linguistics and Literature*

*Students choosing Arabic for the language requirement should realize it may not be offered if demand is limited.*

**ARAB 101 Elementary Modern Standard Arabic (4)** Designed to provide students with basic knowledge of Modern Standard Arabic. Focuses on developing proficiency in the standard written Arabic language, as well as formal spoken Arabic. **HSL**

**ARAB 102 Elementary Modern Standard Arabic (4)** Focuses on developing proficiency in the standard written Arabic language as well as formal spoken Arabic. It introduces a wide range of situation-based texts and topics that build vocabulary, grammar, and general communicative competence. Pre: 101. **HSL**

**ARAB 201 Intermediate Modern Standard Arabic (4)** Designed for students who have successfully completed a year of Elementary Arabic. Focus is on acquisition of more complex grammatical structures, expanding vocabulary, and developing competence in a wide range of communicative situations. Pre: 102 or exam or consent. (Fall only) **HSL**

**ARAB 202 Intermediate Modern Standard Arabic (4)** Designed for students who have successfully completed three semesters of Arabic. Focus is on intensive practice of interactive functional skills such as listening comprehension and fundamental conversation strategies. Pre: 201 or exam or consent. (Spring only) **HSL**

**ARAB 301 Third-Level Arabic I (3)** Develop proficiency in reading/listening comprehension in Modern Standard Arabic. The instructional materials consist of authentic written, visual and audio materials. Classes meet 3 hours weekly. Pre: 202 (or equivalent), or consent.

**ARAB 302 Third-Level Arabic II (3)** Continuation of third-level Arabic I. Emphasis on developing writing and interaction ability at advanced levels of proficiency. Course includes extensive reading, composition exercises, listening skills, conversation practice and extensive review of Arabic grammar. Developing fluency is the main objective of this course. Classes meet 3 hours weekly. Pre: 301 (or equivalent), or consent.

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## Architecture (ARCH)

*School of Architecture*

*All courses are restricted to declared architecture majors, unless otherwise specified.*

**ARCH 100 Introduction to the Built Environment (3)** Introduction to the breadth of design in today's global culture. Exploration of human responses to place, climate, culture, communication, and technology, with emphasis on the impact of scientific knowledge on environmental design. Open to nonmajors. **DS**

**ARCH 101 Basic Design Studio (4)** Introduction to creative design processes focusing on the investigation of composition within defining perceivable space. Hands-on exploration of materials and structures as an introduction to design processes. Open to non-majors. A-F only. **DA**

**ARCH 132 Design Communication (4)** Exploration of critical judgment and means to conceptualize, develop, present, and both visually and orally communicate form and space, including fundamentals of freehand drawing, mechanical drawing, physical

model making, diagramming, and graphic techniques. Open to non-majors. A-F only. **DA**

**ARCH 200 Collaboration in Environmental Design (2)** Investigation of the various disciplines in the environmental design field, including architecture, landscape architecture, interiors, historic preservation, urban design, and construction management. Emphasis given to collaborative methods to address critical issues. Open to non-majors. A-F only.

**ARCH 201 Architecture Design Studio(4)** Development of design processes to study precedents and explore solutions responding to human needs in built and natural environment with emphasis on analysis and representation architectonic space and form using hand and computer techniques. A-F only. Pre: 235. **DA**

**ARCH 220 Introduction to Environmental Systems A (3)** Introduction to building systems, including structural, environmental, life-safety, building envelope, building materials and building assemblies. Development of design skills with emphasis on elevating skills in assessing and selecting appropriate building systems. A-F only. Pre: 132 and MATH 140.

**ARCH 235 Computer Applications in Design (4)** Exploration of digital design fundamentals and their application to design analysis, conceptualization, design process, and communication of design intent. Pre: 100, 101, and 132.

**ARCH 251 Introduction to Landscape Architecture (3)** Principles and practice of landscape planning, design, and technology. Ecological, sociocultural, and natural science determinants of landscape form and pattern. Open to nonmajors if space available.

**ARCH 271 World Architecture and Urbanism A (3)** Investigation of the history and theory of architecture in the world's major cultural regions, from early agricultural settlements to 1500 C.E. Investigation of architecture in relationship to social, political, technological, and material forces. Open to non-majors. Pre: HIST 151. **DH**

**ARCH 272 World Architecture and Urbanism B (3)** Investigation of the history and theory of architecture from the 15th century C.E. to the present. Investigation of architecture in relationship to social, political, technological, and material forces. Open to non-majors. Pre: HIST 152. **DH**

**ARCH 321 Introduction to Environmental Systems B (3)** Introduction to environmentalism; focusing on the impact of building systems of the global environment; the role of environmental regulations/certifications, and understanding of sustainable principles (economic, social, and natural systems). ARCH majors only. A-F only. Pre: 320, and PHYS 151/151L.

**ARCH 341 Intermediate Design Studio A (4)** Building and site design with emphasis on site development, analysis, and climatic response. Introduction to sustainable design, land use ordinances, description and delineation of property and land features, and urban and community design influences. A-F only. Pre: 201.

**ARCH 342 Intermediate Design Studio B (4)** Architectural design with emphasis on space planning, building materials, technology, climatic responses, and codes including complex functional requirements, multi-story design issues, vertical transportation, structure, and finishes. Production of complete schematic design documents. Detailed writing instruction. A-F only. Pre: 341.

**ARCH 350 Introduction to Planning (3)** Perspectives on planning; planning tools and methods; specific Hawai'i planning/research problems from a multidisciplinary approach. Pre: consent. **DS**

**ARCH 351 Introduction to Urban Design (3)** Principles and practice of urban design within the comprehensive planning process. Sociocultural, economic, political, environmental determinants of urban form and pattern. Open to nonmajors if space available. **DS**

**ARCH 352 Landscape Architecture History, Theory, and Practice (3)** Surveying the development of landscape architecture as an art form from Mesopotamia to present. Exploring the theory, profession and art of landscape architecture in the world by physical, social, economic, political, and cultural environmental factors. (Alt. years)(Cross-listed as TPSS 352) **DH**

**ARCH 353 Landscape Graphics Studio (3)** Basic skills of landscape graphic communication through a creative process model. Learning free hand and technical drafting techniques to create effective landscape graphics. Pre: consent. (Alt. years) (Cross-listed as TPSS 353) **DA**

**ARCH 354 Tropical Landscape Planting Design Studio (3)** Students will develop basic skills of residential landscape graphic and design processes in order to clearly articulate the ability to think, analyze, and extend a physical solution in the proper scale. Repeatable one time. A-F only. (Alt. years)(Cross-listed as TPSS 354) **DA**

**ARCH 371 Design Theory (3)** Examination of theories, movements, and periods in architectural history focusing on contemporary issues. Introduction to analytic techniques for achieving understanding of formal and spatial ordering of architectural and site constructs. ARCH majors only. A-F only. Pre: 271 and 272.

**ARCH 372 Special Topics in Architectural History and Theory (3)** An examination of specific theories, movements, or periods of architectural history. Changing topics to be taught by both regular and visiting faculty. Repeatable three times. Pre: 271 and 272. **DH**

**ARCH 399 Directed Work (V)** Pre: consent.

**ARCH 400 Project Management (3)** Exploration of the management of architectural services from project initiation through project completion. Investigation of project delivery options; management of project design teams, project operations and services; design parameter definition; design service documentation; and project execution. A-F only. Pre: 200.

**ARCH 405 Selected Design Studio (3)** Special architecture/interior architecture problems individually selected by students or faculty to sharpen design skills. Repeatable one time.

**ARCH 406 Office Research Practicum (3)** Learn design research method[s]. Conduct architectural design research under the guidance of a practicing architect in an office setting in an area of the architect's expertise and interest. The experience also exposes students to the professional practice of architecture via shadowing an architect mentor relative to typical design process activities, communication techniques, and professional ethics issues. A-F only. Pre: 200.

**ARCH 415 Concentration Design Studio (6)** Professional experience combined with scholarly and research activity occurring in an off-campus location with a focus on architectural concentration areas. ARCH majors only. A-F only. Pre: 342.

**ARCH 422 Green Building Evaluation and Rating Systems (3)** Introduction to green building design, construction, and operation standards and rating systems. Emphasis on understanding the intent, criteria, and process of the LEED system in preparation for application in a professional setting. ARCH majors only. A-F only.

**ARCH 432 Construction Management (3)** Design professional's role during the building procurement process, particular emphasis on documentation and construction phases. Analysis of value of professional construction management services.

**ARCH 433 Professional Practice Law and Ethics (3)** Exploration of the practice of architecture including: professionalism; office organization and administration; public, client, consultant, and other contractor relations; project administration, procedure and compensation; construction law and contract administration. A-F only. Pre: 200 and 341.

**ARCH 434 Digital Design Synthesis (3)** Investigation of processes for generating architectonic

form using current digital technologies. Making advanced geometric models including investigation of morphological transformations. Study of design optimization, digital fabrication, information modeling, and generative algorithms. ARCH majors only. A-F only. Pre: 235.

**ARCH 435 Architectural Economics (3)** Survey of fundamental business principles and economic theories as they relate to professional practice for design professionals. **DS**

**ARCH 442 Introduction to Urban Design (3)** Principles and practice of urban design within the comprehensive planning process. Sociocultural, economic, political, environmental determinants of urban form and pattern. Open to non-majors if space available. A-F only. **DS**

**ARCH 451 Landscape Architecture Design Seminar (3)** Principles and practice of landscape architecture within the comprehensive design processes of the built environment. Focus on context-specific sociocultural, economic, political, environmental determinants of landscape forms and patterns. Open to non-majors if space available. A-F only.

**ARCH 461 Introduction to Interior Architecture (3)** Introduction and orientation to the field. Fundamental design principles and elements as applied to interiors. Basic materials and methods of interior construction; basic professional and business practices. Critical analysis of an existing interior space. Open to nonmajors if space available. Repeatable three times. **DA**

**ARCH 471 Historic Architecture Design Seminar (3)** Introduction to historic preservation. Exploration of design principles and elements as applied to conservation of historic resources, including basic conservation materials and methods, professional practices, and critical analysis of existing methodologies. Open to non-majors if space available. A-F only.

**ARCH 472 Documentation of Historic Architecture (V)** Study and documentation of existing buildings, structures, and sites of historic and/or cultural significance, including field measurements and drawings, historical research, photo documentation, and preparation of archival drawings to be deposited in the Library of Congress. Documentation conducted according to standards of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER). Repeatable three times. Pre: consent. (Cross-listed as AMST 475)

**ARCH 473 History of American Architecture (3)** History of American architecture in terms of style, techniques, and symbolic meaning. (Cross-listed as AMST 423) **DH**

**ARCH 474 Preservation: Hawai'i, Asia, and the Pacific (3)** Lectures and discussions on historic preservation issues in Hawai'i, Asia, and the Pacific. Emphasis on indigenous and national expressions. Pre: junior standing or consent. (Cross-listed as AMST 474) **DH**

**ARCH 477 Research Seminar (V)** Research methodology for the qualitative development of an optimum environment. Repeatable three times. Pre: consent.

**ARCH 490 Special Topics (3)** Selected topics in any aspect of architecture. Content to be announced. Repeatable three times.

**ARCH 491 Special Topics in Architecture History (3)** Specialized work on the history and theory of architecture. Repeatable unlimited times. ARCH majors only. A-F only.

**ARCH 492 Special Topics in Architectural Technology (3)** Specialized investigation of technological developments in structural systems, environmental control systems, or materials and methods of construction. Repeatable unlimited times. ARCH majors only. A-F only.

**ARCH 493 Special Topics in Architecture and Design (3)** Work on specialized topics in the fields of architecture and design. May include research

and/or studio experiences in architecture, interior architecture, computer-aided design, professional practice, advanced visual design, and architectural graphics. Repeatable unlimited times. ARCH majors only. A-F only.

**ARCH 495 (Alpha) Foreign Exchange (3)** Various course work including design, history, theory, technology, and sustainability offered for international exchange students. (E) elective; (L) laboratory; (P) project; (S) seminar. A-F only. Pre: departmental approval.

**ARCH 515 Asia-Pacific Architectural History and Theory (3)** Study of the history and theory of culture and the built environment with particular focus on the Asia-Pacific region. ARCH majors only. A-F only.

**ARCH 516 Architecture and Urban Design Theory (3)** Detailed investigation of major theories in architecture and urban design and examination of their impact on contemporary architectural practice in varied geo-political contexts. Open to non-majors. A-F only.

**ARCH 522 Architecture Systems I: Introduction to Systems (3)** Study of building materials, assemblies, and integrated design including structural, environmental, life-safety, and building envelope systems. Development of ability to design, analyze and assess appropriate systems. ARCH majors only. A-F only. Pre: MATH 140.

**ARCH 523 Architecture Systems II: Qualitative Bioclimatic Structural Performance (3)** Introduction to the theory of bioclimatic structural systems and the ability to analyze, assess, select, design, and integrate them as initial determinants into the building design. ARCH majors only. A-F only. Pre: graduate status.

**ARCH 524 Architecture Systems III: Quantitative Structural Analysis and Design (3)** Introduction to procedures and wood, steel, concrete, and masonry material properties used for structural analysis and design of individual structural elements and building structural systems. ARCH majors only. A-F only. Pre: 523.

**ARCH 525 Architecture Systems IV: Environmental Technology, Sustainability, and Analysis (3)** Application and analysis of high-performance building design principles. Emphasis on climate-appropriate passive design, energy-efficient lighting and conditioning strategies, innovative water systems, and renewable energy production. ARCH majors only. A-F only. Pre: 523.

**ARCH 526 Architecture Systems V: Building Systems Integration (3)** Properties, evolution, and range of building materials, assemblies, and systems and their applications in integrated high-performance building design with a focus on the role of detail and systems in the design process. ARCH majors only. A-F only. Pre: 524, 525, and 542.

**ARCH 531 Advanced Design Communication I (3)** Exploration of digital technologies, their relationship to design, and their application to architectural analysis, conceptualization, design processes, communication, representation, and construction. ARCH majors only. A-F only. Pre: departmental approval.

**ARCH 533 Advanced Design Communication II (3)** An interdisciplinary investigation of design theory as connected to digital technology and its applications to current developments in practice and research within architecture and design. ARCH majors only. A-F only. Pre: 235 or 531.

**ARCH 534 Forms and Frames of Practice (3)** Comprehensive study of architectural practice within the global context with emphasis on the Asia Pacific region. Exploration of information technology systems, materials and design process research, construction technology, computer aided manufacturing, and entrepreneurial approaches. ARCH majors only. Graduate students only. A-F only.

**ARCH 535 Architecture Doctorate Seminar (3)** Assessment of both contemporary and future

architectural education, research and practice, by examining existing and evolving consistencies and shared visions that cut across distinct architectural approaches and other disciplines. Conceptual skills in the production of architecture that links environmental concerns with advances in building construction, computational and informational technologies. It includes the study of collaboration in design and on the technologies and spaces that support it; the study of encoding design knowledge in material resolution. CR/NC only. Pre: consent.

**ARCH 537 Advanced Design Communications III (3)** Interdisciplinary investigation of design theory as connected to architectural presentation techniques, particularly oral and written, to current developments in architectural practice. A-F only.

**ARCH 539 Research Methods Seminar (3)** Comprehensive assessment of objectives and function of research in architecture. Lecture, seminar, independent work with emphasis on doctorate project topic and proposal development. ARCH majors only. A-F only. Pre: 515 and 541.

**ARCH 540 Architecture Studio I: Intro to Design (6)** Design theories and systematic analytic and synthetic methodologies applied to creation of building and site spaces responsive to environmental and human needs. Several individual projects. ARCH majors only. A-F only.

**ARCH 541 Architecture Studio II (6)** Design of a medium complexity building and site engaging social, cultural, codes, building systems, and sustainable design. Production of program and schematic design documents. Individual projects. ARCH majors only. A-F only.

**ARCH 542 Architecture Studio III (6)** Design of complex, large scale building and site engaging social, cultural, code, sustainable systems, and acoustic issues. Production of schematic and design development documents. ARCH majors only. A-F only. Pre: 523, 533, and 541.

**ARCH 543 Architecture Studio IV: Urban Design (6)** Urban design focused on Asian cities investigating social, cultural, political, and technological factors; study of historical precedents, building/block typology, circulation, infrastructure, and context response. ARCH majors only. A-F only. Pre: 524 and 542.

**ARCH 544 Architecture Studio V: Comprehensive Design (6)** Design and programming for a moderately complex building and site. Production of design development and partial construction documents describing sustainable building assemblies and construction cost. ARCH majors only. A-F only. Pre: 524, 525, and 542.

**ARCH 545 Advanced Practice (3)** Comprehensive study of architectural practice investigating architect's response to global forces, including entrepreneurial practice, office organization, project delivery, compensation, and construction law. ARCH majors only. A-F only. Pre: 524, 533, and 542.

**ARCH 546 (Alpha) Doctorate Project I (V)** Individual development of a doctorate project with an approved chair and doctorate project committee that advances architectural knowledge through analysis, research, scholarship, and design. (C) China; (G) global; (H) Hawai'i. Repeatable one time for (H). ARCH majors only. A-F only. Pre: 547T for (C); 547C for (G); 516, 526, 539, and 545 for (H).

**ARCH 547 (Alpha) Professional Studio (V) (8 for B) (6 for T)** Scholarly and research activity combined with professional experience occurring in an off-campus location. (B) business; (C) community design; (E) alternative; (G) global; (H) Hawai'i; (P) practicum; (T) China. Repeatable one time per alpha. ARCH majors only. Graduate standing only for (G), (H), and (T). A-F only. Pre: 543, 545, and 546 for (C), (E), and (P); 542 for (T); 543 for (B) and (G).

**ARCH 548 (Alpha) Doctorate Project II (V)** Individual development of a doctorate project with an approved committee that advances architectural

knowledge through research, scholarship, design, and engages theoretical and architectonic propositions. (C) China; (G) global; (H) Hawai'i. ARCH majors only. A-F only. Pre: 546G for (C); 548C for (G); 547C, 547P, or 547E for (H).

**ARCH 550 (Alpha) Architecture Studio (6)** Urban design focused on investigating social, cultural, political, and technological factors; study of historical precedents, building/block typology, circulation, infrastructure, and context response. (C) China; (G) Global. A-F only. ARCH Global Track only. Graduate standing only. Pre: 547B or 547G for (C); 550C for (G).

**ARCH 551 Architecture Topics (1)** Range of topics allowing acquisition of knowledge and ability needed for professional architectural practice offered online. Repeatable two times. ARCH majors only. A-F only. Pre: 415.

**ARCH 554 Professional Studio Topics (3)** Varied topics furthering knowledge and ability needed for professional design practice emphasizing communication methods for collaborative and integrated design using digital technologies. ARCH majors only. A-F only. Pre: 544.

**ARCH 555 Advanced Global Practice (3)** Comprehensive study of architectural practice investigating architect's response to global forces, including entrepreneurial practice, office organization, project delivery, compensation, and construction law. A-F only. Pre: 545.

**ARCH 569 Study Abroad: Architectural Study Tour (V)** Firsthand examination of the architecture of various countries, with emphasis on experiencing and comprehending significant spaces within historical, cultural, and physical contexts. Topics and countries visited change with each offering. Open to nonmajors. Repeatable two times.

**ARCH 571 Architecture History (3)** Investigation of architectural history and theory in the world from antiquity to present. Examining social, political, technological, material, and environmental forces. ARCH majors only. A-F only.

**ARCH 577 History of Hawaiian Architecture (3)** Investigation of social, cultural, political, climactic, and technological factors influencing the historical development of architecture in Hawai'i. ARCH majors only. A-F only.

**ARCH 588 Doctorate Project II Extension (3)** Extension of the development of a doctorate project with an approved committee that advances architectural knowledge through research, scholarship, design, and engages theoretical and architectonic propositions. Repeatable one time. ARCH majors only. CR/NC only. Pre: 548.

**ARCH 591 Digital Design and Fabrication (3)** Theoretical and design investigations into fabrication and construction techniques using computer aided design and manufacturing technologies. ARCH majors only. A-F only. Pre: 533.

**ARCH 595 Building and Landscape: Theory and Practice (3)** Research into landscape, landscape architecture, and architecture from historical, historiographic, and theoretical perspectives. ARCH majors only. A-F only.

**ARCH 628 Preservation: Theory and Practice (3)** History and philosophy of historic preservation movement. Analysis of values and assumptions, methodologies and tactics, implications for society and public policy. (Cross-listed as AMST 675 and PLAN 675)

**ARCH 650 Vernacular Architecture (3)** Methods and approaches in the study of vernacular architecture, cultural landscapes and material culture, with an emphasis on traditions and innovations in the Americas. (Cross-listed as AMST 681)

**ARCH 679 Elements of Style (3)** The manifestations, visual characteristics, and social/cultural meaning of "style" in American architecture and decorative arts from the early settlement period through the present. (Cross-listed as AMST 679)

**ARCH 690 Special Topics Seminar (3)** Seminar on a wide range of architectural topics to be directed by both visiting and regular faculty. Repeatable three times. Pre: consent.

**ARCH 691 Special Topics: Architecture History/Theory (3)** Specialized work at an advanced level on the history and theory of architecture. Repeatable unlimited times.

**ARCH 692 Special Topics in Architectural Technology (3)** Specialized investigation at an advanced level of technological developments in structural systems, environmental control systems, or materials and methods of construction. Repeatable unlimited times.

**ARCH 693 Special Topics in Architecture and Design (3)** Intensive work on specialized topics in the fields of architecture and design. May include research and/or studio experiences in architecture, interior architecture, computer-aided design, professional practice, advanced visual design, and architectural graphics. Repeatable unlimited times.

**ARCH 699 Directed Work (V)**

## Art and Art History (ART)

*College of Arts and Humanities*

**ART 101 Introduction to the Visual Arts (3)** Nature of the world's visual arts and their influences on personal expression. Lectures, demonstrations, and studio practice. (Not for art majors or minors) **DA**

### ART STUDIO CORE COURSES

*It is recommended that art majors complete 113 and 116 of the art studio core prior to undertaking studio courses at the 200 level.*

**ART 113 Introduction to Drawing (3)** Descriptive, expressive, and formal aspects of visual language through drawing practice. **DA**

**ART 116 Introduction to Three-Dimensional Composition (3)** Basic concepts, elements, and principles of art. **DA**

### ART HISTORY & THEORY CORE COURSES

*It is recommended that art majors complete both 175 and 176 prior to undertaking studio courses at the 300 level. 175 and 176 is required of all Art majors; 302 is required of all BFA's and 395 is required of all Art History majors.*

**ART 175 Survey of Global Art I (3)** Art produced in Asia, Africa, Native America, Europe, and the Pacific Islands, from prehistory to the 15th century. Religious and philosophical ideas expressed in architecture, painting, prints, sculpture, applied art, body art, and textiles. (Fall only) **FGA**

**ART 176 Survey of Global Art II (3)** Art produced in Asia, Africa, Native America, Europe, and the Pacific Islands, from the 15th century to the present. Religious and philosophical ideas expressed in architecture, painting, prints, sculpture, applied art, body art, and textiles. (Spring only) **FGB**

**ART 302 Theory and Criticism of Art (3)** Examination of the significant themes and issues in contemporary theory and criticism as they relate to the production and reception of art. Pre: 176 or consent. **DH**

**ART 395 Art Historical Methodology (3)** Introduction to the methods and approaches of art history. Students will develop skills in perception and comprehension of visual art forms, and a critical understanding of the methods used by art historians to analyze them. A-F only. Pre: 175 and 176 and consent. **DH**

### HISTORY OF ART

**ART 371 Medieval Art (3)** Arts of Europe from early Christian era to Renaissance. Pre: 175 or consent. **DH**

**ART 373 Art of Greece and Rome (3)** Minoan and Mycenaean arts; Greece and Rome. Pre: 175 or consent. **DH**

**ART 374 Art of the 19th Century (3)** Architecture, sculpture, and painting of Europe. Pre: 176 or consent. **DH**

- ART 380 Early Art of Japan (3)** Major developments, prehistoric through Kamakura; architecture, painting, sculpture. Pre: 175 or consent. **DH**
- ART 381 Later Art of Japan (3)** Major developments, Muromachi to modern period; painting, sculpture, architecture. Pre: 176 or consent. **DH**
- ART 384 Art of Korea (3)** Ceramics, sculpture, painting, and architecture; neolithic through Yi periods. Pre: 175 or consent. **DH**
- ART 385 Art and Culture of Early China (3)** A culturally oriented study of Chinese visual arts; emphasis on jade, bronze, secular and religious sculptures, and paintings from prehistory to the 9th century. Pre: 175 or consent. **DH**
- ART 386 Art and Culture of Late China (3)** A culturally oriented study of Chinese visual arts; emphasis on the rise of literati painting and theory individualism in art and theory, garden, and architecture, and the Chinese pursuit of modernity and post-modernity in art. Pre: 176 or consent. **DH**
- ART 390 Art of Africa, Pacific, North America (3)** Contextual study of art from selected areas in Africa, the Pacific, and North America. Pre: 176 or consent. **DH**
- ART 396 (Alpha) History of Photography (3)** History of photography from its beginnings to the present; emphasis on the evolution of photography as an art form; (B) nineteenth century, from the invention of photography through pictorialism; (C) twentieth century, from World War I to the present. Repeatable one time for different alphas. Pre: 176 or consent. **DH**
- ART 460 Early 20th Century American Art (3)** American art in the first half of the 20th century and its impact on American culture. Junior standing or higher. Pre: 176 or consent. (Alt. years: fall) (Cross-listed as AMST 460)
- ART 470 (Alpha) Renaissance Art (3)** Painting, sculpture, and architecture: (B) early Renaissance in Italy; (C) northern Europe; (D) High Renaissance and mannerism in Italy. Repeatable one time for different alphas. Pre: 176 or consent. **DH**
- ART 471 Baroque and Rococo Art (3)** Architecture, sculpture, and painting of Europe in the Baroque and Rococo periods. Pre: 176 or consent. **DH**
- ART 472 Art of the United States (3)** Emphasis on the 18th and 19th centuries. Pre: 176 or AMST 202 or consent. (Cross-listed as AMST 456) **DH**
- ART 473 Art of the First Half of 20th Century (3)** Development of modern art in Europe 1900–1939. Pre: 176 or consent. **DH**
- ART 474 Art Since Middle 20th Century (3)** Art since 1945, with a focus on the global expansion of the avant-garde. Pre: 176 or consent. **DH**
- ART 475 (Alpha) Art of the Pacific (3)** Visual form and function of the arts in cultural context: (B) Indonesia; (C) Melanesia, Micronesia, Polynesia; (D) North Pacific coast Indian, Eskimo. Repeatable one time for different alphas. Pre: 176 or consent. **DH**
- ART 476 Art of Tribal Africa (3)** Visual form and function of arts in cultural context. Mali, Burkina Faso, Ivory Coast, Liberia, Guinea, Nigeria, Ghana, Cameroon, Congo, Zaire. Pre: 176 or consent. **DH**
- ART 478 Representing Identity in Contemporary Art (3)** Focus on issues of self representation with an emphasis on discussion of gender, cultural, and political identity in contemporary art and visual culture. A-F only. Pre: 176 or consent. (Alt. years) **DH**
- ART 479 Art of Hawai'i (3)** Stylistic and aesthetic characteristics of art of ancient Hawai'i; relationship to art from other parts of Polynesia. Pre: 176 or consent. **DH**
- ART 483 Applied Art of Japan (3)** Ceramics, metalwork, lacquer, and textiles throughout Japanese history. Pre: 175 and 176; or consent. **DH**
- ART 486 Traditional Chinese Painting (3)** Stylistic and historic development of two-dimensional arts; painting and calligraphy from prehistory through 18th century. Pre: 175 or consent. **DH**
- ART 487 Modern and Contemporary Art of China (3)** Introduction to the arts of China in the modern and contemporary periods, in all media and genres, from 1840 to the present. Repeatable one time. Pre: 176 or consent. **DH**
- ART 490 (Alpha) Special Topics in Southeast Asian Art History (3)** Focused study of particular periods, regions and critical themes in Southeast Asian art and architectural history. (B) Angkor & art of Khmer civilization; (C) art & architecture of Thailand; (D) monuments & nationalism in Southeast Asia. Repeatable one time for up to two different alphas. A-F only. Pre: 175, or consent. (Once a year) (D Cross-listed as ANTH 491) **DH**
- ART 491 (Alpha) Art of Southeast Asia (3)** Critical analysis of the historical and cultural development of Buddhist and Hindu art in Southeast Asia; (B) island Southeast Asia; (C) mainland Southeast Asia. Repeatable one time for different alphas. Pre: 175 or consent. **DH**
- ART 492 (Alpha) Art and Architecture of South Asia (3)** Art and architecture of South Asia in historical and cultural context. (B) introduction to art of India and South Asia; (C) Hindu visual culture. Pre: 175 or consent. **DH**
- ART 493 Art of Islam (3)** Major developments in art and architecture. Pre: 175 or consent. **DH**
- ART 494 Photography: Critical Issues (3)** Seminar on theoretical, ethical and aesthetic issues relating to the practice of photography, past and present. A-F only. Pre: 396B or 396C, or consent. **DH**
- ART 495 History of Modern Design (3)** Major design movements in Europe and America from late 19th century to present; arts and crafts movement, art nouveau, modernist trends of the 20th century. Pre: 176 or consent. **DH**
- ART 496 Topics in the History of Cinema (3)** Specific period or national style of cinema studied in its historical context. Repeatable two times. Pre: 176 or consent. **DH**
- ART 670 Art Historical Methodology (3)** An introduction to art historiography, analytical techniques, and research methods and materials. Pre: consent and graduate standing.
- ART 677 Art of Oceania (3)** Arts from Polynesia, Melanesia, Micronesia explored in context of issues involving belief systems and cultural change. Repeatable one time. A-F only. Pre: 475C or consent.
- ART 688 Topics in the Art of China (3)** Research topics in the history of Chinese sculpture, ceramics, bronzes, jade, and textiles. Pre: consent.
- ART 690 Interdisciplinary Seminar (3)** Issues of contemporary art. Analysis of current literature and criticism. Pre: consent.
- ART 695 (Alpha) Seminar in Western Art History (3)** Selected topics in European and American art history. Pre: consent.
- ART 780 Seminar in Japanese Art (3)** Selected topics in Japanese art history. Pre: consent.
- ART 791 Seminar in South/Southeast Asian Art History (3)** Selected topics in South and/or Southeast Asian art and architectural history with an emphasis on Hindu and Buddhist traditions. Repeatable unlimited times. Pre: consent, repeatable with consent.
- ART 792 Orientalism and Visual Culture (3)** Investigates artistic representations, appropriations, and exchanges constructed on the basis of East/Orient vs. West/Occident differences. Includes analysis of: Orientalizing artistic traditions throughout history, history and concept of Orient, post-colonial critique of Orientalism. A-F only. Pre: graduate standing or consent. (Alt. 2-3 years) (Cross-listed as ASAN 792)
- CERAMICS**
- ART 242 Introduction to Ceramics (3)** Three-dimensional concepts in clay; hand-building and wheel-throwing techniques. Projects, lectures, and demonstrations. **DA**
- ART 343 Ceramics—Sculpture (3)** Sculptural concepts and techniques specifically related to the medium of clay; advanced hand-building, throwing, glazing, and firing techniques. Repeatable one time after completion of 344 and 345. Pre: 242 or consent. **DA**
- ART 344 Ceramics—Vessels (3)** Exploration of the ceramic vessel as function, metaphor, and expression. Advanced hand-building, throwing, glazing, and firing techniques. Repeatable one time after completion of 343 and 345. Pre: 242 or consent. **DA**
- ART 345 Ceramics—Low Temperature (3)** Form and surface problems related to earthenware clay bodies and low-temperature glazes; mold-making for ceramics. Repeatable one time after completion of 343 and 344. Pre: 242 or consent. **DA**
- ART 346 History of Western Ceramics (3)** Western ceramics history from chronological, developmental, contextual, and theoretical standpoints; influence of Asian ceramics. Pre: 242, with 175 and 176 recommended; or consent. **DH**
- ART 347 Technical Ceramics (3)** Clay body development, glaze development, empirical and calculation methods. Emphasis on glaze maturity, surface, and color. Pre: 242, and one of 343, 344, or 345; or consent. **DA**
- DIGITAL IMAGING**
- ART 202 Introduction to Digital Imaging (3)** Combined theory and practice examining major techniques, concepts, and aesthetics in contemporary digital image production. Direct studio experience in essential software, printing techniques and hardware necessary in producing the gallery quality inkjet print. A-F only. Pre: 113 or consent. **DA**
- ART 304 Digital Imaging: Professional Printing (3)** Combined theory and practice. Investigates industry standard methods for archival pigment printing. Techniques include: device calibration and profiling, black and white, coating techniques, mounting and adhesive techniques, professional portfolio presentation. A-F only. Pre: 202. **DA**
- ART 305 Digital Imaging: Alternative Printing (3)** Combined theory and practice. Merges digital printing, mark-making, photography, and traditional printmaking. Includes image transfers, lifts, pre-coating techniques, as well as printing on alternative substrates such as watercolor papers, metals, and cloth. Repeatable one time. A-F only. Pre: 202 or consent. **DA**
- DRAWING/PAINTING**
- ART 123 Introduction to Painting (3)** Theory and practice of painting; material and technical procedures. Pre: 113 or consent. **DA**
- ART 213 Intermediate Drawing (3)** Extension of the observational foundation established in 113 to address contemporary conceptual and expressive approaches to drawing. Pre: 113 or consent. **DA**
- ART 214 Introduction to Life Drawing (3)** Investigations of the figure concerning anatomical construction, light, space, diagrammatic analysis, and thematic content. Pre: 113 or consent. **DA**
- ART 223 Intermediate Painting (3)** Extension of the observational foundation established in 123 to address contemporary conceptual and expressive approaches to painting. Pre: 113 and 123. **DA**
- ART 225 Painting/Water-Based Media (3)** An introduction to water-based media. Traditional transparent color, gouache and acrylics. Pre: 113 or consent. **DA**
- ART 313 Advanced Drawing (3)** Studio practice in drawing emphasizing contemporary developments in art. Repeatable one time. Pre: 213 or consent. **DA**
- ART 314 Intermediate Life Drawing (3)** Further investigations of the figure concerning anatomical and diagrammatic construction, light, space, and thematic content. Pre: 214 or consent. **DA**
- ART 320 Chinese Brush Art (3)** Brush techniques in classical painting and calligraphy; studio course. Repeatable one time. Pre: 113 or consent. 225 is recommended. **DA**

**ART 321 Materials and Techniques of Painting**

(3) Experiments with various traditional and contemporary materials and procedures; discussion of their influences on painting. Pre: 123, 175, and 176; or consent. **DA**

**ART 322 Advanced Color** (3) Theory and application of color as related to studio practice. Pre: 123 or consent. **DA**

**ART 323 Advanced Painting I** (3) Studio practice in painting emphasizing contemporary developments in art. Repeatable one time. Pre: 223 or consent. **DA**

**ART 324 Painting from Life** (3) Painting from the model; a survey of the figurative tradition. Repeatable one time. Pre: 214, 223, or consent. **DA**

**ART 414 Advanced Drawing from Life** (3) Study of the figure with emphasis on the expressive function of drawing. Repeatable one time. Pre: 314 or consent. **DA**

**ART 423 Advanced Drawing/Painting II** (3) Development of greater formal means and aesthetic insight, emphasizing independent development. Required for BFA capstone in painting. Repeatable one time. Pre: 313 and 314 or 323 and 324 with a B (not B-) or better; or consent. **DA**

**ELECTRONIC ARTS****ART 201 Introduction to Electronic Arts**

(3) Theory and practice course investigating language common to all arts activity particularly as related to the contemporary arts. Pre: any studio art course; or consent. **DA**

**ART 301 (Alpha) Electronic Arts Studio I**

(3) (6 Lec/Lab) Combined theory and practice studio course(s) that investigate language, processes, and personalized composing systems related to the use of technological media and its application to a variety of contemporary art areas and related disciplines. (B) imaging systems; (C) sound; (D) interactive systems. Pre: 201 and one 200-level studio; or consent. **DA**

**ART 401 Advanced Electronic Arts Studio**

(3) Tutorial studio that encourages exploration in combined and new media through independent work within an environment of theoretical and critical discourse. Repeatable one time. Pre: 301 or consent. **DA**

**FIBER**

**ART 103 Introduction to Fiber Arts** (3) Broad-based studio exploration of materials, techniques, concepts in contemporary fiber art. May include surface patterning/manipulation, papermaking, woven, other 2D/3D hand construction techniques. Focus on creative-problem solving, experimentation in a cooperative studio setting. **DA**

**ART 237 Woven Structures** (3) Structured studio exploration of creative potential of working with threads under tension. In-depth introduction to a variety of traditional and experimental processes/materials. Tradition of pattern weaving to experimental woven forms. A-F only. Pre: one of 103, 116; or consent. **DA**

**ART 238 Fiber Forms** (3) In-depth studio exploration of non-loom fiber techniques for creating/manipulating 2D and 3D forms. Emphasis on concept development, skill mastery, innovative application of materials/techniques. May include felting, knotting, netting, piecing, coiling, found object/sewn constructions, papermaking. A-F only. Pre: one of 103, 116; or consent. **DA**

**ART 335 Papermaking** (3) Studio emphasis on handmade papermaking techniques, conceptual exploration in two and three dimensions. Repeatable one time. A-F only. Pre: one fiber course or one of 104, 113, 116; or consent. **DA**

**ART 336 Wearable Art—Body and Material**

(3) Studio exploration of clothing as art form and the body as living armature and performance. Emphasis on development of concept, skill, collaborative and individual voice through material investigation, research, discussions, lectures, individual and group projects. Repeatable one time. A-F only. Pre: one

200-level fiber course, or 116 and one 200-level studio course; or consent. **DA**

**ART 337 Fiber Sculpture—Endurance and Impermanence**

(3) Studio exploration in contemporary dimensional fiber using both conventional and non-conventional materials and processes. Emphasis on concept development, sensitivity to the evocative potential of materials, context, surface treatment and its relationship to concept and structure. Repeatable one time. A-F only. Pre: one 200 level fiber course or 116 and one 200 level studio course; or consent. **DA**

**ART 339 Designing Surface** (3) In-depth studio exploration of fiber techniques for patterning and manipulating cloth and other related experimental surfaces. Engages conceptual exploration through experimentation with traditional fiber patterning techniques such as dyeing, resisting, direct printing, embellishment drawing with thread and piercing. Group and individual projects. A-F only. Pre: 113 and 116; or consent. **DA**

**ART 437 Textile Conservation/Research** (V) Independent study of textile conservation and research. Individualized directed work (internship/practicum) in the museum environment. Repeatable up to twelve credits. A-F only. Pre: two 200-level or above fiber courses, and consent.

**ART 438 Applied Fiber History** (3) Investigation of historical and contemporary fibers as an art form with direct studio workshop experience in basic related fiber processes and concepts. Includes lectures, discussions, demonstration, and individual and collaborative studio projects. Pre: 175 and 176 and one 200 level or above studio course, or consent. **DA**

**ART 439 Installation/Performance—Material in Context**

(3) Studio investigation of the definition/transformation of space through artist intervention. Emphasis on the evocative potential of materials in context (physical, social, political, psychological) as well as experiments in non-object based interventions. Repeatable one time. A-F only. Pre: two 200-level or above studio courses, or consent. **DA**

**GLASS**

**ART 130 Introduction to Glass** (3) Basic techniques of working with cold and molten glass. Theory of glass studio operation and introduction to glass theory. **DA**

**ART 230 Glass Casting: Sand and Metal Molds**

(3) Expressive explorations in glass casting with wet sand, bonded sand, and metal molds. Repeatable one time. Pre: 116 (or concurrent) and 130, or consent. **DA**

**ART 234 Cold Glass Fabrication** (3) Expressive explorations using architectural sheet glass. Development of 2D and 3D forms using engraving, sandblasting, and cold joinery techniques. Pre: 113 (or concurrent), 116 (or concurrent), and 130; or consent. **DA**

**ART 303 Kiln-Formed Glass** (3) Expressive explorations in the use of kiln-formed, fusible-sheet glasses and enameling on glass. Pre: 234 or consent. **DA**

**ART 306 Lost Wax Glass Casting** (3) Glass kiln casting techniques, lost wax fuse casting, pâte de verre. Repeatable one time. Pre: 230 and either 254 or 356, or consent. **DA**

**ART 330 Advanced Glass** (3) Glass as an expressive medium. Individual problems; construction of studio equipment. Readings and discussions of contemporary glass issues. Repeatable one time. Pre: 230 and either 254 or 356, or consent. **DA**

**GRAPHIC DESIGN**

**ART 265 Design: Studio I** (3) Introduction to graphic design. Explorations of rhetorical and semiotic structures and their relationship to visual form and content. ART 176 is recommended as a prerequisite. A-F only. Pre: 113 or consent. Co-requisite: 265L and 266. **DA**

**ART 265L Design: Studio I Lab** (1) Beginning instruction in the Macintosh computer environment, including hardware, software, and lab networking as

it relates to graphic design production. ART 176 is recommended as a prerequisite. CR/NC only. Pre: 113 or consent. Co-requisite: 265 and 266.

**ART 266 Design: Typography I** (3) Introduction to typography. Exploration of letterform and word compositions in the context of single-page structures. ART 176 is recommended as a prerequisite. A-F only. Pre: 113 or consent. Co-requisite: 265 and 265L **DA**

**ART 365 Design: Studio II** (3) Intermediate graphic design. Emphasis on communication problems involving process and analysis. Introduction to modernist precedents and information theory. A-F only. Pre: 113, 116, 175, 176, 265, 266; or consent. Co-requisite: 365L and 366. **DA**

**ART 365L Design: Studio II Lab** (1) Intermediate instruction in the Macintosh computer environment, software, and peripheral devices, including intermediate layout. Introduction to graphic design industry standard multi-media and web design programs. CR/NC only. Pre: 265, 265L, and 266; or consent. Co-requisite: 365.

**ART 366 Design: Typography II** (3) Intermediate typographic design, exploration of word and text composition in the context of multiple-page structures. A-F only. Pre: 113, 116, 175, 176, 265, 266; or consent. Co-requisite: 365 and 365L. **DA**

**ART 465 Design: Studio III** (3) Advanced graphic design. Emphasis on postmodernist theory, context, audience, and alternative media. A-F only. Pre: 365, 365L, and 366; or consent. Co-requisite: 465L. **DA**

**ART 465L Design: Studio III Lab** (1) Advanced instruction in the Macintosh computer environment, including software and peripheral devices. Instruction in image manipulation and editing still video images for the web, CD, DVD, and portable interface devices. CR/NC only. Pre: 365, 365L, and 366; or consent. Co-requisite: 465.

**ART 466 Design: Typography III** (3) Advanced typographic design. Exploration of 2D, 3D, electronic, and intermedia. Emphasis on contemporary typographic models. A-F only. Pre: 365, 365L, and 366; or consent. **DA**

**ART 467 Design: Production Techniques** (3) Advanced techniques in design production from printed and digital media. A-F only. Pre: 465, 465L, and 466; or consent. **DA**

**ART 469 Design: Advanced Studio** (3) Individual and team investigations of complex problems in graphic design. Emphasis on projects with actual clients (when available) and/or independent investigations addressing advanced and current questions in the graphic design field. A-F only. Pre: (465 and 465L and 466) with a minimum grade of B. (Spring only)

**PHOTOGRAPHY**

**ART 107 Introduction to Photography** (3) Studio/lecture examining the major themes and issues in historical and current photographic production. Direct black and white darkroom experience. Students must have 35mm film-based camera with adjustable shutter speed, aperture, and light meter. **DA**

**ART 207 Intermediate Photo: Black and White** (3) Black and white photography emphasizing communication and self-expression. Lectures, demonstrations, and projects. Student must supply camera and material. Pre: 107. **DA**

**ART 307 Advanced Lighting** (3) Emphasis on aesthetic and critical analysis. Techniques covered include continuous light, strobe and handheld flash. Repeatable one time with consent. Pre: 202 and 207 with a minimum grade of B and positive portfolio review, or consent. **DA**

**ART 308 (Alpha) Advanced Photographic Techniques** (3) Emphasis on aesthetic and critical analysis. (B) color; (C) hand-applied emulsion. (B) and (C) Repeatable one time with consent. Pre: 202 and 207 with a minimum grade of B and positive portfolio review, or consent. **DA**

**PRINTMAKING**

**ART 104 Introduction to Printmaking (3)** Foundation explorations in the processes of relief, intaglio, and stencil printmaking. Direct workshop studio experience in the basic techniques and concepts of wood cut, linoleum cut, drypoint, monotype, and basic stencil processes. **DA**

**ART 215 Intaglio Printmaking (3)** Studio practice in concepts and techniques of making prints from metal plates including etching, engraving, aquatint, and drypoint. Pre: 104 or 113. **DA**

**ART 217 Screenprinting (3)** Studio practice in screenprinting on paper. Copy camera and basic photo-stencil techniques introduced. Pre: 113. **DA**

**ART 218 Relief Printmaking (3)** Studio practice in the techniques and concepts of woodblock, linoleum cut, monotype, and calligraph printmaking. Emphasis on both traditional and contemporary practices. Pre: 104 or 113, or consent. **DA**

**ART 316 Lithography (3)** Studio practice in concepts and techniques of making prints from lithographic limestone and plates. Pre: 113 and one of the following: 214, 215, 217, 218; or consent. **DA**

**ART 318 Intermediate Printmaking (3)** Intermediate level specialization in either intaglio, lithography, screenprinting, or relief printmaking. Concentration on the techniques and formats of color printing and sequential image development. Repeatable two times. Pre: two printmaking courses and portfolio review, or consent. **DA**

**SCULPTURE**

**ART 254 Sculpture—Metal Casting (3)** Metal casting and development of associated practices and concepts. Repeatable one time. Pre: 116 or consent. **DA**

**ART 255 Sculpture—Carving, Mixed Media (3)** Investigations of traditional and contemporary carving concepts and methods. Repeatable one time. Pre: 116 or consent. **DA**

**ART 351 Sculpture—Figure Modeling (3)** Figure modeling, mold making, and casting. Repeatable one time. Pre: 116 or consent. **DA**

**ART 352 Kinetic Sculpture (3)** The design and construction of objects incorporating movement as an integral element of their content. Repeatable one time. Pre: 116 or consent. **DA**

**ART 356 Sculpture—Metal Fabrication (3)** Metal fabrication and development of associated practices, concepts, and historical references. Repeatable one time. Pre: 116 or consent. **DA**

**ART 357 Sculpture—Small-Scale (3)** Fabrication and casting of forms on a small scale such as jewelry. The development of related practices, concepts, and historical references. Repeatable one time. Pre: 116 or consent. **DA**

**ART 358 Utilitarian Sculpture (3)** The design and construction of objects intended for use/interaction. Emphasis on wood and synthetic materials. Repeatable one time. Pre: 116 or consent. **DA**

**ART 359 Sculpture—Contemporary (3)** Contextualization of late 20th/early 21st century sculptural practice, including stylistic and theoretical frameworks, with references to influences of various historical Western and Asian traditions and applying this knowledge in the creation of sculpture. Pre: 116 and 176, or consent. **DA**

**VARIABLE CREDIT AND OTHER COURSES**

**ART 360 Exhibition Design and Gallery Management (3)** Design theory and techniques for presentation of artworks and mounting exhibitions. Pre: junior standing and consent. **DA**

**ART 369 (Alpha) Study Abroad-Studio Art (3)** Intensive study of topics in studio art at a UH Mānoa-approved study abroad institution. (B) introductory; (C) upper-division. Repeatable one time per alpha. A-F only. Pre: consent. **DA**

**ART 389 (Alpha) Study Abroad-Art History (3)** Intensive study of advanced topics in art history at a UH Mānoa-approved study abroad institution. (B)

introductory; (C) upper-division. Repeatable one time per alpha. A-F only. Pre: consent.

**ART 399 Directed Work (V)** Individual projects; tutorial. Maximum: 3 credit hours per semester; total 3 for BA, 6 for BFA. Pre: two 200-level or above art courses in area of directed work, as well as consent of instructor and department associate chair.

**ART 400 Special Topics (V)** Intensive and specialized work at advanced level in fields of special interest of visiting or resident faculty. Repeatable three times. Pre: advanced standing and consent.

**ART 405 Professional Practice in the Arts: Creative, Career, and Leadership (3)** Examination of the role of the artist in society, the artist as self, as community member, as teacher. Professional Practice skills in the arts; planning, grantsmanship, fundraising, budgeting, marketing, outreach, and media relations. ART majors only. Senior standing or graduate students only. A-F only.

**ART 409 Graduation Portfolio (0)** Required graduation portfolio for BA Art History and Art Studio students. BA ART majors only. Undergraduates only. CR/NC only. To be taken during the semester prior to expected graduation.

**ART 410 BFA Capstone Seminar (3)** In conjunction with the production of art for the BFA annual exhibition, this seminar will examine, critique, and evaluate the student's art within the context of contemporary art, professional practices, exhibition theory, and integrate theoretical and practical issues in the life of an artist. BFA majors only. A-F only. Pre: BFA major or consent. (Spring only)

**ART 481 Museum Interpretations (3)** Studies the interpretive strategies and methods used by museums to communicate with visitors in museums, art galleries, historic sites, parks, and related places. Considers how interpretations contribute to cultural knowledge. Repeatable one time. Pre: consent. (Cross-listed as AMST 457) **DH**

**GRADUATE STUDIOS**

*Studio concentrations for the Master of Fine Arts degree: ceramics, electronic arts, glass, fiber, painting, photography, printmaking, and sculpture. Four sequential course levels (611-614) are to be taken for the MFA degree in Art.*

**ART 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**ART 611 Graduate Studio Seminar in Art I (6)** Selected topics in art. Emphasis on technical experimentation, diversification of research, and the exploration of new areas of creative inquiry. ART majors only. A-F only. Pre: consent. (Fall only)

**ART 612 Graduate Studio Seminar in Art II (6)** Selected topics in art. Emphasis on the analysis of the systems by which art is conceived and the ability to define developing direction and related research. ART majors only. A-F only. Pre: 611 or consent. (Spring only)

**ART 613 Graduate Studio Seminar in Art III (6)** Selected topics in art. Emphasis on the development of critical analysis and the understanding of one's position relative to the contemporary art world. ART majors only. A-F only. Pre: 612 or consent. (Fall only)

**ART 614 Graduate Studio Seminar in Art IV (6)** Selected topics in art. Emphasis on the convergence of one's studio practice and research, and the refinement necessary to the preparation for entrance into thesis. ART majors only. A-F only. Pre: 613 or consent. (Spring only)

**ART 630 Graduate Studio Teaching Practicum (3)** Observation, analysis and participation in teaching a lower division course under the direction of an instructor in the student's area of concentration. Repeatable one time. A-F only. Pre: 690, admitted to candidacy for MFA in art, and consent.

**ART 699 Directed Work (V)** Advanced individual projects; advanced tutorial. Maximum: 3 credit hours per semester; total 6 for MA Plan A, 9 for MA Plan

B, 9 for MFA. Repeatable unlimited times. Pre: consent of instructor and department chair.

**ART 700 Thesis Research (V)** Repeatable unlimited times.

**Arts and Sciences (CAS)***Colleges of Arts and Sciences*

**CAS 099 International Exchange (V)** Designed for students accepted for participation in an international exchange program while enrolled at UH Mānoa. CR/NC only. Pre: Admittance to an international exchange program.

**CAS 101 Using Information Critically (3)** Concepts and practice for effective information seeking, evaluation, and use in context of information technology and libraries. Research framework structures activities involving fiction, film, scholarly studies, writing, oral presentation; original research is culminating project. A-F only.

**CAS 102 RAP Foundation Course (3)** Focus on communication and research skills. Multilevel work with technology, community service, linking with K-12 students, creation of museum exhibits. A-F only. Open only to RAP students.

**CAS 110 Integrating Seminar I (1)** An introduction to the university community; topics include critical thinking, the value of higher education, cultural and transition issues. A-F only.

**CAS 111 Integrating Seminar II (1)** Through the use of a unifying theme, students explore linkages with academic disciplines represented in Freshman Learning Communities. Theme examples: diversity, epistemology. A-F only. (Spring only)

**CAS 200 (Alpha) Scholar Seminars (1)** Discussion-based seminar led by senior faculty/administrator. Students meet with instructor for 1 hour once a week. Freshmen may take up to three alphas.

**CAS 301 ACE Mentoring: Facilitating Student Development (4)** Theoretical foundations in student learning and holistic development. Practical leadership skills acquisition and application through the facilitation of a seminar for new freshmen. Repeatable one time. A-F only. Pre: consent. (Fall only)

**Asian Studies (ASAN)***School of Pacific and Asian Studies*

**ASAN 201 Introduction to Asian Studies: East Asia (3)** Understanding East Asia through multidisciplinary approaches. Examines the interrelationship of policies, economy, literature, religion, the arts, and history as the basis for such an understanding. **DH**

**ASAN 202 Introduction to Asian Studies: South/Southeast Asia (3)** Understanding South and Southeast Asia through multidisciplinary approaches. Examines the interrelationship of policies, economy, literature, religion, the arts, and history as the basis for such an understanding. **DH**

**ASAN 241 Civilizations of Asia (3)** Historical survey of major civilizations of Asia from earliest times: East Asia, Southeast Asia, and South Asia. (Cross-listed as HIST 241) **DH**

**ASAN 242 Civilizations of Asia (3)** Continuation of 241. (Cross-listed as HIST 242) **DH**

**ASAN 308 Chinese Political Economy (3)** Interdisciplinary review and analysis of the social and political issues in contemporary China, the interchange between state and society in national policies, the relationship between cultural tradition and technological modernization in the social transformation process. A-F only. Pre: sophomore standing or higher, or consent. (Cross-listed as POLS 308) **DS**

**ASAN 310 Asian Humanities (3)** Multidisciplinary. Classics of literature, philosophy, and religion shaping Asian beliefs and values. Pre: 201 and 202, or consent. **DH**

**ASAN 312 Contemporary Asian Civilization (3)** Multidisciplinary examination of problems and issues affecting peoples and institutions of contemporary

Asia; ethnic, language, religious, and cultural differences; population growth; public health; economic development; political and social change; environmental problems; etc. Pre: 201 and 202, or consent. **DS**

**ASAN 320 (Alpha) Asian Nation Studies (3)** Multidisciplinary examination of major Asian countries; cultural, social, economic, and political lives of their peoples. (C) China; (I) South Asia; (J) Japan; (K) Korea; (O) Okinawa; (P) Philippines; (S) Southeast Asia; (Z) Other. Pre: 201 and 202, or consent. Repeatable three times in different alphas. **DS**

**ASAN 323 The Way of Tea in Japanese History and Culture (3)** History and culture of Japan as revealed in study and practice of tea ceremony: Zen, aesthetics, calligraphy, architecture, ceramics, gardens, politics. (Cross-listed as HIST 323) **DH**

**ASAN 324 Chado—the Way of Tea Practicum (2)** Actual practice of the tea ceremony as history and culture of Japan. Repeatable one time. Pre: 323 (or concurrent), HIST 323 (or concurrent), or consent. **DA**

**ASAN 325 (Alpha) Japanese Film: Art and History (3)** Study and analysis of Japanese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. (B) 1900-1960; (C) 1960-present; (D) special topics. Pre: upper division standing or consent. (Cross-listed as EALL 325) **DH**

**ASAN 330 Chinese Film: Art and History (3)** Study and analysis of Chinese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. Pre: 201 and 202, or consent. (Cross-listed as EALL 330) **DH**

**ASAN 360 Buddhist Philosophy (3)** Survey of central thinkers and schools. Pre: any course 100 or above in PHIL, CHN, JPN, PALI, SNSK, or TIB; or consent. (Cross-listed as PHIL 360) **DH**

**ASAN 361 Southeast Asian Literature in Translation (3)** Survey in English traditional and modern literatures of Southeast Asia. A-F only. (Cross-listed as IP 361) **DL**

**ASAN 364 20th-Century Chinese Women Writers (3)** A survey and critical examination of contemporary Chinese women writers from China, Taiwan, and Hong Kong. Traces a genealogy of women's writing from the early 1920s up until now through novels, poetry, drama, and film. Pre: one DH or DL course, or consent. (Cross-listed as EALL 364 and WS 346) **DL**

**ASAN 393 (Alpha) Field Study in Asia (3)** Students may submit proposals to have academic course work, field research, or work experience in Asia. See specific center for guidelines and procedures. (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia; (Z) Other. Repeatable one time.

**ASAN 406 Modern Philippines (3)** Survey of major developments from pre-colonial through Spanish and American colonial periods, the revolution, Japanese occupation, and post-war republic. (Cross-listed as HIST 406) **DH**

**ASAN 410 Gender and Politics in U.S.-Okinawa Relations (3)** Examines gender in Okinawa in relation to historical dynamics in the Asia-Pacific region with attention to issues such as militarism and violence, colonialism and memory, and tourism and commodification of indigenous culture. A-F only. Pre: WS 151 or consent. (Cross-listed as WS 410)

**ASAN 462 Contested Issues in Contemporary Japan (3)** Familiarizes students with public discourse in Japan by analyzing key current issues widely debated in the Japanese media and in public forums in light of their political, historical, cultural, social and economic contexts. A-F only. Pre: 201, 202, 312, 320J, ANTH 483, ANTH 484, ECON 317, POLS 307H, SOC 357, or upper level undergraduate standing; or consent. **DS**

**ASAN 463 Gender Issues in Asian Society (3)** Construction of gender identities in contemporary Asia. How these interface with other aspects of social

difference and inequality (e.g., with class, religion, ethnicity). Pre: 201 and 202, or any WS course; or consent. (Cross-listed as WS 463) **DS**

**ASAN 464 J-pop, J-rock, and Idols: Japanese Popular Music and Society (3)** Examines modern Japan through popular music. Examines genres from early modern Japanese music, to postwar enka and idol groups, up to today's J-pop and J-rock. A-F only. (Summer only)

**ASAN 465 Japan Cool: Anime, Manga, and Film (3)** Focus on the world of Japanese anime, manga, and films. What can one learn about Japan from these products? Focus on issues of gender, national identity, and race. A-F only. (Summer only)

**ASAN 469 Ethnic Diversity in China (3)** Surveying Tibetans, Mongols, Manchus, Muslims, and other minorities, as well as analyzing the nature of minority/majority identity in China from an anthropological perspective. Pre: 201 and 202, or consent. **DS**

**ASAN 470 Sustainable Development in East Asia (3)** Interdisciplinary investigation of development in East Asia is an urgent issue. Status and role of Asian business; current technological, economic, and financial developments; impact on world economy. Pre: 201, 312, or BUS 314; or consent. (Cross-listed as FIN 470)

**ASAN 473 Chinese Diaspora and Visual Culture (3)** Examines films focusing on the social relationships and cultural practices of the Chinese diaspora, i.e. Chinese communities living outside China (e.g. Taiwan, Hong Kong, Southeast Asia, North America, and Europe). Weekly film discussions in class, readings on visual culture, media studies, and film criticism. Course material will also include theater productions, art exhibitions, and other visual material depending on availability. Pre: any 300- or 400-level DL or DH course. (Cross-listed as EALL 473) **DH**

**ASAN 474 Transnational Chinese Popular Culture (3)** Survey of contemporary Chinese popular entertainment forms that are produced and appreciated transnationally. Examples include martial arts genres, kung fu films, commercial novels, ballroom dancing, karaoke culture, music videos and rock music. Material will be selected based upon availability and readings will include critical essays from the fields of popular culture, media studies, and literary criticism. Pre: any 300- or 400-level DL or DH course. (Cross-listed as EALL 474) **DH**

**ASAN 478 Music Cultures: India (3)** Approaches the cultural study of music and performance through a specific focus on South Asia. Pre: junior standing or consent. (Cross-listed as MUS 478H)

**ASAN 480 Culture and Economy of Southeast Asia (3)** An exploration of the cultural and economic development of the countries of Southeast Asia from early times to the present day, with an emphasis on the effects of outside influences. Pre: 201 and 202, or consent. **DH**

**ASAN 485 Contemporary Chinese Development (3)** Development and planning in contemporary China: economic policy and institutional structure in the development and urbanization process; urban and rural transformation in a socialist economy. Pre: upper division standing or consent. **DS**

**ASAN 491 (Alpha) Topics in Asian Studies (3)** Selected topics in Asian studies. (B) Buddhist studies; (C) China; (G) Asia; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia; (Z) Other. Pre: 201 or 202, or consent. Repeatable two times. **DS**

**ASAN 492 Women and Revolution (3)** Conditions under which women's activism and participation in protest and revolutionary movements developed in the 19th- and 20th-centuries. Cross-cultural comparisons. (Cross-listed as HIST 492 and WS 492) **DH**

**ASAN 493 Globalization in Asia (3)** Globalization affects the economic, political, and cultural lives of people in Asia. Transformations by capitalism in

agricultural and industrial sectors of contemporary societies. Perspective is historical and global; approach is interdisciplinary. Repeatable two times. Pre: 201 and 202, or consent. **DS**

**ASAN 495 Encountering Tourism in Asian-Pacific Societies (3)** A critical examination and current impact of tourism on contemporary Asian and Pacific Island societies. Topics include colonial antecedents, social impacts, cultural and environmental concerns, case studies (including Hawai'i). Pre: 201 or 202, or consent. (Cross-listed as PACS 495) **DS**

**ASAN 496 Religions of Island Southeast Asia (3)** A comparative, interdisciplinary examination of indigenous beliefs, Islam, Christianity, and Hinduism in island Southeast Asia, and how they have been adjusted because of economic and social change. Pre: 201 and 202, or consent. **DH**

**ASAN 499 Directed Reading (V)** Repeatable three times. Pre: consent.

**ASAN 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable six times. Pre: master's Plan B or C candidate and consent.

**ASAN 501 Practicum in Asian Studies (V)** Repeatable two times (for a maximum of three times) with consent.

**ASAN 600 Asian Studies Seminar: Scope and Methods (3)** Scope of Asian studies as a field; contributions of major disciplines to study of Asia; resources and methods of research; preparation of research proposal. (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia. Pre: graduate standing.

**ASAN 608 Politics and Development: China (3)** Consists of three parts: key theories for socialist transition as basis for seminar discussion, policy evolution to illustrate the radical changes, and emerging and prominent current development and practice. Pre: one of 600, POLS 308, or POLS 341; or consent. (Cross-listed as POLS 645C and PLAN 608)

**ASAN 611 Comparative Muslim Societies in Asia (3)** Will compare Muslim societies and cultures in Asia with each other and with the so-called "core" Middle Eastern Muslim societies. Pre: 600 or consent.

**ASAN 612 20th Century Literary and Cultural Studies (3)** Critical scholarship in Chinese literature and cultural studies, broadly defined to include the People's Republic of China, Taiwan, Hong Kong, and others. Reading knowledge of Chinese desirable but not required. Repeatable one time with consent. Pre: consent. (Cross-listed as EALL 611)

**ASAN 620 Problems/Issues of Contemporary Asia (3)** Analysis from multidisciplinary perspective: rural development, urbanization, international relations, ethnicity, religion, language, etc. Repeatable one time with different topics. Pre: 312 or consent.

**ASAN 623 Gender in Asian Performing Arts (3)** Performance is a rich site for gender construction, critique, and articulation in Asia. This seminar examines gender reflected in traditional music, dance, and theatre, including character role and performer persona; approaches of performance and culture studies, and an "Asian way." A-F only. (Once a year)

**ASAN 624 Culture and Colonialism (3)** Analysis of theories and debates (cultural studies, feminist writings, post-colonial issues). Case studies of the transformation and creation of "traditional" cultures under colonialism. Pre: 310 or 312, or consent.

**ASAN 625 Comparative Development in East and Southeast Asia (3)** Comparative developmental analysis of Asia's leading economic powers. Considers Japanese political and economic developmental model; discusses problems for continued Asian growth; examines Korea, Taiwan, China, Indonesia, Thailand, Philippines and other Asian nations. Pre: 312, 600, or consent.

**ASAN 626 Capitalism in Contemporary Asia (3)** Historically grounded theoretical examination of capitalism in 20th-century Asia; multidisciplinary approach to fundamental change in political and

economic structures and institutions, prospects for the future. Pre: 600 or 625, or consent.

**ASAN 627 Ethnic Nationalism in Asia (3)** Contemporary theories of ethnic and cultural nationalism from perspective of Asia. Issues of nation-state, power hierarchies, modernity, and identity in contemporary societies. Pre: 310 (or concurrent) or 312 (or concurrent), or consent.

**ASAN 629 Asian Security Cultures (3)** Comparative study of conceptualizations, practices and institutions of national security in Asia in light of their geographic and historic contexts. Pre: 310 and 312, or consent. (Once a year)

**ASAN 630 Cultural Change and Globalization in Southeast Asia (3)** Examines the ways global influences are shaping the cultural developments in the diverse societies of contemporary Southeast Asia. (Spring only)

**ASAN 636 Culture and Urban Form in Asia (3)** Cultural and historical impact on urban form, contention of tradition and modernity in urban space, spatial expression of state and society, perception and utilization of urban design, evolution of urban form in selected Asian capitals. Pre: 312, ARCH 341, PLAN 310, or PLAN 600. (Cross-listed as PLAN 636)

**ASAN 638 Asian Development and Urbanization (3)** Theories of globalization and sustainability in development, impacts of globalization and sustainability on development planning and policy formation, selected case studies of Asia-Pacific development. Pre: (600 or PLAN 630) with a grade of B or above. (Cross-listed as GEOG 638 and PLAN 638)

**ASAN 649 Asian Cities: Historical Evolution of Urban Form (3)** Examination of the impact of economy, society, and history on urban form; case studies of the evolution of Asian urban form. Pre: 312 or PLAN 310. (Once a year) (Cross-listed as PLAN 649)

**ASAN 651 East Asia Now (3)** Views East Asia as an interactive region. Examines common historical and cultural, economic and political themes including various experiences with the West. Focus upon present state of the region. A-F only. Pre: 310, 312; or consent.

**ASAN 652 Contemporary Japanese Studies Seminar (3)** Selected human and physical features that represent economic, social, and political life. Pre: consent. (Cross-listed as GEOG 652)

**ASAN 653 Major Authors in Modern Korean Literature (3)** Advanced study of major Korean fiction writers from the 1910s to the present with emphasis on critical reading of their lives and writings to arrive at informed appraisal of their contribution to modern Korean literature. Repeatable one time. Pre: KOR 494 or consent. (Cross-listed as KOR 652)

**ASAN 664 Topics and Issues in Modern Korean Literature (3)** Intensive study of selected topics and issues in modern/contemporary Korean fiction, focusing on texts that problematize critical socio-cultural issues in the evolving contexts of modern Korean intellectual history. Repeatable one time. Pre: KOR 494 or consent. (Cross-listed as KOR 664)

**ASAN 671 The Splendor that was Southeast Asia (3)** Interdisciplinary examination of the classical civilizations of Southeast Asia, the 9th to 14th centuries. Includes Pagan, Sukhothai, Angkor, Dai Viet, Srivijaya, and Majapahit. Considers historical themes and patterns, issues in Southeast Asian studies. A-F only. Pre: 310, 312; or consent.

**ASAN 686 Law and Society in China (V)** Overview of the historical foundations of Chinese law and introduction to the present legal system in the People's Republic of China. Repeatable one time. (Cross-listed as LWPA 586)

**ASAN 688 China's International Relations (3)** Examination of China's rise and world view, review of China's regional relations, China and U.S. relations, formation of a new world order. Pre: 600, 608, or POLS 645C, or consent.

**ASAN 694 Topics in Buddhist Studies (3)** Seminar on selected topics in Buddhist studies. Repeatable three times. Pre: PHIL 360, PHIL 406, REL 475, or REL 490; or consent.

**ASAN 699 Directed Research (V)** Individual problems and research. Repeatable unlimited times. Pre: consent.

**ASAN 700 Thesis Research (V)** Repeatable nine times.

**ASAN 705 Asian Research Materials and Methods (3)** Bibliography, reference tools, and research methods in sources on Asia in Western and Asian languages. Discussion of published and archival repositories. Repeatable one time. (Cross-listed as LIS 705)

**ASAN 750 (Alpha) Research Seminar in Asian Studies (3)** (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia. Pre: 600 or consent.

**ASAN 792 Orientalism and Visual Culture (3)** Investigates artistic representations, appropriations, and exchanges constructed on the basis of East/Orient vs. West/Occident differences. Includes analysis of: Orientalizing artistic traditions throughout history, history and concept of Orient, post-colonial critique of Orientalism. A-F only. Pre: graduate standing or consent. (Alt. 2-3 years) (Cross-listed as ART 792)

## Astronomy (ASTR)

*College of Natural Sciences*

*Credit not given for more than one of 110, 120, and 140. Credit not given for both 240 and 241. A grade of C (not C-) or better is required for all prerequisites.*

**ASTR 110 Survey of Astronomy (3)** Introduction to the astronomical universe: sky and celestial objects, planetary motion, planets and the Solar System, Sun and stars, the Milky Way and galaxies, cosmology and the universe. **DP**

**ASTR 110L Survey of Astronomy Laboratory (1)** Observations of constellations and the night sky, the sun and moon, planets, stars, and deep-sky objects; laboratory and observational experiments illustrating basic concepts in astronomy. Offered in the evening. Pre: 110 (or concurrent), or consent. **DY**

**ASTR 120 Astronomical Origins (3)** Formation of the sun and stars; origin of our solar system; formation and evolution of galaxies, including the Milky Way Galaxy; origin of chemical elements, and the beginnings of the cosmos. A-F only. **DP**

**ASTR 130 Introduction to Archaeoastronomy (3)** Astronomy and celestial lore in ancient cultures: Neolithic Europe, Mayan, Mesoamerican, Egyptian, Mesopotamian, American Indian, Chinese, and Polynesian. Concepts of the cosmos, calendars, eclipse predictions, motion of celestial bodies, and navigation. Construction of simple observing tools. **DP**

**ASTR 140 History of Astronomy (3)** Covers the major discoveries in astronomy and astrophysics from the Babylonians through the 20th century, and the evolution of modern astrophysics. A-F only. (Fall only) **DP**

**ASTR 150 Voyage through the Solar System (3)** An illustrated voyage through the Solar System based on recent scientific results. The class highlights the origin, evolution, and current knowledge of the eight planets, their moons, asteroids, comets, and one star, the Sun. Field trip. (Cross-listed as GG 105) **DP**

**ASTR 240 Foundations of Astronomy (3)** A rigorous overview of modern astronomy: solar system, stellar, galactic and extragalactic astronomy and cosmology. For science and engineering students. Pre: PHYS 151 or PHYS 170. **DP**

**ASTR 241 Foundations of Astrophysics I: The Solar System (3)** Solar system astrophysics. Dynamics of planets, satellite systems, asteroids and comets; internal and atmospheric structure of terrestrial and giant planets; thermal balance; the Sun as a star. A-F only. Pre: PHYS 170, MATH 242 or 252A, and PHYS 272 (or concurrent). (Fall only) **DP**

**ASTR 242 Foundations of Astrophysics II: Galaxies and Stars (3)** Astrophysics of galaxies and stars. Galactic structure and dynamics; active nuclei; large-scale structure. Elements of Newtonian and relativistic cosmology. Stellar atmospheres and spectral lines. Stellar interiors; nuclear energy generation; main-sequence and evolved stars. A-F only. Pre: 241, PHYS 274 (or concurrent), and MATH 243 (or concurrent) or 253A (or concurrent). (Spring only) **DP**

**ASTR 280 Evolution of the Universe (3)** The Big Bang, origin of the elements, formation and evolution of galaxies and stars. Pre: any introductory astronomy or physics course, or consent. **DP**

**ASTR 281 Astrobiology (3)** Are we alone in the universe? Modern astronomical, biological, and geological perspectives on this fundamental question. Searches for life on Mars, oceans on Europa, planets orbiting other stars. Space exploration and colonies, interstellar spaceflight and communication. Pre: 110 or 240, or consent. (Spring only) **DP**

**ASTR 300 Observational Astronomy (3)** Principles and techniques of optical and near-infrared astronomical observation. Astronomical coordinate systems. Telescopes, cameras, spectrographs, and detectors. Astrometry, photometry, and spectroscopy of astronomical objects. A-F only. Pre: 240 or 242; PHYS 152 or 274; MATH 215, 241, or 251A. (Fall only) **DP**

**ASTR 300L Observational Astronomy Laboratory (2)** Optical and near-infrared astronomy laboratory. Error analysis, properties of light, data, and image processing. Astrometric, photometric, and spectroscopic measurement. A-F only. Pre: 300 (or concurrent); PHYS 152 or 274; PHYS 152L or 274L; MATH 215, 241, or 251A. (Fall only) **DY**

**ASTR 301 Observational Astronomy Projects (4)** Practical astronomical observing. Students select objects to study, plan, and conduct remote observations using research-grade telescopes, reduce data, present results in written and verbal form. Introduces LaTeX, literature research, time allocation. A-F only. Pre: 300 and 300L. (Spring only) **DY**

**ASTR 380 The Cosmos in Western Culture (3)** History and intellectual context of astronomical discovery; the evolution of ideas of space, time, and motion from the Babylonians to relativistic cosmologies; emphasis on the interaction of astronomy with the history of ideas. Pre: 110 (or concurrent). (Spring only)

**ASTR 399 Directed Study (V)** Individual reading, observation, or experimentation in astronomy and astrophysics. Repeatable four times. Pre: consent.

**ASTR 427 Cosmology (3)** Structure, history, and composition of the universe; the Big Bang; formation and evolution of galaxies, clusters, and large-scale structure; cosmological models. Given concurrently with 627. Pre: PHYS 274 or consent. (Alt. years: spring) **DP**

**ASTR 430 The Solar System (3)** Observations and physical nature of planets and moons, asteroids, comets, and other small bodies; formation of the Solar System; discovery of other planetary systems; solar activity. Given concurrently with 630. Pre: PHYS 170 or consent. (Alt. years: spring) **DP**

**ASTR 500 Master's Plan B/C Studies (1)**

**ASTR 622 The Interstellar Medium (3)** Astrophysics of diffuse matter, HII regions, molecular clouds, etc. Pre: consent. (Alt. years)

**ASTR 623 Stellar Interiors and Evolution (3)** Structure and evolution; energy sources, radiative processes; relations to observables. Pre: consent. (Alt. years)

**ASTR 626 Galaxies (3)** Observations and stellar dynamics of elliptical and spiral galaxies including our galaxy, globular clusters, and dark matter. Galaxy formation and evolution. Pre: consent. (Alt. years: spring)

**ASTR 627 Cosmology (3)** Geometry and evolution of the universe. Dark matter. Early universe. Forma-

tion of large-scale structure, galaxies, and clusters. Cosmological models. Pre: consent. (Alt. years)

**ASTR 630 The Solar System (3)** Survey of observational data and physical concepts on planets and smaller bodies; formation of planetary systems; solar activity. Pre: consent. (Alt. years)

**ASTR 631 Radiative Transfer Stellar Atmospheres (3)** Excitation, ionization, and radiative transfer in stellar atmospheres; model atmospheres, formation of line and continuum radiation. Pre: consent. (Alt. years)

**ASTR 633 Astrophysical Techniques (3)** Telescopes, positional astronomy, photon detection, error analysis, photometry, spectroscopy. Pre: consent. (Fall only)

**ASTR 635 Fundamentals of Astrophysics (3)** Applications of fundamental physics to astrophysical situations. Elements of general relativity. Basics of hydrodynamics and shock waves. Radiative processes, high energy astrophysics. Modern dynamics. Pre: consent. (Fall only)

**ASTR 640 General Relativity (3)** Introduction to gravity and general relativity. Tensor basics, classical scalar, vector and tensor field theories. Exact symmetric Einstein equation, gravito-magnetic weak field, and radiation solutions. Pre: consent. (Alt. years)

**ASTR 641 Active Galaxies (3)** Phenomenology of active galactic nuclei, black holes, accretion flows and jets, emission mechanisms, host galaxies, and cosmic evolution. Pre: 635 or consent. (Alt. years: spring)

**ASTR 657 Astrochemistry-A Molecular Approach (3)** Formation of astrobiologically important molecules and their precursors in the interstellar medium and in our solar system: first principles and latest trends. Pre: consent. (Fall only) (Cross-listed as CHEM 657 and GG 657)

**ASTR 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

**ASTR 700 Thesis Research (V)** Repeatable unlimited times.

**ASTR 734 Astronomy Seminar I (V)** Selected advanced topics in astronomy and astrophysics. Available for 1 to 3 credit hours by arrangement. Repeatable unlimited times. Pre: consent.

**ASTR 735 Astronomy Seminar II (V)** Selected advanced topics in astronomy and astrophysics. Available for 1 to 3 credit hours by arrangement. Repeatable unlimited times. Pre: consent.

**ASTR 736 Astronomy Seminar III (V)** Selected advanced topics in astronomy and astrophysics. Available for 1 to 3 credit hours by arrangement. Repeatable unlimited times. Pre: consent.

**ASTR 740 Astrobiology Seminar: Origin, Evolution and the Role of Water for Life in the Universe (1)** Interdisciplinary research topics in astrobiology as they relate to the theme of water: formation in space, role in creating pre-biotic molecules, delivery to earth, and terrestrial planet habitability. Repeatable three times. Pre: graduate level sciences and ideas, or consent.

**ASTR 777 Star Formation (2)** Molecular clouds, collapse processes, physics of circumstellar disks and accretion, properties of young stars, outflows and jets, formation of binaries, extrasolar planets and planet formation, meteorites and the early solar system. Pre: graduate standing or consent. (Alt. years: spring)

**ASTR 800 Dissertation Research (V)** Repeatable unlimited times.

## Biochemistry (BIOC)

School of Medicine

*Adequate preparation in chemistry (through physical chemistry), physics, and mathematics is required, and a background in biological sciences is desirable. The minimum grade required for undergraduate prerequisites is a D or better, and graduate prerequisites is a C (not C-) or better.*

**BIOC 241 Fundamentals of Biochemistry (3)** Biological chemistry stressing integration of concepts of general, inorganic, and biochemistry and application to life chemistry. Pre: beginning algebra and high school science. DP

**BIOC 341 Elements of Biochemistry (3)** Biochemical principles and concepts as applied to living systems, including sufficient organic chemistry to understand these principles. Pre: 241 or consent. DP

**BIOC 441 Basic Biochemistry (4)** Function and composition of biological substances and their metabolic transformation in animals, plants, microorganisms. Pre: BIOL 275 and CHEM 273 with a D grade; or consent. DB

**BIOC 441L Basic Biochemistry Lab (1)** Experiments working with substances discussed in 441. DY

**BIOC 481 Introduction to Molecular Biology (3)** Biochemical basis of life presented in terms of the structure and function of the gene in the production of biological catalysts. Pre: 441 or consent. DB

**BIOC 499 Directed Research and Reading (V)** Independent research or selected reading of current literature in the area of biochemistry and biophysics. Repeatable unlimited times. Pre: consent.

**BIOC 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**BIOC 545 Topics in Biochemistry (V)** Fourth-year elective in which medical students take an in-depth study of selected topics in biochemistry. Pre: fourth-year medical student or consent.

**BIOC 595 Highlights of Organ-system Biochemistry (1)** Provides highly interactive, small group discussions on concepts of biochemistry important to the various organ systems; such as cardiac, respiratory, hematology, gastrointestinal, endocrine, musculoskeletal and neurological systems, and relevant to clinical medicine. MD majors only. CR/NC only. Pre: MDED 554. (Fall only)

**BIOC 601L Biochemistry-Biophysics Lab (2)** Basic biochemical experimental techniques; enzyme kinetics; active-site identification; amino acid sequence determination; radioimmunoassay, *in vivo* studies of nucleic acids. Pre: 441 or consent.

**BIOC 644 Metabolic Biochemistry (2)** Biochemical and physiological bases of structure and function of human organ systems. Both normal and abnormal processes are discussed. Pre: 441 and PHYL 604, or consent.

**BIOC 671 Seminar (1)** Weekly discussions and reports on various subjects; current advances in biochemistry and biophysics.

**BIOC 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

**BIOC 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times. Pre: consent.

**BIOC 800 Dissertation Research (V)** Research for doctoral thesis. Repeatable unlimited times. Pre: consent.

## Bioengineering (BE)

College of Tropical Agriculture and Human Resources

**BE 120 Introduction to Quantitative Biology (3)** Quantitative approach to applied topics in biology including synthesis and metabolism, kinetics, physiological systems, cellular processes and signaling, informatics, and emerging technologies for health, biological production/processing, and discovery. Pre: MATH 241 (or concurrent) and CHEM 162 (or concurrent), or consent. (Once a year) DB

**BE 150 Introduction to Biological Engineering (2)** Discussion and experimental investigation of physical and chemical principles underlying representative biological processes and systems. Bioproduction, energy conversion processes, physiological systems, biological treatment, biosensors, biomechanics,

and related natural and engineered systems. A-F only. Pre: MATH 140 or consent. DY (Once a year)

**BE 191 Introduction to Applications in Biological Engineering (V)** Discussion and investigation of special topics, problems and applications of biological engineering. Pre: consent.

**BE 260 Mass and Energy Balances (3)** Introduction of the principles of mass and energy conservation; development of systematic approaches to apply these principles in calculations for design and analysis of biochemical, chemical, and physical processes. Pre: BIOL 171, CHEM 162 or 181A, PHYS 170, and MATH 242 or 252A; or consent. DP

**BE 350 Dynamic Systems Modeling (3)** Introduction to analytical and numerical solutions for systems of differential equations. Modeling and computer simulation of representative dynamic systems encountered in biological engineering. A-F only. Pre: 260, EE 160, MATH 243 or 252A, CEE 270; or consent. Co-requisite: BE 350L. DP

**BE 350L Dynamic Systems Modeling Laboratory (1)** Industry field trips and lab experiences to illustrate behavior of representative dynamic systems in biological engineering. Data acquisition and model validation. A-F only. Pre: consent. Co-requisite: 350. DY

**BE 373 Transport Phenomena (3)** Fundamental principles and applications relating to mass, momentum, and energy transfers in biosystems and other systems for engineers and scientists. Pre: 260, CEE 270, MATH 243 or 252A. Co-requisite: CEE 320 and ME 311. DP

**BE 405 Engineering Economics (3)** Economic analysis in engineering and management decision-making, interest, depreciation, income tax, cost classification, break-even analysis, economic comparisons of alternatives, benefit-cost analysis. A-F only. Pre: ECON 120 or 130, and senior standing. (Cross-listed as CEE 405)

**BE 410 Biomass Conversion to Biofuels and Bioenergy (3)** Overview of biofuel/bioenergy production; fundamental concepts in biofuel/bioenergy production; renewable feedstocks; thermochemical and biochemical conversions of biomass to biofuel/bioenergy; biodiesel production; environmental impacts, economics and life-cycle analysis; value-added processing of biofuel residues; selected case studies. A-F only. Pre: 373 or consent. (Once a year)

**BE 411 Food Engineering (3)** Principles and applications of thermodynamics, electricity, fluid mechanics, heat transfer, psychrometry, and material and energy balances of food processing and preservation. Pre: BIOL 171, CHEM 162 or CHEM 181A, MATH 243, PHYS 151 or PHYS 170; or consent. (Once a year) (Cross-listed as FSHN 411) DP

**BE 420 Sensors and Instrumentation for Biological Systems (3)** Principles of common physical and chemical sensors. Interfacing sensors to different electronic circuits and instrumentation systems. Electronic detection and quantification of biomolecules (biosensors). Applied control for biological processes. Pre: 350, EE 160, and EE 211; or consent. (Cross-listed as FSHN 420) DP DY

**BE 421 Bioprocess Control (3)** Process control in both time and Laplace domains with an introduction to the frequency domain; selection and design of appropriate control systems for bioprocesses with consideration of the impact on the total system; identification of safety concerns in designing control systems and process equipment. Pre: 260, MATH 243; or consent. DP

**BE 431 Environmental Biotechnology (3)** Environmental impact and control; the micro-organism and its nutrition and growth conditions; microbial growth and substrate removal kinetics; bioreactors; biological treatment systems; biodegradation of xenobiotic organic chemicals; case studies. A-F only. Pre: 373 or consent. (Spring only) DP

**BE 437 Biosystems Unit Operations (2)** Pumps and fans; size reduction; cleaning and sorting; materials handling; processing of fruits, nuts, vegetables,

animals, and other bioproducts. Pre: 373, CEE 320 or ME 322; or consent. **DP**

**BE 440 Bioremediation: Principles and Practices (3)** (2 Lec, 1 3-hr Lab) Soil environment, fate and transport of contaminants; microbial ecology, metabolism, and energy production; biodegradation of selected compounds. In situ treatment, solid-phase bioremediation, slurry-phase bioremediation, and vapor-phase biological treatment. Open to nonmajors. Repeatable one time. Pre: 260, CHEM 161, PHYS 170; or consent. **DP**

**BE 460 Bioreactor Design and Analysis (3)** Application of mass/energy balances and reaction kinetics for the design and analysis of bioreactors for microbial, plant, and animal cell cultures. Pre: 373, CEE 320 or ME 322; or consent. **DP**

**BE 470 Bioprocess Design and Analysis (3)** Combined lecture/computer lab on theory and practice of bioprocess design and analysis, involving biological basics and engineering principles of bioprocessing, computer-aided unit operations, process integration, and economic evaluation. A-F only. Pre: 373, or 437 (or concurrent) or 460 (or concurrent); or consent. (Alt. years) **DP**

**BE 481 Senior Engineering Design I (3)** (1 1-hr Lec, 2 3-hr Lab) First of a two-semester sequence that provides a major design experience for senior students in biosystems engineering. Design process; project management; design methods; modeling and simulation; design optimization; engineering economics; engineering statistics, initiation of an open-ended design project. Pre: 350/350L, 373, CEE 320 or ME 322, ME 311, EE 211; or consent.

**BE 482 Senior Engineering Design II (3)** (1 1-hr Lec, 2 3-hr Lab) Continuation of 481. Properties of biological materials; risk and reliability; design ethics; guest lectures on engineering design by practicing engineers; extension and completion of the design project with submission of a final design report. Pre: 481 or consent.

**BE 491 Biological Engineering Topics (V)** Study and discussion of significant topics and problems. Offered by visiting faculty and/or for extension programs. Repeatable nine times.

**BE 492 Internship (4)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: consent.

**BE 499 Directed Research (V)** Research in the area of biosystems engineering. Pre: consent.

**BE 606 Instrumentation and Measurement (3)** Measurement concepts and operating principles applied to the selection and use of instruments important to scientists and engineers dealing with biological systems, including automatic data acquisition and processing. Pre: CHEM 151, MATH 241, and ME 311; or consent.

**BE 610 Biofuel and Bioenergy (3)** Overview of biofuel/bioenergy production, biorefinery concept; renewable feedstocks; thermochemical and biochemical conversions of biomass to biofuel; biodiesel production; algal-biofuel; environmental impacts, life-cycle analysis; value-added processing of biofuel residues; selected case studies; term paper and presentation. A-F only. Pre: consent. (Once a year)

**BE 622 Experimental Methods in Cause-Effect Modeling (3)** Factorial designs and fractional factorial designs for screening variable and response optimization. Response surface methodology. Experimental designs appropriate to building and testing multi-variable behavior relationships. Sequential experimental designs.

**BE 625 Biosensor Principles and Applications (3)** Elaboration of common biochemical interactions used to quantify biological molecules, and the electrical technologies used to detect them. Discussion of the desirable properties of biosensors, miniaturization and applications related to medicine, agriculture, bioproduction and environment. Pre: consent. (Cross-listed as MBBE 625)

**BE 634 Biological Treatment (3)** Fundamentals of applied microbiology and biochemical reactor engineering, quantitative description of microbial growth, operational theory and design basis of aerobic, anoxic and anaerobic treatment processes. Applications for water, wastewater, air, solid wastes, and soil. A-F only. Pre: consent. (Alt. years: spring) (Cross-listed as CEE 634)

**BE 638 Biosystems Modeling (3)** Introduction to system thinking, procedures for developing system models, characteristics of important agricultural system models, computer approach to evaluation and optimization of system models. Pre: one of MATH 215, MATH 241, MATH 251A; or consent. (Cross-listed as AREC 610)

**BE 664 Hydrologic Processes in Soils (3)** (2 Lec, 1 3-hr Lab) Hydrologic properties in soils and the processes involved in water infiltration drainage and solute transport. Emphasis on key parameters required for modeling. Recommended: CEE 424 or consent. (Fall only) (Cross-listed as CEE 625 and NREM 660)

**BE 699 Directed Research (V)** Repeatable unlimited times.

**BE 700 Thesis Research (V)** Repeatable unlimited times.

**BE 750 Seminar (1)** Use of computer and video technology in technical presentation, review of current biosystems engineering research. Pre: consent.

## Biology (BIOL)

*College of Natural Sciences*

*Courses for Non-Science Majors*

**BIOL 101 Biology and Society (3)** Characteristics of science, historical development of scientific concepts, and interaction of society with science illustrated by topics from biological science. **DB**

**BIOL 101L Biology and Society Laboratory (1)** (1 3-hr Lab) Lab experiments illustrating topics and methods in the biological sciences. **DY**

**BIOL 104 Marine Option Program Seminar (1)** Statewide overview of ocean issues and organizations involved with marine activities, management, education, research, and business. Exploration of opportunities for internships, research projects, study and careers. Proposal writing, project implementation, and report preparation guidelines. Orientation to the Marine Option Program. (Cross-listed IS 100)

**BIOL 123 Hawaiian Environment Science (3)** Characteristics of science and interaction with society illustrated by topics in geology, astronomy, oceanography, and biology of Hawaiian Islands. **DB**

**BIOL 310 Environmental Issues (3)** Global environmental problems in historical perspective; physical, biological, sociocultural views. Pre: one of 101, 123, or GEOG 101; or consent. **DB**

**BIOL 320 The Atoll (3)** Atoll as ecosystem and as human environment. Formation, structure, distribution, biota. Pre: two semesters of introductory science or consent. **DB**

**BIOL 340 Genetics, Evolution and Society (3)** The role of genetics in evolution, medicine, behavior, plant and animal breeding and technology; its impact on today's society. Pre: one semester of biological science at college level or consent. (Cross-listed as CMB 351) **DB**

**BIOL 350 Sex Differences in the Life Cycle (3)** Human sex differences, their biological basis and significance; genetic, hormonal, and behavioral determinants of sexual differentiation; biology of gender, sexuality, parenting, menopause, and aging. Pre: one semester of biological science. (Cross-listed as WS 360) **DB**

**BIOL 360 Island Ecosystems (3)** Characteristics of island biota; examples from Hawai'i and the Pacific. Impact of island and continental cultures; policy and ecosystem endangerment; contemporary legislation, policy, and management practices. Pre: one semester of biological science or consent. **DB**

**BIOL 410 Human Role in Environmental Change (3)** Human impacts through time on vegetation, animals, landforms, soils, climate, and atmosphere. Special reference to Asian/Pacific region. Implications of long-term environmental change for human habitability. Pre: one of 101, GEOG 101 or 123 and either 310 or GEOG 326; or consent. (Cross-listed as GEOG 410) **DB**

**BIOL 440 Psychoactive Drug Plants (3)** Taxonomy, ecology, biochemistry, distribution, cultural history, and contemporary use of mind-altering drug plants; examples from primitive, traditional, and modern societies. Pre: junior standing, one semester of biological science, and either ANTH 200 or GEOG 151; or consent. **DB**

*Courses for Life Science Majors*

**BIOL 171 Introduction to Biology I (3)** Introductory biology for all life science majors. Cell structure and chemistry; growth, reproduction, genetics, evolution, viruses, bacteria, and simple eukaryotes. Pre: CHEM 131 (or concurrent), CHEM 151 (or concurrent), 161 (or concurrent), CHEM 171 (or concurrent), CHEM 181A (or concurrent), or consent. Co-requisite: 171L. **DB**

**BIOL 171L Introduction to Biology I Lab (1)** (1 3-hr Lab) Laboratory to accompany 171. Pre: CHEM 131 (or concurrent), CHEM 151 (or concurrent), 161 (or concurrent), CHEM 171 (or concurrent), CHEM 181A (or concurrent), or consent. Co-requisite: 171L. Co-requisite: 171. **DY**

**BIOL 172 Introduction to Biology II (3)** Anatomy, physiology, and systematics of plants and animals; behavior; ecosystems, populations, and communities. Pre: CHEM 131 (or concurrent), 151 (or concurrent), 161 (or concurrent), 171 (or concurrent), 181A (or concurrent), or consent. Co-requisite: 172L. **DB**

**BIOL 172L Introduction to Biology II Lab (1)** (1 3-hr Lab) Laboratory to accompany 172. Pre: C (not C-) or better in CHEM 131 (or concurrent), 151 (or concurrent), 161 (or concurrent), 171 (or concurrent), 181A (or concurrent), or consent. Co-requisite: 172. **DY**

**BIOL 265 Ecology and Evolutionary Biology (3)** Principles of ecology and evolution for life science majors stressing integrated approach and recent advance. Pre: C (not C-) or better in 171/171L, 172/172L (or concurrent). **DB**

**BIOL 265L Ecology and Evolutionary Biology Lab (1)** (1 3-hr Lab) Laboratory to accompany 265. Pre: C (not C-) or better in 171/171L, 172/172L (or concurrent). **DY**

**BIOL 275 Cell and Molecular Biology (3)** Integrated cell and molecular biology for life science majors. Modern advances in recombinant DNA technology. A-F only. Pre: C (not C-) or better in 171/171L and CHEM 272/272L, or consent. **DB**

**BIOL 275L Cell and Molecular Biology Lab (1)** (1 4-hr Lab) Laboratory for Cell and Molecular Biology. A-F only. Pre: C (not C-) or better in 171/171L and CHEM 272/272L, or consent. **DY**

**BIOL 295 Service Learning for Biology Majors (V)** Directed participation on tutorials and related activities in public schools and approved community and UH Mānoa organizations. A-F only. Repeatable one time. Pre: 265/265L, 275/275L, and consent.

**BIOL 301 Marine Ecology and Evolution (3)** Functional, ecological, and evolutionary problems faced by life in the sea. Draws from major marine habitats and associated communities, from the deep sea to the plankton. Impacts of overfishing, marine pollution, and land development on the ecology and evolution of marine organisms. Emphasis on developing problem solving and quantitative skills. A-F only. Pre: C (not C-) or better in 265/265L, 275/275L (or concurrent), and OCN 201; or consent. **DB**

**BIOL 301L Marine Ecology and Evolution Lab (2)** (1 3-hr Lab) Laboratory to accompany 301. A-F only. Pre: C (not C-) or better in 265/265L,

275/275L (or concurrent), and OCN 201; or consent. **DY**

**BIOL 304 Biotechnology: Science and Ethical Issues (3)** Introduction to the concepts, goals, ethical issues and consequences of biotechnology using real-life case studies of cloning, DNA fingerprinting, gene therapy and genetical engineering. Pre: 171 or consent. (Cross-listed as MBBE 304)

**BIOL 331 Marine Mammal Biology (3)** Overview of marine mammal science, significance and roles of marine mammals in their ecosystems, and marine conservation issues. Current research topics in marine mammal science will also be covered. Pre: C (not C-) or better in 171/171L, 172/172L, and 265, 265L; or consent. **DB**

**BIOL 331L Marine Mammal Biology Lab (2)** Laboratory to accompany 331. Activities will include taxonomy, anatomy, morphology, necropsy, hematology, population estimating methods, tracking, field distribution surveys, stranding response, and energetics, and/or similar depending on field access and availability of specimens. A-F only. Pre: C (not C-) or better in 171/171L and 172/172L and 265/265L and 331 (or concurrent), or consent. **DY**

**BIOL 363 Biological Field Studies (V)** Biological survey, collection, and analysis techniques will be reviewed and applied through field studies. Students will be introduced to the uniqueness of the Hawaiian environment and its diversity of life. Emphasis on diversity, evolution and ecology. Repeatable up to six credits. Pre: C (not C-) or better in 265/265L (or equivalent), or consent. **DB**

**BIOL 375 Genetics (3)** Genetic concepts at advanced undergraduate level; genetic transmission, recombination, gene action, mutation, population and evolutionary genetics. Pre: 275 or consent. **DB**

**BIOL 375L Genetics Laboratory (2)** (1 4-hr Lab) Experiments with a variety of organisms to illustrate principles discussed in BIOL 375. Pre: 275/275L, 375 (or concurrent) or consent. **DY**

**BIOL 390 Communicating in Biological Sciences (3)** Combined lecture/lab impart essential knowledge and skills in technical writing, poster design, and oral presentations for effective communication for life science majors. Research papers, lab reports, project proposals, conference presentations are covered. Life sciences majors only. A-F only. Pre: C (not C-) or better in 171/171L, 172/172L, and ENG 100.

**BIOL 395 Internship in Biology Teaching (2)** Supervised laboratory internship in the preparation and demonstration of laboratory experiments in selected laboratory courses. Repeatable one time. Pre: consent.

**BIOL 400 Ocean Internships and Research (V)** Students carry out marine-related internships, practica, research projects or field experience on-or off-campus with faculty guidance. Repeatable one time. A-F only. Pre: minimum cum GPA of 2.5, junior or senior standing in any field of study and IS 100/BIOL 104 or consent, project proposal. (Cross-listed as IS 400)

**BIOL 401 Molecular Biotechnology (3)** General principles, applications, and recent advances of the rapidly growing science of biotechnology. Topics include impact of biotechnology on medicine, animal sciences, environment, agriculture, forensics, and economic and socio-ethical issues. Pre: C (not C-) or better in 275 or consent. (Cross-listed as MBBE 401) **DB**

**BIOL 402 Principles of Biochemistry (4)** Molecular basis of living processes in bacteria, plants, and animals; emphasis on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Pre: C (not C-) or better in 275/275L, and CHEM 273; or consent. (Cross-listed as MBBE 402 and PEPS 402) **DB**

**BIOL 403 Field Problems in Marine Biology (4)** Integrated program of intensive lectures, laboratory experiments, and field research that focus on the biological processes that shape the lives of marine organisms. A-F only. Limited space; enrollment by

consent; GPA considered. Pre: C (not C-) or better in 301/301L and consent. **DB**

**BIOL 404 Advanced Topics in Marine Biology (3)** Current themes in marine biology and experience in scientific assessment. Repeatable two times. A-F only. Pre: C (not C-) or better in 301/301L or consent. **DB**

**BIOL 407 Molecular Cell Biology I (3)** Relationship between structure and function at macromolecular level. Pre: C (not C-) or better in 275/275L and CHEM 273, or consent. **DB**

**BIOL 408 Molecular Cellular Biology II (3)** Cell structure and function. Structure, chemistry, and functions of organelles and macromolecules. Pre: C (not C-) or better in 407; or consent. (Cross-listed as MBBE 408) **DB**

**BIOL 408L Advanced Molecular and Cellular Biology Laboratory (2)** (2 3-hr Lab) A laboratory to accompany 407 and 408. Pre: 407 (or concurrent) or 408 (or concurrent). **DY**

**BIOL 410 Human Role in Environmental Change (3)** Human impacts through time on vegetation, animals, landforms, soils, climate, and atmosphere. Special reference to Asian/Pacific region. Implications of long-term environmental change for human habitability. Pre: one of 101, GEOG 101 or 123 and either 310 or GEOG 326; or consent. (Cross-listed as GEOG 410) **DB**

**BIOL 425 Wildlife and Plant Conservation (3)** Principles of conservation biology and wildlife management techniques, illustrated with animal, plant, and ecosystem examples. Examination of ethical, cultural, legal, political, and socio-economic issues impinging on conservation policy and practice. Group project and field trips. Pre: C (not C-) or better in 265/265L or consent. **DB**

**BIOL 472 The Biology of Cancer (3)** Integrative, in-depth focus on the genetics, cell biology, and molecular basis of cancer. Combination of classroom lectures and problem-based discussions in small groups. Addresses ethical implications of cancer research and treatment. A-F only. MCB or BIOL majors only. Senior standing or higher. Pre: 407 (or concurrent) and 408 (or concurrent) or consent. (Spring only) (Cross-listed as MCB 472)

**BIOL 483 Introduction to Bioinformatics Topics for Biologists (3)** Focuses on the use of computational tools and approaches to analyze the enormous amount of biological data (DNA, RNA, protein) available today. A-F only. Pre: 171 (or equivalent), or consent. (Once a year) (Cross-listed as MBBE 483)

**BIOL 490 Mathematical Biology Seminar (1)** Reports on research in mathematical biology, reviews of literature, and research presentation. Required for Certificate in Mathematical Biology. Repeatable one time. Pre: junior standing or higher and consent. (Cross-listed as MATH 490)

**BIOL 499 Biological Problems (V)** Directed reading and research. For juniors and seniors majoring in life science 1-12 credits. Repeatable up to 9 credits, up to 6 credits apply towards BA and BS BIOL major requirements. A-F only. Pre: 2.5 GPA minimum, written proposal and consent.

**BIOL 650 Population Genetics (3)** Mathematical, observational, experimental results on effects of mutation, selection, and systems of mating on distribution of genes. Analysis of non-experimental populations. Pre: consent. (Cross-listed as CMB 650)

*Professional Development Courses for Science Teachers*

**BIOL 501 (Alpha) Biology Workshop for Science Teachers (V)** Principles taught in a conceptual and/or hands-on manner either in a laboratory setting or in the field. (B) biotechnology; (C) ecology, evolution and conservation; (D) marine biology; (F) general biology. A-F only. Repeatable unlimited times. Pre: 171/171L, 172/172L, in-service teachers; or consent.

**BIOL 602 Marine Biology-Processes and Impacts (4)** (3 hr Lec, 3 hr Lab) Investigation of biological phenomena and processes related to productivity and food webs, community structure and ecology, adaptations, and physiology, and impacts of human activities and fisheries. Graduate standing in Marine Biology graduate degree program only. A-F only. Pre: 601. Minimum prerequisite grade of B. (Spring only)

**BIOL 603 Molecular Ecology (3)** Practical introduction to molecular methods used to address ecological and evolutionary questions. Advanced undergraduate/graduate level. Focus on methods and application to independent research project. A-F only. Pre: 265/265L (or equivalent) or 275/275L (or equivalent), and 375/375L, and consent. (Alt. years)

*See other science professional development courses NSCI 501, 502, 503, 504, 505, and 619 under the Natural Sciences (NSCI) course listing in this section of the Catalog.*

## Biomedical Sciences (BIOM)

*School of Medicine*

**BIOM 499 Directed Research and Reading (V)** To provide elective courses for undergraduates in the biomedical sciences specialties. Repeatable unlimited times.

**BIOM 500 Master's Plan B/C Studies (1)** Repeatable unlimited times.

**BIOM 601 Global Health and Medicine: Emerging Problems and Impact (3)** Analysis of emerging problems and impact in countries on a multidimensional perspective. Repeatable one time. BIOM, NURS, PH, SPA majors only. Pre: consent.

**BIOM 640 Clinical Research Methods (2)** Instruction in developing clinical research questions and creating a concise protocol that includes a literature review, study design, subject recruitment and sampling, instruments, other measures and bioinformatics, sample size, consent form, budget and timetable. A-F only. Pre: consent.

**BIOM 641 Legal and Regulatory Issues and Bioethics (2)** Ethical dilemmas in clinical research are identified and resolved in cases, research on human subjects regulation are discussed. Research misconduct is defined. Ethical considerations in protocol developed in the Designing Clinical Research course are resolved. A-F only. (Cross-listed as CMB 626)

**BIOM 642 Applied Clinical Epidemiology and Biostatistics (3)** Introductory epidemiologic and intermediate biostatistical methods are applied to clinical research. Epidemiologic measures such as relative risks and odds ratios and how to interpret these measures in the context of clinical studies will be addressed. Interpretation of screening tests will be included. A-F only. Pre: 640 and consent.

**BIOM 643 Applied Biostatistics (3)** Combines a didactic approach to multivariable regression with hands-on analysis of a clinical dataset. Regression methods for normally distributed, binary and count data, time-to-event data, model building and model evaluation are included. A-F only. Pre: 640, 642, or consent.

**BIOM 644 Bioanalytical Methods (2)** Introduction to disease molecular genetics: methods to identify and map candidate genes, analysis of mutations, use of markers, evaluation of gene and protein expression, collection methods, preparation of specimens, and extraction of DNA and proteins. A-F only. Pre: consent.

**BIOM 645 Clinical Protocol Development (3)** Provides training in proposal development. Governance structures of funding agencies; funding opportunities and decisions; review processes; NIH application and processes; reading RFAs; compliance issues; cultural sensitivity; and types of questions using databases are addressed. A-F only. Pre: consent.

**BIOM 646 Clinical Research Seminar (1)** Provides overview of research related to health and health disparities in Hawai'i. Seminar topics include ethnic

disparities in health research, Native Hawaiian health, childhood research initiatives, fitness and obesity, social and cultural factors and ethics. Repeatable six times. A-F only. Pre: consent.

**BIOM 647 Cultural Competence in Biomedical Research I (3)** Introductory lecture-seminar on the conduct of multidisciplinary research from a culturally competent perspective. Enrolled in MS or PhD in Biomedical Sciences program only. A-F only. (Alt. years)

**BIOM 648 Foundations of Biomedical Ethics (3)** Explores the foundations of biomedical ethics via small group seminars and discussion, presentations. Enrolled in MS or PhD in Biomedical Sciences program only. A-F only. (Alt. years)

**BIOM 649 Advanced Ethics in Biomedical Research II (3)** Develop biomedical ethics through case studies to incite discussions on topics such as gene therapy, gene enhancement, genetic counseling, informed consent, health care professional/patient and investigator/student participant communication, advanced directives and living wills, clinical research in developing countries, clinical research in ethnic minority and socio-economically disadvantaged populations, and non-discrimination in health care and research settings. A-F only.

**BIOM 650 Cultural Competence in Biomedical Research II (3)** Explore topics in cultural competence in greater depth, encouraging trainees to address issues from a unified yet flexible conceptual framework. Involves building knowledge, skills and action plans to address a range of learning styles and to appreciate and benefit from diversity. A-F only.

**BIOM 651 PhD Team Building Seminar (V)** Seminar focuses on teaching participants to work independently and collaborate in order to accomplish specific results. Students will be exposed to group dynamics, communication, healthy competition, conflict resolution, and innovative means of crossing boundaries between departments, organizations, industries and disciplines. Repeatable two times. A-F only.

**BIOM 654 Molecular Genetics of Human Diseases (1)** Present discoveries in the area of molecular genetics of human diseases, explore molecular mechanisms of pathology and discuss current concepts and innovative approaches in cardiovascular, neurodegenerative and skin disorders research. Pre: consent.

**BIOM 660 Mentored Research Practicum (V)** Conduct research under the direction of a mentor. Participants will be responsible for submission of a proposal, acquisition of IRB approval, and conduct of the project. Repeatable five times or up to 12 credits. BIOM students only. A-F only.

**BIOM 667 Advanced Biostatistics for Clinical Research (3)** Current methods for analyzing longitudinal and clustered, clinical data through lectures, discussions, and a group analysis. Topic areas include multi-level, multi-state, multi-process, and structural equation models. A-F only. Pre: 642 and 643, or consent.

**BIOM 699 Directed Reading (V)** Students may register on approval of department. CR/NC only. Repeatable unlimited times.

**BIOM 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times. CR/NC only. Pre: consent.

**BIOM 701 Disasters and Pandemics: Medical and PH Management and Risk Communication (3)** Assess impact on health in disasters and diseases. Enhances research skills related to management and communication. Repeatable one time. BIOM, PH, NURS, and SPA majors only. Pre: consent.

**BIOM 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times. CR/NC only. Pre: consent.

## Biophysics (BIOP)

*School of Medicine*

*Adequate preparation in chemistry (through physical chemistry), physics, and mathematics is required, and a background in biological sciences is desirable. The minimum grade required for undergraduate prerequisites is a D or better, and graduate prerequisites is a C (not C-) or better.*

**BIOP 499 Directed Research and Reading (V)** Independent research or selected reading of current literature. Emphasizes experimental approaches in biophysics. Repeatable unlimited times. Pre: consent.

**BIOP 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**BIOP 602L Biochemistry-Biophysics Lab (2)** Basic biophysical techniques: spectroscopic methods for macromolecular characterization; ultracentrifugation; receptor methodology; *in vitro* studies of nucleic acids. Pre: BIOC 441 or consent.

**BIOP 629 Bioenergetics and Membrane Function (2)** Energy transducing membrane systems; relationships of structure to function. Pre: BIOC 441, CHEM 351, or consent.

**BIOP 641 Structures and Interactions (3)** Proteins, nucleic acids, and membranes are examined to understand the physical and chemical bases of their structures, binding, kinetics, and interactions between biomolecular components. Pre: BIOC 441 and CHEM 351 (or concurrent); or consent.

**BIOP 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

**BIOP 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times. Pre: consent.

**BIOP 800 Dissertation Research (V)** Research for doctoral thesis. Repeatable unlimited times. Pre: consent.

## Botany (BOT)

*College of Natural Sciences*

**BOT 100 Freshman Seminar (1)** Discussion of hot topics in botany, including conservation of rare plants, invasive species, marine botany, ethnobotany, poisonous plants, evolution in action, fungal networks, and careers in botany with emphasis on Hawaiian examples. Students should enroll in BOT 100 and 101/101L, or BOT 100 and BIOL 171/171L. Repeatable one time. A-F only. Co-requisite: 101/101L or BIOL 171/171L. (Once a year)

**BOT 101 General Botany (3)** Growth, functions, and evolution of plants; their relations to the environment and particularly to humans and human activities. DB

**BOT 101L General Botany Lab (1)** (1 3-hr Lab) Lab observations and experiments illustrating basic principles of plant biology. Pre: 101 (or concurrent). DY

**BOT 105 Ethnobotany (3)** (2 Lec, 1 Demonstration) Plants and their influence on culture and history including: plant domestication and agriculture; plant biogeography and human migration; plant use in religious, medical, and shamanic traditions; and cultural aspects of plant conservation. FGC

**BOT 105L Ethnobotany Laboratory (1)** (1 3-hr Lab) Laboratory exercises, experiments, and analysis in ethnobotany. A-F only. DY

**BOT 110 Biodiversity: Evolution, Ecology, and Conservation (3)** Lecture exploring the range of Earth's diversity, the evolutionary processes that generate it, the ecological roles it plays, the consequences of its loss, and the processes by which it can be conserved. A-F only. (Fall only) DB

**BOT 135 Magical Mushrooms and Mystical Molds (3)** Impact of fungi in nature and on humankind. Selected historical events in which fungi played a significant role, their activities as decomposers and pathogens, and their uses as sources for mind altering

drugs in religious ceremonies and in food and beverage production in various societies. DB

**BOT 160 Campus Plants (3)** Nontechnical course emphasizing recognition of the many interesting tropical plants seen on campus; origin, status in Hawai'i, and cultural and economic uses of campus plants. DB

**BOT 180 Plant Life in the Sea (4)** (3 Lec, 1-3-hr Lab) Combined lecture-lab to introduce common marine plants in Hawaiian coastal areas via discussion of morphology, growth, ecological functions and native/alien status. Field trips to observe plants in local habitats. DB, DY

**BOT 200 Sophomore Seminar (1)** Presentations by faculty highlighting research in tropical ecosystems. Topics include alien species, biodiversity, ecosystem services, ethnobotany, marine ecology, plant-animal interactions, and systematics of Hawaiian species. Assigned reading and writing exercises from papers in current journals. Repeatable one time. A-F only. Pre: 101/101L or BIOL 171/171L. (Once a year)

**BOT 201 Plant Evolutionary Diversity (3)** Significance of evolutionary trends in the plant world, including reproductive, morphological, and life history adaptations by algae, fungi, and vascular plants. Pre: 101 or college general biology. Co-requisite: 201L. DB

**BOT 201L Plant Evolutionary Diversity Lab (1)** (1 3-hr Lab) Lab exercises in the morphology and systematics of land plants, fungi, and algae. Co-requisite: 201. DY

**BOT 202 Plant Ecology (3)** Lecture with complementary field-based laboratory experience to introduce students to observational and experimental techniques to study plant ecology and diversity in terrestrial, freshwater, and marine ecosystems. A-F only. Pre: 101. Co-requisite: 202L. (Once a year) DB

**BOT 202L Plant Ecology Lab (1)** Laboratory to introduce students to observational and experimental techniques to study plant ecology and diversity in terrestrial, freshwater, and marine ecosystems. A-F only. Co-requisite: 202. (Once a year) DY

**BOT 300 Conservation Ethics (1)** Introduction to and discussion of ethical issues associated with biodiversity, ecology, and conservation biology. Repeatable one time. A-F only. Pre: any DB course or consent. (Once a year)

**BOT 301 Plant Conservation Biology (3)** Introduction to the concepts and principles of plant conservation biology and to plant conservation-in-practice in Hawai'i and elsewhere. A-F only. Pre: 202/202L, or consent. Co-requisite: 301L. (Once a year) DB

**BOT 301L Plant Conservation Biology Lab (1)** Introduction to approaches, methods, and analyses used in the study and practice of plant conservation, with an emphasis on experimental design and problem-solving. Includes both laboratory and field components. A-F only. Pre: 202/202L, or consent. Co-requisite: 301. (Once a year) DY

**BOT 302 Grant Writing Seminar (2)** Provides three rounds of opportunities for grant writing associated with research in biodiversity, conservation biology, ecology, and plant systematics. Students will gain experience in peer review, grant cycles, and budget preparation. A-F only. Pre: 301 (or concurrent) and 303, or consent. (Once a year)

**BOT 303 Field Botany (5)** Combined lecture-laboratory with intensive field experience for observational and experimental field work in native/impacted Hawaiian ecosystems. Field experience typically held during spring break. Terrestrial, freshwater, and marine habitats considered. A-F only. Pre: 202/202L and consent. (Once a year) DB DY

**BOT 350 Resource Management and Conservation in Hawai'i (3)** Management of native Hawaiian organisms and terrestrial ecosystems with particular attention to strategies, planning, research, and management actions necessary to control alien influences and promote native species. Pre: college general biology. DB

**BOT 399 Botanical Problems (V)** Individualized directed research. Intended for upper division botany majors. Repeatable six times. Pre: 101, BIOL 172; or consent.

**BOT 400 Senior Seminar (1)** Current research themes in botany presented in discussion format; reading current research papers. Oral presentations of primary research. Repeatable one time. BOT majors only. A-F only. Pre: 301/301L and 303, or consent. (Once a year)

**BOT 401 Teaching Internship (1)** Teaching Internship (TI) allows upper division undergraduates to experience assisting in laboratory courses for BOT 101, 105, 201, 202, 203, or other lab courses in Botany or peer-mentoring for BOT 100, as available. Repeatable one time. BOT majors only. CR/NC only. Pre: 301/301L and 303, or consent.

**BOT 410 Plant Anatomy (3)** Structure of vascular plants; origin and differentiation of tissues; relation of structure to function. Pre: 201. Co-requisite: 410L. Recommended: 470. **DB**

**BOT 410L Plant Anatomy Lab (1)** (1 3-hr Lab) Lab study of plant structure. Co-requisite: 410. **DY**

**BOT 420 Plant Form and Function (4)** (3 Lec, 1 3-hr Lab) Lecture/laboratory to examine the anatomy, physiology, morphology, and functional ecology of plants. Labs will develop skills in microscopy, experimental techniques for studying plant physiology, and basic functional ecology. A-F only. Pre: 101/101L or BIOL 171/171L; BOT 201/201L; or consent. (Spring only)

**BOT 430 Mycology (2)** Morphology, physiology, ecology of fungi; their identification. Pre: 201, BIOL 172; or consent. **DB**

**BOT 430L Mycology Lab (2)** (2 3-hr Lab) Laboratory to accompany 430. Pre: 430 (or concurrent) or consent. **DY**

**BOT 440 Advanced Ethnobotany (3)** Advanced studies of plant uses in cultural contexts, focusing upon impacts of plant-culture interactions in development of cultures, cultivars, medicinals, ethnobotanics, ethics, and intellectual property. Lecture/discussion, term paper. Pre: 105, 461 and ANTH 151 or ANTH 200; or consent. **DB**

**BOT 442 Medical Ethnobotany (3)** Survey and theory of plants used as medicines, cultural perspectives of herbal medicine, and the botanical/chemical basis of allopathic and naturopathic medicine. Lecture/discussion, term paper or project. Pre: 440 and 470 or CHEM 272 or BIOC 341; or consent. **DB**

**BOT 444 Ethnobotany and Conservation (3)** Ecological implications of cultural uses of plants. Examines the biological basis for, and ecological effects of traditional and local resource management systems. Pre: 440, and 350 or 453 or GEOG 330; or consent. **DB**

**BOT 446 Hawaiian Ethnobotany (3)** (2 Lec, 1 3-hr Lab) Methods and techniques of handling and identifying plant materials used by early Hawaiians and modern Hawaiians for house and canoe construction, clothing, household and fishing items, medicine, and food preparation. Reading, laboratory, and fieldwork. Pre: 440 or consent. **DS**

**BOT 450 Natural History of Hawaiian Islands (3)** (2 Lec, 1-hr Lab) Geography, geology, climatology, biotic environment of Pacific Basin and Hawaiian Islands; endemism and evolution in terrestrial and marine biota of islands. Pre: one semester of biological sciences at college level. (Cross-listed as ZOOL 450) **DB**

**BOT 453 Plant Ecology and Environmental Measurements (4)** (2 Lec, 2 3-hr Lab) Influence of natural environments on plant behavior (autecology). A field-oriented course to complement 454. Field trips. Should precede 454. Pre: one of 101, BIOL 172, or ZOOL 101. **DB DY**

**BOT 454 Plant Community Ecology (4)** (2 Lec, 2 3-hr Lab) Covers selected topics in plant population and community ecology. Strong emphasis on how ecology is practiced as a science. Labs take advantage

of working outdoors in local natural areas. Pre: 202 or consent. **DB DY**

**BOT 455 Analysis of Biological Data (3)** Application of computers to analysis of biological data; preparation and storage, report production, database analysis procedures, univariate and bivariate statistical analyses. Pre: BIOL 172 or consent.

**BOT 456 Plant-Animal Interactions (3)** Interdependence of plants and animals, emphasizing the influence of animals on plant fitness and evolution. Topics include pollination, fruit/seed dispersal, herbivory, and ant-plant mutualisms. Pre: 201/201L or BIOL 265/265L. **DB**

**BOT 457 ʻĀina Mauliola: Hawaiian Ecosystems (3)** Comprehensive analysis of traditional Hawaiian and modern resource management practices. Rigorous overview of the dominant physical and biological processes from the uplands to the oceans in Hawai'i. Pre: 105, HWST 107, and junior standing; or consent. (Cross-listed as HWST 457)

**BOT 458 Natural Resource Issues and Ethics (4)** Overview of the history of land, resources and power in Hawai'i; players and processes influencing land and natural resources policies today explored from Native Hawaiian and other viewpoints. Extensive use of case studies. Pre: 457 or HWST 457. (Cross-listed as HWST 458)

**BOT 459 Strategies in Hawaiian Resource Use (3)** Analyzing diverse land and water use strategies of O'ahu, from traditional Hawaiian, scientific and economic perspectives, through classroom and on-site lectures. Topics include traditional Hawaiian methods, modern development, threatened ecosystems, ecotourism and scientific research. A-F only. Pre: BOT/HWST 457 (or concurrent) or consent. (Cross-listed as HWST 459)

**BOT 460 Hui Konohiki Internship: Applied Resource Management (3)** A "hands-on" internship in an environmental or resource-management organization in Hawai'i. The experience will be broadened and supplemented by classroom lectures, discussion and analysis from traditional Hawaiian, scientific and economic perspectives. A-F only. Pre: BOT/HWST 457, BOT/HWST 458 (or co-requisite), BOT/HWST 459; or consent. (Spring only) (Cross-listed as HWST 460)

**BOT 461 Systematics of Vascular Plants (4)** (2 Lec, 2 3-hr Lab) "Hands-on" experience with Hawai'i's unique tropical flora; emphasis on recognition and identification of vascular plant families and the principles and methodologies that define them; evolution of biodiversity. Pre: 101 or college general biology. **DB DY**

**BOT 462 Plant Evolution (3)** Major events and principles; includes the blue-green algae and fungi. Pre: 201 or BIOL 172. **DB** (Alt. years)

**BOT 470 Plant Physiology (3)** Integration of form and function from cellular to whole plant levels in processes from seed germination, through photosynthesis, growth, and morphogenesis, to flowering and senescence. A-F only. Pre: CHEM 152 and BIOL 171, or consent. Co-requisite: 470L. **DB**

**BOT 470L Principles of Plant Physiology Lab (1)** (1 3-hr Lab) Principles of experimentation in plant physiology, includes individual investigations. A-F only. Pre: consent. Co-requisite: 470. **DY**

**BOT 480 Algal Diversity and Evolution (4)** (3 Lec, 1 3-hr Lab) Principles of algal diversity, structure, and evolution. Identification of common Hawaiian algae. Pre: one of 101, BIOL 172, MICR 351, ZOOL 101; or consent. **DB DY**

**BOT 492 Wildlife Ecology and Management in the Tropics (3)** Practices from around the world that focuses on the tropics. Integrates across disciplines, considers how science based management interacts with world views and considers management plans that are scientifically rigorous but culturally sensitive. Pre: BIOL 265 and an upper level ecology course, or consent. (Once a year)

**BOT 499 Advanced Directed Research (V)** Performance of research project under the direction of a faculty advisor. Preparation of written proposal, final oral presentation to be given to the Botany Department audience and written report required. Preference given to BOT majors. Repeatable up to eight credits. CR/NC only. Pre: 301/301L, 302, and 303, and consent.

**BOT 500 Master's Plan B/C Studies (1)**

**BOT 600 Grant Writing and Your Career in Science (2)** Scientific grant writing from inception through management to completion; students will write a DDIG and participate in a panel. Professional skills including "rules," job applications, interviews, transitioning from graduate student to academic or non-academic job. A-F only. Pre: current standing as a graduate student, or consent.

**BOT 601 Foundations of Current Botany I (2)** Discussion of current research and classical papers important to modern concepts in history of science, plant diversity, plant interactions with the environment, and plant integration. Pre: graduate standing in BOT or consent. (Fall only)

**BOT 602 Foundations of Current Botany II (2)** Discussion of current research and classical papers important to modern concepts in ecology, plant interactions with other plants or animals, and ecosystem functioning. BOT majors only. Pre: graduate standing in BOT or consent. (Spring only)

**BOT 606 Graduate Research Skills (2)** (1 Lec, 1 3-hr Lab) Survey of major research areas in the botanical sciences with emphasis upon research opportunities in Hawai'i and an overview of 1) skills needed by botanical researchers including writing scientific papers and proposals, practicing ethical research procedures, and collection of specimens; and 2) equipment used by botanical researchers including computers, cameras, measuring and monitoring equipment, and global positioning systems. Lecture/discussion, laboratory. Repeatable one time. Pre: graduate standing in biological science or approval.

**BOT 610 Botanical Seminar (1)** Study and discussion of significant topics and problems in botany. Repeatable three times.

**BOT 612 Advanced Botanical Problems (V)** Investigation of any botanical problem; reading and laboratory work. Repeatable nine times. Pre: consent.

**BOT 620 Perspectives in Modern Botany (2)** Lectures by distinguished visiting professor on contemporary botanical topics in the lecturer's area of expertise. No more than 6 credit hours may be counted toward the MS degree requirements. Repeatable five times.

**BOT 621 Ecohydrology: Theory and Modeling (3)** Vegetative response to hydrologic controls and nutrient cycles; quantitative linkages between hydrological dynamics and ecological patterns/processes. MatLab is used to develop and simulate ecohydrological models. Pre: college level calculus or consent. (Once a year)

**BOT 640 Quantitative Ethnobotany (3)** Modern ethnobotanical field research project design, execution, data analysis, and documentation methods. Intended for students preparing to conduct field research studies. Lecture/discussion, term paper. Pre: 105 and one of 201, 461, ANTH 200, or BIOL 172.

**BOT 644 Ethnobotanical Methods (3)** Field techniques for assessing the ecological effects of cultural uses of plants. Emphasis on documenting traditional and local patterns of plant use and measuring the effects on plant individuals, populations, communities, and landscapes. Pre: previous course work in anthropology or biology.

**BOT 648 Conservation Ethnobiology (3)** Practical field training experience for a scientific career conducting ethnobiological research. Repeatable one time. Pre: 640 or consent. (Summer only)

**BOT 651 Invasion Biology (3)** Theories, models, patterns, and predictive methods relating to the introduction, establishment, and spread of introduced organisms. Application of principles of invasion

biology to conservation and natural resource management. Pre: one of 453, 456, MICR 485 or ZOOL 439; and 462 or BIOL 375; or consent.

**BOT 652 Population Biology (3)** Theory and applications of population biology; behavior of population models, as revealed by analytical methods and computer simulation; application to population problems such as endangered species; discussion of classical and current literature in population biology. Pre: one of 453, 454, 456, NREM 680, PEPS 671, ZOOL 439, ZOOL 467, ZOOL 620, or ZOOL 623; or consent. (Cross-listed as ZOOL 652)

**BOT 654 Advances in Plant Ecology (2)** A research-oriented course focusing on recent advances in all areas of plant ecology. Involves critical review of recent literature, independent research project, oral and written presentation of project results. Repeatable three times. Pre: consent.

**BOT 661 Hawaiian Vascular Plants (3)** (2 Lec, 1 3-hr Lab) Identification, systematics, evolution, and biogeography of native plants. Field trips. Pre: 461 or consent.

**BOT 668 Nomenclature and Practical Systematics (2)** Modern issues of naming and classifying of organisms, with a botanical emphasis. Includes lectures, discussions, class projects, and field trips. A-F only. Pre: 461 (or equivalent) or consent. (Once a year)

**BOT 669 Molecular Phylogenetics and Evolution (3)** Molecular approaches to evolution, phylogenetics, and systematics. Basic use of chloroplast DNA, mitochondrial DNA, nuclear DNA, and electrophoresis. Phylogenetic analysis using parsimony, distance, and comparative methods. Repeatable two times. Recommended: 201.

**BOT 676 Environmental Physiology Seminar (2)** Environmental stress; pollution; salinity, geobotany, and other interactions between the environment and plant processes. Current literature emphasized at multidisciplinary and interdisciplinary levels. Pre: graduate status in a biological science, geosciences, etc.; consent for well-prepared undergraduates.

**BOT 680 Marine Macrophytes Seminar (2)** Discussion of current literature in physiological ecology, cellular and molecular adaptations to environmental factors by marine plants. Repeatable four times. Pre: 480.

**BOT 682 Physiological Ecology of Marine Plants (3)** Discussion of current studies in morphological, physiological, cellular, and molecular adaptation to marine environments by macroalgae, phytoplankton, and seagrasses. A-F only. Pre: upper division ecology class recommended, 470 (or equivalent), 480 (or equivalent), or consent. Co-requisite: 682L.

**BOT 682L Physiological Ecology of Marine Plants Lab (1)** Field and laboratory research techniques and projects in the physiological ecology of algae and seagrasses. A-F only. Pre: upper division ecology class recommended, 470L (or equivalent), 480 (or equivalent), or consent. Co-requisite: 682.

**BOT 690 Conservation Biology (3)** Theories and concepts of ecology, evolution, and genetics for conservation of biological diversity. Topics will include restoration ecology, management planning, laws and policies, biological invasions. Pre: BIOL 375 and either 462 or ZOOL 480; and either 453, 454, 456, or 492; or ZOOL 410, 439, 620, 623. (Cross-listed as NREM 690 and ZOOL 690)

**BOT 699 Directed Research (V)** Research preliminary to thesis or dissertation research. Repeatable unlimited times. CR/NC only. Pre: consent of graduate committee.

**BOT 700 Thesis Research (V)** Repeatable unlimited times. Pre: candidacy for MS degree and approval of thesis proposal.

**BOT 750 Topics in Conservation Biology (V)** Advanced topics in conservation and environmental biology. Repeatable up to twelve credits. A-F only. Pre: consent. (Cross-listed as ZOOL 750)

**BOT 800 Dissertation Research (V)** Repeatable unlimited times. Pre: candidacy for PhD and approval of dissertation proposal.

## Business (BUS)

*Shidler College of Business*

**BUS 099 International Exchange Study/Research (V)** Study overseas in an approved international exchange or similar program. Repeatable four times. CR/NC only. Pre: consent of academic advisor.

**BUS 200 Introduction to Business (3)** Introduction to each of the functional areas of business. Intends to help students understand the interrelationships of business functional areas and the role of business in society. Stresses written communication in business. BUS majors only. Freshman or sophomore standing only. A-F only.

**BUS 209 Written Communication in Business (3)** An interactive writing class stressing persuasive writing in the context of memos, letters, and business reports. A-F only. Pre: ACC 201 and ENG 100. Students may not earn credit for both BUS 209 and ENG 209.

**BUS 250 Applied Math in Business (3)** The algebra and geometry of linear, quadratic, exponential, and logarithmic functions. Mathematics of finance—annuities, perpetuities, present value. Derivatives, graphical analysis, mathematical models as applied to business. Selected coverage of algebra, geometry, and calculus emphasizing business applications and decision making. Pre: two years high school algebra and one year plane geometry. FS

**BUS 310 Statistical Analysis for Business Decisions (3)** Problem recognition and formulation; stress on cross-disciplinary complex problem solving and communication; computer intensive. Coverage of descriptive statistics, probability and hypothesis testing with emphasis on quality, productivity, and regression analysis. Must be taken in first semester of BBA program. DS

**BUS 311 Information Systems for Global Business Environment (3)** Skills and strategies for using information resources applied to local and global business issues; advanced skills in computer-based analytical techniques and information management; impact of information technology on business operations and business strategies. Must be taken in first semester of BBA program. Pre: ICS 101 (Alpha) or equivalent, or consent.

**BUS 312 Principles of Marketing (3)** Concepts, problems, and opportunities in marketing within its competitive, political-legal, economic, social and global environments. Social responsibility and ethics. Marketing research. Consumer and business-to-business segmentation and positioning. Strategic marketing planning. Students may not earn credit for BUS 312 and TIM 304.

**BUS 313 Economic and Financial Environment of Global Business (3)** International trade, financial flows, and direct investment. Public and private institutions including government policies and capital markets. Emphasis on Asia Pacific issues, with attention to the cultural differences among countries. DS

**BUS 314 Business Finance (3)** Introduction to the theory and practice of financial management: analysis and decision making for asset management, capital budgeting, capital structure, and dividend policy. Prerequisite for all other finance courses. Pre: ACC 202 or consent.

**BUS 315 Global Management and Organizational Behavior (3)** Analysis of theories and concepts underlying domestic and global organizational management, including behavioral and personnel issues. Emphasis on leadership, team-work, cultural differences in the Asia Pacific region. Prerequisite to all other advanced management courses. Students may not receive credit for BUS 315 and TIM 303. Pre: PSY 100 or SOC 100.

**BUS 345 Strategic Management (3)** Applications of strategy to domestic and global business problems using an interdisciplinary approach. Emphasis on Asia-Pacific business, assessment of risk, integration of all business core disciplines. Extensive writing

expected. Pre: all core courses and graduating senior standing.

**BUS 367 Business Study Abroad (V)** Study abroad experience emphasizing international business issues. Content varies depending on where the course is taught and by which professor. Course qualifies as an international business elective. Repeatable four times.

**BUS 395 (Alpha) Internship (V)** On-the-job experience in the business community. Term paper and meetings with faculty advisor required. (D) MIS; (F) finance; (G) management; (I) international business; (K) marketing; (M) human resource management; (R) real estate. CR/NC only. Repeatable one time. Pre: consent and RE 300 for (R) only.

**BUS 475 Asia Pacific Business (V)** Analysis of business environment and business issues through study of businesses, governmental entities, and non-governmental organizations in specific geographic areas in non-U.S. settings. Repeatable one time. A-F only. Pre: consent. (Summer only)

**BUS 476 Asia Pacific Field Trip (V)** Analysis of business environment and business issues through study and direct observation of businesses, governmental entities, and non-governmental organizations in non-U.S. settings. Involves group travel to selected international business cities. Travel sites will vary. Repeatable one time. A-F only. Pre: 475 and consent. (Summer only)

**BUS 477 Dynamics of Asian Finance (6)** Analysis of selected key industries of Asian countries: business/economic trends, shifting product mix, technological changes, joint ventures, international competition, and productivity strategy, including contrasting management styles, worker/management relationships, and decision-making processes under different cultural settings. Industry observations conducted in Asian countries for three weeks during the summer. Pre: 6 credit hours of economics or business, PAMI participant; or consent.

**BUS 500 Master's Plan B/C Studies (1)** Enrollment required for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**BUS 601 Professional Development (0)** Professional development course designed to focus on and improve the soft skills of MBA students. Students will learn from guest speakers, through field trips, intensive workshops, and hands-on experience. Repeatable two times. Full-time MBA degree program only. No grading.

**BUS 621 Business Statistics (1.5)** Statistical tools for the MBA with emphasis on quality control, time series, and forecasting using regression. A-F only. Co-requisite: 622.

**BUS 622 Economic Foundations of Strategy (1.5)** Microeconomic principles that provide structure to solve managerial problems, and to suggest strategies for success. Evaluation of the microeconomic competitive environment in which organizations operate. A-F only. Co-requisite: 621.

**BUS 623 Marketing Management (3)** Concepts and issues in marketing within the global environment of business. Ethical dimensions and social responsibilities; market research; consumer segmentation and positioning. Strategic marketing planning. A-F only.

**BUS 624 Accounting for Decision-making (3)** Accounting tools for business professionals focusing on the role of accounting information in capital markets, managerial decision-making and corporate governance. A-F only. Pre: 201 or successful completion of Trueman, B. (2004). MBA Primer-Financial Accounting: Thomson South-Western, available online at [www.mbaprimer.com](http://www.mbaprimer.com), or completing a 12 contact-hour tutorial.

**BUS 626 Leadership and Organizational Behavior (3)** Personal leadership and communications development and the contributions of the behavioral sciences to understanding human behavior in organizations with a focus on leading organizations in times of change. A-F only.

**BUS 627 Business, Government, and External Environment (1.5)** Important issues related to the external environment of business. This includes international trade and finance, regulatory environment, social impacts of business. A-F only. Pre: 622 or consent. Co-requisite: 628.

**BUS 628 Ethics (1.5)** Assists students in developing an awareness of major ethical issues which affect business decisions, and encourages a socially responsible consideration of those issues and being able to express their views. A-F only.

**BUS 629 Managerial Finance (3)** Financial management theories and tools for business professionals; asset management; capital budgeting; capital structure and dividend policies. A-F only. Pre: 621, 622, and 624; or consent.

**BUS 630 Managing Information Technology for Strategic Advantage (1.5)** Theory, practices, techniques for managing information technology resources for innovation and for strategic advantage in global business environment. A-F only. Pre: 621 and 622. Co-requisite: 631.

**BUS 631 Operations and Supply Chain Management (1.5)** Theory, practices, techniques for managing operations and supply chains for global integration of firms and organizations. A-F only. Pre: 621 and 622, or consent. Co-requisite: 630.

**BUS 632 Business Policy and Strategy (3)** Integration of learning through analysis of comprehensive business problems, resolution of policy issues, and the study of competitive strategies in the international setting. Pre: must be taken in the final semester of the MBA core, and consent.

**BUS 667 Business Study Abroad (V)** Study abroad experience emphasizing international business issues. Content varies depending on course of study and educational institution selected. Course qualifies as an international business elective(s). Repeatable one time. CR/NC only. Pre: business core or permission of academic advisor.

**BUS 675 International Business Topics (V)** Analysis of the business environment and business issues through study of businesses, governmental entities, and/or non-governmental organizations in specific geographic areas, in non-U.S. settings. Repeatable one time. A-F only. Pre: consent. (Summer only)

**BUS 676 International Business Field Experience (V)** Analysis of the business environment and business issues through study and direct observation of businesses, governmental entities, and/or non-governmental organizations in non-U.S. settings. Involves group travel to selected international business cities. Repeatable one time. A-F only. Pre: 675 and consent. (Summer only)

**BUS 677 Field Study in Asia (6)** Industry observations conducted entirely in Asian countries for three and a half weeks. Pre: consent.

**BUS 695 Internships (V)** On-the-job experience in the business community. Project paper and meetings with faculty advisor required. A-F only. Repeatable one time. Pre: consent.

**BUS 696 MBA Consulting Practicum (3)** Final MBA requirement for those candidates not writing a thesis. Candidates will form consulting teams to perform a meaningful, strategic study for a client organization. Pre: 632.

**BUS 696C Entrepreneurship (3)** Comprehensive study of entrepreneurship.

**BUS 699 Directed Reading and Research (V)** Outline (including methodology or sources, results expected and means of measurement) must be prepared by student and approved by supervisor and chair of graduate programs before registration. Repeatable up to 12 credits.

**BUS 700 Thesis Research (V)** Required for Plan A candidates only; six credit hours required, one of which must be taken during semester in which degree is awarded. Repeatable unlimited times.

**BUS 705 Seminar in International Management (V)** Introduces students to research and teaching at

the university. Covers topics of research including research projects currently underway by Shidler College faculty, advanced PhD students, distinguished visiting faculty, and research contemplated by new PhD students. Repeatable unlimited times. CR/NC only. Pre: PhD student status in international management or consent.

**BUS 800 Dissertation Research (V)** Repeatable unlimited times. Pre: PhD student status in international management or consent.

## Business Law (BLAW)

*Shidler College of Business*

**BLAW 200 Legal Environment of Business (3)** Introduction to the legal environment of business operations with particular attention to business law and ethics and to principles of law relating to contracts, agency, partnerships, and corporations.

**BLAW 360 International Business Law (3)** Overview of international and national law as it applies to international trade. Readings and case studies focus on the legal environment of selected areas in the Asia Pacific region and strategies for doing business overseas. Pre: 200.

**BLAW 604 Social and Legal Aspects of Management (3)** Study of the legal environment of management with particular attention to the sources, principles, and form of the law; contracts, business organizational structures, agency, and partnership.

## Cambodian (CAM)

*College of Languages, Linguistics and Literature*

**CAM 101 Introduction to Modern Khmer (4)** Listening, speaking, reading, writing. Structural points introduced inductively. Meets five hours weekly. HSL

**CAM 102 Introduction to Modern Khmer (4)** Continuation of 101. Pre: 101 or exam or consent. HSL

**CAM 103 Conversing in Khmer I (2)** Online course aims to develop students' proficiency skills in speaking and listening at the first year level for the purpose of communication, travel, and for enjoyment.

**CAM 104 Conversing in Khmer II (2)** Online course aims to develop students' proficiency skills in speaking and listening at the first year level for the purpose of communication, travel, and for enjoyment. Pre: 103 or consent.

**CAM 105 Reading/Writing Khmer (2)** Online course aims to develop the student's proficiency skills in reading and writing Khmer at the First Year level.

**CAM 107 First Year Khmer (2)** Continuation of 105. This online course aims to develop proficiency skills in listening, reading, and writing Khmer at the first year level. Use a multimedia CD-ROM and a textbook to complement the web-based instruction. Pre: 105 (or equivalent) or consent. (Spring only) HSL

**CAM 112 Intensive Elementary Khmer (10) HSL**

**CAM 201 Intermediate Modern Khmer (4)** Continuation of 102. Conversation, reading, writing. Meets five hours weekly. Pre: 102 or exam or consent. HSL

**CAM 202 Intermediate Modern Khmer (4)** Continuation of 201. Pre: 201 or exam or consent. HSL

**CAM 205 Second Year Khmer I (2)** Online course aims to develop student's proficiency-based units exploring Cambodian language and culture and focusing on reading and writing at the intermediate level. Pre: 102 or 105, or consent. (Fall only)

**CAM 207 Second Year Khmer II (2)** Continuation of 205. Online course provides opportunities for learners to enhance their linguistic, discourse and sociolinguistic competencies in Khmer at the intermediate level. Use a multimedia CD-ROM and a textbook to complement the web-based instruction. Pre: 201 or 205, or consent. (Spring only) HSL

**CAM 212 Intensive Intermediate Khmer (10) HSL**

**CAM 301 Third-Level Khmer (3)** Continuation of 202. Advanced reading, writing, conversation and comprehension. Emphasis on modern contemporary texts. Computer assisted learning. Lab work. Pre: 202 or 212 (or equivalent), or consent.

**CAM 302 Third-Level Khmer (3)** Continuation of 301. Computer assisted learning. Lab work. Pre: 301 (or equivalent), or consent.

**CAM 303 Accelerated Third-Level Cambodian (6)** Continuation of 212. Practice in idiomatic conversation and extensive reading. Integrated development of listening, speaking, reading, and writing skills. Meets 10 hours weekly. Pre: 212.

**CAM 305 Third Year Khmer I (2)** Online course provides opportunities for learners to enhance their linguistic, discourse and sociolinguistic competencies in Khmer at the advanced level. Use a multimedia CD-ROM and a textbook to complement the web-based instruction. (Fall only) Pre: 207 or consent.

**CAM 306 Third Year Khmer II (2)** Continuation of 305. Online course provides opportunities for learners to enhance their linguistic, discourse and sociolinguistic competencies in Khmer at the advanced level. Use a multimedia CD-ROM and a textbook to complement the web-based instruction. Pre: 305 or consent. (Spring only)

**CAM 401 Fourth-Level Khmer (3)** Continuation of 302. Computer assisted learning. Advanced reading in current literature; discussion of social and cultural issues; advanced conversation and composition. Pre: 302 (or equivalent), or consent.

**CAM 402 Fourth-Level Khmer (3)** Continuation of 401. Computer assisted learning. Pre: 401 (or equivalent), or consent.

**CAM 415 Khmer Language in the Media (3)** Focus on advanced reading, writing, aural comprehension and speaking skills through the study of Khmer newspaper, radio, TV, audio/video clips and film. Repeatable one time. Pre: 402 (or equivalent), or consent.

## Cell and Molecular Biology (CMB)

*School of Medicine*

**CMB 351 Genetics, Evolution and Society (3)** The role of genetics in evolution, medicine, behavior, plant and animal breeding and technology; its impact on today's society. Pre: one semester of biological science at college level or consent. (Cross-listed as BIOL 340) DB

**CMB 411 Human Genetics (3)** Principles of human genetics. Designed for pre-medical or pre-dental students or others who require a course with emphasis on human genetics. Pre: BIOL 172 and BIOL 172L, or consent. DB

**CMB 499 Genetical Problems (V)** Directed reading and research in genetics. Repeatable unlimited times. Pre: 351 or 411.

**CMB 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**CMB 515 Unit V Topics in Genetics (1)** First-year elective course in which medical students may take an in-depth study of genetics. Repeatable six times. Pre: first-year medical student or consent.

**CMB 599 Research Topics in Cell Molecular Biology (V)** Research elective for medical students. MD majors only. CR/NC only. Pre: MDED 551 and consent.

**CMB 606 Introduction to Neurosciences (4)** An interdisciplinary overview of the central nervous system, drawn from current knowledge and research on vertebrate and invertebrate neurobiology. Repeatable one time. Pre: consent.

**CMB 610 Public Health Biology (3)** Writing-intensive asynchronous computer-based course examines biological processes and challenges relevant

to the public health professional. Topics include anatomical, pathophysiological, and molecular bases of public health; genetics, immunology, ethics; disease prevention, control, and management. (Once a year) (Cross-listed as PH 610)

**CMB 611 Seminar in Biomedical Sciences (1)** Presentation and discussion of research topics in biomedical science. Repeatable nine times. CR/NC only. Pre: graduate standing or consent. (Cross-listed as REPR 611)

**CMB 621 Cell Molecular Biology I (4)** Molecular approaches to cell structure and function emphasizing cells in multi-cellular plants and animals. Pre: graduate standing, BIOC 441 or BIOL 402, MBBE 402, or PEPS 402, and BIOL 406; or consent. Recommended: CHEM 351.

**CMB 622 Cell Molecular Biology II (4)** Molecular approaches to cell structure and function emphasizing cells in multi-cellular plants and animals. Pre: one of 621, BIOC 441 or BIOL 402, MBBE 402, or PEPS 402, and BIOL 406; or consent.

**CMB 625 Advanced Topics in Genetics (2)** Advanced treatment of frontiers in genetics. Pre: graduate standing in genetics or consent.

**CMB 626 Ethics in Biomedical Research (2)** Topics include responsible data management, recording, reporting, misconduct and scientific fraud, conflicts of interest, critical use of animals and human issues and subjects in research, genetic screening, stem cell and gene therapy and patenting. (Cross-listed as BIOM 641)

**CMB 631 Research Rotations (3)** Individualized research project in three laboratories of CMB faculty with a written report on each project. Faculty laboratories will be selected by consultation with student's graduate committee and individual faculty. Pre: 621 (or concurrent), 622 (or concurrent); or consent.

**CMB 640 Neuropharmacology (2)** Physiology and pharmacology of central and peripheral nervous systems, focusing on synaptic chemistry and signaling. A-F only. Pre: 606, or consent from the course director. (Cross-listed as PHRM 640)

**CMB 650 Population Genetics (3)** Mathematical, observational, experimental results on effects of mutation, selection, and systems of mating on distribution of genes. Analysis of non-experimental populations. Pre: consent. (Cross-listed as BIOL 650)

**CMB 654 (Alpha) Genetics Seminar (1)** Research and topical literature reports in genetics. May be repeated. (B) molecular genetics; (C) molecular biology of cancer; (D) human genetics; (E) cytogenetics; (F) evolutionary genetics; (G) molecular biology of the cell; (H) drosophila genetics; (I) population/statistical genetics; (J) developmental genetics; (K) insect molecular biology; (M) genetics and molecular biology of fungi. Pre: graduate standing in genetics or consent.

**CMB 671 (Alpha) Techniques in Genetics (V)** Laboratory training in procedures used in diagnosis of genetic diseases, cytogenetics, immunogenetics, and dermatoglyphics. Repeatable three times. Pre: graduate standing in genetics or consent.

**CMB 699 Directed Research (V)** Repeatable unlimited times. Pre: graduate standing and consent.

**CMB 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times. Pre: acceptance of thesis topic.

**CMB 705 Special Topics in Neurosciences (V)** Advanced topics in neuroscience, from basic neurobiology to clinical neurology and psychiatry. Emphasis on current investigations at the cellular or molecular level. Repeatable unlimited times. Pre: consent.

**CMB 800 Dissertation Research (V)** Repeatable unlimited times. Pre: acceptance of dissertation topic.

## Chamorro (CHAM)

*College of Languages, Linguistics and Literature*

*Students choosing Chamorro for the language requirement should realize it may not be offered if demand is limited.*

**CHAM 101 Elementary Chamorro (4)** Introduction to Chamorro, emphasis on listening and speaking, language structure. Meets five hours weekly. **HSL**

**CHAM 102 Elementary Chamorro (4)** Listening, speaking, reading, and writing skills; emphasis on oral and reading proficiency. Meets five hours weekly. Pre: 101 (or equivalent), or consent. **HSL**

**CHAM 201 Intermediate Chamorro (4)** Continuation of 102. Emphasis on comprehension and language production (speaking). Meets five hours weekly. Pre: 102 (or equivalent), or consent. **HSL**

**CHAM 202 Intermediate Chamorro (4)** Continuation of 201. Emphasis on comprehension and language production. Pre: 201 (or equivalent), or consent. **HSL**

## Chemistry (CHEM)

*College of Natural Sciences*

*Credit allowed for only one of CHEM 100, 131, 151, 161, 171, or 181A.*

**CHEM 100 Chemistry and Society (3)** Introduction to chemistry for non-science majors. Discussion of basic chemistry concepts and their application to everyday life. No credit for science and engineering majors. A-F only. **DP**

**CHEM 131 Preparation for General Chemistry (3)** For students lacking preparation in chemistry. Provides background in algebra and elementary concepts of chemistry in preparation for entering the General Chemistry sequence. A-F only.

**CHEM 151 Elementary Survey of Chemistry (3)** Nonrigorous but adequate background in fundamentals. Preparation for technical training in life sciences. **DP**

**CHEM 151L Elementary Survey of Chemistry Lab (1)** (1 3-hr Lab) Experiments introducing laboratory techniques and illustrating chemical principles. Pre: 151 (or concurrent). **DY**

**CHEM 152 Survey of Organic and Bioorganic Chemistry (3)** Structure, nomenclature, properties, reactions of organic compounds emphasizing those of practical importance in related fields. Pre: 151, 162, or 171. **DP**

**CHEM 152L Survey of Organic and Bioorganic Chemistry Lab (1)** (1 3-hr Lab) Techniques of preparation, purification, identification of organic compounds. Pre: 151L, 162L, or 171L; and 152 (or concurrent). **DY**

**CHEM 161 General Chemistry I (3)** Basic principles of chemistry, including stoichiometry. Introduction to solution phase chemistry. Gas phase chemistry. Thermodynamics, including enthalpies of formation and reaction. Atomic structure, periodic trends, chemical bonding, molecular structure. Pre: C (not C-) in 131 or C (not C-) in 151 or successful completion of placement exam, or consent. **DP**

**CHEM 161L General Chemistry Lab I (1)** (1 3-hr Lab) Laboratory experiments introducing techniques and fundamental principles of chemistry. Pre: 161 (or concurrent). **DY**

**CHEM 162 General Chemistry II (3)** Continuation of 161. Liquids and solids. Solutions and colligative properties. Continuation of thermodynamics, including entropy and free energy. Principles and applications of chemical equilibrium, including acid-base chemistry (titrations, buffers). Kinetics. Redox reactions and electrochemistry. Pre: C (not C-) or better in 161. **DP**

**CHEM 162L General Chemistry Lab II (1)** (1 3-hr Lab) Laboratory experiments introducing techniques and fundamental principles of chemistry. Pre: 161L and 162 (or concurrent). **DY**

**CHEM 171 Principles of Chemistry (4)** Principles, theories, elementary analytical methods of chemistry. Intended for physical science majors and engineers. Pre: Satisfactory Placement Exam score, and MATH 241 (or concurrent) or MATH 251A (or concurrent). Co-requisite: 171L. (Fall only) **DP**

**CHEM 171L Principles of Chemistry Lab (1)** (1 3.5-hr Lab) Laboratory experiments illustrating fundamental principles of chemistry. Co-requisite: 171. (Fall only) **DY**

**CHEM 181A Honors General Chemistry (4)** Rigorous, in-depth introduction to chemical principles with emphasis on experimental and applied aspects of modern chemistry. Pre: high school chemistry and MATH 215 or MATH 241 or MATH 251A. (Fall only) **DP**

**CHEM 181L Honors General Chemistry Laboratory (1)** (1 3-hr Lab) Laboratory experiments illustrating chemical principles involving advanced techniques and modern instrumentation. Co-requisite: 181A. **DY**

**CHEM 272 Organic Chemistry I (3)** Molecular structure, stereochemistry, spectroscopy, mechanisms, reactions, and synthesis of organic compounds. Pre: C (not C-) or better in 162 or 171 or 181A. **DP**

**CHEM 272L Organic Chemistry I Lab (2)** (1 5-hr Lab) Techniques, synthesis and qualitative analysis, applications of spectroscopy. Pre: 162L or 171L, and 272 (or concurrent). **DY**

**CHEM 273 Organic Chemistry II (3)** Continuation of 272. Molecular structure, stereochemistry, spectroscopy, mechanisms, reactions, and synthesis of organic compounds. Pre: C (not C-) or better in 272. **DP**

**CHEM 273L Organic Chemistry II Lab (1)** (1 4-hr Lab) Techniques, synthesis and qualitative analysis, applications of spectroscopy. Pre: 272L and 273 (or concurrent). **DY**

**CHEM 274 Principles of Analytical Chemistry (3)** Selected methods and principles, e.g., phase equilibria, ionic equilibria, electrode equilibria, separations, spectroscopy, automation, and process control. Pre: 162 or 171 or 181A, MATH 215 or MATH 241 or MATH 251A. **DP**

**CHEM 274L Principles of Analytical Chemistry Lab (2)** (2 3-hr Lab) Phase separations, chromatography, titrimetry, spectrophotometry, etc. Pre: 162L or 171L or 181L, and 274 (or concurrent). **DY**

**CHEM 351 Physical Chemistry I (3)** Principles and theories; physico-chemical procedures. Pre: 274, 274L, PHYS 272 with a C (not C-) or better, PHYS 272L, and MATH 243 or MATH 253A. **DP**

**CHEM 352 Physical Chemistry II (3)** Continuation of 351. Pre: 351. **DP**

**CHEM 352L Physico-Chemical Measurements (2)** (2 3-hr Lab) Modern laboratory techniques. Includes emphasis on instruction in scientific report writing. Pre: 274L, 352 (or concurrent). **DY**

**CHEM 361 Physical Biochemistry (3)** Biochemical thermodynamics, chemical and enzyme kinetics, biomolecular structure, and biomolecular spectroscopy. A-F only. Pre: 162, PHYS 170, and MATH 242 or 252A with a grade of C or better for prerequisites. (Fall only) **DP**

**CHEM 372 Bioorganic Chemistry (3)** Mechanism of biochemical reactions, biophysical structure, techniques for studying biochemical reactions. Pre: 273 (with a grade of C or better) or graduate standing with consent, or departmental approval. (Fall only) **DB**

**CHEM 380 Professional Ethics for Chemists (1)** Discussion of contemporary ethical issues in chemistry using case studies and additional examples from the media. CR/NC only. Pre: 274 (or concurrent). (Spring only)

**CHEM 399 Directed Reading or Research (V)** Pre: chemistry major, and minimum cumulative GPA of 2.7 or minimum GPA of 3.0 in chemistry. Repeatable unlimited times.

**CHEM 425 Synthesis and Analysis of Inorganic Compounds (3)** Lecture on advanced methods of preparation and characterization of inorganic compounds and materials. A-F only. Pre: 351 (or concurrent) or 361 (or concurrent). (Fall only) **DP**

**CHEM 425L Preparation and Analysis of Inorganic Compounds Laboratory (2)** Laboratory on preparative methods and analytical techniques and instruments in inorganic chemistry. A-F only. Pre: 425 (or concurrent). (Fall only) **DY**

**CHEM 427 Advanced Inorganic Chemistry (3)** Classification, description, fundamental theory. Pre: 425. **DP**

**CHEM 445 Synthesis and Analysis of Organic Compounds (3)** Introduction to multi-step synthesis and instruments/analytical techniques used to characterize organic compounds. Retrosynthesis and diastereoselective reactions; spectroscopy (optical methods, NMR), mass spectrometry. Chromatography (GC, HPLC) and coupled techniques (GCMS, LCMS). CHEM majors only. A-F only. Pre: 273 with a grade of C (not C-) or better, or departmental approval. (Spring only) **DP**

**CHEM 445L Preparation and Analysis of Organic Compounds Laboratory (2)** Laboratory on the preparation of organic compounds and physical methods for their characterization. Includes optical methods (UV-vis, IR), chromatography (HPLC, GC), mass spectrometry (GCMS and LCMS) and NMR. A-F only. Pre: 273L with a grade of C (not C-) or better, or departmental approval. Co-requisite: 445. (Spring only) **DY**

**CHEM 462 Advanced Biochemistry (3)** Advanced topics in biochemistry including nucleic acid replication, transcription, and translation; genetic and epigenetic regulation; bioenergetics and control of metabolism; alternative metabolic strategies; and enzyme structure and mechanism. A-F only. Pre: 361 and BIOL 402. (Spring only)

**CHEM 463L Advanced Biochemistry Lab (2)** Advanced biochemistry lab techniques: protein purification and characterization, enzyme kinetics, ligand binding, nucleic acid structure, protein structure, fluorescence. A-F only. Pre: 273L, and BIOL 275L, and BIOL 402 (or concurrent). (Fall only)

**CHEM 600 Introduction to Research (1)** Introduction to field-specific methods and skills needed for success in graduate research. Includes training modules for safety, ethics, and library resources. Short faculty research overviews may also be given. CHEM majors only. Graduate students only. CR/NC only. (Fall only)

**CHEM 601 Theory of Chemical Bonding (3)** Application of quantum mechanics and symmetry principles to descriptions of chemical bonding. Pre: graduate standing in CHEM.

**CHEM 602 Chemical Applications of Spectroscopy (V)** Introduction to magnetic resonance, infrared, UV, and visible spectroscopy, emphasizing applications to organic and inorganic chemistry. Three topics each semester—1 credit hour per topic. Repeatable unlimited times in different topics. Pre: graduate standing in CHEM.

**CHEM 622 Organometallics I (3)** Reactivity and reaction mechanisms of compounds containing metal-carbon bonds. Pre: 352 and 427.

**CHEM 623 Coordination Chemistry (3)** Survey of Lewis acids and bases, coordination numbers, geometries, stereochemistry, ligand field theory, formation constants, and bioinorganic chemistry. Pre: 601 and 602 (or concurrent).

**CHEM 624 Organometallics II (3)** Introduction to the principles of catalysis and the classes of catalytic reactions effected by organometallic compounds. A-F only. Pre: 622 and a minimum required grade for prerequisites of B.

**CHEM 641 Organic Structure Determination (3)** Interpretation of chemical and physical (primarily spectral) data in the identification of organic compounds. Pre: graduate standing or consent.

**CHEM 642 Organic Synthesis I (3)** Modern synthetic methods with emphasis on the design and execution of multi-step sequences. Pre: graduate standing or consent.

**CHEM 643 Physical Organic Chemistry (3)** Theory of molecular structure, stereochemistry, and reaction mechanisms. Pre: 601 or consent.

**CHEM 647 Organic Synthesis II (3)** Continuation of 642, and is the second half of a two-semester course in Modern Organic Synthesis. Pre: 642 and a minimum required grade for prerequisites of B. (Spring only)

**CHEM 651 Chemical Thermodynamics and Statistical Mechanics (3)** Includes statistical thermodynamics, with application to chemical systems. Pre: graduate standing in CHEM.

**CHEM 652 Chemical Kinetics and Reaction Dynamics (3)** Kinetics and chemical reaction dynamics of elementary reactions relevant to combustion processes, astrochemistry, chemical vapor deposition and planetary sciences. Pre: graduate standing in CHEM. (Spring only)

**CHEM 653 Quantum Chemistry (3)** Rigorous introduction to quantum mechanics, including operator formalism, matrix formation, group theory, and perturbation theory; introduction to the electronic structure of atoms and molecules. Pre: graduate standing in CHEM.

**CHEM 657 Astrochemistry—A Molecular Approach (3)** Formation of astrobiochemically important molecules and their precursors in the interstellar medium and in our solar system: first principles and latest trends. Pre: consent. (Fall only) (Cross-listed as ASTR 657 and GG 657)

**CHEM 658 Crystallography (3)** Crystal symmetry. Elementary x-ray physics. Diffraction theory and its application to crystal and molecular structure determination. Pre: 352 and MATH 244 or MATH 253A.

**CHEM 661 Enzyme Reaction Mechanisms (3)** The chemical mechanisms of reactions catalyzed by enzymes in biochemical pathways, with an emphasis on the major types of cofactor and metal catalyzed reactions. Pre: graduate standing or consent.

**CHEM 691 (Alpha) Chemistry Seminar I (1)** Current topics in (D) analytic-inorganic; (E) organic; (Q) biochemistry; (Z) inorganic chemistry. Repeatable unlimited times. Pre: graduate standing.

**CHEM 692 (Alpha) Chemistry Seminar II (1)** Continuation of 691. Current topics in: (D) analytic-physical; (E) organic; (Q) biochemistry; (Z) inorganic chemistry. Repeatable unlimited times. Pre: graduate standing.

**CHEM 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

**CHEM 700 Thesis Research (V)** Repeatable unlimited times. Pre: candidacy for MS degree and consent of thesis chair.

**CHEM 721 Special Topics: Inorganic Chemistry (V)** Theory and applications. Repeatable unlimited times in different topics. Pre: consent.

**CHEM 741 Special Topics: Organic Chemistry (V)** Theory and applications. Repeatable unlimited times in different topics. Pre: consent.

**CHEM 751 Special Topics: Physical Chemistry (V)** Theory and applications. Repeatable unlimited times in different topics. Pre: consent.

**CHEM 800 Dissertation Research (V)** Repeatable unlimited times. Pre: candidacy for PhD degree and consent of dissertation chair.

## Chinese (CHN)

*College of Languages, Linguistics and Literature*

*All students taking language courses in this program for the first time must take a regularly scheduled placement test; those with no background must come to the Department of East Asian Languages and Literatures for a*

*brief interview. A grade of C or better in the prerequisite course is required for continuation.*

**CHN 101 Elementary Mandarin (4)** Listening, speaking, reading, writing, grammar. Meets one hour, four times a week. Pre: placement test. **HSL**

**CHN 102 Elementary Mandarin (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**CHN 103 Accelerated Elementary Mandarin (8)** Content of 101 and 102 covered in one semester. Meets two hours, four times a week. Pre: placement test. **HSL**

**CHN 105 Elementary Chinese for Business Professionals (8)** Accelerated, intensive elementary course focusing on everyday listening, speaking, reading, and writing communicative needs of business professionals in the Chinese business context. Pre: consent. (Fall only) **HSL**

**CHN 111 Elementary Conversational Mandarin I (3)** Development of basic skills (listening, speaking and grammar) of spoken Mandarin with application to some familiar everyday topics. **HSL**

**CHN 112 Elementary Conversational Mandarin II (3)** Continuation of 111. Pre: 101 or 111 or consent. **HSL**

**CHN 201 Intermediate Mandarin (4)** Continuation of 101 and 102. Meets one hour a day, four times a week. Pre: 102 or 103 or 105; or consent. **HSL**

**CHN 202 Intermediate Mandarin (4)** Continuation of 201. Pre: 201 or consent. **HSL**

**CHN 204 Accelerated Intermediate Mandarin (8)** Content of 201 and 202 covered in one semester. Meets two hours, four times a week. Pre: placement test and 102 or 103 or 105; or consent. **HSL**

**CHN 205 Intermediate Chinese for Business Professionals (8)** Accelerated, intensive intermediate course focusing on everyday listening, speaking, reading, and writing communicative needs of business professionals in the Chinese business context. Pre: 105 (or equivalent) or consent. **HSL**

**CHN 211 Intermediate Conversational Mandarin I (3)** Further development of listening and speaking skills in Mandarin. The student is expected to be able to comprehend and produce speech at the paragraph level. Pre: 102 or 103 or 112, or consent. **HSL**

**CHN 212 Intermediate Conversational Mandarin II (3)** Continuation of 211. Pre: 201 or 211, or consent. **HSL**

**CHN 251 Reading and Writing Chinese I (3)** For students who have completed the conversational Mandarin courses up through 212 and wish to continue on to 301, or others who can handle daily conversation in Mandarin but cannot read or write in the language. Pre: 212 or consent.

**CHN 252 Reading and Writing Chinese II (3)** Continuation of 251. Pre: 251 or consent.

**CHN 301 Third-Level Mandarin (4)** Vocabulary building and extended mastery of sentence structures of modern Chinese through reading and related conversation. Meets one hour a day, four times a week. Pre: 202 or 204 or 205 or 252; or consent.

**CHN 302 Third-Level Mandarin (4)** Continuation of 301. Pre: 301 or consent.

**CHN 303 Accelerated Third-Level Mandarin (8)** Content of 301 and 302 covered in one semester. Meets two hours, four times a week. Pre: 202 or 204 or 205 or 252; or consent.

**CHN 305 Third-Year Chinese for Business Professionals (8)** Accelerated, intensive advanced course focusing on general advanced listening, speaking, reading, and writing communicative needs of business professionals in the Chinese business context. Pre: 205 (or equivalent) or consent.

**CHN 311 Mandarin Conversation (3)** Systematic practice on everyday topics of conversation. Lab work. Pre: 202 or 204 or 252; or consent.

**CHN 312 Mandarin Conversation (3)** Continuation of 311. Pre: 311 or consent.

**CHN 319 Chinese Dialect Studies (V)** Advanced Cantonese or other Chinese dialects. Repeatable one time. CR/NC for native Chinese speakers. Pre: consent.

**CHN 331 Advanced Chinese Listening and Writing (3)** Web-based training in Chinese listening, reading, and writing to develop skills at the advanced level. Activities combine independent work with communicative activities on the course website. Features language exchange with native speakers. Repeatable one time. Pre: 301 (or concurrent) or consent.

**CHN 332 Advanced Chinese Reading and Writing (3)** Web-based training in Chinese reading and writing to develop skills at the advanced level. Activities combine independent work with communicative activities on the course web site. Ideal for in-service professionals seeking language development and maintenance. Repeatable one time. Pre: 301 (or concurrent) or consent.

**CHN 399 Directed Third-Level Reading (V)** For those who need special assistance, e.g., in reading texts in their area of specialization or at a pace more rapid than those of standard courses. CR/NC only. Repeatable three times. Pre: consent.

**CHN 401 Fourth-Level Mandarin (4)** Extensive reading in academic topics. Meets one hour a day, four times a week. Pre: 302 or 303 or 305; or consent.

**CHN 402 Fourth-Level Mandarin (4)** Continuation of 401. Pre: 401 or consent.

**CHN 404 Accelerated Fourth-Level Mandarin (8)** Content of 401 and 402 covered in one semester. Meets two hours, four times a week. Pre: 302 or 303 or 305; or consent.

**CHN 405 Fourth-Year Chinese for Business Professionals (8)** Accelerated, intensive advanced course focusing on specialized advanced listening, speaking, reading, and writing communicative needs of business professionals in the Chinese business context. Pre: 305 (or equivalent) or consent. (Spring only)

**CHN 411 Advanced Mandarin Conversation (3)** Systematic practice on academic topics of conversation. Lab work. Pre: 302 or 303, or consent.

**CHN 412 Advanced Mandarin Conversation (3)** Continuation of 411. Pre: 411 or consent.

**CHN 421 (Alpha) Chinese Translation (3)** Training in techniques; theory of translation. (B) Chinese–English; (C) English–Chinese. Pre: 402 or 404, or consent.

**CHN 441 Fourth Year Reading and Writing: Advanced Topics I (3)** Asynchronous web-based course. Interaction with teacher and fellow students to prepare for, read, and reflect on authentic texts on academic, research-oriented topics with a view to meeting learners' eventual independent research needs. Pre: 401 (or concurrent) or equivalent or consent. (Fall only)

**CHN 442 Fourth Year Reading and Writing: Advanced Topics II (3)** Asynchronous web-based course. Continuation of 441, with focus on meeting learners' eventual independent research needs. Pre: 401 (or concurrent) or 441. (Spring only)

**CHN 451 Structure of Chinese (3)** Introduction to phonology and morphology of Mandarin Chinese; some discussion of usage and linguistic geography. Pre: 202 or 204; or consent. **DH**

**CHN 452 Structure of Chinese (3)** Introduction to syntax and semantics of Mandarin Chinese; some discussion of usage and linguistic geography. Pre: 202 or 204; or consent. **DH**

**CHN 453 Study of Chinese Characters (3)** Origin, structure, and evolution. Pre: 402, 461; or consent. (Alt. years)

**CHN 454 Study of Chinese Characters (3)** Continuation of 453. Pre: 453 or consent. (Alt. years)

**CHN 455 Chinese Pragmatics and Discourse (3)** Introduction to pragmatics and discourse analysis of Mandarin Chinese; some discussion of usage and linguistic geography. Pre: 202, 204; or consent. **DH**

**CHN 456 Chinese Semantics and Communication (3)** Study of the meaning of Chinese sentences in isolation, in discourse contexts, and in written texts. Pays equal attention to theoretical issues and practical problems in Chinese semantics and communication. Pre: 202 or 204, or consent. (Once a year)

**CHN 457 Chinese Words and the Lexicon (3)** Defines properties of the Chinese lexicon, introduces its principles, approaches, and methodologies in Chinese lexicology, outlines similarities and differences between the Chinese and English lexicons, and advances students' Chinese language proficiency. Pre: 202 or 205, or consent. (Alt. years: fall)

**CHN 461 Introduction to Classical Chinese (3)** Analysis of basic structural patterns through selected readings in various texts. Pre: 302 or consent.

**CHN 470 Language and Culture of China (3)** Extensive exposure—chiefly through tape recordings, classroom conversation, and outside readings—to history, culture, and institutions. Pre: 202 or 204, or consent. **DH**

**CHN 485 Selected Readings in Chinese (3)** Readings in modern Chinese in various disciplines. Pre: 402 or consent.

**CHN 486 Selected Readings in Chinese (3)** Continuation of 485. Pre: 485 or consent.

**CHN 487 (Alpha) Readings in 20th Century Chinese Literature (3)** Representative works of writers from People's Republic of China, Taiwan, and Hong Kong. (B) short stories; (C) poetry and drama; (D) novels and essays. Repeatable two times. Pre: 402 or consent. **DL**

**CHN 491 Oral Fluency Through Chinese Films (3)** Development of listening and speaking skills through discussion of Chinese films. Students will be required to watch the films before class. Pre: 402 or consent. **DH**

**CHN 499 Directed Fourth-Level Reading (V)** For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. CR/NC only. Repeatable three times. Primarily for graduate students from other departments. Pre: consent.

**CHN 601 Introduction to Study of Contemporary Chinese Linguistics (3)** Panoramic overview of major perspectives in contemporary Chinese linguistics. Readings on recent developments of fields. Report on selected research papers and present analysis of linguistic phenomena of interest. Pre: 452 or consent. (Alt. years)

**CHN 610 (Alpha) Chinese Poetry (3)** Critical study of major traditional Chinese poetic forms. (B) ancient (to 5th century); (C) medieval (5th–10th century). Pre: 461 or consent for (B), 610B or consent for (C).

**CHN 612 Traditional Chinese Fiction (3)** Formal and thematic analysis of short stories, historical romances, and novels. Repeatable one time with consent. Pre: 402 or consent.

**CHN 631 (Alpha) History of Chinese Language (3)** (B) phonology; (C) syntax. Pre: 451, LING 421, or consent for (B); 452 or consent for (C).

**CHN 633 Chinese Dialects (3)** Synchronic description of a Chinese dialect other than Cantonese and Mandarin; contrastive and comparative studies with Mandarin. Repeatable one time with consent. Pre: 451 and 452, or consent.

**CHN 634 Chinese Syntax and Semantics (3)** Verbal categories, aspects, focus devices, resultative and directional compounds, coverbial constructions. Interaction between syntax and semantics. Pre: 452 or consent.

**CHN 642 Contrastive Analysis of Mandarin and English (3)** Pre: 452.

**CHN 643 Methods in Teaching Chinese as Second Language (3)** Problems in language learning and teaching. Practice in preparing and presenting lessons with materials based on comparative linguistic

analysis. Materials, teaching aids, test construction. Pre: 451 and 452, or consent.

**CHN 645 Practicum: Teaching Chinese Language (3)** For graduate students pursuing teaching Chinese language. Students gain practical skills and hands-on experiences in creating instructional and assessment materials and teaching an actual Chinese language class using the self-developed materials effectively. Pre: 643 or consent. (Alt. years: fall)

**CHN 650 (Alpha) Topics in Chinese Language (3)** Extensive studies of selected topics (B) teaching and testing; specific problems in teaching Chinese including characters and cultural elements; proficiency and communicative ability; (C) cognitive grammar. A-F only for (C). Pre: 451 and 452, or consent. Once a year.

**CHN 655 Current Topics in Chinese Grammar (3)** Current approaches to Chinese grammar and related issues and debates, focusing on the papers published by leading Chinese linguists employing these approaches. Pre: 452, 455, or 456; or consent. (Alt. years)

**CHN 660 Second Semester Classical Chinese (3)** Builds on the foundation laid in 461; introduces complex syntactic patterns, advanced vocabulary; teaches sophisticated reading strategies and cultural literary contexts; exposes students to a wide range of intermediate level texts. Repeatable two times. Pre: 461 or consent. (Spring only)

**CHN 661 Advanced Classical Chinese (3)** Pre: 660 and consent.

**CHN 662 Advanced Classical Chinese (3)** Pre: 661 and consent.

**CHN 699 Directed Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

**CHN 750 (Alpha) Research Seminar in Chinese Language (3)** (B) teaching methods; (C) structure; (D) classical grammar; (E) sociolinguistics. Pre: 643 for (B) and (E); 452 for (C) and (D).

**CHN 753 (Alpha) Research Seminar in Chinese Literature (3)** Study of authors, a genre, a period, or a problem. (M) modern; (T) traditional. Repeatable one time for (M). A-F only for (M). Pre: EALL 611, WS 613, WS 615, or WS 650; or consent for (M); 612, or consent for (T). (Cross-listed as WS 753 (Alpha))

## Civil and Environmental Engineering (CEE)

### College of Engineering

*Preference in registration is given to declared engineering majors. Minimum grade for prerequisite courses is D- except PHYS 170 and CEE 270, which require a C or better grade. Please consult the current Registration Guide (formerly Schedule of Classes) for confirmed offerings each semester.*

**CEE 270 Applied Mechanics I (3)** Forces, resultants, and equilibrium; analysis of trusses, frames, and machines; centroids, moments of inertia; friction. A-F only. Pre: either MATH 243 (or concurrent) or MATH 252A (or concurrent), and a grade of C or better in PHYS 170. **DP**

**CEE 271 Applied Mechanics II (3)** Dynamics of particles and rigid bodies; force, acceleration, impulse-momentum, work-energy. A-F only. Pre: C or better in 270; MATH 244 (or concurrent) or MATH 253A (or concurrent). (Cross-listed as ME 271) **DP**

**CEE 305 Applied Probability and Statistics (3)** Description of sample data; correlation and regression; probability and statistical distributions; estimations of population parameters; fitting distributions to histograms; hypothesis testing. A-F only. Pre: MATH 244 or MATH 253A.

**CEE 320 Fluid Mechanics Fundamentals (4)** (3 Lec, 1 2-hr Lab) Compressible and incompressible fluid properties; fluid statics; kinematics, energy and momentum considerations in steady flows; application of steady flow concepts to various fluid

processes; with an emphasis on instruction in writing lab reports. A-F only. Pre: 271. **DP**

**CEE 330 Environmental Engineering (4)** (3 Lec, 1 2-hr Lab) Parameters and indices of environmental quality; materials balances; chemical kinetics; ideal reactor models; water and air pollution control; solid and hazardous waste management; emphasis on instruction in writing lab reports. A-F only. Pre: 271. **DP**

**CEE 355 Geotechnical Engineering I (4)** (3 Lec, 1 3-hr Lab) Introduction to geotechnical engineering: soil characterization, index properties, seepage and flow in soil, stresses in soils, compressibility, consolidation, shear strength. Substantial emphasis on writing lab reports. A-F only. Pre: 320, 370. **DP**

**CEE 361 Fundamentals of Transportation (3)** Transportation modes: land, air, water, pipelines. Tourist, urban transportation. Geometric design, human factors, vehicular flow models, capacity analysis. Overview: traffic impact, air quality, parking studies. A-F only. Pre: 271.

**CEE 370 Mechanics of Materials (3)** Elastic stress-strain relation and behavior of members under flexural, torsional, and axial loading. A-F only. Pre: 271 (or concurrent); MATH 244 (or concurrent) or MATH 253A (or concurrent); CEE 370L (or concurrent). **DP**

**CEE 370L Mechanics of Materials Lab (1)** Tension, compression, and torsion of bars, and bending of beams. A-F only. Pre: 370 (or concurrent). **DY**

**CEE 375 Construction Materials (3)** (2 Lec, 1 2-hr Lab) Introduction to the crystalline and molecular structure of materials. Properties of metals, concrete, concrete admixtures, asphalt, wood, and other materials commonly used in construction. A-F only. Pre: 305 and 370. **DP**

**CEE 381 Structural Analysis (3)** Analysis of statically determinate plane and space trusses and frames; deflections; introduction to matrix methods; computer applications. A-F only. Pre: 370. **DP**

**CEE 405 Engineering Economics (3)** Economic analysis in engineering and management decision-making, interest, depreciation, income tax, cost classification, break-even analysis, economic comparisons of alternatives, benefit-cost analysis. A-F only. Pre: ECON 120 or 130, and senior standing. (Cross-listed as BE 405)

**CEE 412 Surveying II (3)** (2 Lec, 1 3-hr Lab) Advanced course in surveying; project design and specifications; measurements, errors, and adjustments; land surveying; state plane coordinate systems; modern instrumentation. A-F only. Pre: consent.

**CEE 417 Computer Methods in Engineering Systems (3)** Numerical solutions of engineering problems using digital computers. Regression analysis; numerical differentiation and integration; solutions of algebraic, transcendental, and differential equations; and analysis of large structural systems. Pre: computer programming and senior standing.

**CEE 421 Engineering Hydraulics (3)** Hydraulics of closed conduits and open channels with emphasis on engineering applications. Topics also include pump hydraulics, bridge hydraulics, urban drainage engineering, and flood plain management. A-F only. Pre: 320. **DP**

**CEE 422 Environmental Fluid Mechanics (3)** Introduction to basic concepts of pollutant transport phenomenon through theoretical modeling, lab and field experiments and observations. Specific topics include mass balance, jets and plumes, mixing and transport in rivers, reservoirs, groundwater and estuaries; non point course pollution. A-F only. Pre: 320, and MATH 244 or MATH 253A (or equivalent). (Alt. years) **DP**

**CEE 424 Applied Hydrology (3)** Surface water hydrology topics include hydrologic cycle, hydrographs, regression methods, urban rain-runoff process, flood frequency analysis, flood routing and hydrology for detention basin design. Groundwater hydrology topics include seawater intrusion, theory of groundwater

flow and solutions to steady and unsteady aquifer flows. A-F only. Pre: 305 or 320. **DP**

**CEE 431 Water and Wastewater Engineering (3)** Hydrologic fundamentals of water demand and supply; water and wastewater distribution; collection systems; quality characterization; analytical methods for water quality management. Pre: 330. **DP**

**CEE 432 Water/Wastewater Treatment Design (3)** Physical operations, chemical and biological processes, design flow and process loading rates, pilot plant testing, and treatment plant design. Engineering majors only. Pre: 330.

**CEE 433 Water Quality Laboratory (3)** (2 3-hr Lab) Analysis and characterization of typical water and wastewater samples for organic and inorganic constituents such as alkalinity, hardness, solids, biochemical oxygen demand, nitrogen and phosphorus species, coliform bacteria, and trace organic chemicals. Relevance of these measurements to water and wastewater regulations and engineering design. A-F only. Pre: 330 and either CHEM 171 and 171L or CHEM 161, 161L and 162, and senior standing.

**CEE 444 Infrastructure: Project Impacts, Policy and Sustainability (3)** Evaluation of infrastructure impacts. Impacts regulation and mitigation. Effects of environmental and other policies on infrastructure. Infrastructure relations to sustainability. Energy consumption, transportation efficiency and infrastructure recycling. Lectures and presentations by experts and enrolled students. Senior standing or higher. A-F only. Pre: senior standing, open to engineering, science, urban planning, and economics majors. (Alt. years)

**CEE 455 Geotechnical Engineering II (3)** Continuation of 355 introducing geotechnical engineering topics including: field exploration, lateral earth pressures, bearing capacity theory, slope stability theory, use of geosynthetics, earthquake effects and ground modification. A-F only. Pre: 355. **DP**

**CEE 461 Pavement Engineering (3)** (2 Lec, 1 3-hr Lab) Design principles of flexible and rigid pavements; HMA mixture design, equipment and construction; and application of life cycle cost analysis (LCCA) in pavement engineering. Includes laboratory sessions for aggregate testing and Superpave mix design. A-F only. Pre: 355, 361, and 375.

**CEE 462 Traffic Engineering (3)** Design/analysis of signalized, unsignalized intersections, urban networks. Traffic impact studies; analysis steps and applications. Design/redesign options. Parking studies: demand, alternative designs (lot layouts). Pre: 361.

**CEE 464 Urban and Regional Transportation Planning (3)** Application of travel demand forecasting models to transportation planning. Evaluation and decision-making. Term projects. Pre: 361.

**CEE 471 Construction Methods (3)** Methods of construction, primarily buildings. Construction types: light and heavy wood; steel; plain, reinforced, and prestressed concrete; masonry. Foundations; associated details of frames, walls, roofs, floors, openings, finishes. Disasters, failures, and their causes. Industrialization of the building process. Pre: 375.

**CEE 472 Construction Management (3)** Introductory treatment of the management of construction. Construction supervision, contract documents, estimating and bidding, organization, planning and scheduling, administration, business methods, safety, and labor. Pre: 375.

**CEE 473 Construction Equipment and Methods (3)** Methods and equipment used on horizontal/heavy engineering projects. Available equipment, their production, and how they are used to excavate, move, process, and place the earth. Pre: 375 and senior standing.

**CEE 474 Construction Estimating and Bidding (3)** Estimating science; techniques of estimating quantities and pricing of work for construction contracting; classification of costs, analysis of plans and specifications for estimating; computerized

estimating; cash flow, bidding strategy, preparation and submission. A-F only. Pre: 375.

**CEE 476 Construction Planning and Scheduling (3)** To teach the theory and the practice of planning, scheduling, and reporting a construction project through the use of bar chart and CPM. Format to include lectures, text, outside speakers, site visits, discussions, case study, and computers. Pre: 375.

**CEE 481 Undergraduate Structural Research (3)** Individual research project for undergraduate students in the structures track. Topic to be determined by consultation with structural faculty advisor. A-F only. Pre: senior standing and consent.

**CEE 482 Indeterminate Structures (3)** Analysis of statically indeterminate beams, frames, trusses, arches, and space structures by classical and matrix methods; computer applications. Pre: 381. **DP**

**CEE 483 Field Experience (1)**

**CEE 485 Reinforced Concrete Design (4)** (3 Lec, 1 2-hr Lab) Behavior and design of reinforced concrete beams, one-way slabs and columns. Laboratory section includes design and hands-on manufacturing and testing of reinforced concrete members. Pre: 375 and 381. **DP**

**CEE 486 Structural Steel Design (3)** Basic properties of steel; behavior and design of steel beams, columns, and connections; introduction to rigid frames. Pre: 381. **DP**

**CEE 489 (Alpha) Senior Topics (V)** (B) Surveying and AutoCAD (2 cr.) Basics of surveying and AutoCAD for civil engineering projects; (C) Professional ethics (1 cr.) Engineering ethics, ethical decision making and deliberation. A-F only. Senior standing. Pre: 305. (Fall only)

**CEE 490 Senior Design Project (3)** Design problem involving several areas of civil engineering and requiring a team approach for a solution. A-F only. Pre: senior standing in CEE and 489B. (Spring only)

**CEE 491 Special Topics in Civil and Environmental Engineering (3)** Will reflect special interests of visiting and/or permanent faculty. Pre: junior or senior standing, and consent.

**CEE 492 (Alpha) Special Topics in Civil and Environmental Engineering (3)** Will reflect special interests of visiting and/or permanent faculty. Pre: junior or senior standing, and consent.

**CEE 499 Special Problems (V)** Individual investigation in civil and environmental engineering topics as approved by instructor. Pre: senior standing, and minimum cumulative GPA of 2.7 or minimum GPA of 3.0 in engineering.

**CEE 500 Master's Plan B/C Studies (1)**

**CEE 602 Construction Scheduling and Claims (3)** Precedence networks, CPM, float, updating, resource leveling, least cost scheduling, scheduling case studies, computerized scheduling, exclusion reports, sorting, term project; contract law, types of claims, proving claims, delay claims, impact of changes, Eichleay Formula, acceleration, overtime, stacking, crowding, efficiency losses, contract interpretation, Leonard Study, Kuiper model, labor escalation, claims case studies, term paper. A-F only. Pre: graduate standing in civil and environmental engineering and consent.

**CEE 604 Cost Engineering and Quality Control (3)** Study and applications of cost/schedule control systems criteria, earned value analysis, probabilistic cost estimating, construction risk management, construction quality control, and operations research in construction. Recommended: 472 or 474, or consent.

**CEE 614 Negotiation and Alternative Dispute Resolution (V)** Lawyers negotiate settlements in almost all their cases. This class presents a "hands-on," skill-building approach to the newest ideas, as well as centuries-old techniques, about the skill lawyers will use most often in their private practice-negotiation. The class also examines the rapidly developing field of alternative dispute resolution (ADR), including

mediation, facilitation, arbitration, and court-annexed ADR. (Cross-listed as LAW 508)

**CEE 618 Parallel Computing for Engineers (3)** Concepts and techniques in high performance parallel computing. Topics include parallel language and algorithms, parallelizing pre-existing serial codes, statistical analysis, and techniques up to increase computational speed and accuracy for problems requiring large memory size. Repeatable one time. A-F only. (Once a year)

**CEE 620 Reforming Public Organizations (3)** Explores the possibilities for reducing the most difficult aspects of the bureaucratic form in public organizations while increasing effectiveness and accountability. Repeatable one time. A-F only. (Cross-listed as PUBA 620)

**CEE 622 Fluid Mechanics (3)** Theory of fluid dynamics in differential form, covering equation of motion, vortex generation, flow in rotating frame, potential theory, laminar flow, and introduction to turbulence.

**CEE 623 Groundwater Modeling (3)** Introduction to the finite-difference method; steady-state and transient groundwater flow in saturated and unsaturated media; applications to groundwater recharge and aquifer evaluation. A-F only. Pre: 627 or consent. (Fall only) (Cross-listed as GG 655)

**CEE 625 Hydrologic Processes in Soils (3)** Hydrologic properties in soils and the processes involved in water infiltration drainage and solute transport. Emphasis on key parameters required for modeling. Recommended: 424 or consent. (Fall only) (Cross-listed as BE 664 and NREM 660)

**CEE 626 Surface Water Hydrology (3)** Deterministic and probabilistic methods include reliability of empirical distributions, multiple regression analysis, extreme value analysis and domain of attraction. Short-memory models for stochastic simulation of streamflows include autoregressive, Markov chain and moving average models. Time series analysis of hydrologic data is discussed. Pre: consent. (Alt. years)

**CEE 627 Groundwater Hydrology (3)** Groundwater occurrence, movement, quality, and resource evaluation, development, and management. Emphasis on saltwater encroachment, well evaluation, aquifer protection, recharge with wastewater, and Hawai'i type hydrology. Recommended: 424 or consent.

**CEE 633 Physical and Chemical Treatment (3)** Introduction to physical and chemical processes for water and wastewater treatment: Review of momentum and mass transfer, chemical reactions, colloidal chemistry, coagulation and flocculation, granular filtration, sedimentation, carbon adsorption, gas transfer, disinfection and oxidation. A-F only. Recommended: 431 or consent.

**CEE 634 Biological Treatment (3)** Fundamentals of applied microbiology and biochemical reactor engineering, quantitative description of microbial growth, operational theory and design basis of aerobic, anoxic and anaerobic treatment processes. Applications for water, wastewater, air, solid wastes, and soil. A-F only. Pre: consent. (Alt. years: spring) (Cross-listed as BE 634)

**CEE 635 Environmental Chemistry (3)** Basic concepts of chemistry as related to the environment, with more emphasis on water. Topics include chemical kinetics, equilibrium, acid-base, precipitation and dissolution redox reactions, sorption, organic chemicals in the environment. Pre: consent.

**CEE 636 Environmental Microbiology (3)** Combined lecture-discussion on major topics in environmental microbiology, microbial ecology, and a broad understanding of microbial processes in natural and engineered environments. CEE majors only. A-F only. Pre: graduate standing in CEE or consent. (Once a year)

**CEE 641 Marine Disposal of Wastewaters (3)** Practical material on outfalls: Alternatives; planning; dangers; data collection; predesign studies; design and bidding; dredging and construction; costs; commissioning; inspection, operation and maintenance;

repairs and replacement; review of selected world outfalls. Pre: consent. (Alt. years)

**CEE 643 Hazardous Waste Remediation (3)** Introduces the national problems dealing with the contamination of groundwater and presents remedial measures. Such measures include pump and treat (PAT) technology, in-situ bioremediation, soil vapor extraction, air sparging, electrokinetics, hydraulic fracturing, reactive walls, and phytoremediation. A-F only. Pre: 627 or consent. Co-requisite: 634 and 635. (Fall only)

**CEE 644 Water Quality Modeling (3)** Mathematical formulation of pollutant transport and mixing in the water environment. Kinetics formulation and parameter identification, model calibration and verification. Design projects. Recommended: 422 and 431, or consent.

**CEE 648 Membrane Separations (3)** Applications of membrane separations to desalination, power generation, and ultrapure water systems. Discussion of reverse osmosis, osmosis-driven processes, ultrafiltration, microfiltration, electro dialysis and ion exchange technologies. Membrane fouling and concentration polarization from practical/theoretical standpoints. A-F only. Pre: 635 or consent.

**CEE 650 Seepage, Drainage, and Dewatering (3)** Theory of seepage, field and laboratory methods of measurement; graphical and numerical methods; design of drainage structures; construction dewatering. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 651 Deep Foundations (3)** Analysis and design of deep foundations; driven piles and drilled shafts. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 652 Experimental Soil Mechanics (3)** Advanced laboratory testing and application of analyses using test data for solution of a hypothetical geotechnical project. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 653 Advanced Soil Mechanics (3)** Soil continuum mechanics principles; elastic, plastic, and Cam clay soil behavior; critical state and strength; interpretation of laboratory test results. Repeatable two times. A-F only. Pre: 455 or consent. (Alt. years)

**CEE 654 Geotech Seismic Engineering (3)** Soil and site response to dynamic loading, earthquake ground motions; stress waves and soil shear moduli; soil liquefaction theory, evaluation, analyses, and preventative design. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 655 Slope and Earth Structures (3)** Classification of landslides and triggering mechanisms; field investigation procedures; limit equilibrium slope stability methods; numerical techniques; seepage and dynamic considerations; case studies. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 656 Marine Geotechnics (3)** Principles of geotechnical engineering applied to marine environments; marine geology; surveying and sampling methods; seabed sediment types, properties, and behavior; scour, erosion, and sediment transport; coastal and offshore foundations; seafloor stability; dredging and waste disposal. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 657 Designing with Geosynthetics (3)** An overview of geotechnical uses of geosynthetics, including product descriptions, applications, design methods, and case studies. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 658 Earth Pressures (3)** Estimation of lateral earth pressures; analysis and design of retaining walls and excavation support systems. A-F only. Recommended: 455 or consent. (Alt. years)

**CEE 659 Soil and Site Improvement (3)** Methods of improving engineering properties of soils and sites through use of mechanical stabilization, soil admixtures, pre-consolidation, deep densification, and earth reinforcement. A-F only. Recommended: 355 or 455, or consent. (Alt. years)

**CEE 660 Systems Analysis for Engineers (3)** Optimization used in design and management of systems for minimizing resources or optimizing outcomes. Evaluation of alternatives, economic efficiency and effectiveness analysis. Logistics. Open to engineering students. Computer applications and labs. Recommended: 462 or 464, or consent.

**CEE 661 Intelligent Transportation Systems (3)** Definition, technologies and their attributes. Analysis and implementation based on FHWA's User Services. Automated incident detection algorithms. Machine vision applications to traffic engineering. A-F only. Recommended: 462 or 464, or consent.

**CEE 664 Advanced Transportation Modeling and Statistics (3)** Demand modeling, discrete choice and activity-based modeling. Demand forecasting by simulation. Transportation surveys and sampling methods. Application of cluster, factor, regression, logistic and ARIMA analyses to transportation. A-F only. Recommended: 305 and 464, or consent.

**CEE 665 Pavement Design and Rehabilitation (3)** Pavement engineering with emphasis given to understanding fundamental issues such as historical development of pavement design, approaches used for design of new pavements and overlays, understanding of construction issues and their effects on pavement performance, and various design factors: environmental, loading and materials characterization. Introduction of pavement management systems. A-F only. Recommended: 461 or consent.

**CEE 671 Continuum Mechanics (3)** Cartesian tensors in mechanics; coordinate transformations; analysis of stress and strain; principal values, invariants, equilibrium and compatibility equations; constitutive relations; field equations. Problems in elasticity. Recommended: 370 or ME 371, or consent. (Cross-listed as ME 671)

**CEE 672 Project Management Systems (3)** Project integration and PMIS; organizational power; conflict, strategic, and life-cycle management in construction management; matrix structure compared to projectized structure; project success; team building; change and culture in construction organizations; competitive bidding. A-F only. Pre: consent.

**CEE 675 Structural Dynamics I (3)** Response of single and multi degree-of-freedom systems due to dynamic forces. Direct integration of equations of motion. Response spectrum analysis. Application to earthquake loading. Systems with distributed mass and elasticity. A-F only. Pre: consent.

**CEE 676 Structural Dynamics II (3)** Elastic and inelastic response of structures due to earthquakes. Seismic design criteria. Code design procedures. Advanced topics in time- and frequency-domain dynamic analysis of structures. A-F only. Pre: 675.

**CEE 677 Smart Structures Technology (3)** Fundamentals of sensor technologies for structural engineering applications. Control devices and strategies for protection of structures against extreme events, i.e. earthquakes, strong winds, etc. Structural health monitoring and smart sensor networks. Smart materials for civil structures. CE majors only. A-F only. Pre: 675. (Fall only)

**CEE 681 Modern Structural Analysis (3)** Fundamentals of modern structural analysis theory, with emphasis on frame structures. Virtual work. Member stiffness/flexibility. Matrix formulation of stiffness and flexibility methods. Computer modeling issues. Recommended: 482 or consent.

**CEE 683 Advanced Reinforced Concrete Design (3)** Slender columns; biaxial bending; combined shear and torsion. Building lateral load resisting frame analysis and design—shearwalls, rigid frames. Floor system analysis and design—flat slabs, joist systems. Computer applications. A-F only. Recommended: 485 or consent.

**CEE 685 Advanced Structural Steel Design (3)** Load and resistance factored design (LRFD); steel building modeling and analysis; moment-resisting frames; bracing systems; beam-columns; moment connections; composite construction; and plate gird-

ers. A-F only. Recommended: 482 (or concurrent) and 486, or consent.

**CEE 686 Finite Elements in Structures (3)** Finite element method in structural engineering. Extension of structural theory. Virtual work. One-, two-, and three-dimensional elements; axisymmetric elements; plate bending. Application to linear problems. Recommended: 681 or consent.

**CEE 687 Prestressed Concrete (3)** Behavior of prestressed concrete members, including prestress losses. Analysis and design of prestressed beams, slabs, and composite sections. Anchorage zone design; continuous systems. Recommended: 485 or consent.

**CEE 689 Mechanics and Design of Composite Materials (3)** Basic concepts of mechanics and design of composite materials utilizing continuous fibers embedded in polymeric matrices (Fiber Reinforced Polymers (FRP)) and short fibers randomly oriented in cementitious matrices (Fiber Reinforced Cement Composites). Repeatable two times. A-F only. Recommended: 370 or consent. (Alt. years)

**CEE 691 Seminar in Civil and Environmental Engineering (1)** Discussions and reports on literature, research, developments and activities in civil engineering. One unit of all graduate students for each graduate degree. Student presentations are required. Repeatable two times. CR/NC only. Pre: graduate standing or consent.

**CEE 695 Plan B Master's Project (3)** Independent study for students working on a Plan B master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. CR/NC only. Pre: graduate standing in CEE or consent.

**CEE 696 Selected Topics in Civil and Environmental Engineering (3)** Highly specialized topics in structures, soils, hydraulics, sanitary, water resources, applied mechanics, transportation. Repeatable unlimited times. Pre: consent.

**CEE 699 Directed Readings or Research (V)** Repeatable unlimited times. Pre: consent.

**CEE 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**CEE 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times. Pre: candidacy for PhD in civil engineering.

## Communication (COM)

### *College of Social Sciences*

#### **COM 201 Introduction to Communication**

(3) An overview of communication emphasizing intercultural, organizational and international communication and media arts with introduction to multimedia, ICTs, and public relations perspectives. **DS**

**COM 310 Media Arts (3)** Combined lecture-discussion on theories and criticism of visual media, covering aesthetic development and delivery through multimedia and cinematic principles. A-F only. Pre: 201 (or concurrent) or consent. **DA**

**COM 320 Communication and Communities (3)** Combined lecture-discussion on communication within organizational communities and between organizations and their communities with attention to intercultural issues in local, global, and online interactions. Pre: 201 (or concurrent) or consent. **DS**

**COM 330 Information and Communication Technology Concepts (3)** Combined lecture-discussion on basic technical concepts related to ICTs embedded in sociocultural context. Pre: 201 (or concurrent) or consent.

**COM 331 Techniques of Video and Digital Cinema (3)** Orientation to techniques of production. Emphasis on history, language, and theory of the creative process and application to video productions and multimedia. Pre: 310 or consent.

**COM 337 Techniques of Multimedia (3)** Combined lecture-lab providing an orientation to, and examination of, procedures and techniques of multimedia. Emphasis on new media literacy, human-

computer interaction, and basic design of electronic multimedia. Pre: 310 or consent.

**COM 340 Intercultural Communication (3)** Problems and opportunities of communication in a variety of intercultural contexts. Focus on theory, research, and managing intercultural effectiveness. Pre: COM major or consent. **DS**

**COM 350 Mediated Interpersonal Communication (3)** Theory and practice of interpersonal communication from a social science perspective. Pre: COM major or consent. **DS**

**COM 390 (Alpha) Journalism/Communications Workshops (V)** Short-term intensive workshops in journalism and mass communication skills and projects. (B) workshop in new media; (C) workshop in reporting; (D) workshop in editing; (E) workshop in broadcast journalism; (F) workshop in public relations. Repeatable in different alphas up to 6 credits. COM or JOUR majors only. Pre: consent. (Cross-listed as JOUR 390)

**COM 401 Survey of Inquiry Methods in Communication (3)** Exploration of quantitative and qualitative research methods commonly used in communication studies and related professional work. Pre: COM major or consent. **DS**

**COM 420 Communication in Multicultural Organizations (3)** Cultural diversity in multicultural and multinational organizations is examined regarding communication-related aspects of working life. Pre: 320 and 340, or consent. **DS**

**COM 421 Public Relations Strategies (3)** Practice and effects of public relations. Strategic management, techniques, new communication technologies, diverse publics, ethics, and social responsibility will be emphasized. A-F only. Pre: COM major or consent.

**COM 422 Public Relations Tactics (3)** Students apply principles of effective and ethical writing to traditional and social media assignments likely to be encountered in modern public relations. COM majors only. A-F only.

**COM 431 Studio Production (3)** Studio production ranging from three-camera studio production to broadcast and magazine show formats to on-line web production. Fundamental knowledge of lighting, sound, blocking, and equipment competency. Pre: COM major or consent.

**COM 432 Information and Communication Technology Services (3)** Combined lecture-discussion on situated use of ICTs in various personal and institutional settings. Pre: COM major or consent.

**COM 433 Video Scriptwriting (3)** Application of communication theory to creating and revising commercial and dramatic script material for video production. Pre: 331 or consent.

**COM 436 Media Effects (3)** Social, political, economic, and cultural effects of broadcast media are examined to understand their impact on human behavior. Pre: COM major and junior standing, or consent.

**COM 438 Telecommunication in the Pacific Hemisphere (3)** Development of international telecommunication, with special emphasis on the evolution of wireless communication and the internet. Pre: COM major or consent. **DS**

**COM 444 Communication and Gender (3)** Theories, myths, and the missing links in gendered communication. Application of established and emerging theories of gender and communication to interpersonal, organizational, intercultural, and mass communication. Pre: COM major and junior standing, or consent. **DS**

**COM 451 Communication and Law (3)** Role of communication in the legal process; impact of law on communication processes. Pre: COM major and junior standing, or consent. (Cross-listed as JOUR 365) **DS**

**COM 452 Building Communication Theory (3)** Major theories of communication in terms of requirements for a theory, theory development, as-

sociated research, and application. Pre: COM major and junior standing, or consent. **DS**

**COM 459 Special Topics (3)** Topics of interest to faculty and students; taught by regular and visiting faculty. Repeatable on different topics to six credit hours. COM majors only. Pre: COM/JOUR major and junior standing, or consent. (Cross-listed as JOUR 459)

**COM 460 Media Ethics (3)** Ethics and social responsibility for media professionals. Application of ethical theories and principles to case studies and research projects. A-F only. Pre: any 300-level course COM or JOUR and junior standing; or consent. (Cross-listed as JOUR 460)

**COM 475 Global Communication (3)** Problems and opportunities of communication in a variety of international contexts. Focus on commerce, diplomacy, and mass communication. COM majors only. Pre: COM/JOUR major or consent. (Cross-listed as JOUR 475) **DS**

**COM 476 Capstone in Digital Cinema Production (3)** Creating, scripting, and producing complex programs. Media aesthetics and professional production, preparation, and execution are emphasized. COM majors only. A-F only. Pre: 310 and 320 and 330 and 331, or consent.

**COM 477 Capstone in Interactive Multimedia Design and Development (3)** Design, development, and evaluation of interactive computer-based multimedia communication. Emphasizes authoring and production of such multimedia elements as full-motion images, audio, and graphics. COM majors only. A-F only. Pre: 310 and 320 and 330 and 337, or consent.

**COM 478 Capstone in Communication in Communities (3)** Synthesize knowledge, apply research findings in service to community, and develop proposal for intervention or campaign. COM majors only. A-F only. Pre: 310 and 320 and 330; and 340 or 421; or consent.

**COM 479 Capstone Project in ICTs and Policy (3)** Focus on specific ICT and policy problems related to Hawai'i and the Asia-Pacific region. COM majors only. A-F only. Pre: 310 and 320 and 330; and 432 or 438; or consent.

**COM 480 Communication Seminar (3)** Application of theoretic and methodological criteria to researchable questions. Topics will vary. Pre: 201 and senior standing, or consent.

**COM 489 Communicating Creativity (3)** The role of communication in fostering or inhibiting creativity. Exploration of theoretical bases for shared scientific or artistic creativity in communication research. COM major or consent. Pre: 201 and senior standing, or consent. (Once a year)

**COM 490 Senior Thesis Project (3)** Completion of the thesis project appropriate to the selected area of concentration within the context of a seminar. Emphasis on ongoing process of writing, editing, review, and revision. Pre: COM major and senior standing, or consent.

**COM 495 (Alpha) Communication Internship (V)** Application of communication skills and knowledge. (B) community setting; (C) School of Communications activity. Under faculty supervision, interns participate in operations of an organization and analyze communication processes and effects. Maximum of three credits per semester; six credits total toward major; each alpha repeatable up to three credits. Pre: COM major or consent.

**COM 499 Special Problems (V)** Independent study of selected topics under faculty supervision. Repeatable up to three credits. Pre: COM major and junior standing, or consent.

**COM 500 Master's Plan B/C Studies (1)**

**COM 611 Communication Theories (3)** Systematic study of major theories of communication and current status of communication research.

**COM 612 Communication Inquiry (3)** Introduction to inquiry and the array of quantitative and qualitative research methods commonly used in communication.

**COM 623 Strategic Organizational Communication (3)** Theories, concepts, and applications of strategic communication and public relations to achieve organizational goals. Pre: 611 (or concurrent) or consent.

**COM 633 Information and Communication Technologies (3)** Information and communication technologies, structures, processes, and networks as an area of research and study in the social sciences. Pre: 611 (or concurrent) or consent.

**COM 634 Social Media (3)** Systematic study from a social science perspective of current and emerging social media. Attention to user needs and impact. Pre: 612 (or concurrent) or consent.

**COM 643 Intercultural Communication (3)** Problems and opportunities of intercultural communication from theory and research, consulting and training, and policy and program perspectives. Pre: 611 (or concurrent) or consent.

**COM 644 Global Communication and Journalism (3)** Analysis of the emerging global media landscape as digital technologies enable the sharing of news, information, and commentary across geographical and cultural borders. Focuses on causes, characteristics, and consequences. Pre: 612 (or concurrent).

**COM 646 Intervention in Multicultural Organizations (3)** Describes the array of communication-related intervention programs designed to enhance effectiveness in multicultural organizations at home and abroad. A-F only. Pre: 623 or 643 or consent.

**COM 660 ICT Policy and Planning (3)** Processes and methods of planning appropriate to the information and communication sectors, including future economic, social, political, technical, and environmental perspectives. Pre: 611 (or concurrent) or consent.

**COM 691 Communication Topics (3)** Coverage in depth of some area of theory and research. Repeatable one time. Pre: 611 or consent.

**COM 695 Communication Practicum (V)** Supervised work experience, study of an organization, and career planning. Required of Plan B students in the main communication program. Repeatable up to six credits. CR/NC only. Pre: 611 and 612, or consent.

**COM 699 Directed Reading and Research (V)** Individual reading and/or research. Repeatable up to six credits. Pre: consent.

**COM 700 Thesis (V)** Repeatable up to six credits. Pre: 611 and 612, or consent.

## Communication and Information Sciences (CIS)

### Interdisciplinary Programs

**CIS 699 Directed Reading and/or Research (V)** Repeatable unlimited times.

**CIS 701 Communication/Information Theories of Society (3)** A critical review of major theoretical and empirical traditions in communication and information sciences. Focus on European, American, Third World, and applied research. Pre: consent.

**CIS 702 Communication/Information Technologies (3)** Technological concepts underlying data communications; information processing and computers; communication channels and networks, information storage and retrieval, and computer hardware and software. Pre: consent.

**CIS 703 Communication/Information Research Methods (3)** Current research methodologies in decision sciences, computer science, library science, and communication. Emphasis on methodologies suitable for interdisciplinary analysis. Pre: consent.

**CIS 704 Special Topics in Communication and Information Sciences (V)** Seminar reflecting

research interests of faculty and current interdisciplinary topics in communication and information sciences. Repeatable unlimited times. Graduate students only.

**CIS 720 Interdisciplinary Seminar in Communication and Information Sciences (1)** Exploration of relationships between disciplines in social sciences, science and technology, and humanities. Faculty and student presentations. Repeatable unlimited times. CR/NC only. Pre: consent.

**CIS 799 Directed Reading and/or Research (V)** Individualized program of directed reading and/or research outside the scope of regularly titled courses. Pre: consent. Plan must include goals and rationale.

**CIS 800 Dissertation Research (V)** Repeatable unlimited times.

## Communication Sciences and Disorders (CSD)

### School of Medicine

**CSD 431 Anatomy and Physiology of the Speech and Hearing Mechanism (3)** Will overview anatomy and physiology of speech and hearing. Students gain exposure to structures and functions of respiration, phonation, resonance, articulation, deglutition, and hearing systems required for normal communication and swallowing. Repeatable unlimited times. A-F only. (Fall only)

**CSD 432 Phonetics (3)** Introduction to the fundamentals of phonetic and phonological development. International Phonetic Alphabet transcription of English speech sounds; phonological developments and models; cultural variations; analysis interpretation and other considerations related to speech sound development and production. Repeatable unlimited times. A-F only. (Fall only)

**CSD 433 Speech and Language Development (3)** Will develop an understanding of children's acquisition of speech, language, and normal communication development from birth through adolescence. Repeatable unlimited times. A-F only. (Fall only)

**CSD 434 Acoustics and Psychoacoustics of Speech and Hearing (3)** Provides an understanding of the fundamental processes underlying the production and perception of speech. Students gain an understanding of the physical and psychological aspects of sound and their measurement. Repeatable unlimited times. A-F only. (Spring only)

**CSD 435 Introduction to Clinical Methods in Communication Sciences and Disorders (3)** Provides observation and discussion of the clinical management of individuals with communication disorders, and practical experience related to clinical procedures and requirements. Repeatable unlimited times. A-F only. (Spring only)

**CSD 436 Introduction to Communication Sciences and Disorders (3)** Information and theoretical foundations serve as an introduction to the field of communication disorders. Will provide an overview of the normal processes and disorders of speech, language, hearing, and swallowing. Repeatable unlimited times. A-F only. (Spring only)

**CSD 437 Introduction to Audiometry and Auditory Disorders (3)** Covers anatomy and physiology of the auditory system, acoustic, basic knowledge of auditory disorders and testing procedures, and introduction to rehabilitative audiology. Repeatable unlimited times. A-F only. (Summer only)

**CSD 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**CSD 600 Research Methods (3)** Research methods applicable to the field of speech-language pathology and audiology; analysis and reporting of data. Required of all CSD graduate students. Pre: previous coursework in inferential statistics and consent.

**CSD 601 Neuroscience in Communication Sciences and Disorders (3)** Explores the neuroanatomy

and neurophysiology of the human nervous system as it relates to communication and swallowing and how neurological pathologies lead to behavioral deficits in those areas. CSD majors only. A-F only. (Fall only)

**CSD 603 Audiological Foundations for Speech-Language Pathology (3)** Instrumentation; special tests of hearing.

**CSD 604 Seminar in Motor Speech Disorders (3)** Provides in-depth examination of various motor speech disorders, including apraxia of speech and dysarthria. Emphasis is on assessment/treatment of these diagnoses. Review of current treatment literature, anatomy/physiology, practical exercises in treatment planning. A-F only. Pre: consent.

**CSD 610 Disorders of Phonology and Articulation (3)** Study of the etiology, assessment, and remediation of disorders and articulation.

**CSD 612 Child Language Disorders (3)** Study of the etiology, behavioral characteristics and treatment methods for child language disorders. Examination of methods, test, and instruments employed in diagnosis of child language disorders. Includes identification of language deficits and writing intervention goals. Pre: consent.

**CSD 613 Language Development for Children with Hearing Deficiencies (3)** Language acquisition by hard-of-hearing and deaf children; methods of stimulating growth. Pre: consent.

**CSD 616 Advanced Practicum in Speech Pathology I (1)** Clinical practice in diagnostic and therapeutic procedures with various types of speech and language problems in different clinical settings. Repeatable unlimited times.

**CSD 617 Audiology Practicum for Speech-Language Pathology (1)** Clinical practice in administering tests, interpreting results; counseling of individuals with impaired hearing; use of various rehabilitation techniques. Repeatable unlimited times. Pre: consent.

**CSD 620 Voice Disorders (3)** Contemporary development and theoretical issues in the diagnosis, evaluation, and treatment of vocal system disorders in children and adults; current literature and clinical practice issues are addressed. Pre: consent.

**CSD 622 Aphasia and the Dementias (3)** Study of acquired aphasia in adults and the characteristics and progression of disorders of dementia. Procedures for clinical intervention, current literature review, and related professional issues. Pre: consent.

**CSD 695 Research-Speech Pathology (1)** Required of all CSD graduate students following the non-thesis (Plan B) program and emphasizing speech-language pathology. Repeatable three times. Pre: 600 and consent.

**CSD 696 Research-Audiology (3)** Required of all CSD graduate students following the non-thesis (Plan B) program and emphasizing audiology. Pre: 600 and consent.

**CSD 699 (Alpha) Directed Study (V)** To allow student and faculty advisor to design research/study units outside existing academic structure in specialized area. Repeatable unlimited times. (B) language pathology; (C) audiology. Pre: 603 for (C).

**CSD 700 Thesis Research (V)** Repeatable unlimited times. Pre: consent.

**CSD 701 Amplification: Assessment and Applications (3)** Comprehensive study of amplification. Assessment, fitting, evaluation, electroacoustic evaluation, dispensing. Personal instruments and instructional-educational systems. Pre: 603 and consent.

**CSD 702 Disorders of Fluency (3)** Contemporary developments and theoretical issues in diagnosis, evaluation, and treatment of disorders of fluency such as stuttering in both children and adults.

**CSD 703 Electrophysiologic Audiometry (3)** Study of early, middle, and late auditory evoked potentials with emphasis on the auditory brainstem response. Pre: 603 or consent.

**CSD 708 Seminar in Right Hemisphere Brain Damage and Traumatic Brain Injury (3)** Traumatic brain injury and right hemisphere communicative disorders are explored with emphasis on assessment and treatment of individuals with these diagnoses. Review of current treatment literature, communication and cognitive theories, and practical exercises in treatment planning. Pre: 622 and consent.

**CSD 709 Dysphagia: Disorders of Swallowing (3)** Explores the dynamics of normal and disordered swallowing across the life span with emphasis on the adult population. CSD majors only. A-F only. Pre: 604 (with a minimum grade of B-). (Summer only)

**CSD 710 (Alpha) Special Topics in Audiology and Speech-Language Pathology (3)** (B) study of contemporary developments in speech/language pathology; (C) study of contemporary developments in audiology. Repeatable for credit for different alphas unlimited times. Pre: consent.

**CSD 716 Advanced Practicum in Speech Pathology II (2)** Clinical practice in diagnostic and therapeutic procedures with various types of speech and language problems in different clinical settings. Repeatable unlimited times.

**CSD 717 Advanced Practicum in Audiology II (2)** Clinical practice in administering tests and interpreting results; counseling individuals with impaired hearing; use of various rehabilitation techniques. Repeatable unlimited times. Pre: 603, 617, and consent.

**CSD 721 Seminar in Audiology—Diagnostic Procedures (3)** Study of diagnostic procedures as reflected in current literature. Pre: 603 and consent.

**CSD 723 Seminar in Audiology—Rehabilitative Procedures (3)** Procedures and philosophies presented in recent literature dealing with rehabilitative phases of audiology. Pre: 603 and consent.

**CSD 724 Advanced Practicum in Speech Pathology III (V)** Clinical practice in diagnostic and therapeutic procedure with various types of speech and language problems in different clinical settings. Repeatable unlimited times.

**CSD 725 Advanced Practicum in Audiology III (3)** Clinical practice in administering tests and interpreting results, counseling of individuals with impaired hearing; use of various rehabilitation techniques. Repeatable unlimited times. Pre: 603, 617, 717, and consent.

## Communicology (COMG) formerly Speech (SP)

*College of Arts and Humanities*

**COMG 151 Personal and Public Speech (3)** Develops communication skills necessary to function effectively in today's society. Students will enhance their communication skills in one-on-one situations, public speaking, and small group situations. Ideal for new majors and non-majors. **DA**

**COMG 170 Introduction to Nonverbal Communication (3)** Beginning course on the fundamental components of nonverbal communication. Aspects of body movements, facial expressions, eye behavior, physical appearance, voice, touch, space, smell, time, and environmental features will be examined in a lecture/discussion format. Extensive practice in skills. **DS**

**COMG 181 Introduction to Interpersonal Communication (3)** Introduction to basic principles of interaction between two people. Emphasis is on enhancement of skills in a variety of interpersonal contexts. **DS**

**COMG 185 Multicultural Communication Skills (3)** Expose students to practical skills needed for effective intercultural communication. Offer guidelines for improvement in diverse cultural settings such as business, education, counseling, and healthcare. **DS**

**COMG 251 Principles of Effective Public Speaking (3)** Combined lecture/laboratory providing extensive practice in preparing and presenting effective public speeches with special emphasis on

organization, outlining, audience analysis, analytical reasoning, and delivery skills. **DA**

**COMG 290 Interviewing (3)** Principles and practice; training in informational, persuasive, employment, appraisal, and research interviewing. Pre: one of 151, 170, 181, 185, 251 or 301; or consent.

**COMG 301 Introduction to Communicological Theories (3)** Introduction to the theoretical perspectives that are the foundations of the communication discipline. Pre: one of 151, 170, 181, 185, or 251; or consent. **DS**

**COMG 302 Research Methods (3)** Introduction to methods of inquiry in the field of communication. Topics include research design and problem formulation, sampling, analytic and observational techniques, and data interpretation. COMG majors only. Pre: 200-level COMG course (or concurrent) or consent. **DS**

**COMG 321 Speech for Classroom Teachers (3)** Analysis of and practice in using major models of communication in the classroom. Role of communication in various academic disciplines as needed by teachers. Pre: one of 151, 170, 181, 185, 200, 251, or 301; or consent.

**COMG 333 Storytelling (3)** Aesthetic communication through storytelling for entertainment and education. Oral tradition; analysis of story types; techniques of preparation and presentation; performance. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DA**

**COMG 335 Story Theater (3)** Techniques and procedures for staging and performing narrative fiction. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DA**

**COMG 351 Professional Presentations (3)** Extends application of public speaking skills to professional contexts: group sales, press conferences, and corporate annual reports. Emphasis on organization, preparation, and delivery. Pre: 251 or consent.

**COMG 352 Group Decision-Making and Leadership (3)** Study of decision-making within the small group. Effects of organization, leadership, membership, and goals on achieving group purposes. Pre: one of 151, 170, 181, 185, 251 or 301; or consent.

**COMG 353 Argumentation and Debate (3)** Adapting communication theory to forensic strategies for social action. Practice in formal argument. Pre: one of 151, 170, 181, 185, 251 or 301; or consent.

**COMG 361 Leadership and Organizational Communication (3)** Principles and practices of organizational communication and its relationship to networks, leadership, power, conflict, cultures, and other contemporary views of organizational work, change, and development. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 364 Persuasion (3)** Theories, concepts, strategies, and processes of persuasion and social influence in contemporary society. Focus on analyzing, developing, and resisting persuasive messages. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 371 Message Processing (3)** Introduction to theory and research on human communication, comprehension, creation of understanding. Discussion of codes and media, information and message processing theories. Topics include inference-making, implicature, natural language processing, and deception. Junior standing or higher. **DS**

**COMG 380 Family Communication (3)** Focuses on the role of interaction patterns (both constructive and destructive) in the evolution of family communications. The impact of family dynamics upon these interaction patterns is given equal attention. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 381 Interpersonal Relations (3)** Theory and research on the development, maintenance, and termination of interpersonal relationships. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 385 Culture and Communication (3)** Survey of major factors affecting interpersonal communication between members of different cultures. Emphasis upon interaction between U.S. and Asian-Pacific peoples. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 386 Special Topics in Culture and Communication (3)** Contemporary research and theory on intercultural communication. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 390 Interrogation and Interviewing (3)** Survey of theory and research on the communicative demands of obtaining reliable information from others. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. **DS**

**COMG 395 Research on Communication Behavior (3)** Survey of research on communication behavior. Verbal and nonverbal data collection; analysis of research data. Students design and implement a research project. Repeatable three times. Pre: 301 and 302. **DS**

**COMG 399 Internship (V)** Analysis and application of communication knowledge and behaviors in organizational settings. Repeatable up to six credits. A-F only. Pre: consent.

**COMG 453 Practicum in Debate and Forensics (V)** Practicum focused on competitive intercollegiate forensics activities including evidence and parliamentary debate, the interpretation of literature, and platform speaking. Includes diverse non-competitive forensics activities such as judging and organizing debate tournaments. Repeatable up to six credits. CR/NC only. Pre: 353 or consent.

**COMG 454 Political Communication (3)** Survey of interpersonal and mass communication theories in the political context. Topics may include communication in public opinion processes, elections, debates, political campaigning and advertising. Pre: upper division standing or consent. **DS**

**COMG 455 Conflict Management (3)** Examination of the theories, assumptions, practices, models, and techniques of managing interpersonal conflicts. Pre: one of 151, 170, 181, 185, 251, 301 or 381. **DS**

**COMG 464 The Evolution of Public Discourse in the Digital Era (3)** Analysis of evolving public discourse in and about cyberspace; focus on changes in civic engagement and sociopolitical involvement from digital technology use; discussion of social and semantic networks. Pre: 364 or consent. **DS**

**COMG 465 Theories and Research in Strategic Communication (3)** An in-depth overview of theories related to strategic communication and scientific approaches to attitude formation and changes. Junior standing or higher. Pre: 301 or 364 or consent. **DS**

**COMG 470 Nonverbal Communication (3)** Understanding communication beyond the words themselves. Review of theory and research on gestures, facial expressions, touch, personal space, and physical appearance. Pre: 151, 170, 181, 185 or 251; or consent. **DS**

**COMG 471 Verbal Communication (3)** Roles of language; perception and assumption in human relationships; relation of language symbols to emotion and attitudes. Pre: upper division standing or consent. **DS**

**COMG 472 Deceptive Communication (3)** Survey of major social scientific theories, concepts, and research findings on deceptive communication, in a lecture/discussion format. Emphasis is on how people create deceptive messages, induce deception, and strategies used to detect deception. Junior standing or higher. Pre: 301 or 302 or consent. **DS**

**COMG 481 Relational Management (3)** Survey and critical discussion of current theory and research in relational management literature. Focus on conversation management, deception, jealousy, privacy, communication of emotions. Pre: 301 or 302 (or concurrent), and 381; or consent. **DS**

**COMG 490 Communication in Helping Relationships (3)** Theory and application of personal

and interpersonal elements affecting communication of human-service professionals. Supervised practice, video lab. Pre: one of 151, 251 or 301 or PSY 100. (Cross-listed as PSY 477) **DS**

**COMG 493 Teaching Speech (6)** For communication majors who lead, under supervision, a freshman seminar section of communication. Pre: senior standing and consent.

**COMG 495 Health Communication (3)** Develop understanding of how communication functions to facilitate or inhibit the delivery of health care in a variety of contexts. Focus on compliance process, physician-patient interaction, nurse-physician interaction. Pre: 364 or 381, or consent. **DS**

**COMG 499 Directed Reading (V)** Pre: consent of department chair and instructor.

**COMG 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable two times. Pre: master's Plan B candidate and consent.

**COMG 601 Theories in Communicology (3)** Major theoretical foundations; humanistic and social scientific perspectives. Examination of the research and the development of different models of human communication. COMG majors only. Pre: graduate standing in COMG, or consent.

**COMG 602 Research Methods in Communicology (3)** Design and analysis of quantitative research in communication. Focus on measurement issues, research design, descriptive and inferential statistics. COMG majors only. Pre: graduate standing in COMG, or consent.

**COMG 620 Practicum for Instructional Communication (1)** Combined seminar and lecture/discussion format on techniques and procedures for teaching communication skills and their related components in a laboratory setting. CR/NC only. Repeatable three times. COMG majors only. Pre: COMG GTA or consent.

**COMG 660 Business Communication (3)** Analysis of communication issues in business through discussion of verbal/nonverbal messages, interpersonal relationships, conflict, and persuasion. Focus on interviewing, group communication, and public speaking skills. Pre: 601 (or concurrent) or 602 (or concurrent), or consent.

**COMG 664 Persuasion and Social Influence (3)** Theories of persuasion and resistance to persuasion; assessment of attitudes and measurement of change. Pre: 601 (or concurrent) or 602 (or concurrent) or consent.

**COMG 670 Message Processing (3)** Theories of human message processing. Effects of verbal and nonverbal codes, channels, and message forms on encoding and decoding. Pre: 601 (or concurrent) or 602 (or concurrent); or consent.

**COMG 681 Relational Communication (3)** Major models and theories of interpersonal communication; research on interpersonal relationships; interaction and functions of human discourse. Pre: 601 (or concurrent) and 602 (or concurrent); or consent.

**COMG 685 Foundations of Intercultural Communication (3)** Major models, theories, and concepts of intercultural communication; basic methodological and analytical issues of research related to intercultural communication; research on intercultural communication. Graduate standing only. A-F only. Pre: 601 (or concurrent) and 602 (or concurrent); or consent.

**COMG 699 Directed Research (V)** Repeatable unlimited times. Only three credits can count toward degree.

**COMG 700 Thesis Research (V)** Repeatable three times.

**COMG 702 Researching Relational Communication (3)** Methodological and analytical issues of research related to relational communication. Focus on repeated measures, multivariate analysis, longitudinal analysis, and reliability and validity issues. Pre: 602 or consent.

**COMG 721 Approaches to Instructional Communication (3)** Communication theories and models in instructional environment; emphasis on development training in educational settings. Pre: 601 (or concurrent) or 602 (or concurrent), or consent.

**COMG 752 Research in Group Communication (3)** Theory, concepts, research, and application of small group communication processes and decision-making. Pre: 601 (or concurrent) or 602 (or concurrent), or consent.

**COMG 764 Seminar in Persuasion and Influence (3)** Contemporary research in persuasion and influence. Repeatable two times. Pre: 664 (or concurrent) or consent.

**COMG 770 Issues in Message Processing (3)** Contemporary research in verbal and nonverbal message processing. Repeatable one time. Pre: 601 (or concurrent) or 602 (or concurrent), or consent.

**COMG 781 Seminar in Relational Communication (3)** Contemporary research in interpersonal relations. Repeatable one time. Pre: 681 or consent.

**COMG 785 Research on Intercultural Communication (3)** Functional approach to the study of communication in intercultural settings. Examination of culture-based variables and their impact on social influence, relational management, and message processing. Repeatable one time. Pre: 664, 670 or 681; or consent.

**COMG 795 Seminar in Health Communication Research (3)** Contemporary interpersonal and/or public communication issues in health communication research. Topics include communication functions such as information management, interpersonal influence, relational management, emotional management, social influence. Repeatable one time. Pre: 664, 670 or 681; or consent.

## Complementary and Alternative Medicine (CAAM)

### School of Medicine

**CAAM 595 Nutrition for Clinicians (1)** Provides in-depth lectures and case studies reviewing the role of nutritional therapy in health and illness. MD majors only. CR/NC only. Pre: MDED 554 or consent. (Fall only)

**CAAM 599 Research Topics in Complementary and Alternative Medicine (V)** Research elective for medical students. MD students only. CR/NC only. Pre: MDED 554 or consent. (Fall only)

## Curriculum Studies (EDCS)

### College of Education

**EDCS 415 Foundations in the Field of Early Childhood Education (Birth to 8 Years) (3)** Emphasizes interrelated historical and philosophical roots and socio-cultural context and their influence on policy and practice in early childhood education settings. A-F only. Pre: FAMR 331 or consent.

**EDCS 415L Foundations in the Field of Early Childhood Education (Birth to 8 Years) Lab (3)** Direct experience with children in early childhood settings in order to apply concepts from 415 and gain perspective on the role of the practitioner in ECE settings.

**EDCS 416 Early Childhood: Foundations and Curriculum (3)** Continuation of 415: focuses on the design, implementation, evaluation of meaningful, challenging integrated curriculum that promotes comprehensive developmental and learning outcomes for diverse young children (pK-3). Pre: 415 or consent. (Cross-listed as ITE 416)

**EDCS 416L Early Childhood: Foundations and Curriculum Lab (3)** Continuation of 415L. Co-requisite: 416. (Cross-listed as ITE 416L)

**EDCS 431 Collaborative Language and Learning (3)** Examination of language (talking, reading, and writing) processes within a collaborative teaching

framework in the secondary curriculum. Field experience may be required.

**EDCS 432 Adolescent Literature and Literacy (3)** Selection and interpretation of young adult literature, including multicultural literature for middle level and high school students. Theory and teaching strategies for integrating literacy instruction in the literature program for diverse student populations. A-F only.

**EDCS 433 Interdisciplinary Science Curriculum (3)** Conceptual schemes and processes for integrating science curricula within the sciences and with subject areas. Methods and models of curricular integration such as interdisciplinary, culturally relevant, place and community-based learning. Repeatable one time.

**EDCS 440 Curriculum Implications of Multicultural Education (3)** Examination of trends, issues, school practices, and program in multicultural education and its related area of study—bilingual-bicultural education. (Cross-listed as ITE 440)

**EDCS 450 Methods and Materials in Science (3)** Selecting and using methods and materials, demonstrations and simulations, open-ended experimentation, inquiry and discovery, task analysis measurement tools and techniques, activities from various curricula, opportunity for individualized goals and projects. Repeatable one time. Pre: ITE 323, ITE 404(H), teaching experience; or consent.

**EDCS 451 Programs for Infants/Toddlers (3)** Examination of current theory, research, issues, and models in programs for infants and toddlers, including criteria for evaluation and planning. Pre: FAMR 230 (or concurrent), FAMR 331 (or concurrent); or consent. (Cross-listed as SPED 451)

**EDCS 453 Gender Issues in Education (3)** Examination of current and historical issues in education and how they are impacted upon by gender, with particular reference to gender as it intersects with ethnicity and class, locally and globally. Pre: WS 151 or consent. (Cross-listed as EDEF 453 and WS 453) **DS**

**EDCS 471 Special Problems in Home Economics Education (2)** Individual and group problems selected according to interests and needs of fourth- and fifth-year students in home economics education. Development of teaching materials.

**EDCS 480 Issues in Computer Education (3)** Integration of microcomputers into school curriculum and key issues related to microcomputer use in education. Pre: ETEC 442 or consent. (Cross-listed as ITE 480)

**EDCS 494 Problem Solving in Mathematics Education (3)** Experiencing and learning to teach heuristics of solving mathematical problems; designing curricula, classroom organization, evaluative measures for problem solving. Pre: consent.

**EDCS 495 Difficulties in Learning Mathematics (3)** Identification, analysis, and remediation of difficulties in learning mathematics. Pre: consent.

**EDCS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: Master's Plan B or C candidate and consent.

**EDCS 600 Language, Learning and Teaching (3)** Examines the role that language plays in the social construction of knowledge within various disciplines, K-adult. Collaborative group learning strategies will be modeled. A-F only. Pre: student teaching or teaching experience or consent.

**EDCS 601 Advanced Topics in Reading (3)** Current theories and teaching strategies of reading throughout the life span within various social contexts. Topics include emergent literacy, critical comprehension, meta-linguistic awareness, monolingual-bilingual literacy, evaluation. Must have had student teaching or teaching experience. Pre: undergraduate course in reading.

**EDCS 602 Advanced Topics in Writing and Oral Language (3)** Examines language and literacy learning in the context of an integrated language arts approach to curriculum and instruction. Emphasis

on oral and written language. Must have student teaching or teaching experience. Pre: undergraduate course in language arts.

**EDCS 603 Children's Literature in the Elementary Curriculum (3)** In-depth examination of traditional and modern literature for children, with emphasis upon genre, historical development, research, curriculum development. Pre: undergraduate course in reading.

**EDCS 604 Effective Writing Practices (6)** Analysis and practical application of principles and strategies of effective writing and informed writing instruction in K-12 classrooms. Pre: teaching experience and consent. (Summer only)

**EDCS 605 Reading Supervision and Leadership (3)** Examines varied roles and responsibilities of the reading specialist, including literacy intervention, development and evaluation of curriculum, instruction and professional in-services, and leadership. A-F only. Pre: consent.

**EDCS 606 Introduction to Research in Curriculum and Teaching (3)** Classroom-based research covers the fundamentals of qualitative, quantitative, Action Research, mixed methods, and Curriculum Based Assessment. Exploratory, explanatory, and confirmatory research will be highlighted culminating in an outline for Plan B/Thesis proposal. (Cross-listed as DIS 606)

**EDCS 607 New Literacies, Schooling, and Culture (3)** New approaches to analyzing 21st century new literacy theory and pedagogy K-12, including visual, media, digital, and critical literacies that address these new linguistic and interrelated meaning-making systems of communication within hypermediated cultures. A-F only.

**EDCS 608 Literacy Across the Disciplines, K-12 (3)** Explores theoretical and practical principles of literacy across academic disciplines K-12, investigating the role of language and literate practices of reading writing, speaking, visualizing, and representing in social, cultural, and educational contexts. Graduate students only. A-F only.

**EDCS 610 Early Career Teaching, K-12 (3)** Focuses on research and practice related to the first five years of teaching. Especially recommended for beginning teachers and graduate students interested in this stage of teaching development. Repeatable one time.

**EDCS 617 Early Literacy and Language Development (3)** Theory and practice for PK-3 early literacy and language development. Focus is on content knowledge and pedagogical strategies that support the optimal development of oral language, reading, and writing skills in PK-3 classrooms. A-F only.

**EDCS 618 Early Childhood Education: Advanced Topics (3)** Analysis and practical application of selected early childhood education program and/or instructional materials. Restricted to majors. Repeatable two times. Pre: 415 and 416, or consent.

**EDCS 622 (Alpha) School Curriculum (3)** Development and improvement of curriculum. (B) early childhood; (D) middle school; (G) K-14. Pre: teaching experience or consent.

**EDCS 623 (Alpha) Science and Science Curriculum (3)** Application of recent developments in science, curriculum construction, and learning theory to pre-kindergarten, elementary, middle level, and secondary schools. Science philosophy, content and methodology stressed. (B) elementary; (C) secondary; (D) inquiry and nature of science; (E) science literacy. May be repeated one time in different alphas.

**EDCS 624 School Mathematics Curriculum (3)** Analysis of research related to teaching and learning school mathematics, application of research to classroom practices. Appraisal of recent curriculum trends; critical examination of assumptions underlying proposed curriculum changes. Pre: teaching experience or consent.

**EDCS 625 Social Studies Curriculum (3)** Examination and evaluation of social science content,

societal values and research findings as basis for development and revision of social studies materials, texts, curriculum guides, methodology. Pre: ITE 322 or equivalent, social studies teaching experience, or consent.

**EDCS 626 Art in Elementary Education (3)** Principles of and problems in teaching art in elementary school; curriculum development and current approaches in art education; laboratory experiences in art media. Pre: student teaching or teaching experience.

**EDCS 628 Function of Play in Early Childhood Education (3)** Review of research and theory illuminating the nature, purposes, and meaning of play as a critical aspect of early childhood education. (Summer only)

**EDCS 630 Cultural Diversity and Education (3)** Examines issues, theories, perspectives and practices in multicultural education and promotes awareness, encourages knowledgeable reflection and develops skills necessary for multicultural practitioners. A-F only. (Cross-listed as EDEF 630)

**EDCS 632 Qualitative Research Methods (3)** Methods of qualitative research in education or related social science from an interdisciplinary framework.

**EDCS 638 (Alpha) Curriculum and Instruction in Studio Art (3)** Understanding art methods and materials related to art education for teachers grades K-12. Writing curricula, integrating visual arts across the curriculum, developing evaluation methods observing stages of artistic growth among students of multiple ages/abilities. (B) painting, drawing, printing; (C) fiber arts, ceramics, sculpture; (D) photography, technology, collage; (E) Combination of any three of B, C, and/or D. Previous BA, BS, BE, and BFA only. Repeatable two times. A-F only. Pre: teaching experience or consent. (Once a year)

**EDCS 639 Business and Marketing Education Curriculum (3)** Theory, philosophy, objectives, and development of business and marketing education curriculum. Pre: ITE 390D or consent.

**EDCS 640 (Alpha) Seminar (3)** Study in trends, research, and problems of implementation in teaching field. (C) English; (H) mathematics; (I) literacy; (J) science; (K) social studies; (M) interdisciplinary education; (N) art. Repeatable two times. Pre: teaching experience or consent.

**EDCS 641 (Alpha) Seminar in Foreign Language (3)** Study in trends, research, and problems of implementation of language education instruction. (B) French; (C) German; (D) Japanese; (F) Spanish. Pre: teaching experience, and consent.

**EDCS 642 (Alpha) Seminar in Diversity Issues (1)** Examination of principles in multicultural education and diversity. (D) middle level; (G) K-14; (R) reading K-12. Repeatable five times. A-F only. Pre: consent.

**EDCS 645 Seminar In Multicultural Literacy (3)** Interdisciplinary examination of research and issues in the teaching and learning of literacy in diverse multicultural settings. A-F only. Pre: course in teaching language arts of multicultural education, teaching experience, or consent.

**EDCS 646 Literacy Assessment I (3)** Theory and practice in classroom-based assessment of struggling readers and writers. Analyses of individual learners with implications for instruction. Pre: 601 and teaching experience or consent.

**EDCS 647 Literacy Assessment II (3)** Practicum in theory and methods of classroom-based and large-scale assessment. Analysis of the achievement of groups of learners and implementation of intervention instruction. Classroom field experience required. Pre: 646 or consent.

**EDCS 648 Reading for English Language Learners (3)** Presents key concepts and theories in teaching reading to K-12 English language learners. Topics include instructional decisions in teaching reading to ELLs, the interrelationship of language

skills, strategies, and teaching academic content. A-F only. Pre: 601 or consent.

**EDCS 649 Theory/Practice in Cooperative Occupational Education (3)** Theory and practices of coordinating cooperative education in high school and community college. Pre: teaching experience or consent.

**EDCS 653 (Alpha) Mathematics in the Schools (3)** School mathematics, K-12 content, curricula, pedagogy, and standards; trends and issues; theory and research. (B) number and operation; (C) patterns, functions and algebra; (D) geometry and measurement; (E) probability and statistics; (F) integrated math content. Each alpha represents a different K-12 content area. Pre: teaching experience or consent.

**EDCS 656 Seminar in Issues in ECE (V)** Concepts and inquiry regarding the application of early childhood educational principles and approaches to programs serving children between birth and age five. Study and discussion of topics and problems presented in required summer courses and by invited experts in early childhood education. Restricted to masters in Early Childhood Education. Repeatable six times. A-F only. (Two times a year)

**EDCS 667 (Alpha) Seminar in Curriculum (3)** Curriculum trends and issues related to school organization, program, administration, faculty. Required for Plan B MEd candidates in their final semester or summer session. Repeatable one time. (B) early childhood; (D) middle-level; (G) K-14. Pre: 622 (any alpha), and 606 or EDEF 678 or EDEP 408, and 632 or EDEA 604 or EDEP 429 or EDEA 608; or consent.

**EDCS 685 Museums and Education (3)** Overview of museum education including museum learning theories, informal learning programs, audience research, national and international policies and reports, and community projects. Pre: AMST 683 (or concurrent) or consent. (Cross-listed as AMST 685)

**EDCS 686 Information Literacy and Learning Resources (3)** Study of information literacy models. Integration of information literacy with K-12 curriculum units and lessons. Evaluation of print and multimedia resources to meet student and curricular needs. Required for Librarian HDOE licensure. A-F only. Pre: consent. (Cross-listed as ETEC 686 and LIS 686)

**EDCS 690 Practicum: Leadership in School Reading Improvement (3)** Application of roles and responsibilities of the reading specialist to a school context. Includes creating a professional development plan for literacy instruction, preferably in your own school. A-F only. Pre: 605 or consent.

**EDCS 695 Plan B Master's Project (V)** Independent study for students working on a Plan B master's project. A-F only.

**EDCS 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable unlimited times. Pre: written consent.

**EDCS 700 Thesis Research (V)** Repeatable up to 36 credits.

**EDCS 732 Qualitative Data Analysis (3)** Advanced seminar in qualitative research methods with an emphasis upon qualitative data analysis, theory construction, data presentation and reporting. Pre: 632, a course in introduction to qualitative research methods; or consent.

**EDCS 760 Research on Teaching and Teacher Education (3)** Examination of alternative approaches and multidisciplinary perspectives on research on teaching and learning in and out of school, on educational change, and on teacher education and professional development. Pre: classified PhD student or consent.

**EDCS 761 Dissertation Research and Writing (3)** Intended for doctoral students who are at the dissertation stage in their program. Supports students in developing their dissertation proposals and/or initial dissertation drafts. Repeatable one time. A-F only. Pre: consent. (Once a year)

**EDCS 767 Issues and Trends in Curriculum (3)**

Uses problem-centered approach and field experiences. Topics include historical review of curriculum development since 1900, examination of current curriculum practices at all levels of education, and prediction of future directions in curriculum theory and design. Pre: classified doctoral student or consent.

**EDCS 768 Seminar in Curriculum and Instructional Theories (3)**

Analysis and critical examination of models and curriculum theory and theories of instruction leading to generation of theories by seminar members. Pre: classified doctoral student or consent.

**EDCS 769 Curriculum and Program Evaluation (3)**

Critical examination of theoretical and methodological positions on curriculum and educational program evaluation. Pre: classified doctoral student or consent.

**EDCS 780 Mixed Methods Research Design (3)**

Mixed methods research is designed for PhD and masters students in education and social sciences considering combining qualitative and quantitative research. Covers philosophical and practical implications culminating in a mixed methods dissertation/thesis proposal. Repeatable one time. (Once a year) (Cross-listed as DIS 780 and ETEC 780)

**Dance (DNCE)**

*College of Arts and Humanities*

**DNCE 121 Beginning Ballet Technique (3)**

Introduction to classical ballet technique. Repeatable three times. DA

**DNCE 122 Continuing Ballet Technique (3)**

Continuation of beginning classical ballet technique. Repeatable three times. Pre: 121 or consent. DA

**DNCE 131 Beginning Modern Dance Technique (3)**

Introduction to modern dance technique. Repeatable three times. DA

**DNCE 132 Continuing Modern Technique (3)**

Continuation of beginning modern dance technique. Repeatable three times. Pre: 131 or consent. DA

**DNCE 140 Hip Hop Dance (1)**

Introductory lecture/lab geared towards those with or without Hip Hop dance experience. Students will learn the fundamentals of various Hip Hop dance styles. Repeatable two times.

**DNCE 150 Introduction to Dance (3)**

Survey the development of major dance styles and their relationship to contemporary choreography. DA

**DNCE 151 Music Theory for Dancers (3)**

Elements of music and relationship to dance; emphasis on rhythmic analysis. (Alt. years) DA

**DNCE 221 Low Intermediate Ballet Technique (3)**

Low intermediate ballet technique. Repeatable three times. Pre: 122 or consent. DA

**DNCE 222 Low Intermediate Ballet Technique (3)**

Low intermediate ballet technique. Repeatable two times. Pre: 221 or consent. DA

**DNCE 231 Low Intermediate Modern Technique (3)**

Low intermediate modern dance technique. Repeatable three times. Pre: 131 or consent. DA

**DNCE 232 Low Intermediate Modern Technique (3)**

Low intermediate modern dance technique. Repeatable two times. Pre: 231 or consent. DA

**DNCE 245 Design Principles for Performance (3)**

Introduction to general design principles as applied to theatre. Will introduce the language and tools of visual literacy and visual communications via individual projects and collaboration. Repeatable two times. (Cross-listed as THEA 245) DA

**DNCE 250 Dance Production (3)**

Survey of historical, theoretical, and practical aspects; work in scenery, lighting, costume, makeup, and theater management. DA

**DNCE 255 Dance in World Cultures (3)**

Multi-media overview of world dance forms, with emphasis on Asia and the Pacific, and related concepts. Pre: sophomore standing or consent. DA

**DNCE 260 Movement Fundamentals (1)** Organized somatic systems as a framework for understanding movement and dance techniques. Required for majors. Repeatable two times. DA

**DNCE 301 Asian Dance I (V)** Performance and techniques at the introductory level. Pre: upper division standing or consent. Repeatable up to eight credits. DA

**DNCE 302 Chinese Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 303 Japanese Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 304 Javanese Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 305 Korean Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 306 Okinawan Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 307 Philippine Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 311 Oceanic Dance I (1)** Performance and techniques at the introductory level. Pre: upper division standing or consent. DA

**DNCE 321 Intermediate Ballet Technique (3)** Intermediate ballet technique. Repeatable four times. Pre: 222 or consent. DA

**DNCE 331 Intermediate Modern Technique (3)** Intermediate modern dance technique. Repeatable four times. Pre: 232 or consent. DA

**DNCE 334 Taiji (T'ai Chi) for Actors I (3)** Basic Taijiquan (T'ai Chi Ch'uan) movement training. Repeatable two times. Pre: sophomore standing or higher, or consent. (Cross-listed as THEA 334) DA

**DNCE 353 Scenic I: Beginning Scenic Design (3)** Workshop introducing the basic principles and approaches of scenic design for theatre and dance, with emphasis on the creative process. Pre: a course in THEA or DNCE, production experience, or consent. (Consent required for production experience option) (Cross-listed as THEA 353) DA

**DNCE 354 Introduction to Costume Construction (4)** Workshop on basic principles of costume construction for theatre and dance. Professional practices, materials, and methods. (Cross-listed as THEA 354) DA

**DNCE 356 Costumes I: Beginning Costume Design (3)** Basic principles and approaches to costume design for theatre and dance. Visual communication methods, creative process, historical research, and organizational practices. Repeatable one time. Pre: 250, THEA 240, or consent. (Cross-listed as THEA 356) DA

**DNCE 360 Dance Kinesiology (3)** Practical information for dance students on diet and nutrition, anatomy, training and conditioning, and injury prevention. Pre: 260 or consent. DA

**DNCE 361 Elementary Labanotation (3)** Elementary theory of Labanotation with practical application in scoring and reconstructing dances. Pre: 151 or MUS 280, or consent. (Alt. years) DA

**DNCE 362 Visual Media for Dance (3)** Introductory theory of digital technology for dance with practical applications in documentation and performance. Pre: 361 or consent. (Alt. years) DA

**DNCE 370 Dance Improvisation (3)** Improvisation in dance as creative experience, as source of new movement ideas, and as means of developing spontaneity in performance. Repeatable one time. Pre: 200 level or above, or consent. DA

**DNCE 371 Dance Composition I (3)** Elementary techniques and theories for creating and crafting concert dances. Pre: 231 and 370, or consent. DA

**DNCE 372 Dance Composition II (3)** Intermediate techniques and theories for creating and crafting concert dances. Pre: 371 or consent. DA

**DNCE 401 Asian Dance II (V)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 301 or consent. DA

**DNCE 402 Chinese Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 302 or consent. DA

**DNCE 403 Japanese Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 303 or consent. DA

**DNCE 404 Javanese Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 304 or consent. DA

**DNCE 405 Korean Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 305 or consent. DA

**DNCE 406 Okinawan Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 306 or consent. DA

**DNCE 407 Philippine Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 307 or consent. DA

**DNCE 411 Oceanic Dance II (1)** Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 311 or consent. DA

**DNCE 421 Advanced Ballet Technique (3)** Advanced ballet technique. Repeatable six times. Pre: 321 or consent. DA

**DNCE 431 Advanced Modern Technique (3)** Advanced modern dance technique. Repeatable six times. Pre: 331 or consent. DA

**DNCE 433 Movement Workshop (V)** Special workshops in movements relating to specific departmental theatrical productions beyond the scope of movement taught in 437 and 438. Repeatable one time. Pre: one of 435 or THEA 435, or consent. (Alt. years) (Cross-listed as THEA 433) DA

**DNCE 434 Taiji (T'ai Chi) for Actors II (3)** Intermediate-level Taijiquan (T'ai Chi Ch'uan) movement training. Repeatable two times. Pre: 334 or consent. (Cross-listed as THEA 434) DA

**DNCE 435 Movement for Actors (3)** Training actors to discover experientially the sources of movement; to teach skills for analyzing movement for its mechanical, anatomical, spatial, and dynamic content; and then to apply these skills in a role. Pre: THEA 222 or consent. (Cross-listed as THEA 435) DA

**DNCE 436 Advanced Movement for Actors (3)** Detailed development of material presented in 435. Focus on Bartenieff fundamentals and movement analysis as it applies to the physical interpretation of theatrical roles. Pre: 435 or THEA 435, or consent. (Alt. years) (Cross-listed as THEA 436) DA

**DNCE 437 Period Movement Styles, 1450–1650 (3)** Movement styles and social department of European societies in the Renaissance and early Baroque periods. Pre: 435 or THEA 435, one semester of a 100-level dance technique class; or consent. (Alt. years) (Cross-listed as THEA 437) DA

**DNCE 438 Period Movement Styles, 1650–1800 (3)** Movement styles and social department of the Baroque and pre-Romantic periods in Europe and the American colonies. Pre: 435 or THEA 435, one semester of a 100-level dance technique class; or consent. (Alt. years) (Cross-listed as THEA 438) DA

**DNCE 439 Musical Theater Dance Forms (3)** Theatrical dance forms used in 20th-century musical theater. Pre: 100 level or above dance technique class, 421, or consent. (Alt. years) (Cross-listed as THEA 439) DA

**DNCE 446 Topics in Costume Construction (3)** Costume production techniques, both Western and Asian, for theatre and dance. Topic rotation includes: understructures and armatures, patterning, tailoring, dyeing, fabric modification, millinery and crafts, within the context of current industry practice.

Repeatable two times. Pre: 354, 356, or consent. (Cross-listed as THEA 446) **DA**

**DNCE 452 Dance History I: Ritual to Theater (3)** Development of Western theatrical dance from Ancient Greece through 19th-century ballet. Pre: upper division standing or consent. **DH**

**DNCE 453 Dance History II: 20th Century to the Present (3)** Development of modern dance, contemporary ballet, and dance forms of musical theater and film. Pre: upper division standing or consent. **DH**

**DNCE 456 Costumes II: Intermediate Costume Design (3)** Advanced costume design for theatre and dance. Introduction to collaborative process in costume. Intensive work on rendering skills, applied to various design problems. Cost analysis and organizational techniques. Pre: 356 or consent. (Cross-listed as THEA 456) **DA**

**DNCE 458 Field Experiences in Dance (V)** Field experiences in relevant contexts under professional and faculty supervision. Repeatable one time. CR/NC only. Pre: upper division standing and consent. **DA**

**DNCE 459 Topics in Dance (V)** Readings, research, and/or field and movement experiences. Repeatable if topic changes unlimited times. Pre: upper division standing and consent.

**DNCE 460 Teaching Dance Technique (3)** Principles, techniques, and materials used in the teaching of dance technique. A-F only. Pre: 260, and 221 or 231; or consent of instructor.

**DNCE 470 Dance Performance (1)** Performance in various dance styles and settings. Repeatable eight times. Pre: audition or consent. **DA**

**DNCE 480 Dance Repertory (V)** Preparation of standard and new works for performance. Repeatable three times. Pre: consent. **DA**

**DNCE 490 Creative Dance (3)** Dance activities for young people. Appropriate for teachers, group workers, recreation majors, and others working with children. Also adults with special needs. Supervised field activities. Pre: upper division standing or consent. **DA**

**DNCE 495 Senior Project (1)** Individual choreographic project; student choreographs, performs, and oversees all technical aspects of a creative project; tutorial. Pre: 372, senior standing, and consent. **DA**

**DNCE 499 Directed Work (V)** Individual projects, tutorial. Pre: consent.

**DNCE 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**DNCE 617 Seminar in Performance Studies (3)** Special topics. Repeatable up to two times when topic change. Pre: THEA 615 or consent. (Cross-listed as THEA 617)

**DNCE 651 Seminar in Dance Research (3)** Research materials and methods; preparation for thesis and scholarly research reporting. Required for graduate concentrations in dance. (Alt. years)

**DNCE 652 Seminar: Dance Theory and Criticism (3)** Major theories of dance and dance criticism; emphasis on Western ideas. Pre: 452 and 453, or consent.

**DNCE 653 Dance Ethnology Seminar (3)** Exemplary studies and field research. Pre: graduate standing or consent. (Alt. years)

**DNCE 654 Dance and Performance Theory: Asia (3)** Dance content and historico-social context of principal dance traditions. Pre: graduate standing or consent. (Alt. years)

**DNCE 655 Dance and Performance Theory: Oceania (3)** Dance content and historico-social context of principal dance traditions. Pre: graduate standing or consent. (Alt. years)

**DNCE 659 Advanced Topics in Dance (V)** Readings, research, and/or field movement experiences. Repeatable one time if topic changes. Pre: graduate standing or consent.

**DNCE 660 Laban Movement Analysis (3)** Study and application of Laban Movement Analysis as a framework for enhancing analytical and artistic abilities. Pre: 260 (or concurrent) and 360 (or concurrent); or consent.

**DNCE 661 Advanced Problems in Movement Analysis (3)** Advanced skills in movement analysis and interpretation of movement scores. Emphasis on Labanotation. Repeatable two times. Pre: 362. (Alt. years)

**DNCE 671 Advanced Choreography (3)** Advanced analytic and creative study. Pre: 372 or consent. (Alt. years)

**DNCE 672 Dance Performance (V)** Graduate performance in various dance styles and settings. By audition only. Repeatable six times. Pre: consent.

**DNCE 676 Seminar in Choreographic Methods (3)** Graduate level course designed for students with prior choreographic experience. Students will research, create, revise, and perform new works based on a variety of choreographic methodologies. Repeatable one time. Pre: 371, 372; or consent. (Alt. years)

**DNCE 679 Directed Choreography (1)** Concert choreography for selected performance settings under the direction of a faculty advisor. Repeatable six times. Pre: 372 (or concurrent) or 671 (or concurrent), or consent.

**DNCE 691 Seminar in Teaching Dance/Theater (3)** Pedagogy and classroom experience in teaching technique and theory. (Alt. years) (Cross-listed as THEA 691)

**DNCE 693 Internship: Youth Theater/Dance (V)** Supervised leadership experiences in dance/theater program with children. Students spend nine hours per week in supervised setting and three hours in weekly class meeting. Pre: 490, THEA 470, or THEA 476; or consent. (Cross-listed as THEA 693)

**DNCE 699 Directed Reading and Research (V)** Individual projects: tutorial. Repeatable up to six credits. Pre: consent.

**DNCE 700 Thesis Research (V)** Repeatable unlimited times.

## Dental Hygiene (DH)

*School of Nursing and Dental Hygiene*

*Dental hygiene courses must be taken in sequence and are open only to those admitted to the program by the Department of Dental Hygiene.*

**DH 231 Oral Anatomy and Tooth Morphology (2)** The study of the structure and functions of the head and neck with emphasis on structures in or related to the oral cavity; of tooth morphology. Repeatable one time. A-F only. Pre: BIOC 241, PHYL 103, PHYL 103L; or equivalent. Co-requisite: 231L. **DB**

**DH 231L Oral Anatomy and Tooth Morphology Lab (2)** (2 3-hr Lab) Application of DH 231 didactic concepts to laboratory activities and practices. Repeatable one time. A-F only. Pre: BIOC 241 and PHYL 103, PHYL 103L; or equivalent. Co-requisite: 231. **DY**

**DH 238 Basic Dental Hygiene I (2)** Relationship to dentistry, problems, trends, issues; role and functions of dental hygienists in prevention and control of chronic oral diseases; preliminary dental hygiene clinical and support procedures including vital signs; team concepts in dentistry. Repeatable one time. A-F only. Co-requisite: 238L and 239L. **DB**

**DH 238L Basic Dental Hygiene I Lab (1)** Application of preliminary dental hygiene clinical and support procedures including instrumentation, vital signs, and team concepts in dentistry. Repeatable one time. A-F only. Co-requisite: 238 and 239L. **DY**

**DH 239L Basic Dental Hygiene I Lab (1)** Application of preliminary dental hygiene clinical and support procedures including instrumentation, vital signs, and team concepts in dentistry. Repeatable one time. A-F only. Co-requisite: 238/238L. **DY**

**DH 240 Basic Dental Hygiene II (2)** Basic dental hygiene theory and skills including competencies in health history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, plaque control and support procedures. A-F only. Pre: 238, 238L and 239L. Co-requisite: 240L, 241L and 242L. **DB**

**DH 240L Basic Dental Hygiene Lab/Clinic (1)** (1 4-hr Lab/Clinic) Laboratory and clinical experiences in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and clinic procedures. A-F only. Pre: 238 and 238L. Co-requisite: 240, 241L, and 242L.

**DH 241L Basic Dental Hygiene Lab/Clinic (1)** (1 6-hr Lab/Clinic) Laboratory and clinical experiences in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and clinic support procedures. A-F only. Pre: 238 and 238L. Co-requisite: 240, 240L, and 242L. **DY**

**DH 242L Basic Dental Hygiene Lab/Clinic (1)** (1 4-hr Lab/Clinic) Laboratory and clinical experiences in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and clinic support procedures. A-F only. Pre: 238 and 238L. Co-requisite: 240, 240L, 241L. **DY**

**DH 250 General and Oral Histology and Embryology (2)** Cells and tissues and their embryologic origin, with particular reference to teeth and their supporting structures. Pre: 231 (or concurrent). (Fall only) **DB**

**DH 251 General and Oral Histology and Embryology (1)** Continuation of 250. Pre: 250. (Spring only) **DB**

**DH 281 Dental Radiography (2)** Basic principles of radiation and fundamental information to understand and safely use radiation in dental radiography. A-F only. Repeatable one time. Pre: 231. Co-requisite: 281L.

**DH 281L Dental Radiography Lab/Clinic (1)** (1 3-hr Lab/Clinic) Preparation and evaluation of radiographic survey of patients with varying dentition; methods, and indications of safety considerations in clinical application of roentgen rays. A-F only. Repeatable one time. Pre: 231. Co-requisite: 281.

**DH 361 Health Education and Promotion (2)** Provides an overview of the concepts and application of health education and health promotion theories and principles as applies to individuals, groups and the larger public. Pre: open to non-nursing majors with consent. (Fall only) (Cross-listed as NURS 361)

**DH 366 General and Oral Pathology (2)** Nature and causes of disease, progress and termination or associated alterations of tissue, diseases affecting teeth and structures of oral cavity. Pre: 250 and 251 (or concurrent). (Spring only) **DB**

**DH 367 General and Oral Pathology (1)** Continuation of 366. Pre: 366. (Fall only) **DB**

**DH 369 Dental Materials (1)** Science of dental materials and its application to dentistry and dental hygiene. Repeatable one time. A-F only. Pre: 231. Co-requisite: 369L.

**DH 369L Dental Materials Lab/Clinic (1)** Laboratory and clinical application of concepts in the science of dental materials. Repeatable one time. A-F only. Pre: 231. Co-requisite: 369.

**DH 370 Expanded Functions in Dental Hygiene (2)** Basic concepts of expanded functions in dental hygiene. A-F only. Repeatable one time. Pre: 369. Co-requisite: 370L.

**DH 370L Expanded Functions Lab/Clinic (1)** (2 1.5-hr Lab/Clinic) Application of basic concepts of expanded functions in dental hygiene. A-F only. Repeatable one time. Pre: 369. Co-requisite: 370.

**DH 375 Clinical Dental Hygiene I (2)** Development of dental hygiene concepts and skills; emergency procedures; team approach to dentistry, planning,

implementing and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A-F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375L, 376L, 377L, and 378L.

**DH 375L Clinical Dental Hygiene I Clinic (1)** Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A-F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375, 376L, 377L, and 378L.

**DH 376L Clinical Dental Hygiene I Clinic (1)** Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A-F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375/375L, 377L, and 378L.

**DH 377L Clinical Dental Hygiene I Clinic (1)** Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A-F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375, 375L, 376L, and 378L.

**DH 378L Clinical Dental Hygiene I Clinic (1)** Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A-F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375/375L, 376L, and 377L.

**DH 380 Clinical Dental Hygiene II (2)** Continuation of 375. Pre: 375. (Spring only)

**DH 380L Clinical Dental Hygiene II Clinic (1)** (1 6-hr Clinic) Continuation of 375. Clinical application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing and evaluating total oral hygiene care to patients. A-F only. Pre: 375. Co-requisite: 380, 381L and 382L.

**DH 381L Clinical Dental Hygiene II Clinic (1)** (1 6-hr Clinic) Continuation of 375. Clinical application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care to patients. A-F only. Pre: 375. Co-requisite: 380, 380L and 382L.

**DH 382L Clinical Dental Hygiene II Clinic (1)** (1 4-hr Clinic) Continuation of 375. Clinical application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care to patients. A-F only. Pre: 375. Co-requisite: 380, 380L and 381L.

**DH 389 Pain Control and Local Anesthesia in Dentistry (2)** Basic concepts of pain control and local anesthesia in dentistry with appropriate emphasis on psychological preparation, pharmacological preparation, and safe and effective administration of anesthesia in the practice of dental hygiene. Pre: 231 and 250. Co-requisite: 240, 251, and 366. (Spring only) **DB**

**DH 390 Periodontology I (2)** Normal periodontium, etiology, pathogenesis, clinical manifestations and epidemiology of periodontal diseases, and mode of periodontal therapy. Repeatable one time. A-F only. Pre: 240, 251, and 366. (Fall only) **DB**

**DH 391 Periodontology II (2)** Continuation of DH 390. Normal Periodontium, etiology, pathogenesis, clinical manifestations and epidemiology of periodontal diseases, and mode of periodontal

therapy. Repeatable one time. A-F only. Pre: 390. (Spring only) **DB**

**DH 473 Community Health (3)** Introduction and application of the principles of health education and dental public health into practice in schools, community agencies, and private dental offices (inclusive of problem assessment, planning, implementation and evaluation processes); epidemiology and biostatistics. A-F only. Pre: 361. (Fall only)

**DH 475 Advanced Clinical Dental Hygiene II (2)** An in-depth knowledge and clinical application of expanded function in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 380/380L, 381L, 382L, and 391. Co-requisite: 475L, 476L, 477L, 478L.

**DH 475L Advanced Dental Hygiene I Clinic A (1)** Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 380/380L, 381L, 382L, and 391. Co-requisite: 475, 476L, 477L, and 478L. (Fall only)

**DH 476L Advanced Dental Hygiene I Clinic B (1)** Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 380/380L, 381L, 382L, and 391. Co-requisite: 475, 475L, 477L, and 478L. (Fall only)

**DH 477L Advanced Dental Hygiene I Clinic C (1)** Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 380/380L, 381L, 382L, and 391. Co-requisite: 475, 475L, 476L, and 478L. (Fall only)

**DH 478L Advanced Dental Hygiene I Clinic D (1)** Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 380/380L, 381L, 382L, and 391. Co-requisite: 475, 475L, 476L, and 477L. (Fall only)

**DH 480 Advanced Clinical Dental Hygiene II (2)** In-depth knowledge development of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modifications in behavior. Repeatable one time. A-F only. Pre: 475/475L, 476L, 477L, and 478L. Co-requisite: 480L, 481L, 482L, 483L. (Spring only)

**DH 480L Advanced Clinical Dental Hygiene II Clinic (1)** (1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 475/475L, 476L, 477L, and 478L. Co-requisite: 480, 481L, 482L, 483L. (Spring only)

**DH 481L Advanced Clinical Dental Hygiene II Clinic (1)** (1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 475/475L, 476L, 477L, and 478L. Co-requisite: 480/480L, 482L, 483L. (Spring only)

**DH 482L Advanced Clinical Dental Hygiene II Clinic (1)** (1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only.

Pre: 475/475L, 476L, 477L, and 478L. Co-requisite: 480/480L, 481L, 483L. (Spring only)

**DH 483L Advanced Clinical Dental Hygiene II Clinic (1)** (1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A-F only. Pre: 475/475L, 476L, 477L, and 478L. Co-requisite: 480/480L, 481L, 482L. (Spring only)

**DH 499 Directed Reading, Field Work, or Research (V)** Individualized program of directed reading, field work, or research for major under supervision in related areas of dentistry and dental hygiene. Pre: consent.

## Developmental and Reproductive Biology (DRB)

### School of Medicine

*The minimum grade required for undergraduate prerequisites is a D or better, and graduate prerequisites is a C (not C-) or better.*

**DRB 601 Fertilization and Early Development (2)** Lecture on the basics of vertebrate and invertebrate fertilization and early embryonic development. Open to all graduate students. (Fall only)

**DRB 613 Seminar in Developmental and Reproductive Biology I (1)** Presentations of current research carried out by developmental and reproductive biology graduate program faculty.

**DRB 614 Developmental and Reproductive Biology Scientific Investigations (3)** Discussion of current research in developmental and reproductive biology.

**DRB 650 Stem Cell Biology (3)** Seminar designed to teach graduate students and advanced undergraduate students about current topics relating to stem cell biology, as well as the application of stem cells to modern medicine. A-F only. Pre: BIOL 275 and PHYL 604, or consent. (Spring only)

**DRB 666 Applied Development Reproductive Biology (3)** Combined lecture-lab on current technologies and methods for mammalian reproduction and developmental biology. A-F only. Pre: 601 (or concurrent), 613/614 (or concurrent); or consent. (Spring only)

**DRB 695 DRB Research Rotation (3)** Introductory laboratory research experience under the supervision of faculty. Repeatable two times. A-F only.

**DRB 699 Directed Research (V)** Research experience in developmental and reproductive biology. Repeatable unlimited times.

**DRB 700 Thesis Research (V)** Repeatable unlimited times.

**DRB 800 Dissertation Research (V)** Repeatable unlimited times.

## Disability and Diversity Studies (DIS)

### College of Education

**DIS 380 Disability and Diversity (3)** Focuses on disability as a category of diversity and identity, as well as diversity within disability. Different strategies used to increase the freedom or liberty of people with disabilities are critically examined. A-F only.

**DIS 382 Creating Accessible Futures (3)** Focuses on creating accessible technology and instructional media, developing long-term resources, advancing accessible social interaction between students and students with instructors, and using case studies as examples of good practices. A-F only.

**DIS 383 Disability History and Culture: From Homer to Hip Hop (3)** How have people over many centuries, and from broad geographical perspectives perceived and treated individuals with disabilities? An overview of the history of the conditions in which people with disabilities lived. A-F only.

**DIS 606 Introduction to Research in Curriculum and Teaching (3)** Classroom-based research covers the fundamentals of qualitative, quantitative, Action Research, mixed methods, and Curriculum Based Assessment. Exploratory, explanatory, and confirmatory research will be highlighted culminating in an outline for Plan B/Thesis proposal. (Cross-listed as EDCS 606)

**DIS 671 Basics of Applied Behavior Analysis (3)** Focuses on the definitions and characteristics of applied behavior analysis and the concepts, principles, and processes. Concepts related to ethics and behavior change procedures will also be introduced. A-F only.

**DIS 678 Practicum in Applied Behavior Analysis (V)** Supervised field experience in applied behavior analysis. The format is a combination of fieldwork and seminar meetings. Repeatable four times or up to 15 credits. A-F only.

**DIS 681 Multicultural Issues in Disabilities (3)** Provide background and understanding of various Pacific Rim cultural issues in the conceptualization and treatment of individuals with disabilities and their families. A-F only.

**DIS 683 Interdisciplinary Disability and Diversity Issues (3)** Develop understanding of current issues faced by individuals with disabilities and their families within the disability paradigm and across cultures.

**DIS 684 Interdisciplinary Team Development (3)** Develop knowledge and skills to participate effectively on interdisciplinary teams for the common goal of promoting service integration and coordination of education, social, health, mental health, and other services with individuals with disabilities and their families. A-F only.

**DIS 685 Interdisciplinary Assessment (3)** Assessment methods and techniques to instructional research-based practices and supports across disciplines, cultures and PK-12 that address barriers to learning for all students with the context of the Comprehensive Student Support System (CSSS). A-F only.

**DIS 686 Advanced Interdisciplinary Assessment (3)** Assessment methods and techniques to instructional research-based practices and supports across disciplines, cultures and PK-12 that address barriers to learning for all students with the context of the Comprehensive Student Support System (CSSS). A-F only.

**DIS 687 Seminar on Disability Issues (3)** In-depth explorations of current and compelling interdisciplinary topics related to advancing the social, political, educational, and economic integration of individuals with disabilities of all ages. A-F only.

**DIS 688 Portfolio/Field Work (3)** Interdisciplinary community experience and portfolio in disability and diversity studies. Repeatable three times. A-F only.

**DIS 699 Directed Reading and/or Research (V)** Directed reading and/or research. Repeatable three times. A-F only. Pre: consent.

**DIS 780 Mixed Methods Research Design (3)** Mixed methods research is designed for PhD and masters students in education and social sciences considering combining qualitative and quantitative research. Covers philosophical and practical implications culminating in a mixed methods dissertation/thesis proposal. Repeatable one time. (Once a year) (Cross-listed as EDCS 780 and ETEC 780)

## East Asian Languages and Literatures (EALL)

*College of Languages, Linguistics and Literature*

*All students taking language courses in this department for the first time must take a regularly scheduled placement test in the appropriate language; those with no background must come to the department office for a brief interview. A grade of C or better in the prerequisite courses is required for continuation.*

**EALL 140 Introduction to Chinese Language and Culture (3)** Provides students with interesting per-

spectives on and some general knowledge of Chinese language, literature, and culture. **DH**

**EALL 271 Japanese Literature in Translation—Traditional (3)** Survey of all major forms from the earliest era to mid-19th century. **DL**

**EALL 272 Japanese Literature in Translation—Modern (3)** Survey from mid-19th century to present; emphasis on fiction. **DL**

**EALL 273 Survey of Japanese Literature—KIC (3)** Survey of traditional and modern Japanese literature in translation, covering all major genres. Only offered at Konan University in Japan. Not open to students with 271 or 272. **DL**

**EALL 281 Korean Literature in Translation—Traditional (3)** Survey of Korean literature from earliest times with emphasis on development and cultural context; all readings in English translation. Students write essays about the readings. **DL**

**EALL 282 Korean Literature in Translation—Modern (3)** Survey of 20th-century Korean literature with emphasis on development and cultural context; all readings in English translation. Students write essays about the readings. **DL**

**EALL 325 (Alpha) Japanese Film: Art and History (3)** Study and analysis of Japanese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. (B) 1900-1960; (C) 1960-present; (D) special topics. Pre: upper division standing or consent. (Cross-listed as ASAN 325) **DH**

**EALL 330 Chinese Film: Art and History (3)** Study and analysis of Chinese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. Pre: ASAN 201 and 202, or consent. (Cross-listed as ASAN 330) **DH**

**EALL 360 Literary Traditions of East Asia (3)** Selected works of Chinese, Japanese, and Korean literature in English; relationships and parallels. Pre: one DH or DL course, or consent. **DL**

**EALL 361 Chinese Literature: Ancient (3)** Survey of all major genres from antiquity until the ninth century. Pre: one DH or DL course, or consent. **DL**

**EALL 362 Chinese Literature: Pre-modern (3)** Survey of all major genres from the ninth into the 20th-century. Pre: one DH or DL course, or consent. **DL**

**EALL 363 (Alpha) 20th-Century Chinese Literature and Culture (3)** Survey of 20th-century Chinese literature in translation. Includes a variety of genres from the People's Republic of China, Taiwan, and Hong Kong; (B) 1919–1949; (C) 1949–present. Pre: one DH or DL course, or consent. **DL**

**EALL 364 20th-Century Chinese Women Writers (3)** A survey and critical examination of contemporary Chinese women writers from China, Taiwan, and Hong Kong. Traces a genealogy of women's writing from the early 1920s up until now through novels, poetry, drama, and film. Pre: one DH or DL course, or consent. (Cross-listed as ASAN 364 and WS 346) **DL**

**EALL 365 (Alpha) Traditional Chinese Fiction in Translation (3)** Survey of pre-modern Chinese fiction in translation. (B) short story; (C) novel. Pre: one DH or DL course, or consent. **DL**

**EALL 366 The City in Modern Chinese Literature and Visual Arts (3)** Study of the fictional and visual representations of the city in the changing contexts of Chinese modernization from the late imperial age to the beginning of the 21st century. Pre: one DH or DL course, or consent. (Once a year) **DH**

**EALL 371 (Alpha) Traditional Japanese Literature (3)** Reading and analysis of English translations of selected important works in the classical tradition. No knowledge of Japanese required: (B) prose fiction and literary miscellany; (C) drama and poetry. **DL**

**EALL 372 (Alpha) Modern Japanese Literature (3)** Reading and analysis of English translations of selected important works in modern Japanese literature. No knowledge of Japanese required: (B) fiction; (C) poetry, drama, and criticism. **DL**

**EALL 375 Topics in Japanese Cultural Studies (3)** Multi-disciplinary and historically located study of Japanese culture through the examination of literary and visual texts. Specific topics will depend upon the term. Repeatable one time with consent. Pre: one DH or DL course, or consent. (Alt. years)

**EALL 384 Modern Korean Women Writers and Culture (3)** Study of fiction by modern Korean women writers in the changing context of Korean culture. A-F only. Pre: sophomore standing or higher.

**EALL 472 East-West Cultural Encounters (3)** Critical examination of encounters between Western and East Asian cultures across time. In addition to literary texts, the course may use sources from other media, and focus on a specific era, region, or genre. Pre: an EALL course at 200 level or above; or a DH or DL course at 200 level or above; or consent. **DL**

**EALL 473 Chinese Diaspora and Visual Culture (3)** Examines films focusing on the social relationships and cultural practices of the Chinese diaspora, i.e. Chinese communities living outside China (e.g. Taiwan, Hong Kong, Southeast Asia, North America, and Europe). Weekly film discussions in class, readings on visual culture, media studies, and film criticism. Course material will also include theater productions, art exhibitions, and other visual material depending on availability. Pre: any 300- or 400-level DL or DH course. (Cross-listed as ASAN 473) **DH**

**EALL 474 Transnational Chinese Popular Culture (3)** Survey of contemporary Chinese popular entertainment forms that are produced and appreciated transnationally. Examples include martial arts genres, kung fu films, commercial novels, ballroom dancing, karaoke culture, music videos and rock music. Material will be selected based upon availability and readings will include critical essays from the fields of popular culture, media studies, and literary criticism. Pre: any 300- or 400-level DL or DH course. (Cross-listed as ASAN 474) **DH**

**EALL 476 Perspectives on Chinese Cinema (3)** Introduction to Chinese cinema studies, with emphasis on the theoretical and critical approaches to Chinese film. Pre: one DH or DL course, or consent. (Once a year)

**EALL 491 Senior Colloquium in East Asian Literature (3)** Comparative perspectives; some works studied in the original. Pre: third-level East Asian language. **DL**

**EALL 492 (Alpha) Study of East Asian Languages (V)** Less commonly taught languages of East Asia: (B) Manchu; (C) Mongolian. Recommended: previous experience in history, linguistics, or languages. Repeatable one time. Pre: consent.

**EALL 500 Master's Plan B/C Studies (1)**

**EALL 601 Current Issues in East Asian Language Pedagogy (3)** Survey on East Asian language pedagogy designed to develop students' familiarity with and facility in addressing the major issues, initiatives, and innovations in the field. Pre: graduate standing or consent.

**EALL 602 Introduction to East Asian Linguistics (3)** Introduction to cross-linguistic comparison of the writing systems, dialects, history, phonology, morphology, and syntax of Chinese, Japanese, and Korean. Pre: CHN 451 and 452, or JPN 451, or KOR 451 and 452; or consent. (Once a year)

**EALL 603 (Alpha) Bibliographical and Research Methods (3)** Traditional and modern references and other library materials basic to research in all areas of East Asian studies: (C) Chinese; (J) Japanese; (K) Korean. Pre: CHN 402 for (C); JPN 407 (alpha) for (J); KOR 402 for (K).

**EALL 611 20th Century Literary and Cultural Studies: Modernity and Revolution (3)** Critical scholarship in Chinese literature and cultural studies, broadly defined to include the People's Republic of China, Taiwan, Hong Kong, and others. Reading knowledge of Chinese desirable but not required.

Repeatable one time with consent. Pre: consent. (Cross-listed as ASAN 612)

**EALL 691 Introduction to Classical Tibetan (3)** Introduction to Classical Tibetan grammar and vocabulary with emphasis on the earliest Tibetan texts; reading and analysis of pre-classical, classical and postclassical texts.

**EALL 699 Directed Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

**EALL 700 Thesis Research (V)** Repeatable unlimited times.

**EALL 735 Seminar in Comparative East Asian Literature (3)** Comparison of authors, modes, topics, and genres in poetry and prose; theoretical and practical criticism. Pre: consent.

**EALL 750 Seminar in Comparison of East Asian Languages (3)** Comparison of lexicon, phonology, morphology, syntax, semantics, etc., of two or more East Asian languages, contact influence on them. Pre: CHN 451, CHN 452, or JPN 451; or consent.

**EALL 800 Dissertation Research (1)** Repeatable unlimited times.

## Economics (ECON)

### College of Social Sciences

*No more than 6 credit hours total for 120, 130, and 131. Students who major/minor in ECON are strongly urged to take the 130/131 sequence; 120 may substitute for either 130 or 131, but not for both. Students applying to Shidler College of Business must take the 130/131 sequence.*

**ECON 120 Introduction to Economics (3)** One-semester survey of the principles of microeconomics and macroeconomics to enable students in all disciplines to understand current economic events. **DS**

**ECON 130 Principles of Microeconomics (3)** Examination of the decision-making process of both households and firms. Analysis of the functioning of a competitive market system, using supply and demand models and the role of government in cases where the market system fails. Additional topics include the effects of international rate on the welfare of a nation and the effects of different competitive market structures on society. **DS**

**ECON 131 Principles of Macroeconomics (3)** An introduction to macroeconomics—the study of the overall economy. Topics include the determination of national income, causes and effects of inflation, unemployment, and income inequality; causes and consequences of international differences in economic growth; sources of business cycle expansions and contractions; role of government policy in stabilizing the economy and promoting long-term growth; financial markets and monetary policy; taxes, spending, consequences of budget deficits, determination of trade imbalances, exchange rate fluctuations, and balance of payment crises. **DS**

**ECON 300 Intermediate Macroeconomics (3)** Develops basic techniques and fundamental concepts used to study the overall macroeconomy and policies that affect it. Study the determinants of national income and long-run growth; causes and consequences of unemployment, inflation, and business cycle fluctuations; determination of foreign exchange rates and current account imbalances, and the role of government policy in various settings. Pre: 131 or consent. **DS**

**ECON 301 Intermediate Microeconomics (3)** Develops basic techniques and fundamental concepts of microeconomic theory. Learn to use economic reasoning to understand the social consequences of decisions made by individual consumers, producers, and governments. Analyze the nature of market outcomes under alternative market structures, and further discuss possible welfare-improving government policies when markets fail to be efficient. Special attention is paid to the analysis of strategic behavior and markets with public goods and externalities. Pre: 130 or consent. **DS**

**ECON 311 The Economy of Hawai'i (3)** History of development of Hawaiian economy; current economic problems. Pre: 120, 130, or 131; or consent. **DS**

**ECON 317 The Japanese Economy (3)** Analysis of Japan's growth past and present. Does Japan's economy look different in terms of its international trade structure, industrial structure, labor market, savings patterns, government policies, etc.? Does it matter? Pre: 120 or 130, or consent. **DS**

**ECON 320 Introduction to Tourism Economics (3)** Examines tourism from an economic perspective. Topics include: the determinants of consumer demand for leisure travel, structure of competition among suppliers of tourism services, benefits and costs of tourism development to the host community, government's role in the taxation, subsidy, regulation and protection of the tourism industry, tourism's impact on the environment, and sustainable tourism development. A-F only. Pre: 120 or 130 or 131; consent. (Cross-listed as TIM 320) **DS**

**ECON 321 Introduction to Statistics (3)** Basic elements; descriptive statistics, probability, inference, distributions, hypothesis testing, regression, and correlation analysis. **DS**

**ECON 332 Economics of Global Climate Change (3)** Nature and causes of global climate change and economic solutions. Topics include valuing climate change impacts, energy solutions, environmental implications, societal adaptation, and international cooperation. A-F only. Pre: 120 or 130 or 131, or consent. (Once a year) **DS**

**ECON 336 Energy Economics (3)** Analysis of economic and policy aspects of energy use, and interactions of markets for various nonrenewable and renewable energy options. Evaluations of policies to develop alternative energy sources. Pre: 120 or 130 or 131. **DS**

**ECON 340 Financial Markets and Institutions (3)** The determination of asset prices; the risk and term structure of interest rates; efficient markets hypothesis; risk management and financial derivatives, asymmetric information models of financial market structure, innovation, regulation and deregulation; and financial crises. Pre: 120, 130, or 131; or consent. **DS**

**ECON 341 Comparative Economic History (3)** Comparative historical study of economic ideas and change since around 1700. Considers the histories of capitalism, poverty, industrialization and labor in Europe, Asia, the U.S., and other regions. (Cross-listed as HIST 340) **DH**

**ECON 342 The History of Economic Thought (3)** Introduces major western economic theorists and ideas since around 1700. Considers the history of views on work, poverty, the market and government, and the relationship of those doctrines to society, philosophy, and public policy. Pre: 130, 131, or HIST 151, or HIST 152; or consent. (Alt. years) (Cross-listed as HIST 342)

**ECON 350 Sustainable Development (3)** Transdisciplinary introduction to sustainable development. Interactions between environment, economy, and public policy, especially in Hawai'i. Topics include: curse of paradise, global warming, energy use, health, poverty, population, water resources, traffic congestion, biodiversity, pollution controls. Pre: 120 or 130 or 131, or consent. (Once a year) **DS**

**ECON 355 Network Economics (3)** Fundamental questions about the connections in the social, economic, and technological worlds. Topics include: matching markets, traffic, financial and social networks; and the political and economic consequences of the internet and other large networks. Pre: 120 or 130 or 131. **DS**

**ECON 356 Games and Economic Behavior (3)** Introduces students to the study of strategic behavior with applications to economics, business, and public policy. Simple economic models of strategic decision making are used to analyze provision of public

goods; competition, cooperation, and coordination among firms; bargaining between employers and labor unions; international trade negotiations; reputation as a competitive advantage, and others. Pre: 120, 130, or 131; or consent. **DS**

**ECON 358 Environmental Economics (3)** Nature and causes of environmental degradation/economic solutions, with emphasis on relevant ethical issues and decision-making. Topics include air and water pollution, toxic waste, deforestation, soil erosion, biodiversity, global warming, and sustainable development. Pre: 120, 130, or 131; or consent. **DS**

**ECON 361 Seminar: Women and International Development (3)** Women's role, status, work and treatment in the Third World; economic development, changing work/family roles, and improvement/deterioration in gender equity across the Third World; global feminization of poverty; efforts to promote gender equity. Open to non-majors. Pre: a 100 level economics course or any women's studies course; or consent. (Cross-listed as WS 361) **DS**

**ECON 362 Trade Policy and Globalization (3)** Political economy of the world trading system. Case studies of trade cooperation and conflict under the World Trade Organization and other institutions. Future challenges, including investment policies, environmental and labor standards. Pre: 120, 130 or 131; or consent. **DS**

**ECON 390 Internship for Economics (V)** Economics majors and minors work at paid positions with public agencies, private companies, and campus organizations. Students combine academic work with practical experience. Repeatable two times. Pre: consent.

**ECON 391 Cooperative Education (V)** Economics majors and minors, under the supervision of faculty members, work at paid positions with public agencies, private companies, and campus organizations. The Econ Co-op integrates academics with practical work experience. Repeatable two times. Pre: consent.

**ECON 396 Contemporary Topics in Economics (3)** Economic analysis of current events. Topics announced each semester. Repeatable unlimited times. Pre: 120 or 130 or 131. **DS**

**ECON 399 Directed Reading (V)** Economics majors and minors participate in faculty supervised reading of economic literature. Enables students to self-study topics not covered in the department's scheduled course offerings. Repeatable one time. Pre: consent.

**ECON 409 The Ocean Economy (3)** Examination of society's interaction with the ocean. Topics include: ocean recreation, shipping, boat building, ports, offshore energy production, aquaculture, fishing, coastal construction, and coral reef protection. Pre: 120 or 130, or consent. (Once a year) **DS**

**ECON 412 Economic History of the United States (3)** U.S. economy from colonial times: government policies, institutions, industries, financial markets, economic growth, economic crises. Pre: 120, 130, or 131; or consent. **DS**

**ECON 414 Global Economic Crisis and Recovery (3)** Causes and consequences of financial and economic crises: crisis origins and global transmission; macroeconomic and regulatory policy responses; recovery challenges. Pre: 120, 130, or 131; or consent. **DS**

**ECON 415 Asian Economic Development (3)** History and economic development. Resources, population, and income, saving, investment, and consumption patterns. Role of government and private enterprise. Pre: 120, 130, or 131; or consent. **DS**

**ECON 416 The Chinese Economy (3)** The Chinese economy during the imperial and republican periods, under Mao, and into the present reform era, with a brief comparison to Taiwan and Hong Kong. Pre: 120, 130, or 131; or consent. **DS**

**ECON 418 Pacific Island Economies (3)** Historical and current economic development of the Pacific

islands (excluding Hawai'i). Analysis of selected economic issues such as tourism, population growth, etc. Pre: 120, 130, or 131; or consent. **DS**

**ECON 420 Mathematical Economics (3)**

Mathematical techniques applied to theories of the consumer, the firm, markets. Linear programming, input-output analysis. Pre: 300, 301; MATH 203, MATH 215, MATH 241, or MATH 251A. **DS**

**ECON 425 Introduction to Econometrics (3)**

Regression analysis, analysis of variance, hypothesis testing, problems in estimation of single equation models, simultaneous equation models, problems and methods of estimation. Pre: 321 or MATH 241 or BUS 310 or NREM 310 or (MATH 251A and NREM 203) or (MATH 371 and MATH 373) or (MATH 471 and MATH 472); or consent. **DS**

**ECON 427 Economic Forecasting (3)** Forecasting methods for business and economics with applications to the U.S., Asian, and Hawai'i economies. Topics include time series modeling of trend, seasonal, and cyclical components, multivariate regression modeling, and forecast evaluation. A-F only. Pre: 321 or BUS 310 or NREM 310 or (MATH 251A and NREM 203) or (MATH 371 and MATH 373) or (MATH 471 and MATH 472); or consent. **DS**

**ECON 429 Spreadsheet Modeling for Business and Economic Analysis (3)** Introduction to quantitative decision-making methods for effective agribusiness management in resource allocation, scheduling, logistics, risk analysis, inventory, and forecasting. Emphasis on problem identification, model formulation and solution, and interpretation and presentation of results. Pre: 130 or NREM 220, and 321 or NREM 310; or consent. (Once a year) (Cross-listed as NREM 429 and TPSS 429) **DS**

**ECON 430 Economics of Human Resources (3)** Economic analysis of labor market. Investment in human capital, education, health, migration, etc. Pre: 301 or consent. **DS**

**ECON 432 Economics of Population (3)** Determinants and consequences of growth and structure of human populations. Relationships between economic factors and fertility, population growth and economic growth. Pre: 301 (or concurrent). (Cross-listed as GHPS 432) **DS**

**ECON 434 Health Economics (3)** Private and public demand for health, health insurance, and medical care; efficient production and utilization of services; models of hospital and physician behavior; optimal public policy. Pre: 301 or consent. **DS**

**ECON 440 Monetary Theory and Policy (3)** Microfoundations and critical analysis of monetary and macroeconomic theory and policy. Topics include the causes and consequences of inflation, optimal monetary policy and international monetary systems, bank risk and insurance, and national debt and taxation. Pre: 300 or 301 or consent. **DS**

**ECON 442 Development Economics (3)** Characteristics of underdeveloped economies, theories of economic growth, strategies of economic development, and investment criteria. Pre: 300 and 301, or consent. **DS**

**ECON 450 Public Economics (3)** Welfare economics, public expenditure and policy evaluation, public finance by debt and taxes. Pre: 301. **DS**

**ECON 452 State and Local Finance (3)** Fiscal institutions, operations, and policy questions within state and local governments in U.S. grant programs and other links with central government. Pre: 301. **DS**

**ECON 458 Project Evaluation and Resource Management (3)** Principles of project evaluation and policy analysis. Shadow pricing, economic cost of taxes and tariffs; public policy for exhaustible, renewable, and environmental resources. Pre: 301. **DS**

**ECON 460 International Trade and Welfare (3)** Theory of international specialization and exchange; general equilibrium, tariffs, quotas, common markets. Pre: 301. **DS**

**ECON 461 International Macroeconomics (3)**

The determination of output, price levels, exchange rates and the balance of payments for economies that are integrated with the global economy; theory and application to historical and/or contemporary policy issues. Pre: 300. **DS**

**ECON 470 Industrial Organization (3)** Theoretical and empirical analysis of contemporary topics in industrial organization. Uses economic theory to analyze important issues facing firms, and examines the practical challenges of empirical applications of theory. Pre: 301. **DS**

**ECON 476 Law and Economics (3)** Legal issues of property rights, contracts, torts, and crime. Efficiency of U.S. legal process. Economics of law enforcement, juries, prosecutors; evolution of legal rules. Pre: 301. **DS**

**ECON 495 Land and Housing Economics (3)** Microeconomics explains urban land and housing phenomena, and analyzes selected land and housing issues relevant to Honolulu. Pre: 301 or consent. **DS**

**ECON 496 Contemporary Economic Issues (3)** Economic analysis of current events. Topics announced each semester, e.g., environmental pollution, crime control, racial discrimination, traffic congestion. Pre: 300 or 301 or consent. **DS**

**ECON 499 Advanced Directed Research (V)** Economics majors and minors conduct research, under faculty supervision, on a topic of their choice. Repeatable one time. A-F only. Pre: minimum GPA of 3.0 in economics and consent.

**ECON 500 Master's Plan B/C Studies (1)** Repeatable unlimited times.

**ECON 604 Microeconomics and Policy Analysis (3)** Theory of the consumer, firm, and market. Role of governments and analysis of public policy. Applications to both industrialized and developing countries. Pre: consent.

**ECON 606 Microeconomic Theory I (3)** Theory of the firm: production, costs, duality; theory of the market: competition, monopoly, oligopoly, monopolistic competition; theory of the consumer: preferences, expenditures, duality; expected utility theory.

**ECON 607 Macroeconomic Theory I (3)** Neoclassical theory of real and monetary equilibrium, economics of J. M. Keynes, standard IS/LM models and aggregate demand/supply analysis in the closed and open economy, theory of rational expectations.

**ECON 608 Microeconomic Theory II (3)** General equilibrium analysis: production, consumption and Walrasian equilibria; Pareto efficiency, fundamental theorems of welfare economics; externalities; public goods; game theory; information theory. Pre: 606 or consent.

**ECON 609 Macroeconomic Theory II (3)** Models of economic growth and fluctuations; stochastic and dynamic macroeconomic models; econometric testing of rational expectations models; theory of public debt; current topics in macroeconomic theory. Pre: 607 or consent.

**ECON 610 Economic Development (3)** Nature and causes of economic growth and structural change. Roles of macroeconomic policy and foreign trade. Pre: 606 and 607, or consent.

**ECON 611 Economic Development Policy (3)** Analysis of policies for the promotion of industrial and agricultural development. Project evaluation, industrial regulation, public administration, investment and capital market policies, land-use policies, trade policies, pricing, and stabilization. Pre: 604 or 606; or consent.

**ECON 614 Economic Development of Japan (3)** Analysis of growth from Meiji period to present. Problems of population change, capital formation, income distribution, industrial structure. Pre: 610 or consent.

**ECON 620 Microeconomic Theory III (3)** Game theory and strategic behavior. Economics of informa-

tion and incentives principal-agent theory. Economic design. Applications include: theory of contracts; incentive compatible mechanism for provision of public goods; auction theory. Pre: 608 or consent.

**ECON 627 Mathematics for Economics (3)** Sets, functions, limits, convexity, continuity; constrained and unconstrained optimization; difference and differential equations; matrix algebra; simultaneous equations; comparative statics; Kuhn-Tucker theory; game theory; mathematical programming. Pre: MATH 203, MATH 215, MATH 241, or MATH 251A.

**ECON 628 Econometrics I (3)** Review of probability, estimation, small sample and asymptotic properties. Bivariate and multiple regression and matrix algebra formulation. Regression diagnostics. Introduction to heteroskedasticity, autocorrelation, simultaneity, dichotomous variables, advanced topics. Pre: 321 or NREM 310, and MATH 241; or consent. (Cross-listed as AREC 626)

**ECON 629 Econometrics II (3)** Specification, statistical estimation, inference and forecasting of econometric models. Includes advanced topics for single-equation models, pooled models, qualitative dependent variables, simultaneous systems, distributed lags, and time series. Pre: 628, AREC 626, or consent. (Cross-listed as AREC 634)

**ECON 635 Disasters and Economic Policy (3)** Economic analysis of disasters. The economics of prevention and mitigation, as well as post-disaster economic consequences and policy, will be examined. Graduate students only.

**ECON 636 Renewable Energy Economics and Policy (3)** Analysis of economic and policy aspects of renewable energy use, and interactions of markets for renewable energy and other energy options. Evaluations of policies to develop renewable energy options. Pre: college calculus and principles of microeconomics; or consent.

**ECON 637 Resource Economics (3)** Analysis of problems of development and management of natural resources with emphasis on resources in agriculture and role in economic development. Pre: 608 and 629. (Cross-listed as NREM 637)

**ECON 638 Environmental Resource Economics (3)** Principles of policy design and evaluation for environmental resources management, forestry and watershed conservation, and sustainable economic development. Pre: 604 or 606; or consent.

**ECON 639 Marine Resource Economics (3)** Seminar on the economics of the marine environment. Topics include fisheries management, ocean recreation, shipping, and coral reef protection. Pre: 606 or consent. (Once a year)

**ECON 650 Foundations of Public Policy (3)** Microeconomic principles for expenditure and tax policies. Externalities, public goods, non-convexities, regulation; cost-benefit analysis, general equilibrium, shadow-pricing; rent-seeking, corruption; optimal taxation, incidence, excess burden; dynamic public finance, national debt, social security. Pre: 604 or 606; or consent.

**ECON 651 Public Economics (3)** Theoretical and empirical analysis of public-sector allocation. Adverse selection, moral hazard, networks, auctions, public choice and political mechanisms; tax and mandate incidence; economics of education and local public goods; social insurance programs. Pre: 606 or consent.

**ECON 660 International Trade and Welfare (3)** Classical and new theories of international trade: why nations trade, gains from trade, patterns of trade, and trade policy effects under perfect and imperfect competition. Empirical trade and other special topics. Pre: 606 or consent.

**ECON 662 International Macroeconomics (3)** Advanced international monetary and macroeconomic theory: balance of payments, output, price and exchange rate determination, international aspects of growth and economic fluctuations, alterna-

tive exchange rate regimes, international capital flows. Pre: 607 or consent.

**ECON 664 Applied International Finance (3)** Surveys empirical research in international macroeconomics, finance and econometric methods: including balance of payments adjustment, international equilibrium, international prices, interest rates and exchange rates, models of exchange rate determination, capital flows, balance of payments crises. Pre: 607 and 629 (or concurrent), or consent. (Fall only)

**ECON 670 Labor Economics I (3)** Supply of and demand for labor; implications for labor markets and unemployment level. Pre: 606 or consent.

**ECON 672 Economics of Population (3)** Economic determinants and consequences of population change. Pre: consent.

**ECON 674 Health Economics and Policy (3)** Economic analysis of health-care policy; efficient design of health-care financing schemes; private and public demand for health, health insurance, and medical care; provider behavior. Pre: 604 (or concurrent) or 606 (or concurrent), or consent.

**ECON 686 Strategic Behavior and Experimental Economics (3)** Experimental economics: methodology. Experimental game theory. Market experiments. Applications include: topics in industrial organization, provision of public goods, asset markets, auctions. Repeatable one time. Pre: 606 and 608, or consent.

**ECON 696 Advanced Topics in Economics (V)** Reflects interests of visiting and permanent faculty, focusing on specialized methods or topics in economics. Repeatable unlimited times. Pre: 606 or 607, or consent.

**ECON 699 Directed Research (V)** Repeatable unlimited times. Pre: consent of department chair.

**ECON 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**ECON 730 Research Seminar (3)** Selected issues emphasizing research techniques. Required for students who have passed the two theory qualifying exams and have not passed the comprehensive exam. CR/NC only. Pre: consent.

**ECON 732 MA Capstone Research (3)** Student applies theoretical and quantitative techniques, critical thinking, and communicative skills to prepare a written and oral presentation of original research on a topic of his or her choice. A-F only. Pre: 606, 607, 627, 628, and consent of graduate chair.

**ECON 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

## Education (EDUC)

### College of Education

**EDUC 616 Prevention of School Violence (3)** Examines cultural and societal factors contributing to and extent of violence in schools, and outlines schoolwide education for social and emotional literacy, conflict resolution, peer mediation, and appreciation of diversity for peaceable and inclusive schools and communities. A-F only. (Summer only)

**EDUC 617 HIV, STD, and Pregnancy Prevention (3)** Development of effective school-based HIV, STD, and unintended pregnancy prevention strategies, based on curriculum evaluation research and participant and student inquiries. Emphasis on serving as classroom models and mentors for other educators. A-F only. (Summer only)

**EDUC 710 Professional Doctorate Practicum: Consultancy Project (6)** Practicum in the EdD program in professional practice; involves a group consultancy project requiring independent research and reflective activity embedded in a group project dealing with a problem of practice. Repeatable one time. Restricted to students in the Doctoral Degree in Professional Educational Practice. A-F only. Pre: other approval.

**EDUC 720 Professional Doctorate Practicum: Individual Applied Research Project (6)** Practicum

in conducting individual practitioner research within the EdD. Includes the formulation of individual applied research project, developing a plan of action, selection of appropriate methods, implementation of plan and composition of practitioner research report. Repeatable three times. Restricted to students in the Doctoral Degree in Professional Educational Practice. A-F only.

**EDUC 730 EdD Conference (1)** Capstone for the Doctoral Degree in Professional Educational Practice. Involves a conference presentation of research project results to an audience of faculty, fellow graduate students, and interested members of the public. Restricted to students in the Doctoral Degree in Professional Educational Practice. CR/NC only. Pre: other approval.

**EDUC 740 Field Project (V)** Practicum experience in area of specialization. Variable credit: minimum of 3 credit hours, maximum of 6 credit hours. Repeatable two times. Pre: consent.

**EDUC 799 Internship in College Teaching (V)** Introduction to college-level teaching; doctoral students serve as apprentices to professors; responsibilities include supervised teaching, planning and evaluation. Repeatable up to six credits. CR/NC only. Pre: admission to PhD candidacy and consent.

**EDUC 800 Dissertation Research (V)** Research for doctoral dissertation.

## Educational Administration (EDEA)

### College of Education

**EDEA 360 Dynamics of Student Leadership (3)** Theoretical approaches and an experimental orientation toward leadership in student organizations via classroom activities and practicum experiences with student organizations.

**EDEA 370 Peer Leadership Education and Mentoring (3)** Theoretical explorations and a supervised practicum experience in student peer leadership education and mentoring in a variety of curricular and co-curricular contexts. Pre: 360 (or equivalent) and consent. (Summer only)

**EDEA 460 (Alpha) Topics in Emergent Paradigms of Leadership (3)** Exploration, application, analysis and synthesis of advanced leadership concepts including emergent theories, issues, trends and empowering approaches. (B) survey of emergent paradigms; (C) Asian Pacific American leadership; (D) gender and leadership; (E) ethics and leadership; (K) issues and problems in leadership. Repeatable one time per alpha. Pre: 360 (or equivalent) and consent.

**EDEA 499 Directed Reading (V)** Planned individualized study, reading, research, teaching, and/or projects under direct supervision of instructor. A-F only. Repeatable up to six credits. Pre: consent.

**EDEA 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**EDEA 601 Introduction to Education Administration (3)** Develops view of administrative process and organization elements in context of system of personal, social, and physical variables. Emphasis on role and functions of school administrator.

**EDEA 602 Research in Education Administration (3)** Develops basic concepts of research on educational administration: methodology, status of particular topics, communication, and application of findings to problems of school administration. (Meets PhD common core inquiry methods requirement.)

**EDEA 604 Qualitative Research Methods in Educational Organizations (3)** Introduction to methods of qualitative research in educational administration. (Meets PhD common core requirement.)

**EDEA 608 Survey Research Design and Analysis (3)** Survey study designs, survey sampling, questionnaire construction, interviewing, pre-tests, pilot studies, logic of measurement and association, table

construction, and elaboration models. Pre: consent. (Cross-listed as SOC 608)

**EDEA 610 School-Community Relations (3)** Application of principles, techniques, policies, organization of school-community information program.

**EDEA 620 Education Finance (3)** Educational revenues, apportionments, budgetary procedures, costs, business management, economics of education, measures of productivity.

**EDEA 623 Administration in Kinesiology (3)** Current problems, trends, and strategies in the administration of athletic training, physical education, recreation, sport and fitness programs in school and non-school settings. Repeatable one time. Pre: consent. (Cross-listed as KRS 623)

**EDEA 629 Educational Statistics (3)** Statistical inference including applications of parametric and nonparametric methods to educational problems.

**EDEA 630 Education Law (3)** Status and functions of educational institutions and personnel relative to their legal rights and responsibilities. Includes interpretation of important court decisions, statutes, equity measures.

**EDEA 642 Information Systems in Education (3)** Integration of information systems and computer technology in educational planning, policy analysis, decision-making, and program assessment. Pre: ETEC 442 and consent.

**EDEA 645 Principles of School Leadership (3)** Examine the emergent theories, issues, practices, and problems relevant for educational leaders in school organizations. Integrates the aspects of management and administration within the context of leadership.

**EDEA 646 American College Student (3)** Study of psycho-social characteristics of the American college student and college environment, from viewpoint of student personnel work. (Cross-listed as KRS 646)

**EDEA 650 Human Factors in Organization (3)** Analysis of the nature of organizations, human nature and needs, and their relationship to leadership, staffing, and staff development. Implications of group structure and human conflict, communications, and supervision and evaluation considered.

**EDEA 652 Conflict Management for Educators (3)** Conflict resolution theory and practice for administrators, faculty and staff in educational organizations. K-12, community colleges and universities. Application and theory of negotiation, mediation, facilitation and hybrid ADR processes. Pre: 601 or 650, or consent. (Cross-listed as PACE 652)

**EDEA 655 Intercultural Interactions (3)** Theory-based frameworks and training methods of intercultural interaction and their applications to educational administration situations.

**EDEA 657 Introduction to Higher Education (3)** Salient historic, social, and organizational aspects of higher education; history, philosophy, purposes, governance, administration, structures, financing, faculty and student selection, curricula, legal and social issues.

**EDEA 660 Management/Leadership in Higher Education (3)** Trends, research, and problems in college and university management. Pre: 657 or consent.

**EDEA 661 Student Affairs Administration in Higher Education (3)** Philosophy, history, organization, and administration of student personnel services at college and university levels, including admissions, housing, student activities, financial aids, placement, counseling, health services. Pre: 657 or consent.

**EDEA 662 Curriculum in Higher Education (3)** Traditional and contemporary curriculum issues. Development of performance competencies in curriculum design and evaluation using systems and design theory as central paradigms. Pre: 657 or consent.

**EDEA 663 Community College Leadership (3)** Development and changing missions of community

colleges; in-depth study of emerging leadership issues: planning, financial management, decision-making, governance, and student personnel. Pre: 660 or consent.

**EDEA 670 Teacher Development and Evaluation (3)** The role of teacher evaluation in the development of teachers and learning communities and to support effective teaching.

**EDEA 675 Introduction to Educational Policy Studies (3)** Examines theories and models of educational policy and policy-making and the contribution of policy analysis to the policy-making and change processes. A-F only. Pre: consent. (Cross-listed as EDEF 675)

**EDEA 676 The Politics of Education (3)** Examination of the ways in which education can be viewed as political, arising from its connection to the larger political system including local, state, and federal governments. A-F only. Pre: 675, EDEF 675; or consent. (Cross-listed as EDEF 676)

**EDEA 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable unlimited times. Pre: consent of instructor and department chair.

**EDEA 700 Thesis Research (V)** Research master's thesis. Repeatable unlimited times.

**EDEA 704 Advanced Qualitative Research (3)** Study in trends, research, and problems. Pre: 604 or comparable, or consent.

**EDEA 720 Administrative Internship (V)** Supervised intern experience in school and university administration. Emphasizes the development of leadership skills through program and project management. A-F only. Pre: approval of cooperating agencies and department.

**EDEA 745 Creative Learning Strategies for Adults (3)** Analysis of psychology of adult learner; forces that affect learning in dynamics of individual, group, and organizational behavior; concept of lifelong learning vis-a-vis development of creative strategies that assist maturing, self-directed persons to develop their potentialities. (Cross-listed as EDEP 745 and NURS 745)

**EDEA 767 Seminar on the Educational System (3)** Examination of structure and dynamics of the educational system. Particular focus on how educational policy interacts with principles that explain educational system behavior. A-F only. Pre: 675 or EDEF 675, or consent. (Cross-listed as EDEF 767)

**EDEA 775 Seminar on the Principals (3)** Series of planned seminar experiences on problems and issues confronting school principals, such as contract administration, program planning and budgeting systems (PPBS), teacher evaluation. Topic to be announced. Repeatable unlimited times.

**EDEA 780 (Alpha) Seminar (3)** Study in trends, research, and problems. (B) policy formulation; (C) organizational change; (D) evaluation and research management (meets PhD common required advanced methodology course); (F) curriculum administration; (G) school governance; (H) college student affairs administration; (I) higher education administration; (J) administrative theories; (K) administrative problems and issues. (K) is repeatable two times in different topics. EDEA majors only for (K). Pre: consent.

## Educational Foundations (EDEF)

### College of Education

*Current TB clearance is a requisite for all students taking courses requiring practicum experiences.*

*The minimum required grade for prerequisites for undergraduate-level courses is a grade of C or better. The minimum required grade for prerequisites for graduate-level courses is a grade of B or better.*

**EDEF 310 Education in American Society (3)** Interrelated historical, philosophical, and socio-cultural contexts of education with an emphasis on contemporary problems and applications. Students

enrolled in colleges other than the College of Education are asked to confer with the College of Education director of student services before enrolling in 310. A-F only. DS

**EDEF 360 Introduction to Multicultural Education (3)** Concepts and methods to develop sensitivity and awareness of cultural influences on behavior as these relate to the schooling process. (Cross-listed as ITE 360) DS

**EDEF 399 Directed Reading (V)** Individual reading or research. Pre: senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in education, and consent of instructor and department chair.

**EDEF 408 Community and Culture (3)** Theoretical and practical approaches to understanding the constitution of community life. A focus on the social construction of normative values, social dynamics of organizations, and school-community relations.

**EDEF 445 Sociology of Education (3)** Introduction to sociological frameworks of analysis of the institutional, cultural and social dynamics of schooling, classroom management, school reform, social group and individual role behavior. DS

**EDEF 453 Gender Issues in Education (3)** Examination of current and historical issues in education and how they are impacted upon by gender, with particular reference to gender as it intersects with ethnicity and class, locally and globally. Pre: WS 151 or consent. (Cross-listed as EDCS 453 and WS 453) DS

**EDEF 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**EDEF 610 Foundations of Educational Theory (3)** An in-depth review of social, philosophical, and historical views underlying various theories of education and their applications in teaching and learning.

**EDEF 630 Cultural Diversity and Education (3)** Examines issues, theories, perspectives and practices in multicultural education and promotes awareness, encourages knowledgeable reflection and develops skills necessary for multicultural practitioners. A-F only. (Cross-listed as EDCS 630)

**EDEF 649 Field Studies in Educational Foundations (V)** Field-based participant research projects, including analysis of educational problems and issues. Repeatable unlimited times.

**EDEF 651 History of Education in America (3)** History of educational thought and practice from European colonialism to revolutionary nationalism to the present.

**EDEF 652 History of Education in Hawai'i (3)** From pre-contact, ancient Hawai'i to the present. Social and intellectual influences on the development of national, local, and indigenous educational institutions; emphasis on multicultural as well as monocultural directions in Hawai'i's schools.

**EDEF 657 Introduction to Higher Education (3)** Salient historic, social, and organizational aspects of higher education; history, philosophy, purposes, governance, administration, structures, financing, faculty and student selection, curricula, legal and social issues.

**EDEF 660 Philosophy of Education (3)** Readings of the original texts of major philosophers impacting American education. Considerations about the conditions of knowing and their extension in everyday practices in education.

**EDEF 667 (Alpha) Seminar in Educational Foundations-Selected Topics (3)** Multi-disciplinary (historical, philosophical, social/cultural and comparative/international focus on topical issues in education. (B) general; (C) leadership and governance in education; (D) educational reform; (E) foundations of teaching; (F) foundations of curriculum; (G) globalization in education; (H) moral political education. Repeatable one time for (H). A-F only for (H). Pre: graduate standing and departmental approval.

**EDEF 669 Introduction to Comparative/International Education (3)** Introduction to basic methods of comparative studies, focusing on schooling, but also treating broader educational issues.

**EDEF 671 Topics in Comparative Education (3)** Educational institutions, structures, processes, policies, and problems viewed within the context of political, social, and cultural milieus. Geographic region or theme focus. Repeatable three times. Pre: consent.

**EDEF 675 Introduction to Educational Policy Studies (3)** Examines theories and models of educational policy and policy-making and the contribution of policy analysis to the policy-making and change processes. A-F only. Pre: consent. (Cross-listed as EDEA 675)

**EDEF 676 The Politics of Education (3)** Examination of the ways in which education can be viewed as political, arising from its connection to the larger political system including local, state, and federal governments. A-F only. Pre: 675, EDEA 675, or consent. (Cross-listed as EDEA 676)

**EDEF 678 Approaches to Educational Inquiry (3)** Overview of different research methods in educational inquiry with an opportunity to explore through practice one or more methods (ex: case study, interviewing, narrative construction, practitioner inquiry. Preparation for MED or PhD proposals.

**EDEF 680 Seminar on Race, Law, and Education (3)** Introduction to educational law and the way it relates to issues of race and ethnicity. Particular focus on how the U.S. courts have dealt with the question of educational inequality in a multiracial/multiethnic society. A-F only. Pre: graduate standing or consent.

**EDEF 683 Social and Cultural Contexts of Education (3)** Focuses on the interplay of class, race, gender and ethnicity in school and community settings. Social praxis, educational reform and policy are considered.

**EDEF 684 Education and World Order (3)** Focuses on the challenges educators face in identifying appropriate pedagogical frameworks and practices in global education that address the impact of globalization in our society today. A-F only. Pre: consent.

**EDEF 685 International Development Education (3)** Introduction to international development education in Asian and Pacific nations. Students explore links between education and development. Emphasis is on cross-cultural perception of development.

**EDEF 686 Environmental Education (3)** Focuses on the development of an ecological consciousness through a cultural and environmental approach to teaching and learning in schooling and everyday life.

**EDEF 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable unlimited times. Pre: consent of department chair.

**EDEF 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**EDEF 762 Seminar on the Social and Cultural Contexts of Education (3)** Examination of social, political, and cultural issues affecting educational policy with special emphasis on methods of inquiry and theoretical constructs. Pre: consent.

**EDEF 764 Advanced Seminar in Philosophy of Education (3)** Advanced studies in philosophical inquiry. Examination of philosophically based methods of analysis and interpretation and their influence in educational research and practice. Pre: consent.

**EDEF 766 Seminar in History of Education (3)** Aspects of the history of education. Application of historiography to educational problems and policy. Repeatable with different content. Pre: 651 or 652, or consent.

**EDEF 767 Seminar on the Educational System (3)** Examination of the structure and dynamics of educational system. Particular focus on how educational policy interacts with principles that explain educational system behavior. A-F only. Pre: 675 or EDEA 675, or consent. (Cross-listed as EDEA 767)

## Educational Psychology (EDEP)

### College of Education

#### EDEP 201 Introduction to Teaching as a Career

(3) An experience-based introduction to teaching as a career. Repeatable one time.

**EDEP 311 Psychological Foundations (3)** Principles of learning and individual differences; relationships of these factors to classroom experience. **DS**

**EDEP 327 Self-Regulated Learning (3)** Theory and use of self-regulated learning strategies in academic contexts.

**EDEP 399 Directed Reading (V)** Individual reading or research. Pre: consent.

**EDEP 408 Fundamentals of Research in Education (3)** Introduction to the methodology of systematic study of problems in education: principles of research design, data processing, technical writing, and evaluation of research proposals and reports. **DS**

**EDEP 411 Seminar in Contemporary Perspectives in Educational Psychology (3)** In-depth analysis of contemporary issues in education from the theoretical and methodological perspectives of the faculty in educational psychology. Repeatable one time. **DS**

**EDEP 416 Student Assessment (3)** Introduction to basic concepts and issues in assessment and measurement, descriptive statistics, scales of measurement, norms, reliability, validity and development of formative and summative assessment procedures.

**EDEP 429 Introductory Statistics (3)** Use of descriptive statistics in analyzing test scores; application of linear correlation and regression; introduction to an understanding of inferential statistics. **DS**

**EDEP 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**EDEP 601 Introduction to Quantitative Methods (3)** Introductory statistics in education and social sciences. Topics include probability distributions; sampling distributions; hypothesis testing using t-tests, correlation, simple regression, ANOVA; and applications in research. (Meets PhD common inquiry methods requirement or elective.)

**EDEP 603 Design and Analysis of Psychological Experiments (3)** Analysis of variance and other models of assessing results of experiments. Relation of analysis to design. (Cross-listed as PSY 611)

**EDEP 604 Applied Regression and Analysis of Variance (3)** Introduction to linear statistical models as principle of data analysis. Topics include multiple regression models with continuous and categorical predictors. ANOVA with multiple factors, ANOVA with repeated measures, and ANCOVA. Pre: 601 or PSY 610 or EDEA 629, (pre with a grade of B+ grade), or consent. (Cross-listed as PSY 612)

**EDEP 605 Structural Equation Modeling (3)** Theories and applications to test models with manifest and latent variables. Topics include path analysis, factor analysis, and latent variable analysis. Pre: 604, PSY 612, or consent. (Cross-listed as PSY 613)

**EDEP 606 Multivariate Methods (3)** Multivariate forms of multiple linear regression, analysis of variance and co-variance. Multiple discriminant analysis, canonical correlation, and principal-components analysis are discussed. (Cross-listed as PSY 614)

**EDEP 608 Introduction to Educational Research (3)** Fundamental design and evaluation procedures in educational research. Determining needs, defining objectives, research design, instrumentation, data collection, and evaluation. Course requires basic statistics. (Meets PhD common inquiry methods requirement or elective.)

**EDEP 611 Introduction to Educational Psychology (3)** Graduate level introduction to educational psychology theories, research, and topics.

**EDEP 612 Multilevel Modeling for Cross-Sectional and Longitudinal Data (3)** Theories and applications of multilevel model to analyze cross-sectional and longitudinal data in education and social sciences. Pre: 604 or PSY 612 (with a

minimum grade of B or higher), or consent. (Cross-listed as PSY 619)

**EDEP 616 Measurement in Education and Social Sciences (3)** Test theories and applications in education and social sciences. Topics include the true score model; reliability; generalizability theory; validity; item response theory; and applications in research. Class requires knowledge in ANOVA and regression. (Cross-listed as PSY 616)

**EDEP 618 Categorical Data Analysis (3)** Theories and methods for data analysis with categorical and discrete variables. Topics include contingency tables; logistic regression; log-linear models; and introduction to generalized linear models. (Cross-listed as PSY 618)

**EDEP 626 Advanced Psychometrics (3)** Theories and applications of modern psychometrics. Topics include unidimensional and multidimensional models of item response theory, detecting biased items, measurement invariance, scaling methods, and current issues in psychometrics. Pre: 616, PSY 616, or consent. (Cross-listed as PSY 617)

**EDEP 631 Adolescence and Education (3)** Discussion-based course presenting an overview of educational psychology applied to teaching adolescents, including theory and research on human learning, adolescent development and its social context, and student assessment.

**EDEP 657 Introduction to Program Evaluation (3)** Introduction to concepts and issues related to program evaluation. Topics include formative and summative uses, planning and design approaches, and metaevaluation processes. A-F only. Pre: 608 (or equivalent).

**EDEP 661 Development and Learning (3)** Analysis and critique of (Piagetian) developmental stage theory and traditional behavioristic and cognitive learning theories; introduction to current models of learning and development. Pre: consent.

**EDEP 662 Social Context of Learning (3)** Research methods and theories relating social mediation and learning group structures to intellectual growth.

**EDEP 663 Models of Cognitive Learning (3)** Cognitive models of knowledge acquisition, organization, and utilization; theory and research relating learning and cognition to interactive instructional models.

**EDEP 664 Instructional Psychology (3)** Application of learning theory and cognitive skills training in instructional settings.

**EDEP 665 Social Cognition and Competence (3)** Systematic analysis of social reasoning abilities conjunctive with or prerequisite to effective social interaction in educational settings.

**EDEP 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable ten times. Pre: consent.

**EDEP 700 Thesis Research (V)** Research for master's thesis. Repeatable seven times.

**EDEP 708 Educational Research Methods (3)** Research techniques and thesis development.

**EDEP 711 Practicum in Educational Psychology (V)** Supervised practicum in teaching or program evaluation as each is reflected by professional activities of the members of the faculty. Repeatable six times. Pre: consent of supervisory professor.

**EDEP 745 Creative Learning Strategies for Adults (3)** Analysis of psychology of adult learner; forces that affect learning in dynamics of individual, group, and organizational behavior; concept of lifelong learning vis-à-vis development of creative strategies that assist maturing, self-directed persons to develop their potentialities. (Cross-listed as EDEA 745 and NURS 745)

**EDEP 768 (Alpha) Seminar in Educational Psychology (3)** Current issues and problems in the context of education: (B) general; (C) learning; (D) measurement; (E) statistics; (F) psycho-social development; (G) educational evaluation; (H) research

methodology. Repeatable nine times. Pre: consent. Seminar may be repeated for credit as topics vary.

**EDEP 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

## Educational Technology (ETEC)

### College of Education

**ETEC 112 Technology Resources for Learning (3)** Virtual and hands-on analysis of technology resources and utilization in learning.

**ETEC 414 Educational Media Technology (3)** Introduction to educational technology theory and practice with an emphasis on meaningful integration of technology and media into a variety of face-to-face and online learning environments for diverse populations. Pre: upper division standing.

**ETEC 415 Technology for Teachers (3)** Introduction to the application of educational technology in teaching and learning using strategies in design, selection, development, integration, and evaluation. Interactive delivery via distance education technologies. A-F only. Pre: basic teaching certification.

**ETEC 430 Video Technology (3)** Overview of video uses in educational contexts. Includes video planning, production, and simple editing procedures, as well as selection, evaluation, and integration into learning plans. Pre: upper division standing.

**ETEC 442 Computers in Education (3)** Planning and implementation of computer systems and applications for effective integration into classroom settings. Emphasis is on methods and strategies for using digital technologies to enhance standards-based learning by K-12 students. Pre: upper division standing.

**ETEC 448 Links to Lifelong Learning (3)** Focused exploration of the internet and its application to effective teaching/learning, including finding, evaluating, using, creating information on the web; culminating project involves designing, creating, and publishing a website. Integration with copyright law and standards. Repeatable one time. Pre: upper division standing (junior+) and consent.

**ETEC 499 Directed Activity (V)** Individual work, supervised by instructor. May consist of reading, research, and/or projects. Repeatable two times. Pre: consent.

**ETEC 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B candidate and consent. Repeatable nine times.

**ETEC 501 Professional Development in Educational Technology: Technology Skills for Educators (1)** Exploring technology resources needed for distance learning and classroom integration. Repeatable two times.

**ETEC 502 PDET: Technology Skills for Educators (2)** Exploring technology resources needed for integration into classroom instruction. Repeatable one time. CR/NC only.

**ETEC 511 Professional Development Education Technology I (3)** Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

**ETEC 512 Professional Development Education Technology II (3)** Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

**ETEC 513 Professional Development Education Technology III (3)** Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

**ETEC 514 Professional Development Education Technology IV (3)** Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

**ETEC 600 Theory and Practice in Educational Technology (3)** The profession of educational technology and the role of instructional designers. Theoretical and philosophical foundations underlying practice that include instructional systems theory, needs assessment, change theory, and relevant learning models. Practical applications of these theories to solve instructional problems in real-life settings. A-F only. Pre: ETEC major or consent.

**ETEC 602 Innovations in Educational Technology (3)** Innovative technological advances and new media in the field of educational technology and their application in instruction. A-F only. Pre: ETEC major or consent.

**ETEC 611 Educational Technology Research and Evaluation (3)** Review of existing research in media/ed technology, with activities leading to the preparation of final study or project proposal. Repeatable one time. ETEC majors only or consent. A-F only.

**ETEC 612 Introduction to E-learning (3)** Introduction to principles of e-learning and their application in formal and informal instructional settings. ETEC majors only or consent. A-F only.

**ETEC 613 Instructional Design and Development (3)** Basic concepts and techniques of instructional design and development, for application to solving instructional problems in real-life situations. A-F only. Pre: ETEC major or consent.

**ETEC 620 Visual Design (3)** Theory and practice involved in planning educational/instructional graphic and photographic material for print and computer-based media. ETEC majors only or consent.

**ETEC 622 E-learning Theory and Design (3)** Principles of e-learning theory as well as design and development for instruction. Application to new media and web authoring. Repeatable one time. Pre: ETEC majors or consent. A-F only.

**ETEC 623 Digital Video Design (3)** Development and utilization of digital video for the purpose of improving the teaching-learning process. A-F only. Pre: ETEC major or consent.

**ETEC 632 Developing E-learning Environments (3)** Planning, design, and development of e-learning instruction for educational and training settings. Implementation of online course elements such as student interaction, course management, testing, and content delivery using a learning management environments and open courseware. Repeatable one time. ETEC majors only or consent. A-F only. Pre: 673 or consent.

**ETEC 641 Emerging Technologies for K-12 Teaching (3)** Exploration and impact of emerging technologies in K-12 classroom teaching and learning and ramifications of these technologies on administrative structure of schools. A-F only. ETEC majors only or consent.

**ETEC 642 Facilitating E-learning Communities (3)** Exploration of tools and design considerations for effective online communication and development of learning communities. Pre: ETEC major or consent.

**ETEC 643 Educational Technology in Informal Learning Environments (3)** Exploring the nature, application, and use of educational technology in informal learning environments, such as museums, cultural institutions, tourist attractions, and visitor information centers. Focusing on the analysis, selection, and development of various media choices. Pre: ETEC major or consent.

**ETEC 647 Learning with Emerging Technologies (3)** Exploration and evaluation of new tools and strategies for teaching and learning. (B) mobile learning; (C) free/open software; (D) games in education; (E) critical trends. Repeatable one time per alpha. A-F only. Pre: ETEC major or consent. (Fall only for (B) and (D)) (Spring only for (C) and (E))

**ETEC 651 Interactive Multimedia Production (3)** The utilization and application of advanced authoring tools, combining video, animation, graphics, and sound to develop student-centered learning. Primar-

ily for advanced ETEC students. ETEC majors only or consent.

**ETEC 652 (Alpha) Authoring E-learning Environments (3)** Conceptualization of instructional design and its application to the development for e-learning environments: (B) assisted instruction (CAI); (C) managed instruction; (D) virtual reality; (E) animation. Repeatable two times. ETEC majors only or consent. A-F only.

**ETEC 654 Programming for Games and Simulations (3)** Project-based exploration of the breadth of programming in the context of educational games and simulations. Pre: ETEC major or consent.

**ETEC 662 Assessment and Evaluation in E-learning (3)** Evaluation and assessment processes, sources, and instruments applicable to systematic appraisal of e-learning. Repeatable one time. A-F only. Pre: ETEC major or consent.

**ETEC 667 Qualitative Research in Educational Technology (3)** Introduction to qualitative research traditions and designs. Emphasis will be on the use of digital technologies in data collection and analysis. Repeatable one time. ETEC majors only or consent. A-F only. (Once a year)

**ETEC 668 Quantitative Research in Educational Technology (3)** Application of methodological and statistical concepts in a projects-based classroom framework. Formative and summative evaluation, measurements, descriptive, and inferential statistics. ETEC majors only or consent. A-F only.

**ETEC 672 Distance Education Technology (3)** Technical and instructional considerations for developing, delivering, managing, and evaluating distance education including voice, video, print, hypermedia and data transmissions. Pre: ETEC major or consent.

**ETEC 673 Planning for Technology and Resources (3)** Planning, needs assessment, and change theory applied to the development and evaluation of long-range plans and the communication of a vision for technology in education. ETEC majors only or consent.

**ETEC 674 (Alpha) Instructional Technology Management (3)** Applying theory of management in instructional technology support services and delivery systems. (B) management; (C) systems; (D) networks. Pre: ETEC major or consent.

**ETEC 676 Social and Ethical Issues in Educational Technology (3)** Examination of social and ethical issues as they relate to technology in instructional settings. Focus on social justice and societal impact. A-F only. Pre: ETEC major or consent.

**ETEC 686 Information Literacy and Learning Resources (3)** Study of information literacy models. Integration of information literacy with K-12 curriculum units and lessons. Evaluation of print and multimedia resources to meet student and curricular needs. Required for Librarian HDOE licensure. Pre: ETEC major or consent. (Cross-listed as EDCS 686 and LIS 686)

**ETEC 687 Instructional Design and Technology Practicum (3)** Practicum in instructional design, development, and technology in academic and non-academic settings, under close supervision, plus regular class meetings in seminar format. Repeatable three times. ETEC majors only or consent. A-F only.

**ETEC 689 ETEC Training and Evaluation Practicum (3)** Practicum in educational technology training and evaluation in formal and informal settings, under close supervision, plus class meetings in hybrid format. Repeatable unlimited times. ETEC majors only or consent. A-F only. Pre: instructor consent.

**ETEC 690 Seminar in Technology Leadership (3)** Supervised activity in application of technology to teaching/training experiences. Repeatable three times. ETEC majors only and consent. A-F only.

**ETEC 692 Practicum in E-learning (3)** Practicum in e-learning in academic or non-academic settings, under close supervision, plus regular class meet-

ings. Repeatable three times. ETEC majors only or consent. A-F only.

**ETEC 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable for 3 credit hours maximum each time. Pre: ETEC major or consent.

**ETEC 700 Thesis Research (V)** Research for master's thesis. Repeatable nine times.

**ETEC 705 Special Topics in Educational Technology (3)** Issues of topical interest in educational technology. Concentrates on a topic of current interest, including the new technologies for learning and teaching, and innovative strategies for design and delivery of instruction. Repeatable unlimited times. ETEC majors only. A-F only.

**ETEC 750 (Alpha) Seminar in Educational Technology Issues (3)** Study and discussion of significant topics and problems. (B) instructional development; (C) online communities; (D) the future; (E) research. Repeatable five times. A-F only. Pre: consent.

**ETEC 760 Seminar in Educational Technology Theory (3)** Doctoral level seminar for advanced students examining the theoretical foundations of research in the learning sciences and technology. Repeatable three times. A-F only. Pre: consent. (Once a year)

**ETEC 780 Mixed Methods Research Design (3)** Mixed methods research is designed for PhD and masters students in education and social sciences considering combining qualitative and quantitative research. Covers philosophical and practical implications culminating in a mixed methods dissertation/thesis proposal. Repeatable one time. (Once a year) (Cross-listed as EDCS 780 and DIS 780)

**ETEC 781 Technology in Qualitative Analysis (3)** Advanced research methods focused on management and analysis of qualitative data using technology. Reviews of different qualitative data types, analytical methods, and software. Includes independent research project. Repeatable one time. ETEC majors only. A-F only. Pre: 667 or graduate level qualitative research course. (Summer only)

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## Electrical Engineering (EE)

### College of Engineering

*Preference in registration is given to declared engineering majors. Enrollment in EE courses requires a grade of C- or better in all prerequisite courses. Please consult the current Schedule of Courses for confirmed offerings each semester.*

**EE 101 Electrical Engineering Skills (3)** Electrical engineering subjects in a skill acquisition context at the freshman level. Learning, creative problem solving, brainstorming, technical information assimilation, and presentation skills development. Repeatable two times. DP

**EE 110 Introduction to Engineering Computation (3)** Engineering problem solving using MATLAB. Basic programming concepts include input/output, branching, looping, functions, file input/output, and data structures such as arrays and structures. Matrix operations for solving linear equations. Engineering computations and visualization. EE and CENG majors only. A-F only. Pre: MATH 241 (or concurrent) or MATH 251A (or concurrent) or consent.

**EE 160 Programming for Engineers (4)** (3 Lec, 1 3-hr Lab) Introductory course on computer programming and modern computing environments in C with an emphasis on algorithm and program design, implementation, and debugging. Includes a hands-on laboratory to develop and practice programming skills. A-F only. Pre: MATH 241 (or concurrent) or MATH 251A (or concurrent) or consent.

**EE 196 Freshmen Project (V)** Freshman level individual or team project under EE faculty direction and guidance. This project provides early student entry into EE hands-on project activity providing practical skills, EE subject exposure and experience.

Second semester freshman standing required. Repeatable unlimited times. Pre: consent.

**EE 205 Object Oriented Programming (3)**

Second-level programming for computer engineers. Object-oriented programming paradigm, definition and use of classes, fundamentals of object-oriented design in modern object-oriented languages such as C++. Common data structures, simple searching and sorting techniques. CEE, EE, ME, PREN majors only. A-F only. Pre: 160 or consent. (Once a year)

**EE 211 Basic Circuit Analysis I (4)** (3 Lec, 1 3-hr Lab) Linear passive circuits, time domain analysis, transient and steady-state responses, phasors, impedance and admittance; power and energy, frequency responses, resonance. Pre: MATH 243 (or concurrent) or MATH 252A (or concurrent), and PHYS 272 (or concurrent); or consent. DP

**EE 213 Basic Circuit Analysis II (4)** (3 Lec, 1 3-hr Lab) Laplace transforms and their application to circuits, Fourier transforms and their applications to circuits, frequency selective circuits, introduction to and design of active filters, convolution, and state space analysis of circuits. A-F only. Pre: 211, and MATH 244 (or concurrent) or MATH 253A (or concurrent); or consent. DP

**EE 260 Introduction to Digital Design (4)** (3 Lec, 1 3-hr Lab) Introduction to the design of digital systems with an emphasis on design methods and the implementation and use of fundamental digital components. Pre: 160 or consent.

**EE 296 Sophomore Project (V)** Sophomore level individual or team project under EE faculty direction and guidance. The project provides design experience and develops practical skills. Repeatable unlimited times. Pre: sophomore standing or consent.

**EE 315 Signal and Systems Analysis (3)** Discrete-time and continuous time signals and systems, linear systems, convolution, Fourier series, Fourier transform, sampling. Pre: 213 and either MATH 244 or MATH 253A; or consent.

**EE 323 Microelectronic Circuits I (3)** Semiconductor structures, operating principles and characteristics of diodes and amplifying devices. Their application as circuit elements in building basic digital, analog, and integrated circuit subsystems. Pre: 213. DP

**EE 323L Microelectronic Circuits I Lab (1)** (1 3-hr Lab) Experiments on linear and logic properties of diodes and transistor networks. Pre: 213. Co-requisite: 323. DY

**EE 324 Physical Electronics (3)** Review of quantum mechanics fundamentals, H-atom, and chemical bonding. Introduction to band structure models and materials. Semiconductor doping, charge carrier statistics and charge transport, including ambipolar transport. Metal-semiconductor and PN junctions. Pre: MATH 243 or MATH 253A, and PHYS 274; or consent. DP

**EE 326 Microelectronic Circuits II (3)** Principles and design of linear electronic circuits including differential, operational, feedback, and tuned amplifiers; integrated circuits, current mirrors, signal generators, filters, and stability. Pre: 323. DP

**EE 326L Microelectronic Circuits II Lab (1)** (1 3-hr Lab) Laboratory for 326, experiments on linear and analog electronics. Pre: 323L. Co-requisite: 326. DY

**EE 327 Theory and Design of IC Devices (3)** Band structure models and carrier transport physics review. Theory and design of semiconductor IC devices: Schottky diodes, bipolar devices (PN junction diodes, BJTs), FETs (MOSFETs, JFETs, and MESFETs). Pre: 324 and either MATH 243 or MATH 253A; or consent. DP

**EE 328 Microcircuit Fabrication (3)** Technology principles, materials, and methods for the design and fabrication of semiconductor devices, integrated circuits, and microelectromechanical systems. Pre: 327 or consent. Co-requisite: 328L. DP

**EE 328L Microcircuit Fabrication Lab (1)** (1 3-hr Lab) Hands-on laboratory where students make vari-

ous electronic and electromechanical micro-devices using IC technology. Devices are also tested and analyzed. Pre: 324 or consent. Co-requisite: 328. DY

**EE 342 Probability and Statistics (3)** Probability, statistics, random variables, distributions, densities, expectations, limit theorems, and applications to electrical engineering. Pre: 315 (or concurrent) and either MATH 244 or MATH 253A; or consent.

**EE 343 Introduction to Communication Systems (3)** Signal representation, Fourier analysis; amplitude and angle modulated systems; sampling theorems, pulse and digital modulation systems; carrier modulation by digital signals. Pre: 342 (or concurrent) and 315.

**EE 343L Communication Systems Lab (1)** (1 3-hr Lab) Experiments illustrating the basic principles of communication systems. Pre: 315. Co-requisite: 343.

**EE 344 Networking I (4)** (3 Lec, 1 3-hr Lab) Covers 4 semesters from the Cisco Networking Academy plus supplementary material; hands-on experience with routers and switches; prepares students for the CCNA. Topics include TCP/IP, LANs, WANs, routing protocols, network security; PPP; ISDN, frame relay. A-F only. Pre: 160 or consent.

**EE 351 Feedback-Control Systems (3)** Analysis/design of feedback systems. Compensator design via root locus and Bode analysis. Routh/Nyquist stability. State space representation and introduction to MIMO formulation. Controllability/observability. Application to physical dynamic systems such as industrial robots. Pre: 315 or ME 375 or consent. DP

**EE 351L Linear Feedback-Control Systems Lab (1)** (1 3-hr Lab) Provides experience in applying theoretical tools to analyze linear systems. Extensive use is made of computer-aided analysis and design packages study system performance. Pre: 315. Co-requisite: 351.

**EE 361 Digital Systems and Computer Design (3)** Design methodology, processor design, control design, memory organization, system organization. Pre: 160 and 260, or consent.

**EE 361L Digital Systems and Computer Design Lab (1)** (1 3-hr Lab) Laboratory for 361, experiments on digital systems and interfacing. Co-requisite: 361.

**EE 366 CMOS VLSI Design (4)** (3 Lec, 1 3-hr Lab) Introduction to the design of very large scale integrated (VLSI) systems and use of CAD tools and design languages. Lab includes hands-on use of CAD tools and experiments with field programmable logic devices. Pre: 260.

**EE 367 Computer Data Structures and Algorithms (3)** Introduction to computer programming algorithms with emphasis on advanced data structures, input-output routines, files, and interpreters. Pre: 205 (with a minimum grade of C-) and ICS 141.

**EE 367L Computer Data Structures and Algorithms Lab (1)** (1 3-hr Lab) Laboratory for 367. Pre: 367 (or concurrent).

**EE 371 Engineering Electromagnetics I (3)** Transient and steady-state waves on transmission lines. Plane wave solutions of Maxwell's equations. Application of Maxwell's equations under static and time-varying conditions. Pre: 213.

**EE 372 Engineering Electromagnetics II (3)** Solution of Maxwell's equations under various boundary conditions. Introduction to radiation, guided waves, and principles of optics. Pre: 371 and PHYS 274 (or concurrent); or consent.

**EE 372L Engineering Electromagnetics Lab (1)** (1 3-hr Lab) Experiments illustrating the basic principles of electromagnetics and optics. Pre: 371 and PHYS 274 (or concurrent), or consent. Co-requisite: 372.

**EE 396 Junior Project (V)** Junior level individual or team project under EE faculty direction and guidance. The project provides design experience and develops practical skills. It may be a continuation

of EE 296 or a new project. Repeatable unlimited times. Pre: 296 and junior standing or consent.

**EE 406 Introduction to Computer and Network Security (3)** Review basic network mechanisms, introduce basic cryptography concepts, and study algorithms and protocols used in computer and network security. Discuss practical security mechanisms. A-F only. (Once a year)

**EE 415 Digital Signal Processing (4)** (3 Lec, 1 3-hr Lab) Discrete-time signals and systems, sampling, Z-transform, transform, transform analysis of linear time-invariant systems, filter design, discrete Fourier transform, and computation of discrete Fourier transform. Repeatable one time. Pre: 315 and 342 (or concurrent), or consent.

**EE 416 Introduction to Digital Image Processing (3)** Digital image representation, intensity transformations, spatial filtering, filtering in the frequency domain, image restoration, color spaces and transformations, the fast wavelet transform, image compression. Pre: 315 (or equivalent) or consent.

**EE 417 Introduction to Optimization (3)** Application of linear, nonlinear and integer optimization models and algorithms to communications, control, signal processing, computer networking, financial engineering, manufacturing, production and distribution systems. CE, EE, ME, or CBA majors only. Pre: MATH 307 or consent. (Alt. years)

**EE 422 Electronic Instrumentation (3)** Electronic circuits for interfacing with transducers, signal processing, and data acquisition. Amplifiers for measurement and control. Operational amplifiers in linear, nonlinear, and digital applications. Design project. Basic transducers. Pre: 326, 326L, and 371; or consent. DP

**EE 422L Instrumentation Lab (1)** (1 3-hr Lab) Laboratory for 422. Co-requisite: 422. DY

**EE 423 Computer-Aided Analysis and Design (3)** Algorithms and techniques used in computer-aided analysis and design of electronic circuits. Circuit simulation with interactive computers. Pre: 326 or consent.

**EE 425 Electronic Instrumentation II (3)** Instrumentation systems and circuits for measurement, control, signal processing, transmission, and detection. Noise and interference, ADC/DAC, modulation demodulation, high-frequency and high-speed techniques, IC applications. Pre: 422 and 422L, or consent. DP

**EE 426 Advanced Si IC and Solid State Devices (3)** State of the art Si-based devices including advanced bipolar and MOS devices, heterojunction devices, new device trends. Topics from the most current literature included. Pre: 327 and either MATH 243 or MATH 253A, or consent. DP

**EE 427 Computer-Aided Circuit Design (3)** Application of the computer to the analysis, design, simulation, and construction of analog and digital circuits. Pre: 326 and 326L, or consent. DP

**EE 435 Electric Power Systems (3)** Design/operation of "the grid." History of electric power systems, three-phase power, real and reactive power, transformers, transmission, distribution, circuit analysis, protection, load flow, load frequency control, optimal power flow, and renewable energy integration. Pre: MATH 243 (or concurrent) or MATH 253A (or concurrent). (Fall only)

**EE 438 Renewable Energy (3)** Fundamentals of power, electric power grid and conventional electricity generation. Wind and solar power systems. Photovoltaic materials and systems. Distributed generation and energy storage. ENG majors only. Junior standing or higher. A-F only. Pre: 213 or consent. (Spring only) DP

**EE 442 Digital Communications (3)** Baseband transmission, intersymbol interference and pulse shaping, partial response signaling, equalization, bandpass modulation and demodulation, channel coding, synchronization, multiplexing and multiple access, spread spectrum techniques. Pre: 342 and 343, or consent.

**EE 446 Information Theory and Coding (3)**

Models of communication systems. Channel noise, measurement, and coding of information. Intrinsic limits of performance of communication systems. Pre: 342 and 343, or consent.

**EE 449 Computer Communication Networks (3)**

ISO Reference Model. Physical Layer, Data Link Layer, Network Layer and Transport Layer protocols. Wired and wireless local-area networks. Structure and operation of the Internet including routing, congestion control and flow control. Pre: 315 and one of 342, or MATH 371 or MATH 471; or consent.

**EE 452 Digital Control Systems (3)** Sampling/reconstruction, Z-transform, DT transfer function. Reachability/observability. State and output feedback, observer design, input-output models, diophantine equations. Implementation procedures. Pre: 315 and 351, or consent.

**EE 453 Modern Control Theory (3)** Analysis and synthesis of nonlinear control systems by means of Lagrange's equation, state space techniques, maximum principle. Lyapunov's theorems, the phase plane, and Z-transform techniques. Optimization and adaptation by means of gradient methods, calculus of variations, dynamic programming. Pre: 351.

**EE 455 Design of Intelligent Robots (3)** Study of the design principles of computer-controlled, intelligent robots such as roving vehicles, hand-eye systems. Pre: 351 and 367. DP

**EE 461 Computer Architecture (3)** Structure of stored program machines, data flow machines, pipelining, fault-tolerant computing, instruction set design, effects of compilation on architecture, RISC vs. CISC architecture, uses of parallelism. Pre: 361.

**EE 467 Object-oriented Software Engineering (3)** Introduction to advanced techniques for designing, implementing, and testing computer software with a particular focus on using object-oriented design, analysis, and programming to produce high-quality computer programs that solve non-trivial problems. Pre: 367 or consent.

**EE 468 Introduction to Operating Systems (3)**

Computer system organization; multiprocessor systems, memory hierarchies, assemblers, compilers, operating systems, virtual machine, memory management, processor management; information management. Pre: 361 (or concurrent) and 367 or consent.

**EE 469 Wireless Data Networks (3)** Mobile agent's platforms and systems, mobile agent-based service implementation, middleware, and configuration, wireless local area networks, wireless protocols, network architecture supporting wireless applications, routing protocols in mobile and wireless networks, handoff in mobile and wireless networks. Pre: 344 and 367, or consent.

**EE 470 Physical Optics (3)** Fundamentals of classical physical optics emphasizing linear systems theory, including optical fields in matter, polarization phenomena, temporal coherence, interference and diffraction (Fourier optics). Specialized applications include Gaussian beams, laser resonators, pulse propagation, and nonlinear optics. Pre: 372 (or concurrent with a minimum grade of C-) or PHYS 450 (or concurrent with a minimum grade of C), or consent. (Cross-listed as PHYS 460) DP

**EE 471 Computational Techniques in Electromagnetics (3)** Introduction to computational methods used to simulate/solve engineering design problems focusing on electromagnetics. Finite difference, method of moments, and finite elements methods will be described; students will write computer programs in each. A-F only. BE, EE, ENGR majors only. Pre: 371 or consent. (Spring only)

**EE 473 Microwave Engineering (3)** Passive and active microwave devices and circuits for RF and wireless applications. Scattering parameters, signal-flow graphs, and computer-aided design. Pre: 371. DP

**EE 474 Antennas (3)** Electromagnetic wave propagation in free space and ionized media. Geomagnetic and solar effects on the ionosphere. Absorption and

dispersion. Antenna arrays, apertures, horns, impedance. Design of antenna systems. Pre: 371. DP

**EE 475 Optical Communications (3)** Principles and applications of optical fibers and waveguides. Fundamentals of optical communication systems (optical links, high-speed systems, wavelength-division-multiplexing networks, and network elements) and optical components (guided-wave circuits, lasers, detectors, and optical amplifiers). System and network integration issues. A-F only. Pre: 341 (or concurrent) and 372, or consent. DP

**EE 477 Fundamentals of Radar, Sonar, and Navigation Systems (3)** Discussion of basic radar detection and position- and velocity-measurement principles. Applications to various types of radar and sonar systems. Modern navigation aids. Pre: 371 (or equivalent), and familiarity with waveguides or waveguide theory. DP

**EE 480 Introduction to Biomedical and Clinical Engineering (3)** Application of engineering principles and technology to biological and medical problems. Introduction to human anatomy, physiology, medical terminology, clinical measurements. Systems modeling, physiological control systems, computer applications, health-related problems. Pre: 213 and either MATH 244 or MATH 253A.

**EE 480L Biomedical Engineering Lab (1)** (1 3-hr Lab) Measurement of bioelectrical signals, computer and electronic simulation of biological systems, design and evaluation of electronic circuits for biomedical measurements, evaluation of instruments for patient safety. Pre: 323 and 323L. Co-requisite: 480.

**EE 481 Bioelectric Phenomena (3)** Study of electrical phenomena in living systems. Mechanisms underlying bioelectric activity. Membrane and transepithelial potentials, skin impedance, electrocardiography, neuroelectric signals, diagnostic considerations, laboratory demonstrations. Pre: 480 or consent.

**EE 482 Biomedical Instrumentation (3)** (2 Lec, 1 3-hr Lab) Principles, applications, and design of biomedical instrumentation. Transducers, IC and microcomputer applications, patient safety. Pre: 326, 480; or consent.

**EE 491 (Alpha) Special Topics in Electrical Engineering (3)** Content will reflect special interests of visiting/permanent faculty; to be oriented toward juniors and seniors. (B) artificial intelligence; (C) circuits; (D) communications; (E) computer hardware; (F) computer software; (G) computer vision; (H) control; (I) devices; (J) fields; (K) power. Repeatable unlimited times. Pre: consent.

**EE 494 Provisional Topics (3)** Upper division course with subject matter to be announced.

**EE 495 Ethics in Electrical Engineering (1)** Equip electrical engineers with the necessary background for ethical reasoning, as it pertains to technology, society, workplace issues, and the environment. EE majors only. A-F only. Pre: senior standing or consent. (Once a year)

**EE 496 Capstone Design Project (V)** Significant project integrating the design content of previous courses and incorporating engineering standards and realistic constraints. Written report must document all aspects of the design process: reliability, safety, economics, ethics. Repeatable unlimited times. A-F only. Pre: 396 or consent.

**EE 499 Directed Reading (V)** Investigation of advanced engineering problems. Repeatable unlimited times. Pre: senior standing and consent.

**EE 500 Master's Plan B/C Studies (1)**

**EE 602 Algorithm I (3)** Design and evaluation of machine representations, techniques and algorithms for sorting, pattern processing, computational geometry, mathematical computations, and engineering applications. Introduction to computational issues of time, space, communication, and program correctness. Pre: 367 or consent.

**EE 604 Artificial Intelligence (3)** LISP for machine intelligence applications, or related constraint object

and logic-oriented languages. Pre: 467 or knowledge of LISP/PROLOG.

**EE 606 Intelligent Autonomous Agents (3)** Theory, methods and practical applications of autonomous agent systems, including common applications of both software and hardware (robotic) agents. In-depth practical experience with autonomous agents through programming assignments and projects. Pre: 467 or ICS 313 (or equivalent), graduate standing; or consent. (Once a year) (Cross-listed as ICS 606)

**EE 607 Advanced Network Algorithms (3)** Network algorithms, protocols, and packet switching systems for the internet including TCP/IP, routing algorithms, transmission scheduling, link management, buffer management, and simple network management. Pre: 367 or consent.

**EE 608 Optical Networks (3)** Propagation of signals in fibers, components, modulation and demodulation, transmission system engineering, network systems and architectures, network design, control and management and packet switching. Pre: 342, 367, and 371; or consent.

**EE 609 Computer and Network Security (3)** Basic security theory, current practices, and emerging research issues. First covering the fundamentals of computer and network security, then will work on research projects on computer and network security.

**EE 615 Advanced Digital Signal Processing (3)** An advanced course in digital processing. Topics include fast DFT algorithms, multirate systems and filter banks, power spectrum estimation, linear prediction, optimum linear filters, and adaptive filtering. A-F only. Open to nonmajors for CR/NC only. Pre: 415 or 640, or consent.

**EE 616 Digital Image Processing (3)** Human visual perception, image formation, sampling and quantization, enhancement and restoration, color image processing, wavelets and multiresolution representations, image and video compression. Pre: 415 or equivalent.

**EE 617 Linear and Convex Optimization (3)** Algorithms for linear, nonlinear, and convex optimization. Emphasis is on methodology and the underlying mathematical structures. Topics include simplex method, network flow methods, optimality conditions, duality, Newton's method and interior point methods. EE, ME, MIS and MATH majors only. Pre: MATH 311 or consent. (Alt. years)

**EE 618 Dynamic Programming and Stochastic Control (3)** Sequential decision-making via dynamic programming. Optimal control of stochastic dynamic systems. Applications in linear-quadratic control, inventory control, resource allocation, scheduling, and control of queues. Rollout and other suboptimal methods. Value and policy iteration. Pre: 342 or MATH 371 or MATH 471, or consent.

**EE 620 Advanced Electronic Circuits (3)** Electronic circuits for precision measurement, computation, and signal processing. Low noise and interference reduction techniques. High-frequency and high-speed techniques. Micro-processor and biomedical applications. Pre: 422.

**EE 621 Advanced Solid-State Devices (3)** Advanced physical principles and design of modern solid-state electronic devices. Heterostructures, photodetectors, LED, junction lasers, and other devices of current importance identified from the current literature. Pre: 327.

**EE 622 Optical Electronics I (3)** Fundamentals of optical radiation, including stimulated and spontaneous processes. Optical electronics including optical resonators, lasers, optical detectors, light-guiding, and applications. Pre: 327 or consent.

**EE 624 Microsensors and Microactuators I (3)** Technology methods and physical principles of microsensors and microactuators. Vacuum technology, thin film deposition and characterization techniques, solid mechanics, micromachining, acoustics, piezoelectricity and principles of current microtransducers. Pre: 327 or consent.

**EE 627 Advanced Topics in Physical Electronics (3)** Recent developments in phenomena and devices of physical electronics. Pre: 327.

**EE 628 Analysis and Design of Integrated Circuits (3)** Fabrication constraints and design guidelines for integrated circuits. Nonlinear model of integrated circuit transistor. Design and analysis of integrated logic circuits and linear circuits. Pre: 323.

**EE 640 Applied Random Processes (3)** Random variables, multivariate distributions, random sequences, stochastic convergence, stationary and nonstationary processes, spectral analysis, Karhunen-Loeve expansion, Markov processes, mean square estimation, Kalman filters. Pre: MATH 471 (or equivalent).

**EE 642 Detection and Estimation Theory (3)** Fundamentals of signal detection and estimation theory. Hypothesis testing, parametric and nonparametric detection, sequential detection, parametric estimation, linear estimation, robust detection and estimation, and applications to communication systems. Pre: 640.

**EE 643 Communication System Performance (3)** Fundamental performance limits, signal detection and estimation, modulation, intersymbol interference, equalization adaptive filtering, sequence detection, synchronization, fading multipath channels, spread spectrum. Pre: 640.

**EE 644 Computer Communication Networks (3)** Fundamentals of computer communication networks including modeling, performance evaluation, routing, flow control, local area networks, distributed algorithms, and optimization algorithms. Pre: 342, MATH 471; or consent.

**EE 645 Machine Learning (3)** Learning theory, pattern recognition and regression; gradient based algorithms and least square algorithms; Kernel methods; Bayesian learning algorithms; ensemble learning and boosting; principal component analysis; independent component analysis, and clustering; reinforcement learning and approximate dynamic programming. EE, ME, ICS, MATH majors only. Pre: 342.

**EE 646 Advanced Information Theory (3)** Measure of information, coding for discrete sources, discrete memoryless channels and capacity, the noisy channel coding theorem, source coding with fidelity criterion, rate-distortion theory, multiuser channels. Pre: 640.

**EE 648 Error-Control Coding I (3)** Linear block codes, soft and hard decision decodings, correction of random errors, cyclic codes, BCH codes, Reed-Solomon codes, majority logic decodable codes, burst-error correcting codes, concatenated codes. Pre: MATH 311 or consent.

**EE 649 Error-Control Coding II (3)** Convolutional codes, Viterbi algorithm, coded modulation, multistage decoding, concatenated coded modulation, probabilistic decoding, turbo codes, low density parity check codes and iterative decoding. Pre: 648.

**EE 650 Linear System Theory (3)** State space theory of linear systems, controllability, observability, stability, irreducible realizations. Pre: 452.

**EE 660 Computer Architecture I (3)** Models of computation, high-performance processors, pipelined machines, RISC processors, VLIW, superscalar and fine-grain parallel machines. Data-flow architectures. Hardware/software tradeoffs. Pre: 461.

**EE 665 Computer Systems (3)** Modern operating system software, process communication, distributed systems, device drivers. Software development and maintenance, integration of software packages. Projects reflecting special interests of faculty. Pre: 461 and 468.

**EE 668 Telecommunication Networks (3)** Telecommunication-network architecture; switching, broadcast, and wireless networks; protocols, interfaces, routing, flow- and congestion-control techniques; intelligent network architecture; service creation capabilities; multimedia, voice, data, and video networks and services. Pre: 468 or consent.

**EE 671 Electromagnetic Theory and Applications (3)** Solutions of Maxwell's equations and applications to radiation and propagation of electromagnetic waves. Pre: 372 or consent.

**EE 673 Advanced Microwave Engineering (3)** Advanced RF and microwave circuit design for wireless applications. Pre: 473 or consent.

**EE 675 Advanced Computational Techniques in Electromagnetics (3)** Develop comprehensive understanding of computations techniques for solving engineering electromagnetic problems formulated in terms of integral or differential equations. Eigenvalue problems, radiation, and electromagnetics scattering problems will be discussed and computer programming is required. EE, BE, and CENG majors only. A-F only. Pre: 471 (with a minimum grade of B) or consent. (Spring only)

**EE 680 Biomedical Engineering Systems (3)** Systems analysis and electronic instrumentation methods in biomedicine. Network and control-loop modeling, computer simulation, biological transducers, and analysis of electronic and physiological systems. Pre: 326, 326L, and 371; or consent.

**EE 681 Biosensors and Bioelectronics (3)** Advanced topics in the design of biological detection technologies. Topics include fundamentals of electrochemistry, electrochemical biosensors, DNA and protein biochips, and bioelectronics for bio-signal conditioning and processing. Pre: 324 and 326, or consent. (Once a year)

**EE 682 Biomedical Microdevices (3)** Design and fabrication of micro- and nanodevices for biomedical applications. Topics include micro- and nanoscale physics, microfluidic physics and microfluidic devices, and micro- and nanoscale fabrication techniques. ENG majors only. A-F only. Pre: 324 or consent. (Fall only)

**EE 685 Biomedical Signal Processing and Analysis (3)** Biomedical signals, digital filters and filter banks, spike train analysis, time-scale and time-frequency representations, nonlinear techniques, Lomb's algorithm and the Hilbert transform, modeling, Volterra series, Wiener series, Poisson-Wiener series, multichannel data, causality. CE, EE, ME, ICS majors only and any graduate student in JABSOM who has a suitable technical background. Pre: 415 or consent. (Spring only)

**EE 693 (Alpha) Special Topics in Electrical Engineering (3)** Content will reflect special interests of visiting/permanent faculty. (B) artificial intelligence; (C) circuits; (D) communications; (E) computer hardware; (F) computer software; (H) control; (I) devices; (J) fields; (K) power. Repeatable unlimited times. Pre: consent.

**EE 699 Directed Reading or Research (V)** Repeatable unlimited times. CR/NC only. Pre: graduate standing and consent.

**EE 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times. Pre: candidacy for MS in electrical engineering.

**EE 790 Directed Instruction (V)** Student assists in classroom instruction under direction and close supervision of faculty member. CR/NC only. Pre: admission to PhD candidacy.

**EE 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times. Pre: candidacy for PhD in electrical engineering.

## Engineering (ENGR)

### College of Engineering

*Preference in registration is given to declared engineering majors. Please consult the current Schedule of Courses for confirmed offerings each semester.*

**ENGR 100 Engineering Freshman Seminar (1)** Overview of the engineering field, the different disciplines, and opportunities. Success strategies for studying engineering. Repeatable one time. CR/NC only.

**ENGR 101 Introduction to Engineering (3)** Topics include the engineering disciplines, the development of problem solving and technical communication skills, the design process and analysis methods using a team design project, and introduction to programming in Matlab for engineering applications. ENGR majors only. Freshman standing only.

**ENGR 250 Personal Development for Effective Teams (3)** Exploration and application of basic leadership theories and processes which foster personal and interpersonal development via cognitive experiential classroom methods and mentoring relationships with experienced peer leaders. (Cross-listed as IS 250)

**ENGR 350 Career Development Seminar (1)** Introduction to career development as it pertains to engineering and business industry; client relations, networking, job skills, career assessment and direction. Repeatable one time. (Fall only)

**ENGR 401 Engineering Management (3)** Introduction to engineering management with emphasis on development of skills for professional advancement. Repeatable one time.

**ENGR 493 Field Experience (1)** Supervised internship in engineering practice under professional and faculty direction. Repeatable one time. CR/NC only. Pre: junior standing in engineering and consent.

## English (ENG)

### College of Languages, Linguistics and Literature

**ENG 100 Composition I (3)** Introduction to the rhetorical, conceptual and stylistic demands of writing at the university level; instruction in composing processes, search strategies, and writing from sources. Students may not earn credit for both ENG 100 and 190. Pre: placement. Freshmen only. **FW**

**ENG 190 Composition for Transfer Students to UH Mānoa (3)** Introduction to the rhetorical, conceptual and stylistic demands of writing at the university level; instruction in composing processes, search strategies, and writing from sources. Restricted to students with more than 24 credits. Students may not earn credit for both ENG 100 and 190. A-F only. Pre: placement. **FW**

*ENG 200 and 209 are courses in intermediate expository writing.*

**ENG 200 Composition II (3)** Further study of rhetorical, conceptual, and stylistic demands of writing; instruction develops the writing and research skills covered in Composition I. Pre: **FW**.

**ENG 209 Business Writing (3)** Practice in informative, analytical, persuasive writing. Pre: **FW**. Students may not earn credit for both ENG 209 and BUS 209.

*ENG 270-273 courses fulfill the UH Mānoa General Education Diversification in Literatures (DL) requirement. Credits for these courses are considered "non-introductory." A significant portion of class time is dedicated to writing instruction, and the courses require a minimum of 4,000 words of graded writing.*

**ENG 270 Introduction to Literature: Literary History (3)** Study of significant works of selected historical periods. A significant portion of class time is dedicated to writing instruction. Repeatable one time. Requires a minimum of 4,000 words of graded writing. Pre: **FW, DL**

**ENG 271 Introduction to Literature: Genre (3)** Study of significant works of selected genres. A significant portion of class time is dedicated to writing instruction. Repeatable one time. Requires a minimum of 4,000 words of graded writing. Pre: **FW, DL**

**ENG 272 Introduction to Literature: Culture and Literature (3)** Study of significant works of selected cultures and cultural formations. A significant portion of class time is dedicated to writing instruction. Repeatable one time. Requires a minimum of 4,000 words of graded writing. Pre: **FW, DL**

**ENG 273 Introduction to Literature: Creative Writing and Literature (3)** Study of significant

works through analytical and creative writing. Repeatable one time. Pre: FW. No waiver. **DL**

**ENG 300 Introduction to Rhetoric (3)** History of theory and practices of rhetoric from Classical to contemporary periods; e.g., Plato, Aristotle, Cicero, Quintilian, Augustine, Sidney, K. Burke, DeMan. Pre: one ENG DL course or consent. **DL**

**ENG 302 Introduction to the English Language (3)** Basic concepts and methods for the study of the English language; general history of the language; grammar and usage, issues of language diversity and standardization; English as a world language. Pre: one ENG DL course or consent. **DH**

**ENG 306 Argumentative Writing I (3)** Theory and practice of written argument; emphasis on the role of invention in argumentative discourse and on the nature of rhetorical proof. Pre: FW and either 200 or one ENG DL course, or consent.

**ENG 307 Rhetoric, Composition, and Computers (3)** Introduction to computer-based writing and reading technologies. Study of principles of traditional and online composition. Writing traditional and multimedia essays. Pre: one ENG DL course or consent.

**ENG 308 Technical Writing (3)** Combined lecture/lab preparing students to write about technical subjects for specialists and laypersons. Introduces theory of technical communication and document design and teaches students to make use of relevant technology. A-F only. Pre: FW and either 200 or one ENG DL course; or consent.

**ENG 311 Autobiographical Writing (3)** Writing clear, effective prose based on the writer's own experiences and ideas. Pre: one ENG DL course or consent. **DA**

**ENG 313 Creative Writing (3)** Basic principles of the craft as developed through writing in two of the following genres: fiction, poetry, drama, screenwriting, and creative nonfiction. Pre: one ENG DL course or consent. **DA**

**ENG 320 Introduction to English Studies (3)** Introduction to the purpose, practice, and potential of literary and rhetorical study of texts. Restricted to ENG and Secondary Education-English majors only. Prerequisite to 400-level work for ENG majors. Pre: one ENG DL course or consent. **DL**

*Each semester, selected "large-enrollment" 300-level courses are designed largely for non-majors. Prerequisites are waived for these particular courses. Please see the Registration Guide for these designated courses. English majors can use at most two "large enrollment courses" to fulfill major requirements.*

**ENG 321 Backgrounds of Western Literature (3)** Sources of European and American literary themes and allusions; myth, legend, and folklore of Western cultures; e.g., Classical texts, Arthurian romances, King James Bible. Pre: one ENG DL course or consent. **DL**

**ENG 322 The Bible as Literature (3)** Narrative, generic, and stylistic forms in the Bible in English. Related writings may be considered in comparative analysis. Pre: one ENG DL course or consent. **DL**

**ENG 323 Literature in English to 1660 (3)** Basic concepts and representative texts for the study of literature in English to 1660. Pre: one ENG DL course or consent. **DL**

**ENG 324 Literature in English 1660-1900 (3)** Basic concepts and representative texts for the study of literature in English from 1660-1900. Pre: one ENG DL course or consent. **DL**

**ENG 325 Literature in English after 1900 (3)** Basic concepts and representative texts for the study of literature in English after 1900. Pre: one ENG DL course or consent. **DL**

**ENG 326 Literature and (Post) Colonialism (3)** Basic concepts and representative texts for the study of colonial, post-colonial, and/or commonwealth literatures from regions such as Africa, India, the Pacific, and the Caribbean. Pre: one ENG DL course or consent. **DL**

**ENG 327 Literary Criticism and Theory (3)**

Survey of representative texts from Greek to modern times; e.g., Plato, Aristotle, Sidney, Johnson, Arnold, Eliot, Barthes, Derrida, Foucault, Kristeva. Pre: one ENG DL course or consent. **DL**

**ENG 330 Medieval British Literature (3)** Basic concepts and representative texts for the study of British literature before 1500. Pre: one ENG DL course or consent. **DL**

**ENG 331 Renaissance British Literature (3)** Basic concepts and representative texts for the study of British prose and poetry from 1500 to 1660. Pre: one ENG DL course or consent. **DL**

**ENG 332 Restoration/18th-Century British Literature (3)** Basic concepts and representative texts for the study of British prose, poetry, and drama from 1660 to 1780, exclusive of Milton. Pre: one ENG DL course or consent. **DL**

**ENG 333 Romantic British Literature (3)** Basic concepts and representative texts for the study of British prose and poetry from 1780 to 1832. Pre: one ENG DL course or consent. **DL**

**ENG 334 Victorian British Literature (3)** Basic concepts and representative texts for the study of British prose and poetry from 1832 to 1900. Pre: one ENG DL course or consent. **DL**

**ENG 335 British Literature After 1900 (3)** Basic concepts and representative texts for the study of British prose, poetry, and drama from 1900 to the present. Pre: one ENG DL course or consent. **DL**

**ENG 336 American Literature to Mid-19th Century (3)** Basic concepts and representative texts for the study of prose, poetry, and drama in American literature through the middle of the 19th century. Pre: one ENG DL course or consent. **DL**

**ENG 337 American Literature Mid-19th to Mid-20th Century (3)** Basic concepts and representative texts for the study of prose, poetry and drama in American literature from the middle of the 19th century to the middle of the 20th century. Pre: one ENG DL course or consent. **DL**

**ENG 338 American Literature Since Mid-20th Century (3)** Basic concepts and representative texts for the study of American literature since approximately 1950. Pre: one ENG DL course or consent. **DL**

**ENG 350 18th-Century Novel in English (3)** Basic concepts and representative texts for the study of the novel in English before 1800. Pre: one ENG DL course or consent. **DL**

**ENG 351 19th-Century Novel in English (3)** Basic concepts and representative texts for the study of the novel in English between 1800 and 1900. Pre: one ENG DL course or consent. **DL**

**ENG 352 20th-Century Novel in English (3)** Basic concepts and representative texts for the study of the novel in English after 1900. Pre: one ENG DL course or consent. **DL**

**ENG 353 History of Poetic Forms (3)** Basic concepts and representative texts for the historically organized study of poetic genres and forms before the 20th century and primarily in English. Pre: one ENG DL course or consent. **DL**

**ENG 354 Poetry in English After 1900 (3)** Basic concepts and representative texts for the study of poetry in English after 1900. Pre: one ENG DL course or consent. **DL**

**ENG 355 Drama in English to 1900 (3)** Basic concepts and representative texts for the study of drama in English from the Middle Ages through the end of the 19th century. Pre: one ENG DL course or consent. **DL**

**ENG 356 Drama in English After 1900 (3)** Basic concepts and representative texts for the study of drama in English after 1900. Pre: one ENG DL course or consent. **DL**

**ENG 360 Prose Fiction (3)** Basic concepts and representative texts for the study of the form, function, and development of prose fiction genres such as

short story and novel. Pre: one ENG DL course or consent. **DL**

**ENG 361 Poetry (3)** Basic concepts and representative texts for the analysis of imagery, sound, language, form, and structure in poems. Pre: one ENG DL course or consent. **DL**

**ENG 362 Drama (3)** Basic concepts and representative texts for the study of the form, function, and development of the genre of drama. Pre: one ENG DL course or consent. **DL**

**ENG 363 Film (3)** Basic concepts and representative texts for the study of the form, function, and development of cinematic narrative techniques. Pre: one ENG DL course or consent. **DH**

**ENG 364 Non-fiction Prose (3)** Basic concepts and representative texts for the study of non-fiction prose such as essays, biographies, autobiographies, speeches, political and legal documents, conversion and captivity narratives, testimonials, science writing, and travel writing. Pre: one ENG DL course or consent. **DL**

**ENG 365 Mixed Genres (3)** Basic concepts and representative texts for the study of works that incorporate more than one genre. Pre: one ENG DL course or consent. **DL**

**ENG 366 Shakespeare and Film (3)** Comparative analysis of selected plays by Shakespeare and films which appropriate, reenact, adapt, or offer variations on his texts. Pre: one ENG DL course or consent. **DL**

**ENG 370 Ethnic Literature of Hawai'i (3)** Writings of various ethnic groups in Hawai'i, ancient to contemporary. Songs, stories, poetry, fiction, essays that illustrate the social history of Hawai'i. Pre: one ENG DL course or consent. (Cross-listed as ES 370) **DL**

**ENG 371 Literature of the Pacific (3)** Basic concepts and representative texts for the study of the literature of the Pacific, including Pacific voyagers and contemporary writings in English by Pacific Islanders. Pre: one ENG DL course or consent. (Cross-listed as PACS 371) **DL**

**ENG 372 Asian American Literature (3)** Basic concepts and representative texts for the study of Asian American literature by writers from a variety of backgrounds. Pre: one ENG DL course or consent. (Cross-listed as ES 372) **DL**

**ENG 373 African American Literature (3)** Basic concepts and representative texts for the study of African American literature by writers from a variety of backgrounds. Pre: one ENG DL course or consent. **DL**

**ENG 374 Race, Ethnicity, and Literature (3)** Basic concepts and representative texts for the study of race and ethnicity as the basis for literary inquiry. Pre: one ENG DL course or consent. **DL**

**ENG 375 Philippine Contemporary Literature in English (3)** Critical survey of 20th-century Philippine literature written in English; cultural values. Pre: one ENG DL course or consent. (Cross-listed as IP 363) **DL**

**ENG 376 Philippine Literature and Folklore in Translation (3)** Philippine folk literature translated into English: epics, myths, legends, and other folklore. Classic works of vernacular writers. Pre: one ENG DL course or consent. (Cross-listed as IP 396) **DL**

**ENG 380 Folklore and Oral Tradition (3)** Basic concepts and representative texts for the study of folktales, legends, ballads and other folklore genres in various cultures; consideration given to folklore/literature relationships. Pre: one ENG DL course or consent. **DL**

**ENG 381 Popular Literature (3)** Basic concepts and representative texts for the study of popular literature genres, such as detective fiction, science fiction, the thriller, the romance, and westerns. Pre: one ENG DL course or consent. **DL**

**ENG 382 Gender, Sexuality and Literature (3)** Basic concepts and representative texts for the study

of literary constructions of gender and sexuality. Pre: one ENG DL course or consent. (Cross-listed as WS 381) **DL**

**ENG 383 Children's Literature (3)** Basic concepts and representative texts for the study of children's literature; may include study of children's book illustration. Pre: one ENG DL course or consent. **DL**

**ENG 384 Literature and Technology (3)** Basic concepts and representative texts for the study of literature in relation to technological developments. May include history of the book, impact of printing and computer networks, science fiction. Pre: one ENG DL course or consent. **DL**

**ENG 385 Fairy Tales and Their Adaptations (3)** Comparative analysis of selected tales of magic and their adaptations across history, cultures and media such as book illustration and film. Pre: one ENG DL course or consent. **DL**

**ENG 393 Junior Honors Tutorial (3)** Tutorials in literature. Consult the English department's Honors director for particulars; offered fall semester. Repeatable one time. Pre: enrollment in Honors Program and one ENG DL course; or consent. **DL**

**ENG 394 Junior Honors Tutorial (3)** Tutorials in literature. Consult the English department's Honors director for particulars; offered spring semester. Repeatable one time. Pre: enrollment in Honors Program and one ENG DL course; or consent. **DL**

*The specific content of 400-level Studies courses varies by semester. Students should obtain the English department's fall and spring course descriptions prior to enrolling. Descriptions are available on the department's webpage (www.english.hawaii.edu) a week or so before registration begins. All Studies courses require a significant research component and are writing-intensive.*

**ENG 402 History of the English Language (3)** Development of the English language from its origins to the present. Pre: two ENG DL courses or consent. **DH**

**ENG 403 Modern English Grammar (3)** Introduction to the structure of present-day English for native speakers and others with advanced competency. Pre: two ENG DL courses or consent. **DH**

**ENG 404 English in Hawai'i (3)** English language in Hawai'i viewed historically and in a multicultural context, with attention to politics, religion, race, and education, from 1820 to present. Pre: two ENG DL courses or consent. **DH**

**ENG 405 Teaching Composition (3)** Theory, observation, and practice in teaching writing, especially the use of one-on-one and small group instruction. Pre: two ENG DL courses; or consent. Recommended: 306.

**ENG 405L Teaching Composition (1)** Theory, observation, and practice in teaching writing, especially the use of one-on-one and small group instruction. Repeatable three times. CR/NC only. Pre: 405 or consent.

**ENG 406 Argumentative Writing II (3)** Extended study of both the philosophical and practical dimensions of written reasoning. Emphasis on argument as a process of inquiry. Pre: 306 or consent.

**ENG 407 Writing for Electronic Media (3)** Combined lecture/lab on writing and rhetoric in computer-mediated communication. May include online technical writing, courseware development, hypertext fiction. Pre: two ENG DL courses or consent.

**ENG 408 Professional Editing (3)** Discussion and practice in the professional editing of articles, reports, books; logic, clarity, coherence, consistency of tone and style, grammar and punctuation. Pre: 306, 311, 313, 403, or 405; or consent.

**ENG 409 Studies in Composition/Rhetoric/Language (3)** Intensive study of selected topics, problems, themes, issues, and/or writers in composition, rhetoric, and/or English language. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 410 Form and Theory of Poetry (3)** Poetic theories and techniques for students interested in writing poetry. Pre: 313 or consent. **DL**

**ENG 411 Poetry Workshop (3)** Writing, evaluating poems. Repeatable one time. Pre: 410 or consent. **DA**

**ENG 412 Nonfiction Writing (3)** Workshop analysis of nonfiction as a literary form. Repeatable one time. Pre: 306 or 313; or consent. **DA**

**ENG 413 Form and Theory of Fiction (3)** Narrative techniques for students interested in writing fiction. Pre: 313 or consent. **DL**

**ENG 414 Fiction Workshop (3)** Writing, evaluating fiction. Repeatable one time. Pre: 413 or consent. **DA**

**ENG 416 Studies in Creative Writing (3)** Intensive study of selected topics, problems, themes, writers, or modes of creative writing in a workshop setting. Repeatable one time. Pre: 313 and 410, 412, or 413; or consent. **DA**

**ENG 420 Studies in Literature and Culture (3)** Intensive study of selected problems, issues, writers, traditions, or movements in regard to cultural studies and the reading and interpretation of cultural texts. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 421 Studies in Comparative Literature (3)** Intensive study of selected problems, issues, writers, traditions, or movements in the field of comparative literature. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 427 Studies in Literary Criticism and Theory (3)** Intensive study of selected problems, issues, writers, traditions, or movements in the field of literary criticism and critical theory. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 430 Studies in Medieval Literature (3)** Intensive study of selected problems, issues, writers, traditions, or movements in Old/Middle English literature from 500-1500, including works in modern translation. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 431 Studies in 16th and 17th Century Literature (3)** Intensive study of selected problems, issues, writers, traditions, or movements in texts written during the period 1500-1700. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 432 Studies in 18th Century Literature (3)** Intensive study of selected problems, issues, writers, traditions, or movements in texts written during the period 1660-1830, the "long" 18th century. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 433 Studies in 19th Century Literature (3)** Intensive study of selected problems, issues, writers, traditions, or movements in texts written during the 19th century. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 434 Studies from 20th Century to Present (3)** Intensive study of selected problems, issues, writers, traditions, or movements in texts written from the 20th century to the present. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 440 Single Author (3)** Intensive study of the works and literary milieu of a single author considered significant by most scholars in English Studies. The English Department maintains a list of versions focusing on specific authors. Repeatable one time for a different author, with consent. Pre: two ENG DL courses or consent. **DL**

**ENG 442 Geoffrey Chaucer (3)** Intensive study of the works and literary milieu of Geoffrey Chaucer. Pre: two ENG DL courses or consent. **DL**

**ENG 445 William Shakespeare (3)** Intensive study of the works and literary milieu of William

Shakespeare. Repeatable one time. Pre: two ENG DL courses or consent. **DL**

**ENG 447 John Milton (3)** Intensive study of the works and literary milieu of John Milton. Pre: two ENG DL courses or consent. **DL**

**ENG 455 U.S. Women's Literature and Culture (3)** Reading of selected works of U.S. women's literature and cultural texts (such as art and film). Emphasis on historical and cultural context and diverse expressions of women's gendered identities. (Cross-listed as AMST 455 and WS 445) **DL**

**ENG 460 Studies in Fiction (3)** Intensive study of selected problems, issues, writers, traditions, or movements in prose fiction. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 461 Studies in Poetry (3)** Intensive study of selected problems, issues, writers, traditions, or movements in poetry. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 462 Studies in Drama (3)** Intensive study of selected problems, issues, writers, traditions, or movements in drama. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 463 Studies in Film (3)** Intensive study of selected topics in film, e.g.: genres, major filmmakers, film theory/criticism, or film and literature. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DH**

**ENG 464 Studies in Life Writing (3)** Intensive study of forms and theories of life writing in forms such as biographies, autobiographies, oral histories, diaries, journals, letters, film, drama, and portraiture. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 466 Studies in Genre (3)** Intensive study of selected texts that combine traditional genres, cross disciplines, challenge categorization, or are overlooked in the study of larger genre categories such as poetry, fiction, or drama. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 470 Studies in Asia/Pacific Literature (3)** Intensive study of selected problems, issues, traditions, genres, or writers relating to Asia and the Pacific. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 471 Studies in Postcolonial Literature (3)** Intensive study of selected problems, issues, traditions, genres, or writers in postcolonial literatures and theories. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 472 Studies in Diasporic Literature (3)** Intensive study of literary, cultural and theoretical issues of diasporic experiences such as immigration, assimilation, nation, and transnationalism. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 479 Modern Pacific Women's Poetry (3)** Critical examination of modern indigenous women's poetry from the Pacific Islands. Thematic concentration on land, family, sexual and national oppression. Pre: two ENG DL courses; second may be taken concurrently; or consent. (Cross-listed as HWST 494) **DL**

**ENG 480 Studies in Literature and Folklore (3)** Intensive study of selected problems, issues, traditions, or genres in folklore and oral traditions and their performance and transformations within specific social and cultural contexts. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 481 Studies in Literature and Popular Culture (3)** Intensive study of selected problems, issues, traditions, writers, movements, or genres in the field of popular literature and/or popular culture. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

**ENG 482 Studies in Literature and Sexuality and Gender (3)** Intensive study of selected problems and

issues in the construction and representation of sexuality and gender in specific genres, social and cultural contexts, or thematic/figurative clusters. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. (Cross-listed as WS 483) **DL**

**ENG 491 Senior Honors Tutorial (3)** Studies in history of ideas, periods, genres, or themes in literature. Includes research paper. Repeatable one time. Pre: enrollment in Honors Program, 320 and two 300-level ENG courses; or consent. Offered fall semester. **DL**

**ENG 492 Senior Honors Tutorial (3)** Studies in history of ideas, periods, genres, or themes in literature. Includes research paper. Repeatable one time. Pre: enrollment in Honors Program, 320, and two ENG 300-level courses; or consent. Offered spring semester. **DL**

**ENG 494 Study Abroad (V)** Intensive study in the English language of selected topics, issues or writers from the host country in a UH Mānoa-approved study abroad location. Repeatable one time. A-F only. Pre: two ENG DL courses or consent. **DL**

**ENG 495 Internship (3)** Faculty supervised participation in the operations of an organization. A-F only. Pre: two ENG DL courses, junior standing, or consent.

**ENG 499 Directed Reading (V)** Repeatable up to six credits. A-F only. Pre: two ENG DL courses or consent.

**ENG 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**ENG 550 Supervised Teaching Practicum (1)** Supervised participation in instruction or tutoring. CR/NC only. Repeatable two times. Pre: graduate standing and consent.

**ENG 560 HWP Summer Writing Institute (V)** Repeatable one time.

**ENG 561 HWP Summer Institute WAC (V)** Practicum in the current best approaches to teaching writing across the curriculum. Participants write, read published theory and research in composition, and demonstrate effective writing lessons. Repeatable one time.

*Graduate standing or consent is required for all courses numbered 600 and above for which no specific prerequisite is listed.*

**ENG 601 Old English (3)** Structure of the language, relation to present English; reading of selected prose and poetry.

**ENG 605 Theory and Practice of Teaching Composition (3)** Major contemporary theorists and classroom practices that evolve from their theories; observation and applications.

**ENG 610 Elements of Creative Writing (3)** Intensive discussion of the craft and technique of creative writing through readings in poetry, fiction, creative nonfiction, and creative writing pedagogy. A-F only. Pre: graduate standing or consent. (Fall only)

**ENG 613 (Alpha) Graduate Writing Workshop (3)** Advanced practice and critical evaluation of the writing of poetry, fiction, or creative nonfiction. (B) poetry; (C) fiction; (D) nonfiction. Repeatable one time. Pre: graduate standing plus 411 for (B); 414 for (C); 412 for (D); or consent.

**ENG 625 (Alpha) Theories and Methods (3)** Required course in the MA student's area of concentration. (B) theories and methods of literary study; (C) introduction to composition and rhetoric; (D) foundations of creative writing; (E) theories in cultural studies. Repeatable in different alphas. Pre: graduate standing or consent. (Spring only)

**ENG 627 (Alpha) Literary Theory and Criticism (3)** (B) classical period through 18th century; (C) Romantic and post-Romantic.

**ENG 664 Biography (3)** Study of one or more authors, English or American literature. Repeatable one time. A-F only. Pre: graduate standing or consent.

**ENG 691 MA Final Project (V)** Individual reading and research towards preparation of MA project. 3

credit hours required. CR/NC only. Repeatable one time. Pre: 625 and consent.

**ENG 699 Directed Reading (V)** Individual reading or research. Repeatable with consent of Graduate Director. Pre: graduate standing and consent.

**ENG 700 Thesis Research (V)** Repeatable unlimited times. Pre: graduate standing and consent.

**ENG 705 Seminar in Composition Studies (3)** Intensive study of selected issues in composition studies. Repeatable one time. Pre: 625C or consent.

**ENG 709 Seminar in Rhetoric (3)** Intensive study of selected topics in the history of rhetoric, rhetorical theory, or rhetorical criticism; topic to be announced. Repeatable one time. Pre: 625C or consent.

**ENG 713 Seminar in Creative Writing (3)** Advanced study in creative writing focused on thesis and dissertation projects. Repeatable one time. Pre: 613 or consent.

**ENG 716 (Alpha) Seminar in Techniques in Contemporary Literature (3)** The study, from the point of view of the creative writer, of works written within the last 25 years. (B) techniques in fiction; (C) techniques in poetry; (D) techniques in creative nonfiction. Repeatable one time. Pre: 613 (or concurrent) or consent.

**ENG 727 Seminar in Literary Criticism (3)** Intensive study of selected topics in literary theory and its practical application; topics to be announced. Repeatable two times. Pre: graduate standing or consent.

**ENG 730 (Alpha) Seminar in English Literature (3)** Study of authors or a period. (C) re-reading Chaucer; (N) 14th century poetry; (P) extended Victorian lyric; (Q) modern British fiction; (R) early 17th century poetry; (S) dominant Victorians: the 1840s; (T) Baroque and English literature; (U) literature and social change; (X) literature and history; (Y) studies in satire. Repeatable one time.

**ENG 735 (Alpha) Seminar in American Literature (3)** Study of authors or a period. (B) American modernism; (C) race in American literature; (D) 19th century American poetry; (E) American literature naturalism; (F) African American literature and theory; (G) American transcendentalism; (H) 19th century American novel; (J) contemporary American poetry; (N) poetry by 20th century American women; (P) women writers and multiculturalism; (Q) Asian American literature and theory; (R) relocating American literature; (S) early American literature; (T) H. Melville and T. Morrison. Repeatable one time for different alphas.

**ENG 740 (Alpha) Seminar in Major Author (3)** Study of one or more authors, English or American. (C) George Eliot; (D) Emily Dickinson; (M) Milton; (S) Chaucer and his backgrounds; (T) Austen; (U) Yeats and his circle; (X) Beowulf; (Y) Faulkner's narrative; (Z) Virginia Woolf. Repeatable one time. A-F only. Pre: graduate standing or consent.

**ENG 745 Seminar in Shakespeare (3)** Intensive study of Shakespeare.

**ENG 760 (Alpha) Seminar in Literary Genres (3)** Study of one or more authors, English or American literature. (C) neoclassicism; (D) tragedy; (E) modern American short story; (F) sonnet and sonnet sequences; (G) Rest., 18th century dramatic comedy; (H) 18th century literature and art; (I) medieval drama; (J) narrative theory and criticism; (K) reinventing the author; (M) laughter and the comic arts; (N) nature of romance; (O) Victorian novel; (P) Jacobean drama; (Q) science fiction; (R) essay, past and present; (S) Eng. hymn in Western culture; (W) 18th century British women novelists; (Y) English romanticism; (Z) English novel and criticism. Repeatable one time. A-F only. Pre: graduate standing or consent.

**ENG 763 Seminar in Film Theory and Criticism (3)** Classic theories of representation and aesthetics; modern and contemporary cultural, psychoanalytic, and aesthetic theories as they apply to film.

**ENG 764 Seminar in Life Writing (3)** Intensive study of critical and theoretical issues raised by various forms of life writing (biography, autobiography, oral history, diaries, etc.) and of their history and methodology. Repeatable one time.

**ENG 770 Seminar in Cultural Studies in Asia/Pacific (3)** Intensive study of selected issues in cultural studies in Asia and the Pacific; topics to be announced. Repeatable one time.

**ENG 771 Seminar in Pacific Literatures (3)** Intensive study of selected issues in the literatures of the Pacific in English, or translated into English. Topics to be announced. Repeatable one time. Pre: graduate standing or consent. (Spring only)

**ENG 772 Seminar in Literatures of Hawai'i (3)** Introduction to comparative literature; relationship of Hawaiian to other literatures; sources and influences. Repeatable one time.

**ENG 773 Seminar in Hawaiian Literature (3)** Intensive study of selected issues, genres, and traditions in Hawaiian literature written in English or translated from Hawaiian into English. Repeatable one time. Pre: graduate standing or consent. (Fall only)

**ENG 775 Seminar in Cultural Studies (3)** Intensive study of selected issues in cultural studies and cultural and social theory; topics to be announced. Repeatable one time.

**ENG 780 (Alpha) Seminar in Comparative Literature (3)** Introduction to comparative literature; relationship of English to other literatures; sources and influences. (B) African lit. and literary theory; (F) folklore and literature; (G) theory/practice of poetry; (H) contemporary drama; (I) mythic method; (J) postmodern fiction; (M) modernism; (N) colonial/postcolonial; (P) postmodernism and postcolonialism; (W) medieval women writers. Repeatable one time for different alphas.

**ENG 790 Seminar in Special Topics (3)** Content to be announced. Repeatable five times.

**ENG 800 Dissertation Research (V)** Pre: graduate standing and consent. Repeatable nine times.

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## English as a Second Language (ESL)

*College of Languages, Linguistics and Literature*

**ESL 100 Composition I for Second Language Writers (3)** Extensive practice in writing expository essays; linguistic devices that make an essay effective. (Fulfills composition requirement for nonnative speakers of English only.) **FW**

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## English Language Institute (ELI)

*College of Languages, Linguistics and Literature*

*Initial placement in ELI courses is by examination only. A grade of CR (credit) is prerequisite to promotion or exemption. Normal course sequence is 70, 80; 72, 82; 73, 83 or ELI 100.*

**ELI 070 Intermediate Academic Listening and Speaking (0)** Introduction to the academic English-language listening/speaking demands required at the university. Instruction and practice of effective note-taking skills, listening strategies, delivery of presentations, and participation in academic discussions. Designed as a bridge to ELI 080.

**ELI 072 Intermediate Academic Reading (0)** Instruction to the academic English-language reading demands required at the university. Instruction and practice of effective means to understand text patterns, increase reading fluency and comprehension, and develop vocabulary. Designed as a bridge to ELI 082.

**ELI 073 Intermediate Academic Writing (0)** Extensive practice in expository writing. Analysis and use of rhetorical devices. Individual conferences and tutoring as required.

**ELI 080 Advanced Academic Listening and Speaking (0)** Further development of the academic English-language listening/speaking skills and strate-

gies required at the university. Instruction and practice of effective note-taking skills, critical listening strategies, delivery of effective academic presentations and leading of academic discussions. Pre: 070 or placement by examination.

**ELI 082 Advanced Academic Reading (0)** Further development of skills and strategies for dealing with the high demands of academic reading by focusing on becoming efficient and autonomous readers. Instruction and practice of developing critical reading strategies and building field-specific vocabulary. Pre: 072 or placement by examination.

**ELI 083 Advanced Academic Writing for Graduate Students (0)** Introduction to academic writing conventions common at the graduate level. Students explore academic writing in their disciplines, develop clarity of written expression, and improve command over textual, rhetorical, and discursive conventions common in academic writing. Pre: 073 or placement by examination.

**ELI 111 Practicum for International Teaching Assistants (3)** Extensive practice for international teaching assistants in speaking in classroom situations with emphasis on oral skills, American cultural expectations and classroom management. CR/NC only. Pre: 080.

## Ethnic Studies (ES)

### College of Social Sciences

*A grade of C or better in the prerequisite courses is required for all grades. (A C- is not acceptable.)*

**ES 101 Introduction to Ethnic Studies (3)** Basic concepts and theories for analyzing dynamics of ethnic group experiences, particularly those represented in Hawai'i, and their relation to colonization, immigration, problems of identity, racism, and social class. **DS**

**ES 214 Introduction to Race and Ethnic Relations (3)** Race and ethnic relations in world perspective; social, economic, and political problems associated with perception, existence, and accommodation of these groups within the wider society. (Cross-listed as SOC 214) **DS**

**ES 221 Hawaiians (3)** Relationship between changes in Hawaiian lifestyle and development of Hawaiian economy; land use and tenure; participation in government, labor, and industry; Hawaiian institutions: "Hawaiian movement." **DS**

**ES 301 Ethnic Identity (3)** Individual and group problems of identity, identity conflict, culture conflict, inter-ethnic relations. Critical review of available material on Hawai'i. Pre: one social sciences core course. **DS**

**ES 305 African American Experience I (3)** Afrocentric perspective. Analysis of the black political/cultural diaspora, including ancient African kingdoms, the slavery experience, organized resistance, emancipation struggles, the Civil War and Reconstruction. Pre: one social sciences core course or consent. **DS**

**ES 306 African American Experience II (3)** Afrocentric sociopolitical analysis. The struggle for freedom: Reconstruction period, reign of terror, intellectual and cultural awakenings, civil rights movements, contemporary issues. Pre: one social sciences core course or consent. **DS**

**ES 310 Ethnicity and Community: Hawai'i (3)** Site visits to museums, social welfare units, etc., as well as guest lecturers from the community including police, health, education. Pre: one social sciences course. (Summer only) **DS**

**ES 318 Asian America (3)** History of selected Asian immigrant groups from the 19th century to the present. Topics include: immigration and labor history, Asian American movements, literature and cultural productions, community adaptations and identity formation. (Cross-listed as AMST 318) **DH**

**ES 320 Hawai'i and the Pacific (3)** Hawai'i as part of the Pacific community: selected historical and contemporary problems of Pacific areas; cultural

and economic imperialism, land alienation, and the impact of development on Pacific peoples. Pre: one social sciences core course. **DH**

**ES 330 Japanese in Hawai'i (3)** Issei roots in Japan; the role of Japanese in labor, politics, and business; sansei and perspectives on local identity and culture. The Japanese in light of changing economic, social, and political conditions in Hawai'i today. Pre: one social sciences core course. **DH**

**ES 331 Chinese in Hawai'i (3)** Ethnohistorical and contemporary view of the experiences of the Chinese in Hawai'i and the U.S. mainland; specific roles and contributions; immigration, social organization, and identity. Pre: one social sciences core course. **DH**

**ES 332 Caucasians in Hawai'i (3)** Historical and current views of white ethnic groups in Hawai'i; significance in economic and social development of Hawaiian society. Pre: one social sciences core course. **DH**

**ES 333 Filipinos in Hawai'i (3)** Historical and contemporary experiences; immigration; traditional culture and values; plantation experience; labor organizing; development of Filipino community; racism; discrimination; and ethnic identity. Pre: one social sciences core course or consent. **DH**

**ES 335 Koreans in Hawai'i (3)** Historical and contemporary experiences, causes and patterns of immigration, conditions on plantations, ties to Korea, community development and roles in society. Pre: one social sciences core course. **DH**

**ES 338 American Indian Experience (3)** Provides a comprehensive look at the indigenous foundation of life and society in the Americas and elaborates on historical and contemporary importance of American Indian rights issues. Pre: one social sciences core course. **DH**

**ES 339 South Asian Migrants: Culture and Politics (3)** Historical and contemporary experiences of South Asian migrants in North America, Pacific, Caribbean, and/or African diasporas; causes and patterns of migration, inter-ethnic relations policies; role of race, gender, culture in community, identity formation. A-F only. Pre: one ES or WS course in the 100, 200 or 300 level; or consent. (Once a year) (Cross-listed as WS 339) **DS**

**ES 340 Land Tenure and Use in Hawai'i (3)** Dynamics of change: indigenous Hawaiian land tenure; Great Mahele and Kuleana Act; ethnic succession of land ownership; concentration of ownership today; effects of land development on ethnic communities. Pre: one social sciences core course. **DH**

**ES 350 Economic Change and Hawai'i's People (3)** Development of modern Hawaiian economy and impact on Hawai'i's people. Sugar, pineapple, and tourism industries; role of local and multinational corporations; scenarios for Hawai'i's future development. Pre: one social sciences core course. **DS**

**ES 360 Immigration to Hawai'i and U.S. (3)** Historical overview: "push and pull factors"; effect of changing economy; experiences of various ethnic groups; problems of recent immigrants; immigration policies in the U.S. and Hawai'i. Pre: one social sciences core course. **DH**

**ES 365 Pacific/Asian Women in Hawai'i (3)** Adaptive strategies of Hawaiian, Chinese, Japanese, Korean, Filipino, Samoan, and Southeast Asian women in Hawai'i; feminist anthropological and historical analysis. Pre: one ANTH, SOC, or WS course. (Cross-listed as WS 360) **DS**

**ES 370 Ethnic Literature of Hawai'i (3)** Writings of various ethnic groups in Hawai'i, ancient to contemporary. Songs, stories, poetry, fiction, essays that illustrate the social history of Hawai'i. Pre: one ENG DL course or consent. (Cross-listed as ENG 370) **DL**

**ES 372 Asian American Literature (3)** Basic concepts and representative texts for the study of Asian American literature by writers from a variety of backgrounds. Pre: one ENG DL course or consent. (Cross-listed as ENG 372) **DL**

**ES 373 Filipino Americans: History, Culture and Politics (3)** An introduction to the study of Filipino Americans in the U.S. and the diaspora. The course pays special attention to labor migration, cultural production and community politics. Pre: sophomore standing. (Cross-listed as AMST 373) **DS**

**ES 375 Issues of Diversity in Higher Education (3)** Examines issues of diversity within higher education. Examines different dimensions of diversity including ethnicity, gender, national origin, age, and sexual orientation. Will utilize national and local case studies. Junior class standing or higher. Pre: one social science course or consent. (Spring only) **DS**

**ES 380 Fieldwork in Ethnic Studies (V)** Specialized supervision of individual student research projects in historical, oral history, or contemporary problems. Repeatable to total of 6 credit hours. Pre: consent.

**ES 381 Social Movements in Hawai'i (3)** Role of various contemporary movements for social change in Hawai'i: community, ethnic, labor, student, etc. Theories of social movements and social change. Pre: one social sciences core course. **DS**

**ES 390 Gender and Race in U.S. Society (3)** Historical and sociological studies of race and gender in U.S. society; grassroots feminist and race/ethnic activism in the mainland and Hawai'i. A-F only. Pre: 101, WS 151, or Social Science Cores. (Cross-listed as WS 390) **DS**

**ES 392 Change in the Pacific—Polynesia (3)** Impact of cultural and physical change and their inter-relationship. Pre: ES or social sciences courses. **DS**

**ES 399 Directed Reading/Research (V)** Repeatable up to 6 credits. Pre: consent only.

**ES 410 Race, Class, and the Law (3)** Historical context and implications of landmark court decisions and legal issues affecting social change in ethnic communities in Hawai'i and the continental U.S. Pre: one 300-level course in ES, POLS, or SOC. **DS**

**ES 418 Women and Work (3)** Gender and racial division of labor nationally and internationally; racial and gender differentials in wages, training, working conditions and unemployment; historical trends and future directions. Pre: one 300-level ES or WS course, or SOC 300; or consent. (Cross-listed as SOC 418 and WS 418) **DS**

**ES 420 American Ethnic and Race Relations (3)** Surveys ethnic and race relations in the U.S. Focus on historical conflicts and critical issues such as racism, immigration, affirmative action, changing economic structures, and the role of government. Pre: 101 or consent. **DS**

**ES 440 Contemporary African Diaspora and Black Communities Beyond the U.S. (3)** Analysis of social, political, and cultural circumstances that inform the experiences of contemporary African Diaspora and Black communities outside of the U.S.; Black identity. Pre: one of 301 or 305 or 306, or consent. (Spring only) **DS**

**ES 443 Filipino Americans: Research Topics (3)** A research seminar on the study of Filipino Americans. Special themes in film/video/media, the performing arts, or literature may be offered. Pre: junior standing or consent. (Cross-listed as AMST 401)

**ES 455 (Alpha) Topics in Comparative Ethnic Conflict (3)** Causes and dynamics of ethnic conflicts with attention to problem resolution; (B) Middle East; (C) Hawaiian sovereignty in Pacific context. Pre: 320 or 392, or consent for (C). **DS**

**ES 456 Racism and Ethnicity in Hawai'i (3)** The historical and contemporary social processes involved in inter-ethnic relations in Hawai'i. Pre: SOC 300 or one ES 300 level course, or consent. (Cross-listed as SOC 456) **DS**

**ES 460 Ethnic Conflict (3)** Today, ethnic conflicts account for a majority of wars. Theory and multiple case studies will be used to examine the causes and consequences of ethnic conflict. How can it be managed or settled? Junior standing or higher. Pre: one social science course or consent. (Fall only)

**ES 480 Qualitative Research Methods (3)** Introduction to qualitative data collection methods; explore methods of analyzing data including grounded theory method, discourse analysis, and narrative analysis and those used in ethnic, gender, and community studies. A-F only. Pre: one upper division ES or SOCS course or consent.

**ES 486 Peoples of Hawai'i (3)** Critically examines the historical and contemporary experiences of various people of Hawai'i and utilizes anthropological and ethnic studies approaches to study identity, race, ethnicity, culture, language, gender, sex, class, land, and residence. Pre: junior standing or consent. (Once a year) (Cross-listed as ANTH 486) **DS**

**ES 492 Politics of Multiculturalism (3)** The development of ethnic relations and political approaches to multiculturalism in two multiethnic nations: Canada and the U.S. A-F only. Pre: SOC 300 or one 300 level ES course, or consent. (Cross-listed as SOC 492) **DS**

**ES 493 Oral History: Theory and Practice (3)** Literature and methodology; project design. Students develop and execute an oral history project. Junior standing or consent. (Cross-listed as ANTH 493) **DH**

**ES 495 Hawaiian Labor History (3)** Conditions of work under varying political, social, and economic transformations in Hawai'i; anthropological, sociological, and historic data. Pre: HIST 151 and HIST 152. **DH**

**ES 496 Special Topics in Ethnic Studies (3)** Selected themes in ethnic studies exploring current issues and new topics; taught by regular and visiting faculty. Repeatable two times. Pre: one 300-level social science course.

## Family Medicine and Community Health (FMCH)

### School of Medicine

**FMCH 531 7-Week Family Medicine Clerkship (10)** Ambulatory-based clerkship in Hawai'i. Students learn history taking, physical exam skills, and management of family medicine patients. Emphasis on behavioral care, caring for the underserved, sports medicine, preventive care, common acute/chronic ambulatory problems. Pre: third year standing.

**FMCH 532 Family Medicine and Community Health Longitudinal Clerkship (10)** 5.5-month ambulatory clerkship. Students learn history taking, physical exam skills, and management of family medicine patients. Emphasis on behavioral care, caring for the underserved, sports medicine, preventive care, and common acute/chronic ambulatory problems. Repeatable one time. Co-requisite: third-year standing and concurrent registration in 532 courses.

**FMCH 545 (Alpha) Electives in Family Medicine and Community Health (V)** Fourth-year elective in which medical students may do study of selected topics within the field of family medicine and community health: (B) primary care preceptorship; (C) topics in community health; (D) sub-internship in family medicine; (E) extramural elective in family medicine and community health-miscellaneous; (F) sports medicine preceptorship; (G) longitudinal underserved care preceptorship (6). MED majors only for (G). CR/NC only. Pre: 531 or 532. (Spring only for (G))

**FMCH 599 Directed Reading/Research (V)** Repeatable unlimited times. Pre: consent.

## Family Resources (FAMR)

### College of Tropical Agriculture and Human Resources

**FAMR 230 Human Development (3)** Concepts, issues, theories of human growth and development from conception to death; systems approaches to inquiry into factors affecting growth and development. **DS**

**FAMR 331 Infancy and Early Childhood (3)** Growth and development from prenatal period to

age 5. Historical and current issues and research based on ecological, cross-cultural perspective. Focus on optimal development. Pre: 230 or consent. **DS**

**FAMR 332 Childhood (3)** Intensive investigation into developmental aspects of 6–12 year old children. Historical and current issues, research, and examination of the role of schools and other community resources. Focus on optimal development. Pre: 230 or consent. **DS**

**FAMR 333 Adolescence and Early Adulthood (3)** Problems, concepts, and research related to development from puberty through early adulthood. Examination of biological, cognitive, social, and cultural factors affecting the individual. Pre: 230 or consent. **DS**

**FAMR 334 Middle Age and Aging (3)** Change and continuity in midlife and late life from theoretical and applied perspectives. Coverage of physical and psychological events as well as social attitudes, values, and programs regarding aging. Pre: 230. **DS**

**FAMR 340 Intimacy, Marriages and Families (3)** Study of intimate relationships, marriages and families, their dynamics, strengths, growth and development, challenges, choices and opportunities, in the context of social change and cultural diversity. Pre: 230 or PSY 100 or SOC 100; or consent. **DS**

**FAMR 341 Parenting (3)** Parenting theories, methods, skills, issues, and resources; parent-child relations in various cultural contexts. Pre: 340 or consent.

**FAMR 350 Leadership and Group Process (3)** Exploration of leadership research and theories and their application to leadership development; designed to enhance personal and interactive leadership. Pre: 230 or FDM 200, or consent.

**FAMR 352 Community Needs and Resources (3)** Theory and practice in determining community needs and resources; community resources development based on needs identification. Pre: 230 or consent. **DS**

**FAMR 360 Family Resource Management (3)** Concepts, principles, and practices in managing family and household resources. Pre: 230 or consent.

**FAMR 361 Family Financial Planning (3)** Analytical approach to family financial planning from the perspective of changing family demands over the life cycle. Pre: 360 or an ECON course, or consent.

**FAMR 363 Consumer Economics (3)** Consumer rights, responsibilities, and resources; consumer decision-making; factors affecting consumer functioning within economy. Pre: 360 or an ECON course, or consent.

**FAMR 380 Research Methodology (3)** Fundamentals of scientific methodology and techniques in design and data collection; introduction to statistics for decision-making and program evaluations in agriculture and human resources. Pre: 230 or FDM 200, or consent. Co-requisite: 380L. **DS**

**FAMR 380L Research Methodology Lab (1)** (1 3-hr Lab) Test design, computer use, data analysis. Co-requisite: 380.

**FAMR 425 Partnerships with Families and Professionals (4)** Lecture, discussion and hands-on course, prepares students for direct, educational work with parents and children and for continued graduate work in child and family studies, counseling, psychology, social work and/or family life education. A-F only. Pre: 341 or consent.

**FAMR 442 Marriage Development (3)** Marital interaction and development; divorce and remarriage; resources and techniques for marital adjustment, enrichment, and growth. Pre: 340.

**FAMR 444 Contemporary Family Issues (3)** Investigation of current issues with impact upon family quality of life, with emphasis on the interdependent nature of families and their environments. Pre: 340 or consent. **DS**

**FAMR 445 Family Life Education Methodology (4)** Lecture, discussion and hands-on course, with

service learning on Family Life Education Methodology. Repeatable one time. Pre: 341 or 442, or consent.

**FAMR 452 Community Program Development (3)** Concepts and theories of community program development; principles, practices, and procedures in administration and supervision of volunteer services surveyed and analyzed. Pre: 352.

**FAMR 454 Family Public Policy (3)** Cross-national survey of family public policy; analysis, revision, and development of family public policy; impacts of policy on consumers and families. Pre: 352. **DS**

**FAMR 455 Consumer Communications (3)** Development, production, analysis, and evaluation of consumer materials for print media. Use of desktop publishing computer programs. Pre: 360 or an ECON course, or consent.

**FAMR 468 Family Economics (3)** Study of personal family resources and its interaction with the economy. Focuses on contemporary economic problems that affect the welfare of families. Pre: 360 or an ECON course, or consent.

**FAMR 491 Topics in Family Resources (V)** Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable.

**FAMR 492 Internship (4)** Integration and application of academic knowledge and critical skills in supervised work at an approved internship site and through analytical writing assignments and class discussions. Instructor consent required. Repeatable one time. Pre: 230, 340, 360, 380 and 380L.

**FAMR 495 Capstone Portfolio (3)** Preparation of a senior portfolio to be used as assessment of competence relative to national FCS standards. Includes extensive instruction on writing. FAMR majors only. Pre: 230, 340, 360, 380, 380L; 492 or consent.

**FAMR 499 Directed Reading and Research (V)** Independent reading and research on a topic, done under supervision of a faculty member; outcomes contracted in writing with faculty member at beginning of semester. Repeatable two times or up to nine credits. Pre: consent.

## Fashion Design and Merchandising (FDM)

### College of Tropical Agriculture and Human Resources

*The minimum required grade for prerequisites is a grade of D or better.*

**FDM 101 Introduction to the Fashion Industry (3)** Introduction to the fields of apparel design and merchandising including theories of fashion change, apparel industry operations, current industry issues, literature of the field, professional competencies, careers in apparel and related businesses. A-F only.

**FDM 200 Culture, Gender, and Appearance (3)** Social construction of gender within culture and its visual expression through appearance. Analysis of role, identity, conformity, and deviance in human appearance. Open to nonmajors. (Cross-listed as WS 200) **DS**

**FDM 205 Basic Apparel Construction (4)** (3 Lec, 1 3-hr Lab) Principles, concepts, and procedures for quality construction and custom fitting of clothing.

**FDM 210 Western World Fashion History (3)** Historic study of dress as related to customs and cultures in the Western world, in sociohistorical and contemporary contexts. Emphasis on 19th and 20th centuries. Pre: 101.

**FDM 215 Block Pattern Designing (3)** (2 Lec, 1 3-hr Lab) Principles of pattern making for women's apparel through manipulation of pattern blocks. Pre: 205.

**FDM 216 Fashion Illustration (3)** (2 Lec, 1 3-hr Lab) Principles and techniques of sketching the fashion figure including garment details and fabric drape. Development of a personal style of illustration. Introduction to use of computers for illustration. Pre: 101. **DA**

**FDM 221 Textiles I (3)** Introduction to fibers, fabric structure, and finishes related to selection and care. Interrelationship between textile characteristics, properties, and end uses. Open to non-majors. A-F only. **DP**

**FDM 301 Fashion Forecasting/Marketing (3)** Principles and practices in fashion trend forecasting and their role in apparel company marketing strategies. Analysis of aesthetics as it related to apparel and marketing. Adapting fashion trend forecasts to apparel lines. Restricted to FDM majors. Pre: 101, 210, 216, and 221.

**FDM 315 Draping (3)** Principles of pattern making through draping muslin models on standard garment forms. Pre: 205 and 215.

**FDM 316 Advanced Pattern Design (3)** Further study of flat pattern methods and industrial practices for fashion design majors. Use of CAD. Repeatable two times. Pre: 221 and 315.

**FDM 321 Textiles Quality Assurance (3)** Chemical nature and structure of fibers and fabrics, their properties and finishes. FDM majors only. A-F only. Pre: 221 or consent. Co-requisite: 321L. (Spring only) **DP**

**FDM 321L Textiles Quality Assurance Laboratory (1)** Examination of textile properties through standardized textiles testing laboratory equipment. FDM majors only. A-F only. Pre: 221 or consent. Co-requisite: 321. (Spring only) **DY**

**FDM 330 Advanced Apparel Construction (3)** Principles of advanced techniques for garment construction with emphasis on new, difficult-to-handle fabrics. Repeatable one time. Pre: 205 or consent.

**FDM 338 2D/3D Computer Aided Design (3)** Exploration of CAD applications from the design to the pattern-making process. Use of Adobe Illustrator and Photoshop for fashion illustration. Use of OptiTex PDS pattern design software featuring 2D and 3D CAD. Repeatable one time. Pre: 215.

**FDM 340 Computerized Pattern Grading (3)** Gerber Technology (GT) AccuMark System Management. The system is designed to use CAD for specific apparel industry applications in grading patterns into different sizes and making production markers. Pre: 338. Computer skills are helpful.

**FDM 350 Embellishments (3)** Emphasis on design principles as applied to stitchery using a variety of techniques and raw materials. Processes and problems experienced and critiqued in a group environment. Repeatable two times. Pre: 205. **DA**

**FDM 371 Retail Buying and Merchandising (3)** Theories and procedures in selecting, buying and selling apparel and textiles. Types of merchandising organizations, analysis of consumer demand, brick-and-click opportunities and challenges, development of an image, operation location, store and floor layout. FDM majors only. Pre: 101, 216, and 221.

**FDM 375 Merchandise Planning and Control (3)** Theories, problems, and procedures of financial and assortment planning and control of merchandise inventories. FDM majors and merchandising minors only.

**FDM 411 Product Lifecycle Management (3)** Application of principles of apparel production management, including methods engineering (detail construction for ordering), story boards and color tables, production measurements, costing, and PLM computer applications. A-F only. (Once a year)

**FDM 416 Costumes/Cultures of East Asia (3)** Development of traditional dress as visual manifestation of culture. Ethnic and national dress of China, Japan, Korea, Mongolia, Okinawa, Tibet, and Vietnam. Pre: 200, 221, two FG courses; or consent.

**FDM 418 Costumes of South and Southeast Asia (3)** Development of traditional dress as visual manifestation of culture. Ethnic and national dress of Afghanistan, India, Indonesia, Malaysia, Pakistan, Philippines, Thailand and Saudi Arabia. Pre: 200, 221, two FG courses; or consent.

**FDM 419 Apparel Design Studio I (3)** Development of independent expression through creative designing for a ready-to-wear collection. Problem solving in the design process; includes sketching, draping, blocking, muslin proofs, complete garments, and portfolio. Studio courses must be taken in sequence. Repeatable one time. Pre: 210, 221, 316, 330. Enrollment in 419 or 420 is required to show designs in annual fashion show, but doesn't guarantee acceptance. (Fall only)

**FDM 420 Apparel Design Studio II (V)** Development of niche market. Problem solving in the design process. Includes sketching, draping, blocking, muslin proofs, complete garments, and portfolio. Repeatable one time. Pre: 419. Enrollment in 419 or 420 is required to show designs in annual fashion show, but doesn't guarantee acceptance. (Spring only)

**FDM 430 Fashion Show Production (3)** Application of principles and procedures related to the promotion of fashion apparel. Preparation and presentation of fashion information through shows, displays, media, and written communications. Repeatable one time. Pre: 101. (Spring only)

**FDM 437 Small Business Start-up (3)** Application of principles, procedures and techniques of organizing a small retail business in a brick-and-click world. Creative use of low and high tech resources. Students plan, write and evaluate small retail business plans. Junior standing or higher. FDM majors only; open to non-majors with instructor's consent. Pre: 375 or consent.

**FDM 460 Costume Collections Management (3)** Investigation of skills and techniques needed for handling textile and apparel artifacts in museums and other collections. Active involvement in documenting, researching, interpreting, and exhibiting costumes and textiles. Repeatable one time. FDM majors only. A-F only. Pre: 210, 416, or 418.

**FDM 471 International Apparel Trade Issues (3)** Theories, concepts, problems of international trade of textile and apparel products. Issues of importing and exporting apparel products globally. Social, political and economic factors affecting textile and apparel trade.

**FDM 491 Topics in Fashion (V)** Study and discussion of special topics, problems. Offered by staff and visiting faculty. Repeatable five times.

**FDM 492 Internship (4)** Examination of issues and opportunities associated with careers in fashion and related businesses and industries. Topics include interpersonal skills development, job search and interview strategies, and ethical issues in the workplace. FDM majors only. A-F only. Junior standing or higher. Pre: consent.

**FDM 495 Capstone Portfolio (3)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: 492 and senior standing.

**FDM 496 Field Study in the Fashion Industry (V)** Study tours to various centers of the world to examine historical and modern apparel and textiles. Merchandising and design methods and operations examined. Repeatable up to 12 credits. Pre: consent.

**FDM 499 Directed Reading and Research (V)** Repeatable up to 15 credits. Pre: consent.

## Filipino (FIL)

*College of Languages, Linguistics and Literature*

**FIL 101 Beginning Filipino (4)** Listening, speaking, reading, writing skills. Structural points introduced inductively. Meets four hours weekly, includes one hour out-of-class field experience (Co-curricular cultural activities) weekly. **HSL**

**FIL 102 Beginning Filipino (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**FIL 201 Intermediate Filipino (4)** Continuation of 102. Meets four hours weekly, includes one hour

out-of-class field experience (Co-curricular cultural activities) weekly. Pre: 102 or consent. **HSL**

**FIL 202 Intermediate Filipino (4)** Continuation of 201. Pre: 201 or consent. **HSL**

**FIL 224 Filipino for Education (4)** Continuation of 102. Lessons focus on various aspects of Philippine culture and specialized topics that cater to the needs of teachers intending to teach Filipino immigrant students or teach Filipino as a second language. Meets five hours a week; daily lab work. Pre: 102. **HSL**

**FIL 225 Filipino for Education (4)** Continuation of 202 or 224. **HSL**

**FIL 301 Third-Level Filipino I (3)** Conversation, advanced reading and composition on traditional culture and indigenous knowledge. Meets three hours weekly. Pre: 202 or 225, or consent.

**FIL 302 Third-Level Filipino II (3)** Conversation, advanced reading, and composition on contemporary issues. Meets three hours weekly. Pre: 202 or 225, or consent.

**FIL 303 Accelerated Third-Level Filipino (6)**

**FIL 315 Filipino Aural Comprehension (3)** Training in comprehension of spoken authentic/simulated authentic materials presented in news broadcasts, songs, documentary narration, formal lectures, radio and television soap operas, etc. Pre: 202 or consent.

**FIL 330 Filipino Film: Art and History (3)** Study and analysis of Filipino films: its history, forms, development and relationship to cultural, social, philosophical, and aesthetic context. Pre: 202 or consent. **DH**

**FIL 401 Fourth-Level Filipino I (3)** Advanced reading in traditional literature; discussion of cultural implications; advanced conversation and composition. Meets three hours weekly. Pre: 302 or consent.

**FIL 402 Fourth-Level Filipino II (3)** Advanced reading in current literature; discussion of cultural implications; advanced conversation and composition. Meets three hours weekly. Pre: 302 or consent.

**FIL 415 Advanced Filipino Aural Comprehension (3)** Continuation of 315. Training in comprehension and analysis/criticism of spoken authentic materials through films. Pre: 315 or consent. **DL**

**FIL 435 Filipino Translation Techniques (3)** Techniques of bilingual translation: Filipino to English and English to Filipino. A-F only. Pre: 302 or consent.

**FIL 451 Structure of Filipino (3)** Introduction to phonology, morphology, syntax. Pre: 202 or consent. **DH**

**FIL 461 Filipino Contemporary Literature (3)** Selected readings in poetry, short stories, and plays from early 1900s to present. Co-curricular cultural activities included. Pre: 302 or consent. **DL**

**FIL 462 Filipino Contemporary Literature: 1980s-Present (3)** Survey of literature from the 80s (1986) to the present. Co-curricular cultural activities included. Pre: 302 or consent. **DL**

## Finance (FIN)

*Shidler College of Business*

**FIN 301 Personal Finance (3)** Focuses on principles and techniques for handling personal financial decisions, including: personal budgeting, obtaining credit, life and casualty insurance, buying a home, buying an automobile, savings and investments, and retirement planning.

**FIN 305 Problems of Business Finance (3)** Application of financial principles to cases involving important financial decisions. Pre: BUS 314.

**FIN 307 Corporate Financial Management (3)** Development and analysis of modern financial theory and its implications for management decisions: market efficiency, capital asset pricing, firm investment decisions, capital structure, dividend policy, and cost of capital. Pre: BUS 314.

**FIN 311 Investments (3)** Introduction to various investment media and capital markets. Topics include the analysis of security returns using techniques such as beta, filter rules, and portfolio theory. Pre: BUS 314 or consent.

**FIN 321 International Business Finance (3)** Financial management of foreign and international business operations: the regulatory environment of international finance, financing international transactions, international capital markets, taxation. Financial decision-making in the firm. Pre: BUS 314 or consent.

**FIN 331 International Banking (3)** Commercial, investment, and merchant banking. Includes theory and practical applications. Topics include international lending, Euromarkets, global gap management, Forex activities, and global risk management. Pre: BUS 314 or consent.

**FIN 341 Financial Aspects of New Ventures (3)** Examination of underlying business models for new ventures, how to determine corresponding financial requirements, and approaches to resource acquisition. Students explore a range of financing sources and related issues of valuation and deal structure. Pre: junior standing and BUS 314, or consent.

**FIN 399 Directed Reading and Research (V)** Reading and research in a special area of major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and the faculty advisor. Repeatable unlimited times.

**FIN 412 Options and Other Derivatives (3)** Options and other derivatives. Equity options, index options and options on futures. Black-Scholes Model. Trading strategies and tactics. Contemporary developments in financial engineering. A-F only. Pre: 311 or consent.

**FIN 415 Security Analysis and Portfolio Management (3)** Security analysis and portfolio management from standpoint of the professional analyst and institutional investor. Recent advances in security valuation models, portfolio selection, and techniques for appraising portfolio performance. A-F only. Pre: 311.

**FIN 430 Bank Financial Management (3)** Analysis of financial institution management within the domestic economy and regulatory environment. Topics include federal reserve activities, interest rates, regulation, lending, investments, and asset/liability management. Pre: BUS 314.

**FIN 444 Asian Finance (3)** Financial systems, regulatory structure over financial institutions in the Asia-Pacific region. Major financial policy issues for financial sector reforms in the region. Seminar format. A-F only. Pre: BUS 314 or consent.

**FIN 450 Enterprise Risk Management (3)** Overview analyzing various primary risks faced by corporations and developing important risk management techniques with an emphasis on enterprise risk management. Combined lectures, case studies, and discussions. BUS majors only. A-F only. Pre: BUS 314 or consent. (Once a year)

**FIN 467 Seminar in Financial Planning (3)** A capstone course for financial services and planning track. This is a case study course intended to provide students the opportunity to integrate concepts from earlier courses and develop a comprehensive view of the financial planning process. A-F only. Pre: 301 and 311 and two of the following courses: 490E, 490F, ACC 401, INS 300.

**FIN 470 Sustainable Development in East Asia (3)** Interdisciplinary investigation of development in East Asia is an urgent issue. Status and role of Asian business; current technological, economic, and financial developments; impact on world economy. Pre: ASAN 201, ASAN 312, or BUS 314; or consent. (Cross-listed as ASAN 470)

**FIN 490 (Alpha) Advanced Topics in Finance (3)** In-depth analysis of selected current practices and

issues in finance. (B) equity research and corporate valuation methods; (C) Japanese financial management; (D) financial analysis; (E) retirement and employee benefit planning; (F) finance estate planning. A-F only for (E) and (F). Repeatable four times for (D). Pre: 311 and BUS 314 for (B); BUS 314 or BUS 629 for (C); 311 or 634 for (D); 301 for (E) and (F). (Fall only for (B))

**FIN 625 International Monetary Systems and Global Financial Markets (3)** Supply and demand for capital in national and international markets. Nature of capital movements and role of capital in industrialization of regions and nations.

**FIN 633 Problems in Business Finance (3)** Application of financial principles and analytical techniques to financial problems. Case method. Pre: BUS 629 or consent.

**FIN 634 Investment Analysis and Management (3)** Techniques of security analysis, theories of investment, and the analysis of investment decisions related to portfolio planning. Pre: BUS 629 or consent.

**FIN 635 (Alpha) Advanced Topics in Finance (3)** Major current financial issues and problems. (C) Japanese financial management; (D) portfolio management theory; (F) stocks, bonds, and modern instruments. Pre: BUS 629 or consent.

**FIN 637 International Financial Management (3)** Financial decision-making in an international setting: analysis of direct foreign investment; economic, accounting, and regulatory environments, including taxation; international money and capital markets; import and export financing; multinational working capital management; and risk aspects of international finance. Pre: BUS 629 or consent.

**FIN 639 International Banking (3)** Commercial, investment, and merchant banking in the international arena. Includes international lending, Euromarkets, global gap management, Forex activities, and international risk management. Pre: BUS 629 or consent.

**FIN 641 Entrepreneurial Finance (3)** Assessment of financial needs, arranging venture financing, assessing value to the entrepreneur and the investor(s), financial aspects of strategic planning, analyzing the tradeoffs between alternative financing choices and flexibility and control, harvesting the investment. Pre: BUS 629 or consent.

**FIN 645 Advanced Capital Markets (3)** Regulatory structure over capital market institutions, market developmental issues, market microstructure issues, and corporate governance, and creation of capital market infrastructure. Seminar format. Pre: BUS 629 or consent.

**FIN 651 PDEs and Stochastic Calculus (3)** Covers PDEs (Partial Differential Equations) and calculus in a stochastic environment. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 652 Programming in Finance (3)** Addresses programming principles, and programming languages used in financial modeling. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 653 Portfolio Optimization (3)** Introduces students to principles of capital markets, classical portfolio theory, and focus on portfolio optimization. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 654 Financial Derivatives (3)** Will familiarize the students with the mathematical foundation and the application of Futures, Swaps, and Options. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 655 Financial Forecasting (3)** Focus on financial forecasting and financial econometrics as volatility and correlation modeling. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 656 Insurance and Risk Management (3)** Introduces students to topics in the actuarial science

and latest developments in risk management. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 657 Interest Rate/Credit Models (3)** Addresses specific properties of interest rate modelling as mean reversion as well as latest developments in credit risk modelling. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 658 Financial Modelling (3)** Addresses advanced techniques in financial modelling and related fields. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 659 Mortgage/Weather Derivatives (3)** Covers the real estate market, mortgage backed securities (MBSs) and real estate derivatives. Focuses on modelling weather, climate change, and weather derivatives. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 660 Seminar in Finance (3)** In-depth analysis of selected current practices and issues in finance. Pre: BUS 629 or consent. May be repeated with change in topic.

**FIN 661 Research Seminar (3)** Students either program a model or write a paper with high practical or scientific merit. Outcome enhances the chances for employment. Represents the culminating experience for students in this program. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

**FIN 701 Theory of International Finance (3)** Concise framework of conceptual knowledge to understand the literature on financial theory and related empirical evidence. Includes fundamentals of capital markets, capital budgeting, utility theory, asset pricing, and international finance. A-F only. Pre: PhD student status in international management or consent.

**FIN 702 Seminar in International Investments (3)** Seminar covers research issues and methodologies in investments and capital markets. Main topics include theories and empirical characteristics of asset pricing, portfolio diversification and performance evaluation, derivatives, and risk management. A-F only. Pre: 701 and PhD student status in international management, or consent.

**FIN 703 International Corporate Control and Restructuring (3)** Provides and understanding of some of the scholarly research in corporate control and restructuring. Topics include: mergers and takeovers, international corporate governance, corporate restructuring, raising capital, and entrepreneurship. A-F only. Pre: 701 and PhD student status in international management, or consent.

**FIN 704 International Asian Finance (3)** In-depth review of scholarly journal articles and working papers relevant to Asian finance to prepare PhD students for scholarly research work. A-F only. Pre: 701 and PhD student status in international management, or consent.

**FIN 799 Directed Reading and Research (V)** Reading and research in a special area of major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by department chair and the faculty advisor. A-F only. Pre: PhD student status in international management, or consent.

## Food Science and Human Nutrition (FSHN)

*College of Tropical Agriculture and Human Resources*

**FSHN 101 Success Skills Development in Human Nutrition, Food and Animal Sciences (1)** Combined lecture/discussion intended to provide majors in ANSC and FSHN with opportunities to learn about skills, competencies, and university resources necessary to succeed in college. FSHN and ANSC

majors only. A-F only. Pre consent. (Cross-listed as ANSC 101)

**FSHN 141 Culture and Cuisine: The Global Diversity of Food (3)** A timeline of the world history of food and how it relates to culture, diversity, ethnicity, and religion. International food demonstrations and tastings included. **FGB**

**FSHN 181 The Chemical Nature of Food (3)** Lectures, discussions, and demonstrations on how food components contribute to the functional, sensory, and safety characteristics of foods, and what changes occur in foods due to preparation, processing, and storage. Co-requisite: 181L.

**FSHN 181L Food Preparation Lab (1)** (1 3-hr Lab) Experiments in foods emphasizing ingredient function and standard preparation methods for food groups. Co-requisite: 181. **DY**

**FSHN 185 The Science of Human Nutrition (3)** Integration of natural science concepts basic to the study of human nutrition. Emphasis on nutrient requirements of healthy individuals, food sources, functions of nutrients. **DB**

**FSHN 244 Comparative Nutrition (3)** Digestive systems and nutrient functions, interrelationships and metabolism are compared among animal species, including humans. An intermediate, general nutrition course for Food Science and Human Nutrition and Animal Science majors. Pre: ANSC 200 (or concurrent), CHEM 161/L or higher. (Cross-listed as ANSC 244) **DB**

**FSHN 311 Restaurant and Club Management (3)** Critical and essential aspects of managing food and beverage operations and personnel in restaurants and clubs; understanding marketing, menu development and costing, purchasing procedures and inventory control for food and beverages; procurement methods; legislation on dietary menu claims; institutional sanitation responsibility. Pre: 181 and 181L (or concurrent), or consent.

**FSHN 312 Quantity Foods and Institutional Purchasing (4)** (3 Lec, 1 3-hr Lab) Quantity food and beverage operations, menu development and costing, dietary menu claims, purchasing procedures, inventory control, procurement, transportation, legislation. Institutional food service sanitation, Hazard Analysis Critical Control Point and National Restaurant Association Certification. Pre: 181 and 181L, TIM 315 or consent. (Cross-listed as TIM 319)

**FSHN 322 Marketing Nutrition and Food (3)** Fundamental marketing principles applied to nutrition and food. Will include concepts such as the psychology of food purchasing decisions and consumer behavior. Field trips and group projects included. Open to non-majors. Pre: 181/181L, 185, 312; or consent.

**FSHN 350 Humans, Food, and Animals: Ethics, Issues, and Controversies (3)** (2 Lec, 1 3-hr Lab) Ethical issues and other controversies related to human and animal needs; their impact on resource sustainability and quality of life are explored from scientific perspectives. Pre: 181 or 185 or ANSC 200 or ANSC 201. (Cross-listed as ANSC 350)

**FSHN 370 Lifespan Nutrition (V)** Nutritional requirements and food needs during infancy, early childhood and adolescence, and aging. One credit provided for each age group module. One to three credits. Pre: C or better in CHEM 161/161L, B or better in 185; or consent. Co-requisite: PHYL 142/142L, or consent. **DB**

**FSHN 381 Experimental Foods (4)** (3 Lec, 1 3-hr Lab) Experimental approach to study food preparation problems. Applying basic food science research design to conduct experiments, interpret data and write reports. Subject matter used to practice critical thinking and problem solving skills. Pre: 181, 181L, CHEM 272 or similar organic chemistry course, the equivalent of two years of high school algebra; or consent. **DB**

**FSHN 389 Nutritional Assessment (3)** (2 Lec, 2 1.5-hr Lab) Addresses concepts and uses of nutrition assessment tools at individual and community levels.

Students will be introduced to national surveys and new, more sophisticated body composition measurements. Repeatable one time. A-F only. Pre: 185, 370 (or concurrent), or consent.

**FSHN 403 Microbiology of Foods (3)** Microorganisms encountered in foods; types of food spoilage; microbial hazards in food; methods of food preservation. Pre: MICR 130 and MICR 140L, or consent. **DB**

**FSHN 411 Food Engineering (3)** (2 Lec, 1 3-hr Lab) Principles and application of thermodynamics, electricity, fluid mechanics, heat transfer, psychrometry, and material and energy balances of food processing and preservation. Pre: BIOL 171, CHEM 162 or CHEM 181A, MATH 243, PHYS 151 or PHYS 170; or consent. (Cross-listed as BE 411) **DP**

**FSHN 420 Sensors and Instrumentation for Biological Systems (3)** Principles of common physical and chemical sensors. Interfacing sensors to different electronic circuits and instrumentation systems. Electronic detection and quantification of biomolecules (biosensors). Applied control for biological processes. Pre: EE 160, EE 211, and BE 350; or consent. (Cross-listed as BE 420) **DP DY**

**FSHN 430 Food Chemistry (3)** Chemical properties of food constituents studied in relationship to their effects on processing, nutrition, and spoilage. Pre: CHEM 272/272L, or consent. **DP**

**FSHN 430L Food Chemistry Lab (1)** (1 3-hr Lab) Application of different chemical methods in the study of food constituents—proteins, lipids, carbohydrates, pigments, enzymes, etc. Pre: 430 (or concurrent). **DY**

**FSHN 440 Food Safety (3)** Discussion of potential microbiological, parasitic, chemical, and natural food hazards; food laws and standards; and related aspects of consumer protection. Pre: 181, BIOL 171, and CHEM 272; or consent. **DB**

**FSHN 445 Food Quality Control (3)** Fundamental principles of quality control in the food industry: measurement of quality parameters, utilization and integration of the individual test procedures into grades and standards of quality, sampling, and reporting results.

**FSHN 451 Community Nutrition (3)** (2 Lec, 1 3-hr Lab) Concepts and methods of nutrition program planning; analysis of nutritional problems of local, national, and international communities. Pre: 370 and either FAMR 380 or NREM 310; or consent.

**FSHN 452 Concepts in Nutrition Education (3)** (2 Lec, 1 2-hr Discussion) Concepts, methods, and materials used in nutrition education of community, clinical, and school populations. Strategies used to educate groups or individuals. Pre: 451 and consent.

**FSHN 460 Food Processing Operations (3)** (2 Lec, 1 2-hr discussion) Principles and applications of food dehydration, thermal processing, low temperature preservation, chemical and biochemical preservation, irradiation, packaging, manufacturing, plant sanitation, water and waste management. Pre: 403, 430, PHYS 151/151L; or consent.

**FSHN 467 Medical Nutrition Therapy I (V)** Development of dietary, anthropometric and clinical lab assessment skills measuring nutritional status. Understanding pathophysiology of disease processes, medical terminology and nutritional intervention, utilizing case studies. Pre: 486 or consent. **DB**

**FSHN 468 Medical Nutrition Therapy II (3)** Understanding of the pathophysiology of disease processes and nutritional intervention, using medical terminology and case studies. Pre: 467 or consent. **DB**

**FSHN 469 Nutrition Counseling Skills (2)** Theory and practice in nutritional counseling. Combined lecture and discussion on nutrition/dietary counseling. Knowledge and theories. Application through lab experiences including role playing, case presentations, and performing actual counseling sessions. A-F only. Pre: 467 (or concurrent) or consent.

**FSHN 475 Applied Human Nutrition (3)** Application of basic nutrition principles; includes sources and functions of essential nutrients and food patterns compatible with nutrient needs, health, disease prevention, and sustainability. Intended for undergraduate and graduate students. Pre: CHEM 151 (or higher) or BIOC 241 (or higher); PHYL 141, BIOL 171; or consent. **DB**

**FSHN 476 Cultural Aspects of Food Habits (3)** Study of eating from behavioral perspectives. Implications for health practitioners and health education. Pre: two classes from ANTH 151 or higher or SOC 100 or higher or PSY 100 or higher.

**FSHN 477 Food Analysis (2)** Principles of sample preparation and chemical and physical analysis of food components using current methodology. Pre: 430; and CHEM 162 or higher; and BIOL 402 or MBBE 402 or PEPS 402.

**FSHN 477L Food Analysis Lab (2)** (2 3-hr Lab) Application of different chemical and physical methods for the identification and quantitation of food components. Co-requisite: 477. **DY**

**FSHN 480 Nutrition in Exercise and Sport (3)** Effects of physiologic demands of exercise on nutrition. Emphasis on physiologic and biochemical basis for nutrition recommendations to enhance exercise participation and optimize athletic performance. Pre: 185 or consent. (Cross-listed as KRS 480) **DB**

**FSHN 485 Nutritional Biochemistry I (3)** Metabolism and biochemistry of carbohydrates, lipids, and proteins, including chemical structure, digestion, absorption, transport, cellular/molecular functions in human nutrition; integration of metabolic pathways; energy metabolism and balance, including relevance to chronic disease. Repeatable one time. Pre: PHYL 142/142L or PHYL 302/302L; BIOC 341 or higher or MBBE 375 or MBBE 402. **DB**

**FSHN 486 Nutritional Biochemistry II (3)** Metabolism and biochemistry of vitamins, minerals, and dietary fiber, including chemical structure, digestion, absorption, transport, and cellular/molecular functions in human nutrition; relevance to establishing nutrient requirements and to mechanisms of chronic disease. Repeatable one time. Pre: 485 or consent. **DB**

**FSHN 488 Obesity, Science, and Issues (2)** In-depth study of obesity, including research, etiology, treatment, and prevention. Pre: 480 and 486.

**FSHN 491 Topics in Food Science and Human Nutrition (V)** Study and discussion of significant topics, problems, or laboratory experiments. Repeatable unlimited times. Pre: instructor approval.

**FSHN 492 Field Experience (4)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. A-F only. Pre: senior standing in FSHN. (Cross-listed as ANSC 492)

**FSHN 494 Food Science Capstone (3)** Field practicum designed to integrate knowledge from previous FSHN courses to develop novel and innovative food products. Students deal with shelflife, marketing, packaging, labeling, sensory evaluation, and quality assurance. Repeatable one time. FSHN majors only. A-F only. Pre: 381 and 460, or consent.

**FSHN 499 Directed Reading and Research (V)** Repeatable unlimited times.

**FSHN 500 Master's Plan B/C Studies (1)**

**FSHN 601 The Science of Food Systems (2)** (1 50-min Lec, 1 2-hr discussion) Discussion of food systems as they apply to animal science, food science, and human nutrition. Repeatable one time. Pre: graduate standing or consent. (Cross-listed as ANSC 601)

**FSHN 607 Advanced Food Science I (3)** Advanced topics in chemical and physical characteristics of foods as well as their role in human nutrition. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological sci-

ence, physics, and biochemistry. Basic knowledge of food science is expected; or consent. (Cross-listed as MBBE 607)

**FSHN 608 Advanced Food Science II (3)** Advances in sensory quality and evaluation, deterioration of foods and food safety, as well as food processing technology. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological sciences, physics, and biochemistry. Basic knowledge of food science is expected; or consent.

**FSHN 609 Advanced Food Safety (3)** Real and perceived food hazards, their ethical issues and implications, advanced emerging topics in food safety, and controls, including laws and regulations of food safety issues and public perception of food safety will be discussed. A-F only. Pre: graduate student status with undergraduate courses in biochemistry, microbiology, food processing, physics and organic chemistry. Basic food science knowledge is required; or consent.

**FSHN 633 International Nutrition (3)** Analysis of major nutrition problems in developing countries. Comparative review of the design, implementation, and evaluation of programs to intervene in the development of malnutrition. Pre: 185 or consent.

**FSHN 650 DNA and Genetic Analysis (2)** Combined lecture-lab for students interested in genetic analysis of humans, animals, and other species. Molecular techniques, such as PCR, DNA marker identifications, transgenics, expression analysis and functional genomics, are included. Open to nonmajors. Pre: graduate standing or consent. (Cross-listed as ANSC 650 and MBBE 650)

**FSHN 652 Information Research Skills (1)** Examines the use of libraries and information technology for scholarly investigation in support of scientific research; provides experience utilizing and critically evaluating a variety of print and electronic sources in basic and applied sciences. Pre: consent. (Cross-listed as ANSC 652, NREM 652, and TPSS 652)

**FSHN 657 Grant Writing for Graduate Students (1)** Combined lecture/discussion on grants and grant writing. Designed to introduce graduate students to grants and grant proposal writing through lectures, class discussion, writing assignments, and peer review. Open to CTAHR graduate students only; others with consent. (Cross-listed as ANSC 657 and TPSS 657)

**FSHN 668 Advanced Topics in Clinical Nutrition (2)** Advanced topics in nutrition assessment, diagnosis, and interventions of patients with specialized clinical conditions. Students will further their knowledge in clinical research methods through case study presentations and evidence-based review. Repeatable one time. Pre: 389 and 467; or instructor consent.

**FSHN 681 Seminar in Food and Nutritional Sciences (1)** Student presentation of literature reviews and research. Repeatable five times. Pre: consent.

**FSHN 682 Topics in Nutritional Sciences (1)** Advanced topics in nutritional sciences, from basic to applied research, including current issues in nutrition and critical analysis of current research literature. Repeatable four times. Pre: consent.

**FSHN 683 Global Nutrition (2)** Examination of global food and nutrition problems, programs, issues, policies, and strategies for improvement. Pre: statistics and consent. (Alt. years: fall) (Cross-listed as PH 683)

**FSHN 685 Nutrition and Disease: Cellular and Molecular Aspects (3)** In-depth lecture, discussion, and student presentations on selected topics relating nutrition to the etiology and prevention of chronic diseases at the cellular and molecular level. Repeatable one time. Pre: 485 and 486; statistics; or consent.

**FSHN 687 Advanced Lab Techniques (3)** (1 Lec, 2 3-hr Lab) Advanced laboratory techniques used in food science and human nutrition research. Pre: graduate standing or consent. (Cross-listed as ANSC 687 and MBBE 687)

**FSHN 689 Nutritional Epidemiology (3)** Dietary, biochemical, anthropometric and clinical methods used for evaluating nutrition and diet in the etiology and epidemiology of disease. Pre: 685 and PH 663, or consent. (Cross-listed as PH 689)

**FSHN 695 Plan B Master's Project (3)** Independent study for students working on a Plan B Master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. A-F only. Pre: graduate standing in nutritional sciences.

**FSHN 699 Directed Reading and Research (V)** Repeatable unlimited times.

**FSHN 700 Thesis Research (V)** Repeatable unlimited times.

**FSHN 701 Topics in Food Science (1)** Advanced topics in food science and technology, from basic to applied research, including current issues in food science and technology and critical analysis of current research literature. Repeatable one time. A-F only. Pre: graduate standing or consent.

**FSHN 784 Dietary Fiber, Bioactive Food Components and Health (3)** Lecture/discussion of current research on gut physiology, gut microbes, dietary fiber, bioactive food components, and their impact on health, including colorectal cancer, inflammatory bowel disease, heart disease, diabetes, and immune function. Pre: 485 and 486 (or equivalent), statistics, physiology; or consent.

**FSHN 785 Diet and Cancer Seminar (1)** Presentation-discussion of selected research topics in the field of diet-cancer relationships including: nutritional epidemiology of cancer, diet and supplement intervention trials, and cellular/molecular effects of diet on cancer pathophysiology. Repeatable one time. Pre: 685 and 689, or consent.

**FSHN 800 Dissertation Research (V)** Research for doctoral dissertation in nutrition. Repeatable unlimited times. Graduate standing only. Satisfactory only. Pre: candidacy for PhD in Nutrition.

## French (FR)

*College of Languages, Linguistics and Literature*  
All courses are conducted in French.

**FR 101 Elementary French (3)** Conversation, grammar, and reading. **HSL**

**FR 102 Elementary French (3)** Conversation, grammar, and reading. Pre: 101 or consent. **HSL**

**FR 110 Immersion French-Elementary (6)** Content of 101-102 covered in one semester. Three two-hour sessions per week. **HSL**

**FR 201 Intermediate French (3)** Reading, conversation, laboratory drill, composition. Pre: 102 or 110 or consent. **HSL**

**FR 202 Intermediate French (3)** Continuation of 201. Pre: 201. **HSL**

**FR 210 Immersion French-Intermediate (6)** Content of 201-202 covered in one semester. Three two-hour sessions per week. Pre: 102 or 110 or consent. **HSL**

**FR 258 Intermediate French Abroad (3)** Intensive course of full-time formal instruction on the second-year level in French language and culture in a French-speaking country. Pre: 102 or 110 or consent. **HSL**

**FR 259 Intermediate French Abroad (3)** Continuation of 258. **HSL**

**FR 301 French Phonetics (3)** Analysis of phonological system; methods of teaching pronunciation; understanding various types of spontaneous speech. Drills in pronunciation, intonation, stress, and rhythm. Pre: 202 or 210 or 259 or consent. **DH**

**FR 302 Reading in French (3)** Development of language skills through reading of cultural and literary texts. Pre: 202 or 210 or 259 or consent.

**FR 306 Structure of French (3)** Structure of contemporary French as analyzed by descriptive linguists. Pre: 202 or 210 or 259 or consent. **DH**

**FR 309 Business French (3)** Reading and writing commercial materials. Pre: 202 or 210 or 259 or consent.

**FR 311 Conversation (3)** Systematic practice for control of spoken French. Further development of vocabulary for accurate, mature expression. Pre: 202 or 210 or 259 or consent.

**FR 312 Composition (3)** Emphasis on strengthening facility with language through further training in syntax, structure, and composition writing. Pre: 202 or 210 or 259 or consent.

**FR 321 Advanced Conversation (3)** Systematic and advanced practice for control of spoken French, advanced development for accurate, mature expression. Pre: 311 or consent.

**FR 331 Survey of French Literature (3)** Major authors and movements. Pre: 311 (or concurrent) and 312; only 311 may be concurrent. **DL**

**FR 332 Survey of French Literature (3)** Continuation of 331. Pre: 311 (or concurrent) and 312; only 311 may be concurrent. **DL**

**FR 358 Third-Level French Abroad (3)** Intensive formal instruction at the third-year level in French language skills: reading, writing, grammar, or conversation in a French-speaking country. Pre: 202 or 210 or 259 or consent.

**FR 359 Third-Level French Abroad (3)** Continuation of 358.

**FR 360 Intensive Third-Level French Abroad (V)** Intensive formal instruction at the third-year level in French language skills: reading, writing, grammar, or conversation in a French-speaking country. Pre: 202 or 210 or 259 or consent.

**FR 361 Contemporary French Civilization (3)** Survey of culture and institutions of modern France. Pre: 202 or 210 or 259 or consent. **DH**

**FR 364 Survey of French Civilization (3)** A historical survey of the development of French culture. The course is interdisciplinary, focusing on the relations between politics, literature, science, and the arts. Pre: 202 or 210 or 259 or consent. **DH**

**FR 391 (Alpha) Topics in French Literature (3)** (B) French film; (C) the Fantastic; (D) Francophone literature. Repeatable two times with consent. Pre: 311 or 312, or consent. **DL**

**FR 399 Directed Reading (V)** Independent study of approved reading with faculty supervision. Repeatable two times. A-F only. Pre: consent.

**FR 405 Advanced Oral and Written Expression (3)** Further development of listening, comprehension, speaking, and writing skills through viewing of French videotapes, reading French newspapers, frequent oral and written reports. Pre: 311 and 312, or 306, or 358, or 360; or consent.

**FR 406 French-English Translation (3)** Practice in techniques based on contrastive linguistics. Translation of texts from various fields from French into English and the reverse. Pre: 306 or 309, and 312; or consent.

**FR 408 Masterpieces of Medieval Literature (3)** Samplings from epic, novel, verse and prose, tale, lyric poetry, chronicle, theater, didactic literature. Elementary readings in original text in editions giving modern French translation. Pre: 331 or consent. **DL**

**FR 409 Advanced Language Study: French (3)** Advanced course in spoken and written French with intensive review of alternative grammatical structures and shades of meaning in the modern language. Graduates who have not taken prerequisites may request consent. Pre: 306 or 405 (or equivalent); or consent.

**FR 410 Masterpieces of 16th-Century Literature (3)** Samplings from all major writers of the period. Readings in original text in editions giving modern French equivalents for difficult words. Pre: 331 or consent. **DL**

**FR 411 Masterpieces of 17th-Century Literature (3)** Principal works of major dramatists: Corneille, Moliere, Racine. Principal movements and major

authors of non-dramatic prose and poetry. Pre: 331 or consent. **DL**

**FR 413 Masterpieces of 18th-Century Literature (3)** Pre: 332 or consent. **DL**

**FR 417 19th Century French Prose and Poetry (3)** Study of representative prose and poetry of the major trends of 19th century France: romanticism, realism, symbolism, aestheticism. Pre: 332 or consent. **DL**

**FR 421 20th-Century French Theater (3)** Major French playwrights and their works: Claudel, Giraudoux, Anouilh, Sartre, Camus, etc. Pre: 332 or consent. **DL**

**FR 423 20th Century French Prose and Poetry (3)** Study of representative prose and poetry of the major trends of 20th century France: modernism, surrealism, existentialism, postmodernism and multiculturalism. Pre: 332 or consent. **DL**

**FR 458 Fourth-Level French Abroad (3)** Intensive course of full-time formal instruction on the fourth-year level in French linguistics, civilization, culture, and literature in a French-speaking country. Pre: 359 or 360 or equivalent.

**FR 459 Fourth-Level French Abroad (3)** Continuation of 458.

**FR 460 Intensive Fourth-Level French Abroad (V)** Intensive course of formal instruction on the fourth-year level in French language, culture and literature in a French-speaking country. For semester programs only. Pre: 360 or equivalent.

**FR 491 (Alpha) Seminar in French Literature (3)** (B) French literature by period; (C) Francophone literature; (D) French film; (E) topic in French literature. Repeatable one time for different alphas. Pre: 331 (or concurrent) and 332 (or concurrent), or consent. **DL**

**FR 499 Directed Reading and Research (V)** Independent study of approved readings and research with faculty supervision. Repeatable two times. A-F only. Pre: consent.

**FR 506 French for Reading Proficiency (3)** Reading of scholarly and technical French for graduate students; open to undergraduates with consent of department chair. Not applicable to undergraduate language requirement. Repeatable two times with consent. CR/NC only.

**FR 601 Seminar in 20th-Century French Literature (3)** Authors and movements of modern period.

**FR 609 French Renaissance (3)** Poetry, theater, prose. Emphasis on Montaigne and Rabelais. Lectures, discussions, reports.

**FR 620 Masterpieces of the 17th Century (3)** Dramatic or prose works of the classical period.

**FR 651 Philosophic Currents in 18th Century (3)** Philosophic movements and their impact on the social, political, and literary life of the period and the modern era.

**FR 661 Advanced French-English Translation: Practice and Theory (3)** Advanced practice in translation into French and from French to English in various fields (literature, business, medicine, other), with reflection on choices. Readings in translation theory.

**FR 671 History of the French Language (3)** Origins and development of French language in its cultural context. Contrastive analysis.

**FR 672 Seminar in Medieval Literature (3)** Genesis and evolution of literary genres from the 12th to 15th centuries. Epic, romance, lyric poetry, prose, and drama. Repeatable two times with consent.

**FR 681 Seminar: The Novel in France (3)** Novels which have influenced movements or established techniques. Repeatable two times with consent.

**FR 690 The Theater in France (3)** Historical development; major dramatists who have influenced movements or established techniques. Pre: 6 credit hours at 400 level.

**FR 699 Directed Research (V)** Repeatable unlimited times. Pre: consent of department chair.

**FR 735 Seminar in French Literature (3)** Study of authors or a period. Repeatable two times with consent. Pre: consent of instructor and French graduate advisor.

## Geography (GEOG)

### College of Social Sciences

*Sophomore standing or higher or consent is required for all 300-level courses except as noted. Junior standing or higher or consent is required for all 400-level courses except as noted.*

**GEOG 101 The Natural Environment (3)** Introduction to physical geography including weather, climate, vegetation, soils, geology, and landforms. Environmental issues and natural hazards. **DP**

**GEOG 101L The Natural Environment Lab (1)** A survey of field and laboratory methods commonly used by physical geographers. Pre: 101 (or concurrent). **DY**

**GEOG 102 World Regional Geography (3)** World's major cultural regions; geographic aspects of contemporary economic, social, political conditions. **FBG**

**GEOG 104 Introduction to Geotechnology (3)** Cartographic representation and meaning in a digital age. Earth models, map projections, coordinate systems, scale, distance, and direction. Data types and transformations in graphic and digital representation. Manual, automated, and web-based map making and analysis.

**GEOG 151 Geography and Contemporary Society (3)** Elements of economic geography and resource management, population and urban geography; application to current problems of developed and underdeveloped worlds. **FGC**

**GEOG 300 Introduction to Climatology (3)** Elements and controls of climate. World patterns of insolation, temperature, evaporation, precipitation, atmospheric circulation. Climatic classifications. Pre: 101 or MET 101 or MET 200, or consent. **DP**

**GEOG 302 Global Environmental Issues (3)** Use and abuse of natural resources and humanity's progress toward developing a sustainable relationship with its supporting environment. A-F only. (Once a year)

**GEOG 303 General Geomorphology (3)** Introduction to geomorphological concepts, process mechanics, and relationships between forms and processes. Emphasis on various subdisciplines of geomorphology: coastal hillslopes, fluvial, aeolian, and glacial. Pre: 101 and 101L, or GG 101 and GG 101L. **DP**

**GEOG 305 Water and Society (3)** Interaction of people with water at household, community, regional, national, and international scales, from cultural, political, economic, and biophysical perspectives. Pre: sophomore standing or higher, or consent. **DS**

**GEOG 309 Introduction to Biogeography (3)** Introduction to ecosystem concept; environmental adaptations for energy and nutrient transfer; characteristics, dynamics, productivity, and distribution of principal vegetation communities. Human dominance. Pre: sophomore standing or higher, or consent. **DB**

**GEOG 310 Introduction to Planning (3)** Perspectives on planning; planning tools and methods; specific Hawai'i planning—research problems from a multidisciplinary approach. Pre: junior standing or consent. (Cross-listed as PLAN 310) **DS**

**GEOG 320 Economic Geography (3)** Examines how factors of production like land, labor and capital; economic activities like consumption, trade, production, and investments; and institutions like state, markets, and corporations alter economic space. A-F only. Pre: 102 or 151. (Fall only) **DS**

**GEOG 322 Globalization and Environment (3)** Debates on globalization and development, population and resources; root causes of environmental degradation; impacts of globalization on environmentalism and environmental change; social approaches to

managing environmental change. Pre: 102, 151, or consent. (Once a year) **DS**

**GEOG 324 Geography of Global Tourism (3)** Tourist landscape in relation to resources, spatial patterns of supply and demand, impacts of tourism development, and models of tourist space. Flows between major world regions. Pre: sophomore standing or higher, or consent. (Cross-listed as TIM 324) **DS**

**GEOG 325 World Resources and Economic Development (3)** The pattern of world economic development. Agricultural resources and industries. Mineral resources, energy and metal industries. Manufacturing industries in development. The network of world trade, regional associations, and international economic aid. **DS**

**GEOG 330 Culture and Environment (3)** Introduction to cultural geography, the cultural landscape, and perceptions of the environment across different cultures. Pre: 102 or 151, or consent. **DS**

**GEOG 335 Politics, Nations, and States (3)** Examines the political organization of space in the sovereign state system. Contemporary and historical analyses of boundaries, geopolitics, homelands, nations, nationalism, and territory. Pre: sophomore standing or higher, or consent. **DS**

**GEOG 340 Geography of North America (3)** Overview of the physical and cultural geography. Regions and characters. Patterns of population, natural resources, industry, agriculture, and transportation/communication networks. Pre: 101 or 102 or 151, or consent. **DS**

**GEOG 352 Geography of Japan (3)** Regional synthesis of physical and cultural features; economic, social, political geography; origins and development of cities. **DS**

**GEOG 353 Geography of China (3)** Topics: environmental parameters and resource base, ecological control and resource management, institutional and technological transformation of agriculture, industrial potential and industrial location, settlement patterns and rural urban symbiosis. **DS**

**GEOG 355 Geography of South Asia (3)** Introduction to physical and human geography of India, Bangladesh, Pakistan, Sri Lanka, Himalayan kingdoms. Environmental, economic, social, cultural, and political factors in development. **DS**

**GEOG 356 Geography of Southeast Asia (3)** Southeast Asia in world economy. Human and physical resources; returns achieved by various methods of land use. National economies; problems and prospects of modernization. **DS**

**GEOG 365 Geography of the Pacific (3)** Physical character of the Pacific; cultural, political, economic geography of Melanesia, Micronesia, Polynesia (except Hawai'i). **DS**

**GEOG 366 Geography of Honolulu (3)** Development of Honolulu and O'ahu from 1778. Evolution of function, land use, and social patterns. Contemporary planning and environmental issues arising from urban growth. **DS**

**GEOG 368 Geography of Hawai'i (3)** Regional, physical, cultural geography. Detailed study of people and resources. **DS**

**GEOG 370 Aerial Photo and Image Interpretation (3)** (2 Lec, 1 3-hr Lab) Introduction to the measurement, interpretation, analysis, and use of aerial photographs and digital imagery. Pre: 104, or consent.

**GEOG 375 Introduction to Cartography and Air Photo (3)** (2 Lec, 1 3-hr Lab) Principles of cartography: compilation and measurement from aerial photographs, alternate forms of data presentation, symbolism, design, and map projection.

**GEOG 376 Map Design and Production (3)** (3 2-hr Lab) Compilation, design and production of maps for presentations, research, and illustration using artists and mapping software. Pre: junior standing or higher, or consent.

**GEOG 380 Statistical Methods in Geography (3)** Quantitative statistical methods will be explored for

describing and interpreting geographic/environmental phenomena. Topics will include data display, measurement, sampling, spatial statistics, dimensional analysis, nonparametric and parametric models. Pre: 101 or 102 or 151 (or concurrent) or consent.

**GEOG 385 Research Methods in Human Geography (3)** Introduction to the methodologies and practice of research in human geography. Combines lectures, workshops, and assignments. Students will conduct and report upon their own research. Pre: 102 or 151, or consent. **DS**

**GEOG 387 GIS Data Visualization (3)** Display techniques for statistical and terrain data. Cartographic communication models, data models, algorithms and symbol conventions. Techniques for assessing map design. Pre: 380 or SOCS 225 or ECON 321, or consent. **DS**

**GEOG 388 Introduction to GIS (3)** Design, implementation, and use. Database construction and documentation. Techniques for spatial data manipulation and display. Evaluation of existing systems. Student research projects. Pre: 104 or consent.

**GEOG 399 Directed Reading (V)** Limited to senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in geography.

**GEOG 400 Vegetation and the Climate System (3)** Role of vegetation in the climate system; links to hydrology and biogeochemical cycling; vegetation and climate history; evolution of terrestrial ecosystems; effects of global warming. Pre: 101 or 300 or 401 or 402 or 405 or MET 101 or MET 200 or MET 302 or MET 303 or MET 310, or consent. **DP**

**GEOG 401 Climate Change (3)** Approaches to the study of past and future climate change. Pre: 101 or 300 or 401 or 402 or 405 or MET 101 or MET 200 or MET 302 or MET 303 or MET 310, or consent. **DP**

**GEOG 402 Agricultural Climatology (3)** Analyzing climatic data; relation to photosynthesis, phenological development, and crop yields. Crop-weather models as guides to improved land-use planning and agronomic practices. Pre: 101 or 300 or 400 or 401 or 405 or MET 101 or MET 200 or MET 302 or MET 303 or MET 310, or consent. **DP**

**GEOG 403 Fluvial Geomorphology (3)** Introduction to the single most important geomorphic agent shaping the terrestrial environment. Focus on fluvial process, fluvial dynamics, fluvial landforms, and sediment transport. Pre: 101/101L or 303 or GG 101/101L. **DP**

**GEOG 404 Atmospheric Pollution (3)** Examination of air quality problems from scientific and policy perspectives. Includes case studies that explore economic, political, technical, and legal aspects of pollution control. Pre: junior standing or higher, or consent. **DS**

**GEOG 405 Water in the Environment (3)** Water fluxes in the environment. Occurrence and movement of water; methods of quantification. Water balance of soil-plant system: precipitation, interception, infiltration, runoff, soil moisture, evapotranspiration, and groundwater recharge. Pre: 101 or 300 or 400 or 401 or 402 or MET 101 or MET 200 or MET 302 or MET 303 or MET 310, or consent. **DP**

**GEOG 408 Conservation and Evolutionary Biogeography (3)** Theories and techniques for the analysis of spatial microevolutionary patterns, taught from an interdisciplinary perspective. Examples and readings emphasize Hawai'i and the Pacific region. Pre: either 309, BIOL 265 or ZOOL 485, or consent. (Alt. years)

**GEOG 409 Cultural Biogeography (3)** Coevolution of human societies and plants over the last 10,000 years. Foraging, farming and urban societies economies; spread and modification of selected plants; issues of preservation of genetic resources and traditional plant knowledge. The form and function of gardens. A-F only. Pre: junior standing or higher, or consent. (Cross-listed as TPSS 409) **DS**

**GEOG 410 Human Role in Environmental Change (3)** Human impacts through time on vegetation, animals, landforms, soils, climate, and atmosphere. Special reference to Asian/Pacific region. Implications of long-term environmental change for human habitability. Pre: one of 101, BIOL 101, BIOL 123 and either 326 or BIOL 310; or consent. (Cross-listed as BIOL 410) **DB**

**GEOG 411 Past Global Change and the Human Era (3)** Study of past environments to understand present and future global change. Focus on terrestrial Quaternary environments and global processes. Pre: junior standing or higher, or consent. **DP**

**GEOG 412 Environmental Impact Assessment (3)** Introduction to analytical methods for identifying, measuring, and quantifying the impacts of changes or interventions in resource, human-environment, and other geographic systems. Pre: junior standing or higher, or consent. (Alt. years)

**GEOG 413 Resource Management (3)** (2 Lec, 1 3-hr Lab) Hands-on development of analytical models for application to problems of water resource, coastal fisheries, agroforestry, and/or land management. Focus on problems facing Hawai'i and the Pacific. Pre: junior standing or higher. **DS**

**GEOG 414 Building Community Resilience (3)** Intended to give you a good understanding of the natural forces behind the most common natural disasters, and the human actions that reduce or increase vulnerability to natural disasters. A-F only. Junior standing or higher. (Spring only) (Cross-listed as PLAN 414)

**GEOG 415 Nature-Based Tourism Management (3)** Principles of nature-based tourism, including a survey of impacts, objectives, planning, and management systems. Junior standing or higher. Pre: 324/TIM 324 or TIM 101. (Cross-listed as TIM 415) **DS**

**GEOG 421 Urban Geography (3)** Origins, functions, and internal structure of cities. Problems of urban settlement, growth, decay, adaptation, and planning in different cultural and historical settings. Dynamics of urban land use and role of policies and perceptions in shaping towns and cities. Pre: 102 or 151 or 330, or consent. (Cross-listed as PLAN 421) **DS**

**GEOG 422 Agriculture, Food and Society (3)** Examines historical and contemporary development of the global agro-food systems. The impacts of technological, political and economic changes to food security, environment and development. Open to nonmajors. Pre: junior standing or higher, or consent. **DS**

**GEOG 423 Human Dimensions of the Coastal Ocean (3)** The coastal ocean as an ecosystem of global significance where human influences concentrate. Application of science and social values to environmental problems of oceans. Open to nonmajors and graduate students. Pre: junior standing or higher, or consent. (Once a year)

**GEOG 424 Regional Analysis (3)** Spatial dynamics and environmental implications of urban and rural development. Concepts of regions, process of regional development, patterns of spatial interaction, and theoretical bases for development strategies; emphasis on Hawai'i. Pre: junior standing or higher, or consent. **DS**

**GEOG 425 The Geography of Film (3)** Landscapes of film. How movies work by conveying a sense of space and a sense of place. Genres and landscapes. Pre: junior standing or higher, or consent. **DH**

**GEOG 426 Environment, Resources and Society (3)** Human interaction with the environment. How market, property institution, and technological change affect the environment. Epistemological basis of environmental policies. Debates on controversial environmental issues. Pre: 102, 151, or consent. **DS**

**GEOG 435 Political Geography of Oceans (3)** The oceans' evolution and relation to problems of economic development, resources, seapower,

shipping, trade. Pre: junior standing or higher, or consent. **DS**

**GEOG 436 Geography of Peace and War (3)** Geographical factors underlying conflict in the world. Pre: sophomore standing or higher, or consent. **DS**

**GEOG 453 Geography of China's Modernization (3)** Applies geographic principles and approaches to explore the rapid transformation of the spatial structure of recent socioeconomic development in China. Emphasis given to resource management and environmental quality, which are important factors in sustainable development. Pre: 102 or 151, or consent. **DS**

**GEOG 468 (Alpha) Topics in Geography (3)** Selected topics in geography not offered in the regular geography curriculum. Pre: 101 or 102 or 151, or consent.

**GEOG 470 Remote Sensing (3)** (2 Lec, 1 3-hr Lab) Introduction to the principles of remote sensing and image processing skills. Topics include electromagnetic spectrum, sensors, aerial photo and satellite imagery interpretation, geometric and radiometric correction, digital image processing. Research project, lab. Pre: 370 or consent.

**GEOG 472 Field Mapping (3)** Techniques for field measurement and recording of cultural and physical data. Field sketching, Brunton surveying, plane table mapping, oblique photo compilation, topographic mapping, and representation of field data. Pre: junior standing or higher, or consent. **DS**

**GEOG 476 Advanced Cartography (3)** (3 2-hr Lab) Special topics: computer mapping, relief representation, map reproduction methods, use of color, analytic map interpretation, experimental cartography. Pre: consent.

**GEOG 489 Applied Geographical Information Systems (3)** (2 Lec, 1 2-hr lab) Application of GIS technologies to various problems or issues in social, natural, and environmental sciences. Research project, lab. Pre: 388 or consent. (Once a year)

**GEOG 490 Senior Thesis (3)** Preparation of research paper under individual faculty supervision. Recommended for admission to graduate program. Pre: senior GEOG major and consent.

**GEOG 492 Practicum in Geography (V)** Internship in applied geography under professional and faculty supervision. Field placement integrated with academic study. Repeatable up to six credit hours maximum. Pre: senior major and consent.

**GEOG 493 Capstone Undergraduate Seminar (3)** Current and historical geographic literature provides a background for local and global issues. Through discussion, written reviews, and research reports, the geographic perspective in modern life will be explored. Pre: senior GEOG major.

**GEOG 600 Seminar in Climatology (3)** Methods of determining energy budget and water balance; applications in agriculture, hydrology, climatic classifications. Theory of climatic change. Bibliography. Pre: 300 or 400 or 401 or 402 or 405 or MET 303 or MET 310 or MET 320; or consent.

**GEOG 618 Human Environment Systems (3)** Role and potential of systems science in analysis of human environment interaction, especially resource management. Framework and methodology for problem structuring; overview of techniques. Pre: graduate standing or advanced undergraduate standing with consent.

**GEOG 620 Theories and Policies of Development (3)** Will critically examine what constitutes progress, advancement, or betterment in this highly uneven world, where inter-regional, inter-class, inter-gender, and inter-gender differences in development are expanding. Graduate standing only. A-F only. (Fall only)

**GEOG 621 Coastal Planning and Management (3)** Theories and practice of coastal planning and management in the U.S. and abroad. Case studies of various aspects of coastal planning will be used to investigate topics such as coastal land conservation,

marine protected areas, coastal hazards and coastal aquaculture.

**GEOG 622 Environmental Impact Assessment (3)** Theory and practice of environmental impact assessment. Policy and planning frameworks supporting environmental assessment in the U.S. and abroad. Cumulative environmental effects and strategic environmental assessment. Pre: graduate standing. (Cross-listed as PLAN 622) **DS**

**GEOG 628 (Alpha) Resource Systems (3)** Resource development and use in a time perspective. Ecological and socioeconomic impacts, concepts, definitions, and methodology. (B) renewable; (C) nonrenewable. Pre: consent.

**GEOG 630 Urban and Regional Planning in Asia (3)** Key issues and policies in urban planning, rural-urban relations, rural regional planning, and frontier settlement in Asia and the Pacific. Repeatable one time. Pre: PLAN 600 or consent. (Cross-listed as PLAN 630)

**GEOG 637 Environment and Development (3)** Theories and practice of development; how changing development paradigms shape different ideas concerning the environment and the management of natural resources; emerging debates in development and environment in post-modern era. (Cross-listed as PLAN 637)

**GEOG 638 Asian Development and Urbanization (3)** Theories of globalization and sustainability in development, impacts of globalization and sustainability on development planning and policy formation, selected case studies of Asia-Pacific development. Pre: (ASAN 600 or PLAN 630) with a grade of B or above. (Cross-listed as ASAN 638 and PLAN 638)

**GEOG 639 Community-based Natural Resource Management (3)** Concepts and theories of community, resource access, and governance. Practical challenges to CBNRM in contemporary political economy. Pre: graduate standing. (Cross-listed as PLAN 639)

**GEOG 652 Contemporary Japan Seminar (3)** Selected physical and human features that represent economic, social, and political life of modern Japan. Repeatable with consent of instructor. Pre: consent. (Cross-listed as ASAN 652)

**GEOG 654 Seminar in Geography of Southeast Asia (3)** Repeatable with consent of instructor. Pre: consent.

**GEOG 665 Seminar in Geography of the Pacific (3)** Investigation of geographic problems of Melanesia, Micronesia, Polynesia. Repeatable with consent of instructor. Pre: consent.

**GEOG 680 Geospatial Analysis of Natural Resource Data (3)** The application of geostatistics to estimate spatial dependence to improve soil and regional sampling; provide insight into underlying soil, geographic, and geologic process, and to provide quantitative scaling up of point measurements to fields, regions, and watersheds. State-space modeling also will be included. A-F only. Pre: 388 or ZOOL 631; or consent. (Cross-listed as TPSS 680)

**GEOG 692 Faculty Seminar Series (1)** Graduate seminar required of all MA students and recommended for PhD students. Single credit course in which faculty present ongoing research in their fields. Pre: consent. Co-requisite: 695.

**GEOG 693 Technology and Natural Risks Methods of Analysis (3)** Survey of tools for evaluating risks to human health from technological and natural hazards. Historical and international context of methods. Pre: 455 or consent.

**GEOG 695 Concepts and Theories in Geography (3)** Concepts, theory, models. Geographic approaches to spatial and environmental problems. Required of entering graduate students unless waived by department. Pre: consent.

**GEOG 696 Research Design/Methods in Geography (3)** Elements of research design, practical field experience, exposure to research and ideologies, broad exposure to heritage and ethos of the discipline. Pre: 695.

**GEOG 699 Directed Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

**GEOG 700 Thesis Research (V)** Repeatable unlimited times.

**GEOG 703 Geomorphology (3)** Current understanding of geomorphological concepts, processes, and the dynamic relationship between human landscape modification and system response. Pre: consent.

**GEOG 710 (Alpha) Special Topics (V)** Study and discussion of significant topics, problems. (B) regional and locational analysis; (C) geography, environment, and culture; (H) Multi-objective decision analysis. Repeatable two times. Pre: 455.

**GEOG 720 Critical Resource Geography (3)** Graduate seminar to provide geography students a roadmap through the important literature and research on political economic theories of population, natural, and critical resources. Graduate standing only. A-F only. (Fall only)

**GEOG 728 Seminar: Resource Management in Asia-Pacific (3)** Examination of resource management problems in Asia and the Pacific. Problems of resource use—agriculture, forestry, energy, minerals, ocean, air quality. Pre: graduate status.

**GEOG 735 Seminar: Political Geography (3)** Topics vary; may include borders, boundaries, geopolitics, homelands, identity politics, nations and nationalism, social categorization, the sovereign state system, territoriality. Repeatable one time. Pre: graduate standing or consent. (Once a year)

**GEOG 750 Research Seminar: Biogeography (3)**

**GEOG 752 Research Seminar: Resource Management (3)**

**GEOG 757 Research Seminar: Cultural Geography (3)**

**GEOG 758 Research Seminar: Conservation (3)**

**GEOG 761 Research Seminar: Cartography (3)**

**GEOG 762 Research Seminar: Remote Sensing (3)**

**GEOG 763 Research Seminar: Agricultural Geography (3)**

**GEOG 764 Research Seminar: Social Geography (3)**

**GEOG 766 Society and Space (3)** Advanced seminar on social production of space. Topics include spatial metaphor in social theory; western spatiality from the renaissance through the enlightenment, modernity and post modernity; and geography of the body, home, landscape, and nation. Pre: graduate standing or consent.

**GEOG 800 Dissertation Research (V)** Repeatable unlimited times.

## Geology and Geophysics (GG)

*School of Ocean and Earth Science and Technology*

**GG 101 Dynamic Earth (3)** The natural physical environment; the landscape; rocks and minerals, rivers and oceans; volcanism, earthquakes, and other processes inside the Earth; effects of human use of the Earth and its resources. Field trip. **DP**

**GG 101L Dynamic Earth Laboratory (1)** (1 3-hr Lab) Hands-on study of minerals, rocks, and topographic maps. Examine volcanism, hydrology, coastal processes and hazards, geologic time and earthquakes. Field trips to investigate landslides, beaches and O'ahu geology. A-F only. **DY**

**GG 102 Introduction to Global Change (3)** Prepares students to be informed rational consumers, able to weigh media messages regarding our Earth, and to act appropriately. Topics include global change, fossil fuel, greenhouse gases, global ice, extinctions, human nutrition and industrial agriculture. A-F only. (Spring only) **DP**

**GG 103 Geology of the Hawaiian Islands (3)** Hawaiian geology and geologic processes: origin of Hawaiian islands, volcanism, rocks and minerals,

landforms, stream and coastal processes, landslides, earthquakes and tsunamis, groundwater, geologic and environmental hazards. Field trip. **DP**

**GG 104 Volcanoes in the Sea (3)** Lecture with field trips covering the manner in which geological conditions, resources, and events have affected past and present circum-Pacific societies. Credit not given for both 103 and 104.

**GG 105 Voyage through the Solar System (3)** An illustrated voyage through the Solar System based on recent scientific results. The class highlights the origin, evolution, and current knowledge of the eight planets, their moons, asteroids, comets, and one star, the Sun. Field trip. (Cross-listed as ASTR 150) **DP**

**GG 106 Humans and the Environment (3)** Prepares students to make decisions such as where to build/buy a house, sustainable use of natural resources, and what environmental actions relevant to society and Earth's ecosystem are appropriate on a local and global scale. A-F only. **DP**

**GG 130 Geological Hazards (3)** Introductory covering the causes of, and effects from, earthquakes, tsunami, volcanic eruptions, landslides, rockfalls, and other natural geologic phenomena. Open to non-majors. Field trips. (Alt. years) **DP**

**GG 170 Physical Geology (4)** (3 Lec, 1 3-hr Lab) Structure, composition and evolution of Earth; processes responsible for formation, deformation and transformation of rocks; plate tectonics. Emphasis on quantitative methods, problem solving and critical thinking to geology. Laboratory and field trips required. **DP DY**

**GG 199 Introduction to Directed Research (V)** Lower division reading and research in any area of GG under the direction of a faculty member. Repeatable four times or up to six credits. CR/NC only.

**GG 200 Geological Inquiry (4)** (3 Lec, 1 3-hr Lab) Origin and age of the solar system and earth: interior of the earth; plate tectonics and records of biological evolution and past environments. Pre: 170, or 101 and 101L, or 103 and 101L; or consent. 101L may be taken concurrently. Consent required for all non-majors. **DP DY**

**GG 250 Scientific Programming (3)** (2 Lec, 1 3-hr Lab) Introduction to solving scientific problems by computer programming. Overview of the MatLab programming language and environment. Emphasis placed on good style, logical reasoning and applied mathematics. Pre: MATH 241 (or concurrent) or departmental approval.

**GG 300 Volcanology (3)** Volcanic eruptions and their consequences. Includes models for volcanic eruptions including explosive eruptions and lava flows, monitoring of active volcanoes, evaluation and impacts of volcanic hazards, and mitigation of volcanic risk. Field trips. Normally fall. GG major or consent. Pre: 200 or consent. **DP**

**GG 301 Mineralogy (4)** (3 Lec, 1 3-hr Lab) Crystallography, crystal chemistry, phase equilibria, and crystal structures. Also covers mineral optics and identification and includes an introduction to modern methods of mineralogy and crystallography. Pre: 200 and (CHEM 162/162L or CHEM 171/171L). or consent. **DP DY**

**GG 302 Igneous and Metamorphic Petrology (3)** (2 Lec, 1 3-hr Lab) Survey of composition, classification, and occurrence of igneous and metamorphic rocks. Hand-specimen identification and optical petrography of igneous and metamorphic rocks. Development of critical thinking and writing skills. Pre: 301 or consent. **DP**

**GG 303 Structural Geology (3)** (2 Lec, 1 3-hr Lab) Introduction to (a) the geometry, kinematics, and mechanics of crustal deformation, and (b) continuum mechanics in geology. Develops skills in three-dimensional thinking through geologic maps, cross sections, various projections, experiments, and vector analyses. Pre: 200, 250, MATH 241 or MATH 251A, and PHYS 151 or PHYS 170; or consent. **DP**

**GG 304 Physics of Earth and Planets (4)** (3 Lec, 1 3-hr Lab) Essentials of geophysics: formation of Solar System and Earth, gravity, seismology, heat flow, geomagnetism, isostasy, plate tectonics. Coursework involves application of basic physics to understanding Earth structure. Labs include field surveys and computer analyses. Pre: 250, 303, MATH 241, MATH 242, and PHYS 272; or consent. **DP DY**

**GG 305 Geological Field Methods (3)** Methods used in geological investigations in the field. Eight hours on Saturday in the field. Pre: 302, 303, and 309. **DP**

**GG 309 Sedimentology and Stratigraphy (4)** (3 Lec, 1 3-hr Lab) Principles of sedimentology, sedimentary petrology, geochemistry and stratigraphy. Description and discussion of modern and past processes and environments that form sedimentary rocks, properties of sedimentary rocks and interpretation of these properties and stratigraphic relationships in terms of Earth history. Repeatable one time. Pre: 200 and 301, or consent. (Spring only) **DP DY**

**GG 312 Geomathematics (3)** Mathematical methods of geologic and geophysical science. Emphasis on application to earth-science problems using linear algebra, vector calculus, ordinary differential equations, and numerical solutions. Pre: MATH 242 or consent. (Cross-listed as OCN 312)

**GG 325 Geochemistry (3)** Theory and applications of chemical principles and chemical analysis to Earth, ocean and environmental sciences; chemistry of hydrosphere-geosphere-biosphere system, origin/differentiation of Earth/Solar system, volcanic processes, natural radioactivity, organic/inorganic chemistry. Pre: 200, 250, MATH 241 or MATH 251A, CHEM 162 (or concurrent); or consent. (Fall only) **DP**

**GG 395 Undergraduate Internship (V)** Experiential approach to earth science; students serve as interns to field professionals; responsibilities include supervised field work. Open to undergraduate SOEST majors. Repeatable one time. CR/NC only. Pre: junior/senior standing and consent. (Fall only)

**GG 399 Directed Reading (V)** Individual reading in geology and geophysics. Pre: consent.

**GG 402 Hawaiian Geology (3)** Consists of lectures, discussions, and field trips about the geology of the Hawaiian islands. Focus on geological processes and the geologic history of all islands will be covered. Pre: 302 and 303; or consent. **DP**

**GG 406 Natural Disasters: Geoethics and the Laysan (3)** Evaluates ethical practice of geoscience as it relates to studies of natural disasters that result from geological and meteorological phenomena and the means that earth scientists interact with the laymen. Pre: 101, 103, 104, or 170. (Once a year)

**GG 407 Energy and Mineral Resources (3)** Lecture and discussion on the origin, distribution and exploitation of fossil fuels, renewable energy resources and ore deposits. Coverage and detail will depend partly on student interest and background. Pre: consent. **DP**

**GG 410 Undergraduate Seminar (2)** Gain professional training, practical experience, and evaluate peers on giving scientific presentations emphasizing topics in geology, geophysics, and planetary science. 60% of the grade is based on the equivalent of three oral communication assignments. Pre: 170 (or 101 and 101L, or 103, and 101L) and 200.

**GG 413 Geological Data Analysis I (3)** Exploratory data analysis, error propagation, probability theory and statistics, curve fitting, regression, sequence and spectral analysis, multivariate analysis, and analysis of directional data. Pre: 250 and MATH 242 (or concurrent) or consent.

**GG 420 Coastal Geology (3)** Recent records and physical processes of global and local environmental change; dating techniques; late Pleistocene and Holocene climate change, sea-level movements, and ice volume. Repeatable one time. Pre: 309 or consent. **DP**

**GG 421 Geologic Record of Climate Change (3)** Explores the climatic responses of Earth's major systems and subsystems (ice, water, vegetation, land) and traces their interactions through geologic history. Open to nonmajors. A-F only. Pre: 200 or MET 310, OCN 310, OEST 310; or consent. **DP**

**GG 423 Marine Geology (3)** Sediments, structure, geophysics, geochemistry, history of ocean basins and margins. Pre: 200 and 302 or consent. (Cross-listed as OCN 423) **DP**

**GG 425 Environmental Geochemistry (3)** Theory and applications of geochemistry to contaminant/pollutant distribution in the hydrosphere-geosphere-biosphere system. Topics include aqueous geochemistry, thermodynamics, kinetics, organic and isotope chemistry of environmental contaminants. Pre: 325 or consent. (Fall only) **DP**

**GG 444 Plate Tectonics (3)** (2 Lec, 1 3-hr Lab) Quantitative geometrical analysis techniques of plate tectonics theory; instantaneous and finite rotation poles; triple-junction analysis; plate boundary stresses. Pre: 200 or consent. (Alt. years) (Cross-listed as OCN 444)

**GG 450 Geophysical Methods (4)** Combined lecture/lab covering basic geophysical theories, exploration, and interpretation. Seismic reflection and refraction, gravity, and electromagnetics. Constraints on models of Earth's internal structure and composition. Pre: 250, 303, MATH 241, MATH 242, and PHYS 272; or consent. **DP DY**

**GG 451 Earthquakes (3)** Earthquake seismology. Elastic properties of rocks, earthquake waves, causes, detection, location, and prediction of earthquakes; tsunami generation and other effects of earthquakes. Pre: 304 or consent. (Alt. years) **DP**

**GG 455 Hydrogeology (4)** (3 Lec, 1 3-hr Lab) Occurrence, characteristics, movement, quality, development, and contamination of water in the Earth's crust. Pre: MATH 242 or MATH 252A, or consent. **DP**

**GG 460 Geological Remote Sensing (4)** (3 Lec, 1 3-hr Lab) Combined lecture-lab on the concepts behind, geologic uses for, and techniques of satellite and airborne remote sensing. Lab work will consist of computer image processing. Field trips. Open to nonmajors. Pre: 200 or consent. (Spring only) **DP**

**GG 461 Geospatial Information (3)** Combined lecture/lab covering the collection, analysis and use of geospatially registered field data. Pre: 200 (or equivalent). (Alt. years)

**GG 466 Planetary Geology (3)** Comparative geology of the terrestrial planets (moon, Mars, Mercury, Venus, and Earth); impact cratering, volcanism, tectonism, geomorphology, weathering; manned and unmanned space exploration. Pre: any 100-level GG course. **DP**

**GG 499 Undergraduate Thesis (3)** Directed research in which the student carries out a scientific project of small to moderate scope with one or more chosen advisors. The student must complete a document in the style of a scientific journal article. Pre: consent.

**GG 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**GG 593 Earth and Planetary Sciences Workshops (V)** Designed for in-service school professionals to learn new approaches and concepts in the fields of earth and planetary sciences. Repeatable for credit. Credits earned in these courses cannot be applied for graduate degrees.

**GG 600 Equations of Geophysics (3)** Least-square approximation of functions by orthogonal series; potential, wave heat flow equations; boundary value problems; Bessel Hankel functions, spherical harmonics, potential theory, plane waves, spherical waves; emphasis on geophysics application. Pre: MATH 244 or MATH 253A, PHYS 400, or consent.

**GG 601 Explosive Volcanism (3)** Explosive volcanic eruptions: from causes to consequences. Review of current physical volcanology including ascent and fragmentation of magma, transport and deposition processes in pyroclastic eruptions, volcanic crisis management and volcanic eruption scenarios. Seven-day field trip. A-F only. Pre: 300 or consent.

**GG 602 Theoretical Petrology (3)** Derivation of phase diagrams from basic thermodynamics principles. Equilibria of natural silicate systems. Crystal chemistry, kinetics, diffusion, etc.. Applied to igneous and metamorphic petrology. Pre: 302, 325, and CHEM 351 (or concurrent); or consent. (Alt. years)

**GG 603 Petrology of Ocean Lithosphere (3)** (2 Lec, 1 3-hr Lab) Petrogenesis of the oceanic lithosphere, including mantle processes and rocks from mid-ocean ridges, seamounts, oceanic hotspots, back-arc basins, and intra-oceanic arcs. Pre: 302 or consent. (Alt. years)

**GG 604 Disaster Management: Understanding the Nature of Hazards (3)** Combined lecture/discussion in disaster management focusing on the scientific understanding of the forces and processes underlying natural hazards; and human attempts to respond to these through mitigation and planning activities. Pre: PLAN 670 or consent. (Once a year) (Cross-listed as PLAN 671)

**GG 605 Lava Flow Rheology and Morphology (3)** Effusion eruptions: from eruption to final flow form. Includes: rheology, effusion rate, heat loss, and field measurements, followed by inflation, flow forms, lava lakes, domes, flow hazard and modeling. Field trips to Kilauea and Makapuu. A-F only. Pre: 300 or consent. (Alt. years)

**GG 606 Current Events in Volcanology (1)** Discussion of active areas of volcanism and new publications on volcanology. Repeatable four times. Pre: 300 (or concurrent) or consent.

**GG 607 Submarine Volcanoes (3)** Seminar exploring different aspects of submarine effusive and explosive volcanism, hydrothermal activity, and volcano-hosted ecosystems. Repeatable one time. A-F only. Pre: 300 or consent. (Alt. years: fall)

**GG 608 Isotopes and Trace Elements (3)** Principles of radiogenic and stable isotope, and trace element geochemistry as applied to igneous petrology, mantle dynamics, plate tectonics, and terrestrial evolution. Pre: 302 and 325. (Alt. years)

**GG 609 Graduate Teaching Geology (V)** For GG graduate students who lead, under faculty supervision, a scheduled class in Geology and Geophysics. The instructor will define the student's responsibilities when offering GG 609, and these responsibilities must be met for a passing grade. As the consent to take the class must also be granted by the department chair, the chair will also review the responsibilities required by the instructor. GG graduate students only. CR/NC only. Pre: consent of instructor and department chair.

**GG 610 Graduate Seminar (1)** Seminar in which students present a 15- to 20-minute talk on their research or a related topic. Meets once a week with two to three talks per meeting. Graduate students are required to register for this course once per year. Repeatable eight times.

**GG 611 Accelerated Introduction to Geology I (3)** Lecture presenting a rapid-paced survey of geology and geophysics for graduate students. Includes origin of the Solar System, tectonics, volcanology, whole-earth composition, phase transformations, petrology (igneous, metamorphic, and sedimentary), historical geology, and hydrology. Saturday field trips. (Fall only)

**GG 612 Accelerated Introduction to Geology II (3)** Lecture presenting a rapid-paced survey of geology and geophysics for graduate students. Includes Earth structure, rheology, seismology, dynamics, origin of continents, global change, energy sources, environmental geology, and natural hazards. Saturday field trips. (Spring only)

**GG 614 Advanced Field Study (V)** Shipboard and land-based projects. Repeatable eight times. Pre: consent.

**GG 616 How to Write a Scientific Paper (3)** Designed for students who have collected data and want to know how to publish their work in a scientific journal. Covers the essential parts of paper preparation and submission. GG students only. A-F only. Pre: consent. (Alt. years: fall)

**GG 621 Electron Microprobe Analysis (2)** Combined lecture-lab on the principles of geochemical analysis by electron microprobe and X-ray fluorescence. Hands-on experience with the electron microprobe. Required to operate the UH electron microprobe. Pre: 301 or consent.

**GG 625 Seminar in Marine Geology and Geophysics (V)** Current research topics. Repeatable eight times. Pre: 423 or OCN 622, or consent.

**GG 630 Numerical Modeling of Physical Systems (3)** Finite difference, finite element, and other modeling techniques applied to geological and geophysical problems. Physical modeling of heat flow, molecular diffusion, solidification and melting, deformation, fluid flow, wave propagation, and other phenomena. Repeatable one time. A-F only. (Once a year)

**GG 638 Earth System Science and Global Change (3)** Global view of the planet and how it functions as an integrated unit. Biogeochemical processes, dynamics, and cycles, and analysis of natural and human-induced environmental change. Chemical history of ocean-atmospheric-sediment system and co-evolution of the biota. Repeatable one time. Pre: BS in environmentally related science or one year of chemistry, physics, and calculus; or consent. (Cross-listed as OCN 638)

**GG 639 Stable Isotope Biogeochemistry (3)** Stable isotope geochemistry applied to questions of biogeochemical cycling in the oceans, sediment diagenesis, paleoceanography, environmental geochemistry and ecology. Pre: 325 or consent. (Alt. years)

**GG 640 Coastal Geochemistry (3)** Geochemistry at the land-ocean interface: coastal hydrology, subterranean estuaries and coastal mixing and their importance in governing the distribution of selected radiotracers, trace metals and nutrients. Combined lecture-lab with field trips and group projects. Pre: CHEM 162, and MATH 241 or MATH 251A; or consent. (Alt. years)

**GG 641 Origin of Sedimentary Rocks (3)** (2 Lec, 1 3-hr Lab) Environment of deposition and subsequent diagenesis of modern and ancient sediments. Petrogenesis of siliciclastic, carbonate and orthochemical rocks. Sedimentology, sedimentary petrography and geochemistry. Repeatable one time. Pre: consent. (Alt. years) (Cross-listed as OCN 641)

**GG 642 Elemental Composition Changes (2)** Changes in the chemical composition of meteorites, bulk Earth, Earth's mantle and crust, sedimentary rocks, hydrosphere and biosphere, and underlying principles. Pre: consent. (Alt. years) (Cross-listed as OCN 642)

**GG 644 Sedimentary Geochemistry (3)** Geochemical thermodynamics and kinetics and their use in interpreting the origin of sediments, sedimentary rocks, and natural waters over a range of pressure-temperature conditions. Pre: CHEM 171, or CHEM 161 and CHEM 162; PHYS 152; and MATH 242 or MATH 252A; and consent. (Alt. years) (Cross-listed as OCN 644)

**GG 650 Seismology (3)** Elasticity, wave equations, body waves, surface waves, free oscillations, seismometry, seismogram interpretation, tectonics, inversion, source theory, and waveform modeling. Pre: 600 or consent.

**GG 651 Geomagnetism and Cosmic Magnetism (3)** Magnetic fields of Earth, planets, stars, and galaxies; dynamo theories; paleomagnetism; terrestrial and lunar rock magnetism; planetary, regional, and local geomagnetic sounding. Pre: consent. (Alt. years)

**GG 652 Gravity, Magnetism, Heat Flow (3)** Uses of selected potential field and electromagnetic methods in tectonics or in exploration. Processing and interpretation techniques; modeling and inversion. Pre: consent. (Alt. years)

**GG 655 Groundwater Modeling (3)** Introduction to the finite-difference method; steady-state and transient groundwater flow in saturated and unsaturated media; applications to groundwater recharge and aquifer evaluation. A-F only. Pre: CEE 627 or consent. (Fall only) (Cross-listed as CEE 623)

**GG 657 Astrochemistry—A Molecular Approach (3)** Formation of astrobiochemically important molecules and their precursors in the interstellar medium and in our solar system: first principles and latest trends. Pre: consent. (Fall only) (Cross-listed as ASTR 657 and CHEM 657)

**GG 660 Introduction to the Solar System and Planetary Processes (3)** Geology and geophysics of solar system bodies (terrestrial planets, satellites, asteroids, comets) and the processes that made and modified them (nebular chemistry, planetary accretion, impact cratering, volcanism, tectonism, geomorphology, weathering). Pre: graduate students only. (Alt. years)

**GG 666 Planetary Surfaces (3)** Comparative geology of terrestrial planets (moon, Mars, Mercury, Venus, and Earth); impact cratering, volcanism, geomorphology; remote sensing; manned and unmanned space exploration. Pre: 601, ASTR 630; or consent. (Alt. years)

**GG 669 Cosmochemistry (3)** Formation and evolution of planets as astrophysical objects, geologic bodies, and abodes of life; current understanding from studies of the Solar System, star formation, meteorites, exoplanets; theory of formation and dynamics; atmospheres, oceans, habitability, biosignatures. Pre: 325 or CHEM 351 (or equivalent); or consent. (Alt. years)

**GG 670 (Alpha) Geology of Planetary Bodies (3)** Composition and geologic evolution of the planets and their moons; impact cratering; volcanism; tectonism; remote sensing; manned and unmanned exploration and future missions. (B) the moon; (C) Mars. Pre: 666 or consent.

**GG 671 (Alpha) Remote Sensing (3)** Spectroscopic, radar, thermal, and other methods for remote sensing applied to geologic problems; instrumental design and data analysis. (B) planets; (C) volcanoes. Pre: 666 or consent.

**GG 672 Seminar in Tectonics (3)** Evolution of ocean basins, margins, foldbelts, and platforms, from plate tectonics and regional syntheses of structure, petrology, geophysics, and stratigraphy. Repeatable eight times. (Alt. years)

**GG 673 (Alpha) Extraterrestrial Material (3)** Mineralogical and compositional characteristics of extraterrestrial matter and the implications for the origin and history of the solar system. The subject is treated in two full-semester courses: (B) meteorites; (C) petrology of the Moon and Mars. Pre: consent.

**GG 674 Paleoclimatology (3)** Study of the paleoclimatographic and paleoclimate evolution of the Earth's oceans, atmosphere and biosphere. Repeatable one time. Pre: consent. (Alt. years) (Cross-listed as OCN 674)

**GG 675 The Generic Mapping Tools (3)** Introduction to the Generic Mapping Tools (GMT). Processing of scientific data and the automated preparation of maps and illustrations using GMT on UNIX workstations, with introduction to UNIX and the C shell environment.

**GG 681 Continuum Mechanics (3)** Continuum mechanics in geophysics, planetary physics, and structural geology. Tensors; stress, strain, flow; conservation of mass, momentum, and energy; rheology; geophysical fluid dynamics. Pre: PHYS 400, MATH 402, or consent.

**GG 691 Geological Data Analysis II (3)** Time- and frequency analysis, filtering, factor and cluster

analysis, interpolation, quantitative map analysis, and introduction to wavelets and fractals. Pre: 413 or consent.

**GG 695 Geophysical Inverse Theory (3)** Linear and nonlinear techniques for parameter estimation and forecasting, including least squares and MCMC. Models for signal and noise. Resolution, error, constraints, prior and posterior information. Use of information criteria for model selection. Pre: 600 or 691. (Alt. years)

**GG 699 Directed Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

**GG 700 Thesis Research (V)** Repeatable unlimited times.

**GG 701 Physics of the Earth's Interior (3)** Interpretation of geophysical and laboratory data to understand elastic and anelastic properties, composition, phase relationships, temperature distribution in the Earth. Pre: consent. (Alt. years)

**GG 703 Fractures and Faults (3)** Lecture on elasticity theory, fracture mechanics and boundary element modeling, with application to faults and fractures in the Earth. Pre: consent.

**GG 710 Selected Topics in Geology and Geophysics (2)** Content to be announced. Repeatable eight times. Pre: consent.

**GG 711 Special Topics in Geology and Geophysics (3)** Content to be announced. Repeatable eight times. Pre: consent.

**GG 800 Dissertation Research (V)** Repeatable unlimited times.

## Geriatric Medicine (GERI)

### School of Medicine

**GERI 541 Geriatric and Palliative Care (V)** This four-week rotation provides medical students with an overview of geriatric and palliative medicine in outpatient, inpatient, home care and nursing home settings. Students will receive one half-day per week of geriatric medicine didactic seminars and one half-day per week of palliative medicine didactic sessions. The clinical placements will be provided at several teaching sites including Kuakini Medical Center, Queen's Medical Center, the VA, several nursing homes on O'ahu, Kaiser Permanente, Hospice Hawai'i, St. Francis Hospice, Kapiolani Hospital, Straub Hospital, and the Pain & Symptom Management Program at Queen's Medical Center. CR/NC only.

**GERI 542 Geriatric Medicine Research (V)** Medical students will have the opportunity to complete a research project in the field of epidemiology of aging, and present an abstract at a local meeting. Basic principles of epidemiology and statistics will be taught. Repeatable one time. CR/NC only. Pre: departmental approval.

**GERI 545 Geriatric and Palliative Medicine Elective (6)** Four-week elective provides medical students with an overview of geriatric and palliative medicine in outpatient, inpatient, home care and nursing home settings. Students receive one half-day per week of geriatric medicine didactic seminars and one half-day per week of palliative medicine didactic sessions. CR/NC only.

**GERI 595 Medical Student Training in Aging Program (2)** Introduces medical students to clinical, research, and academic experiences in geriatrics, under the mentorship of faculty members. MD majors only. CR/NC only. Pre: MDED 554 or consent. (Fall only)

## German (GER)

### College of Languages, Linguistics and Literature

All courses are conducted in German. A grade of C- or better in the prerequisite courses is required for continuation.

**GER 101 Elementary German (3)** Conversation, grammar and reading. HSL

**GER 102 Elementary German (3)** Conversation, grammar and reading. Pre: 101. HSL

**GER 110 Intensive Elementary German (6)**

Combined content of 101 and 102 covered in one intensive course. (Summer only) **HSL**

**GER 201 Intermediate German (3)** Conversation, grammar, reading and writing. Pre: 102. **HSL**

**GER 202 Intermediate German (3)** Conversation, grammar, reading and writing. Pre: 201. **HSL**

**GER 260 Intensive Intermediate German Abroad (V)** Intensive course of formal instruction on the second-year level in German language and culture in Germany. Pre: 102. **HSL**

**GER 301 Phonetics and Pronunciation Practice (3)** Analysis of the German phonological system and practice in pronunciation. Pre: 202.

**GER 303 Reading and Writing (3)** Further development of reading and writing skills through the study of modern short stories by major German language authors. Pre: 202. **DL**

**GER 304 Business German (3)** Advanced German conversation, reading, and writing with a special emphasis on the vocabulary and cultural context of the German business world. Pre: 202 or consent.

**GER 305 Contemporary Topics in Media (3)** Development of listening and speaking, reading and writing skills through analysis and discussion of media: newspaper articles, radio, and television programs and online sources. Pre: 202 or consent.

**GER 306 Conversation and Composition (3)** Intensive practice in listening, speaking, reading, and writing with selected grammar review. Pre: 202 or consent.

**GER 307 German for Reading I (3)** Development of reading skills through the study of short scholarly, technical, and literary texts. Pre: 202 or consent.

**GER 308 German for Reading II (3)** Further development of reading skills through the study of short scholarly, technical, and literary texts. Pre: 202 or consent.

**GER 312 Introduction to German Literature 1750-1914: (3)** Reading and discussion of representative works of German literature from 1750 to 1914. Pre: 303 or consent. **DL**

**GER 313 Introduction to German Literature 1914-Present (3)** Reading and discussion of representative works of German literature from 1914 to present. Pre: 303 or consent. **DL**

**GER 320 History of German Cinema (3)** Study of German film history, film analysis, film theory, and film study. Lecture/discussion. A-F only. Pre: 303 or 306. **DH**

**GER 360 Intensive Third-Level German Abroad (V)** Intensive course of formal instruction on the third-year level in German language and culture in Germany. Pre: 202 or 260.

**GER 361 Germanic Civilization to World War II (3)** German cultural heritage and history in Germany, Austria, and Switzerland until World War II. Pre: 202 or consent. **DH**

**GER 362 Modern German Culture (3)** Modern culture in post-World War II Germany, Austria, and Switzerland. Pre: 202 or consent. **DH**

**GER 371 Practical German for use in Hawai'i (3)** Use of German in practical situations in Hawai'i, e.g., in travel industry. Pre: 202.

**GER 409 Enlightenment—Sturm und Drang (3)** Lessing and his contemporaries; early dramas of Goethe and Schiller; Goethe's early lyrics. Pre: 306 or consent. **DL**

**GER 410 Classicism (3)** Classical writings of Goethe and Schiller; some reference to other writers. Pre: 306 or consent. **DL**

**GER 411 Romanticism (3)** Novalis, Tieck, E. T. A. Hoffmann, Eichendorff, etc. Pre: 306 or consent. **DL**

**GER 412 Poetic Realism (3)** Masterworks by Büchner, Raabe, Storm, Keller, Meyer, Hebbel, and others. Pre: 306 or consent. **DL**

**GER 415 Contemporary German Literary Activity (3)** Handke, Becker, Weiss, Bernhard, Walser, Böll, Grass. Pre: 306 or consent. **DL**

**GER 416 German Literature, Culture and Film: 1989 to Present (3)** Study of German literature, culture and film, 1989 to present. Credit cannot be earned for both 416 and LLEA 416. Pre: 303 or 306 or consent. **DH**

**GER 428 Survey of German Lyric Poetry (3)** Individual interpretation complements lectures on theoretical and historical background. Pre: 306 or consent. **DL**

**GER 460 Intensive Fourth-Level German Abroad (V)** Intensive course of formal instruction on the fourth-level in German language and culture in a German-speaking country. Pre: 360 or equivalent.

## Global Health Protection and Security (GHPS) formerly Population Studies (PPST)

### Interdisciplinary Programs

**GHPS 101 Introduction to Population Studies (3)** Introduces the study of population (demography), human fertility, mortality, and migration. Focus on the U.S., Hawai'i, and the Asia-Pacific region.

**GHPS 301 Populations of Hawai'i (3)** Demographic characteristics of Hawai'i's populations: origins, distribution, growth, and behaviors. Open to nonmajors. A-F only. Pre: an introductory social science course (ECON 120, 130, 131; GEOG 151; POLS 110; or SOC 100) or consent. **DS**

**GHPS 302 Population in the Pacific Islands (3)** Survey of the characteristics of human populations of the Pacific Islands region. Working of population forces from early settlement to the demographic transitions of the present day. Pre: consent. **DS**

**GHPS 401 Forced Migration (3)** Global view of refugee and other forced migration; emphasis on humanitarian assistance. Pre: junior standing and consent. **DS**

**GHPS 412 Analysis in Population and Society (3)** Global and U.S. patterns of population growth; composition and distribution, elementary demographic techniques; development issues and population policy. Pre: SOC 300 or consent. (Cross-listed as SOC 412) **DS**

**GHPS 432 Economics of Population (3)** Determinants and consequences of growth and structure of human populations. Relationships between economic factors and fertility, population growth and economic growth. Pre: ECON 301 (or concurrent). (Cross-listed as ECON 432) **DS**

**GHPS 651 Introduction to Human Population (3)** Comparative analysis of quantitative and qualitative aspects of population; factors affecting size, distribution, and composition; impact of population size and composition on society. (Cross-listed as PH 651 and SOC 651)

**GHPS 652 Interdisciplinary Seminar (1)** Topics such as contemporary issues in global health and population studies, international health programs, demographic methods, global economy and health, human right and humanitarian assistance, social justice, global environmental changes and health. Pre: consent. (Cross-listed as PH 652)

**GHPS 659 Methods of Demographic Analysis (3)** Statistical evaluation and analysis of population data; data sources; population growth; composition; standardization of rates; mortality and the life table; nuptiality and fertility; distribution, migration, urbanization; projections and stable population theory. (Cross-listed as PH 659 and SOC 659)

**GHPS 677 Global Health Management (3)** Provides theories, knowledge and skills required to improve executive capacity in managing people and projects in an ethical and cultural context, and organizational capacity in performance, design, strategic

planning, and change management. PH majors only. A-F only. (Cross-listed as PH 677)

**GHPS 690 Global Health Challenges (3)** Addresses critical, contemporary, and transnational issues best addressed by cooperative international action. Health issues are examined in the context of intersecting effects of limited resources, socioeconomics, politics, and environmental change. A-F only. (Once a year) (Cross-listed as PH 690)

**GHPS 699 Directed Reading and Research (V)** Repeatable unlimited times. Pre: consent of program director or instructor.

**GHPS 719 Comparative Family and Gender (3)** Discusses the major perspectives on family and gender relations and examines related empirical research. Emphasis is on the cross-cultural comparisons across the U.S. and Asia in the context of globalizing economies and cultures. A-F only. (Alt. years) (Cross-listed as SOC 719)

## Greek (GRK)

### College of Languages, Linguistics and Literature

*A grade of C- or better in the prerequisite courses is required for continuation.*

**GRK 101 Elementary Greek (3)** Grammar and vocabulary, with reading of simple Greek. **HSL**

**GRK 102 Elementary Greek (3)** Continuation of 101. Pre: 101. **HSL**

**GRK 201 Intermediate Greek (3)** Development of reading and translation skills. Emphasis on prose. Pre: 102 or equivalent. **HSL**

**GRK 202 Intermediate Greek (3)** Continuation of 201; emphasis on poetry. Pre: 201. **HSL**

**GRK 303 Greek Historians (3)** Selections from Herodotus, Xenophon, and others. Pre: 201 and 202, or consent. **DL**

**GRK 304 Greek Epic (3)** Selections from Homer, Hesiod, and others. Pre: 201 and 202, or consent. **DL**

**GRK 325 Greek Philosophy (3)** Selections from Plato, Aristotle, and others. Pre: 201 and 202, or consent. **DL**

**GRK 332 Greek Drama (3)** Selections from Aeschylus, Sophocles, and Euripides. Pre: 201 and 202, or consent. **DL**

**GRK 333 Greek Lyric (3)** Selections from Sappho, Alcaeus, and others. Pre: 201 and 202, or consent. **DL**

**GRK 490 Seminar in Greek Studies (3)** Study of an author or phase in Greek studies. Repeatable unlimited times with consent. Pre: any two 300-level GRK courses, or consent.

## Hawaiian (HAW)

### School of Hawaiian Knowledge

*A grade of C or better in the prerequisite courses is required for continuation. Requirement is different for HAW majors, so please see Kawaiuhelani's Academic Programs section for details.*

**HAW 100 Language in Hawai'i: A Microcosm of Global Language Issues (3)** Survival kit for life in Hawai'i: Introduction to Hawaiian and language related issues enhancing communicative experience in Hawai'i. Examination of social, cultural, political, and linguistic cross-cultural interaction locally and globally. Taught in English/Hawai'i Creole English. **FGB**

**HAW 101 Elementary Hawaiian (4)** Listening, speaking, reading, writing. Meets five hours weekly; daily lab work. **HSL**

**HAW 102 Elementary Hawaiian (4)** Continuation of 101. Pre: 101 or exam or consent. **HSL**

**HAW 105 Intensive Elementary Hawaiian (8)** Content of 101 and 102 covered in one semester. Meets two hours daily, Monday–Friday, plus lab work. **HSL**

- HAW 200 I Ka 'Ōlelo Nō Ke Ola (4)** Accelerated lecture/lab to bridge fluent speakers mainly from Kula Kaiapuni into Kawaihuelani's system of Hawaiian that reflects a Hawaiian worldview, including HAW 101-201 content, grammar, writing, and spelling conventions. Students matriculate into HAW 202. Pre: instructor consent required. (Spring only) **HSL**
- HAW 201 Intermediate Hawaiian (4)** Continuation of 102. Meets five hours weekly; reading of traditional texts; daily lab work. Pre: 102 or exam or consent. **HSL**
- HAW 202 Intermediate Hawaiian (4)** Continuation of 201. Pre: 201 or exam, or consent. **HSL**
- HAW 206 Intensive Intermediate Hawaiian (8)** Content of 201 and 202 covered in one semester. Meets two hours daily, plus lab work. Pre: 102 or 105, or exam. **HSL**
- HAW 261 Hawaiian Literature in Translation (3)** Survey of Hawaiian literature, including prose narration and poetry with reference to Polynesian and Western themes and forms. **DL**
- HAW 284 Papa Mele I (Mele in the Hawaiian Language Classroom) (3)** The incorporation of mele and the performance thereof for the enhancement of second language acquisition in Hawaiian. Pre: 102.
- HAW 301 Third-Level Hawaiian (3)** Continuation of 202. Conducted in Hawaiian. Advanced conversation and reading. Pre: 202 or exam, or consent.
- HAW 302 Third-Level Hawaiian (3)** Continuation of 301. Pre: 301 or exam, or consent.
- HAW 321 Hawaiian Conversation (3)** Systematic practice on various topics for control of spoken Hawaiian. Repeatable up to six credit hours. Pre: 202 or consent.
- HAW 331 Hawaiian Composition (3)** Intensive work in the grammatical, semantic, and pragmatic dimensions of composition writing in Hawaiian. Pre: 202.
- HAW 332 Listening Comprehension and Transcription (3)** Development of listening comprehension through transcription and discussion of tape recordings. Pre: 202.
- HAW 345 Ulu ka Hoi (3)** Lecture offering focused study and creation of Hawaiian language newspapers with a concentration on the characteristics of writing in this genre. Students will produce a monthly newsletter in Hawaiian. Repeatable one time. Pre: 302 (or concurrent) or consent. **DH**
- HAW 373 Ka Mo'omeheu Hawai'i (3)** A survey course on the study of traditional Hawaiian culture including origins, the socioeconomic system, land tenure, religion, values, and the arts. The course will be taught in Hawaiian. Pre: 302 (or concurrent) or consent. **DH**
- HAW 383 Hana 'Oe a Kani Pono-Hawaiian Radio Broadcasting (3)** Combined lecture/lab involving students in the planning and production of a weekly Hawaiian language radio broadcast. Includes research, writing, and voicing of mele and their stories on live radio. Repeatable one time. Pre: 302 or 384 (or concurrent with consent), or consent. **DH**
- HAW 384 Ka Haku Mele (3)** Composers and Their Compositions. Provides a venue which will allow students to analyze, dissect and discuss mele (song, poetry and chant), paying close attention to the style of composition by identifying reoccurring nuances found in mele composed by the same as well as various authors. Pre: completion of 202 or consent. (Once a year)
- HAW 401 Fourth-Level Hawaiian (3)** Advanced reading, writing, and discussion in Hawaiian. Transcribing and translating Hawaiian language tapes. Translating English into Hawaiian, and Hawaiian into English. Pre: 302 or exam, or consent.
- HAW 402 Fourth-Level Hawaiian (3)** Continuation of 401. Pre: 401 or exam, or consent.
- HAW 425 Mo'olelo Hawai'i (3)** Survey of the major works by Hawaiian scholars writing about the history and culture of Hawai'i including David Malo, Kamakau, Kepelino, and John Papa I'i. Pre: 302. **DH**
- HAW 426 Ka'ao Hawai'i (3)** Survey of the core literature written by Hawaiian scholars, including both historical and mythological epics and folk tales. Pre: 302. **DL**
- HAW 427 I Le'a Ka Hula I Ka Ho'opa'a (Mo'olelo, Ka'ao, Mele and Hula) (3)** The incorporation of mele and hula performance with mo'olelo and ka'ao. Pre: 302 or consent.
- HAW 428 Ka Mana'o Politika Hawai'i—Political Thought in Hawaiian (3)** Intensive study of Hawaiian political thought in writing and speech. Pre: 302 (or concurrent) or consent. (Cross-listed as POLS 303C) **DH**
- HAW 429 Ka Hō'ike Honua (3)** Study of Hawaiian land tenure practices through readings and discussions of audiotapes, written primary sources, maps, wind names, rain names, 'ōlelo no'eau (wise sayings), and mele (poetry). Readings are drawn from 19th and 20th century Hawaiian newspapers and other primary sources. Pre: 302 (or concurrent) or consent.
- HAW 430 Ma Ka Hana Ka 'Ike (3)** Study of traditional Hawaiian language and cultural practices through hands-on applications and lectures. Pre: 302 (or concurrent) or consent.
- HAW 433 I Pa'a Ke Kahua (3)** An experiential approach to the acquisition of vocabulary, which will allow students to broaden and deepen their knowledge of language and the range of domains to perpetuate Hawaiian as a living language. Repeatable one time. Pre: 302 (or concurrent), or consent.
- HAW 435 (Alpha) Problems in Translation (3)** Problems in translation of: (B) legal documents; (C) newspapers. Pre: 302 or consent.
- HAW 445 Nā Politika ma ka Nūhou Hawai'i—Politics in Hawaiian Language Media (3)** Study of Hawaiian news media with emphasis on political content. Includes field trips to various archives. Pre: 302 (or concurrent), or consent. (Cross-listed as POLS 344) **DH**
- HAW 452 Structure of Hawaiian (3)** Descriptive linguistic analysis. Intensive exercises in advanced grammar. Pre: 302 (or concurrent) or consent. **DH**
- HAW 454 History of the Hawaiian Language (3)** Development from proto-Polynesian. Phonology, morphology, and grammar; history of research. Pre: 302 (or concurrent) and 452, or consent. **DH**
- HAW 462 (Alpha) Ha'uki: Sports Education Through the Medium of Hawaiian (2)** Provide Hawaiian language students with linguistic tools necessary to provide sports education to Hawaiian immersion schools and for basic intergenerational use of Hawaiian in the linguistic domain of sports. (B) basketball; (C) volleyball; (D) football; (E) baseball. Repeatable for other topics.
- HAW 463 Language for the Classroom (3)** Examination of language needs in various classroom settings and introduction to new vocabulary in school content areas. Pre: 302, 452, and consent.
- HAW 466 Kuleana Kula Kaiapuni (3)** Examination of the political struggles of the Kula Kaiapuni (Hawaiian Immersion Program)—past and present. Special attention given to federal and state governments, Department of Education, and internal political struggles. Pre: 401 (or concurrent with consent).
- HAW 470 Ho'omōhala Ha'awina Kaiapuni Curriculum Development (3)** Examination of curricular issues of indigenous language programs; weekly participation in an immersion classroom; development of materials. Repeatable one time. Pre: 302 or consent.
- HAW 483 Papa Mele Wahi Pana (3)** Will provide students with the opportunity to learn mele, mainly poetry and song, composed specifically for a certain area of Hawai'i. Pre: 302 or consent.
- HAW 484 Hawaiian Poetry (3)** Historical survey and analysis of poetry found in traditional chants, folk songs, modern poetry written in Hawaiian. Interpreting and composing Hawaiian poetry. Pre: 302 and consent, or 401. **DL**
- HAW 485 Haku Hanakeeka—Hawaiian Language Playwriting (3)** The creation and authoring of Hawaiian language play scripts based on traditional motifs. Repeatable one time. Pre: 402 (or concurrent) or consent. **DA**
- HAW 486 Kahua Hanakeeka (Hawaiian Medium Stage Production) (3)** From design to performance, students mount an original production based on traditional motifs. Repeatable one time. Pre: 402 (or concurrent), or consent.
- HAW 488 'Ōlelo No'eau (3)** Survey and analysis of traditional proverbs and their kaona or symbolic meanings. A-F only. Pre: 402 or consent. **DH**
- HAW 490 Ka Makau'olelo A'o Kula Kaiapuni Hawai'i (1)** Assess the linguistic competence of prospective Hawaiian language immersion teachers to assure that all teachers entering the state DOE Hawaiian Immersion Program meet the requirements of the program with respect to Hawaiian language proficiency. CR/NC only. Pre: 402 (or concurrent), and 463 (or concurrent), or consent.
- HAW 499 Directed Studies (V)** Study of Hawaiian language through vernacular readings in various academic fields. Repeatable up to 6 credits. Pre: 302 and consent.
- HAW 601 Kākau Mo'olelo (3)** Analyzes various genres of written Hawaiian literature. HAW majors only. Pre: graduate standing and 402, or consent.
- HAW 602 Kākā'olelo Oratory (3)** A survey of oral performance styles to build increased oral skills. Pre: graduate standing and 601, or consent.
- HAW 604 Haku Palapala Noi Laeo'o/Writing a Hawaiian Master's Proposal (3)** Seminar to select and develop students' research topic, proposal, and organizational plan for Plan A or B completion. A-F only. Pre: 601 or consent. (Once a year)
- HAW 605 Ka Hana Noi'i (Research Methods) (3)** Research methodology course utilizing active research in the major repositories of Hawaiian language materials and Hawaiian-related knowledge. A-F only. Pre: graduate standing and acceptance in the Hawaiian MA program, or consent. (Once a year)
- HAW 612 Nā Mana'o Politika Hawai'i (Hawaiian Political Thought) (3)** Study of Hawaiian political thought in writing from ca. 1825 to the present, with emphasis on theory and research methods. Pre: 402, 428, and POLS 303; or consent. (Cross-listed as POLS 612)
- HAW 615 Kuana'ike (3)** The examination of Hawaiian ways of speaking, as contrasted with English focusing on those features that are uniquely Hawaiian and can be said to constitute a Hawaiian worldview. Section 1 taught in Hawaiian; Section 2 taught in English. Pre: 402 or consent for Section 1.
- HAW 625 Mo'olelo Hawai'i (3)** Intensive study, research, and analysis of Hawaiian history. Repeatable two times with consent of advisor. Pre: 402 or consent.
- HAW 638 (Alpha) Nā Mea Kakau/Nā Haku Mo'olelo (3)** Intensive study of an individual author, his/her works and nuances of his/her works. (E) J. H. Kanepu'u; (I) S. M. Kamakau. Pre: 601 or consent. (Once a year)
- HAW 643 Ke A'o 'Ōlelo Hou 'Ana (Teaching Hawaiian As a Second Language) (3)** Survey of existing texts and teaching resources; analysis of student clientele and needs; review of pedagogical approaches for heritage and non-heritage learners; syllabus and materials development; practicum. Pre: 401 and 452 or consent.
- HAW 652 Pilina 'Ōlelo (3)** In-depth examination and research into the grammar of Hawaiian including discussion of theories of language and incorporation of meta-language. Pre: 452 or consent. (Once a year)

**HAW 654 'Ōlelo Ni'ihau (3)** Intensive, advanced study and analysis of traditional Hawaiian Ni'ihau dialect through face-to-face conversations with Ni'ihau native speakers, listening to audio recordings and watching video recordings of Ni'ihau native speakers. Pre: 402 (with a minimum grade of B-) or consent.

**HAW 684 Noi'i Mele (3)** Intensive study focusing on original compositions of Hawaiian poetry and song. Pre: 402 and 484, or consent.

**HAW 695 Papahana Laeo'o (V)** Research for Plan B project/non-thesis. May include but not limited to internship with cultural practitioner. Repeatable up to six credits. CR/NC only. Pre: consent of graduate advisor.

**HAW 699 Directed Research (V)** Repeatable unlimited times. A-F only. Pre: consent of instructor and graduate chair.

**HAW 700 Noi'i Pepa Laeo'o (Thesis) (V)** Research for master's thesis. Repeatable unlimited times.

## Hawaiian Studies (HWST)

### *School of Hawaiian Knowledge*

**HWST 107 Hawai'i: Center of the Pacific (3)** An introduction to the unique aspects of the native point of view in Hawai'i and in the larger Pacific with regards to origins, language, religion, land, art, history, and modern issues. **DH**

**HWST 207 Hawaiian Perspectives in Ahupua'a (3)** Examination of the ahupua'a system: its mythologies, place names, history, poetry and early documents of the Hawaiian nation, as it was conceptualized by the ancient Hawaiians and exploration of its relevance in modern society. A-F only. Pre: 107.

**HWST 220 Introduction to Hawaiian Visual Culture Studio (3)** Introduction to a variety of material (fiber, bone, wood, and stone) and skills in the media used in the Hawaiian culture. Research and explore basic techniques within the media with emphasis on cultivation, preparation, uses, and conservation. Repeatable one time. A-F only. Pre: 107(C) or consent.

**HWST 222 Introduction to Hawaiian Fiber Arts Studio-Hana No'eau Ma'awe (3)** Introduction to a variety of fibers used in the Hawaiian culture. Emphasis on cultivation, preparation, uses and conservation of the fibers. Areas explored are kapa, plaiting, netting and twining. A-F only. Pre: 107 or 107C, or consent. (Once a year)

**HWST 224 Introduction to Hawaiian Painting and Drawing Studio (3)** Research and express personal relationship to specific Hawaiian paradigms through Hawaiian visual culture. Introduction to painting and drawing media and exploration of various materials and techniques as applied to individual student styles. A-F only. Pre: 107 or 107C, or consent. (Once a year) **DA**

**HWST 225 Introduction to Hawaiian Printmaking Studio (3)** Introduction to Native Hawaiian perspective and world view in images used in print and the basic material, technical, and conceptual aspects of hand printed imagery through the indigenous eyes. A-F only. Pre: 107 or 107C, or consent. (Once a year)

**HWST 270 Hawaiian Mythology (3)** Survey of gods, 'aumākua, kupua, mythical heroes, heroines, and their kinolau as the basis of traditional Hawaiian metaphor. Pre: 107 or HAW 102. **DL**

**HWST 281 Ho'okele I: Hawaiian Astronomy (3)** Introduction to Hawaiian views of astronomy and the stars used by Polynesian Voyaging Society navigators. Introduction and comparison to various Pacific island non-instrument navigation systems and star names. Restricted to majors.

**HWST 281L Ho'okele I Laboratory (1)** (1 3-hr Lab) Stargazing laboratory to accompany 281. Pre: 281 (or concurrent).

**HWST 282 Ho'okele II: Hawaiian Navigation (3)** Hawaiian and other Oceanic canoe design, navigation, Pacific weather, sailing dynamics for canoes,

and sail planning strategies used by Polynesian Voyaging Society navigators for long voyages.

**HWST 282L Ho'okele II Laboratory (1)** (1 3-hr Lab) Hands on experience on voyaging skills and sailing canoes to accompany 282. Pre: 282 (or concurrent).

**HWST 285 Lā'au Lapa'au: Hawaiian Medicinal Herbs (4)** Presentation of Hawaiian medicinal herbs including basic philosophy, identification, utilization, and preparation of such herbs for human ailments. Pre: 107 or consent.

**HWST 301 Perspectives in Hawaiian Studies (3)** Interdisciplinary lectures and discussions examining traditional and contemporary experiences in Hawaiian society and setting; resources, methods, and techniques. Repeatable one time. Pre: HAW 202 or consent. **DH**

**HWST 307 Mālama 'Āina Resource Management Visual Technologies (3)** Requires a broad set of knowledge systems. Will introduce students to a variety of visual technologies for use in resource management and the ethical application of these technologies. Pre: 107 and 207, or consent.

**HWST 320 Advanced Art Media (3)** Examine and explore advance techniques within the media and the customary and contemporary uses of a variety of material and skills used in traditional Hawaiian everyday life. Repeatable six times. A-F only. Pre: 107C or 222, or consent. (Once a year)

**HWST 322 Advanced Hawaiian Fiber Arts Studio- Hana No'eau Ma'awe (3)** Examine the customary and contemporary use of fiber materials and the skills used in Hawaiian culture. Research and explore advanced techniques within the media used in traditional Hawai'i. A-F only. Repeatable one time. Pre: 107 or 107C, 222; or consent. (Once a year)

**HWST 324 Advanced Hawaiian Painting and Drawing Studio (3)** Advanced research and expression of personal relationship to specific Hawaiian paradigms through visual culture and language. Students will further their definitions, analysis skills, research, and understandings through painting and drawing media. Repeatable one time. A-F only. Pre: 107 or 107C, 224; or consent. (Once a year)

**HWST 325 Advanced Hawaiian Printmaking Studio (3)** Advanced Native Hawaiian perspective in imagery in print and the material, technical, and conceptual aspects of hand printed imagery. Lecture-lab with studio work time. Repeatable one time. A-F only. Pre: 107 or 107C, 225; or consent. (Once a year)

**HWST 340 Native Hawaiian Traditions in Literature (3)** Discusses theoretical frameworks, main features, and cultural contexts of Hawaiian literature. Pre: 107, 270, and HAW 202; or consent.

**HWST 341 Hawaiian Genealogies (3)** Survey of major Hawaiian chiefly lineages from the four main islands: Hawai'i, Māui, O'ahu and Kaua'i. Political history from the Kumulipo to Western contact. Pre: HAW 202.

**HWST 342 Chiefs of Post-Contact Hawai'i (3)** Survey of Hawaiian chiefs from 1778 to the present, including genealogy, political function, and historical impact. Pre: 107, 341, or HAW 201.

**HWST 343 Myths of Hawaiian History (3)** Thematic exploration of some common myths of Hawaiian history, including infanticide, slavery, feudalism, constant warfare, human sacrifice, and a limited pre-contact population, to determine the role of myth making in perceptions of Hawaiian history. Pre: junior standing or consent. **DL**

**HWST 351 Mahi'ai Kalo I: Taro Cultivation (3)** Historical, cultural and philosophical foundations of the cultivation and uses of taro. A-F only. Pre: 107. (Fall only)

**HWST 352 Mahi'ai Kalo II: Advanced Taro (3)** In depth-study of taro cultivation techniques and systems. A-F only. Pre: 351.

**HWST 353 Malama Loko I'a (4)** Study of traditional Hawaiian fishpond management with hands-on experience at He'eia fishpond near Kane'ohe, merging traditional Native knowledge and ways of seeing with Western science. A-F only. Pre: 107 or HAW 101 or BOT 105, or consent. (Once a year)

**HWST 362 Pana O'ahu: Famous Place Names (3)** A survey of the famous place names in each ahupua'a of O'ahu, including accounts of mythical heroes, heiau, fishponds, wind, rain names, and their metaphorical value in Hawaiian literature. Pre: 107, 270, or GEOG 101; and HAW 202.

**HWST 365 Pana Paemoku o Kanaloa: The Northwestern Hawaiian Islands (3)** Will look at the use of the Northwestern Hawaiian Islands during pre-contact times, the historical period of the Kingdom of Hawai'i, after the islands were ceded to the U.S., and the contemporary politics that surround the region today. A-F only. Pre: 107 or consent.

**HWST 372 Oli Makawalu: Makawalu Methodology in Hawaiian Protocol Chants (3)** Introduces the use of Makawalu Methodology to analyze kaona in Hawaiian protocol chants, which influences the oral production of such chants. A-F only. Pre: 270 (or concurrent) and HAW 201 (or concurrent), or consent.

**HWST 385 Lā'au Lapa'au II: Advanced Medicinal Herbs (4)** (3 Lec, 1 Lab) Advanced study and preparation of Hawaiian medicinal herb combinations. Pre: 107 and 285; or consent.

**HWST 390 Issues in Modern Hawai'i (3)** Cultural and political aspects of the current Hawaiian movement; historical colonization; conflicts over tourism, the military, and agriculture; forms of native self-determination. Pre: junior standing or consent. **DH**

**HWST 396 Native Hawaiian Rights and Practices (3)** Students will strengthen their cultural, political, and legal foundations by: (1) reviewing Hawai'i's historical traditions and customs, (2) learning legal analysis techniques, and (3) applying those techniques to issues that govern native Hawaiian "rights" today. Sophomore or higher standing. Pre: 107, 270, and 341 (or concurrent) and HAW 102. (Fall only) **DH**

**HWST 421 Visiting Artist Seminar (3)** Explore indigenous concepts through the media of a visiting indigenous master artist by looking at traditional media in indigenous cultures, and the possibilities for contemporary expression in other media. Repeatable two times. HWST majors only. A-F only. Pre: 107/107C, one course in 220 level (222, 224, 225), one course in 320 level (322, 324, 325); or consent. (Once a year)

**HWST 440 Māhele Land Awards (3)** Practical guide to the researching of land awards and change in title for a single ahupua'a, 1848 to present. Focus on field trips. Pre: 342.

**HWST 441 Ceded Lands: Focus on Crown and Government Lands (1848 to Present) (3)** Inventing "Ceded Lands" in Hawai'i with emphasis on historical, legal, and cultural changes from the Kingdom through statehood. A-F only. Pre: 440 or consent.

**HWST 445 Hawaiian Institutions (3)** Comprehensive analysis of institutions like Bishop Estate/Kamehameha Schools, OHA, Lili'uokalani Trust, Department of Hawaiian Home Lands and The Queen's Hospital. Pre: 342.

**HWST 457 'Āina Mauliola: Hawaiian Ecosystems (3)** Comprehensive analysis of traditional Hawaiian and modern resource management practices. Rigorous overview of the dominant physical and biological processes from the uplands to the oceans in Hawai'i. Pre: 107, BOT 105, and junior standing; or consent. (Cross-listed as BOT 457)

**HWST 458 Natural Resource Issues and Ethics (4)** Overview of the history of land, resources and power in Hawai'i; players and processes influencing land and natural resources policies today explored from Native Hawaiian and other viewpoints. Extensive use of case studies. Pre: 457 or BOT 457. (Cross-listed as BOT 458)

**HWST 459 Strategies in Hawaiian Resource Use (3)** Analyzing diverse land and water use strategies of O'ahu, from traditional Hawaiian, scientific and economic perspectives, through classroom and on-site lectures. Topics include traditional Hawaiian methods, modern development, threatened ecosystems, ecotourism and scientific research. A-F only. Pre: 457 or BOT 457 (or concurrent), or consent. (Cross-listed as BOT 459)

**HWST 460 Hui Konohiki Practicum (3)** A "hands-on" internship in an environmental or resource-management organization in Hawai'i. The experience will be broadened and supplemented by classroom lectures, discussion and analysis from traditional Hawaiian, scientific and economic perspectives. A-F only. Pre: 457 or BOT 457, 458 or BOT 458 (or co-requisite), 459 or BOT 459; or consent. (Spring only) (Cross-listed as BOT 460)

**HWST 461 Indigenous Economies (3)** Students will map out indigenous economies by articulating cultural similarity and diversity between academic experience and professional experiences. A-F only. Pre: 107 or consent.

**HWST 467 Mālama 'Āina Field Methods Course (6)** Intensive field methods program to research Mālama 'Āina strategies. Introduces students to a variety of field techniques in doing land research and integrating it with historical documents. Travel cost covered by student. Junior standing or higher. Pre: 307 and 457 or consent. (Summer only)

**HWST 470 'Ike Akua Papakū Makawalu: Ancestral Understanding of Elements (3)** Uses Dr. Pualani Kanahale's Papakū Makawalu methodology to analyze akua as elements and as a paradigm for understanding ancestral knowledge. Senior standing or higher. Pre: 270, 372 (or concurrent), and HAW 301 (or concurrent).

**HWST 478 Mele Au Hou: Music and Native Identity (3)** Presents Hawaiian music as it has been an avenue for native social, cultural and political expression in traditional and contemporary society. A-F only. Pre: 107 or 343 or 390; or consent.

**HWST 485 Mahi Lā'au Lapa'au: Hawaiian Medicinal Horticulture (4)** The science of planting and harvesting Hawaiian medicinal plants and exploring production and marketing strategies. Pre: 107, 285 and 385; or consent.

**HWST 487 Hawaiian Aquatic Medicine (4)** Identification, extraction and preparation of complexes of aquatic herbs to formulate a healing combination to contribute to maintaining overall health. A-F only. Pre: 107, 285; or consent. (Fall only)

**HWST 490 Senior Seminar in Hawaiian Studies (3)** Critical examination of existing research; individual or team development, execution, and evaluation of selected projects. Repeatable three times. Pre: senior major in Hawaiian studies or consent.

**HWST 493 Hawaiian Political Speech: Ha'i 'Olelo Ku'e (3)** Senior seminar in short, extemporaneous speeches in persuasive, passionate and dynamic styles of Native Hawaiian orators. A-F only. Pre: 107, 270, 341, 342, or HAW 202; or consent. (Once a year)

**HWST 494 Modern Pacific Women's Poetry (3)** Critical examination of modern indigenous women's poetry from the Pacific Islands. Thematic concentration on land, family, sexual and national oppression. Pre: two ENG DL courses; second may be taken concurrently; or consent. (Cross-listed as ENG 479) DL

**HWST 495 Kumu Kānawai: Western Law and Hawai'i (3)** The rise of Western law in Hawai'i, its contribution to nation building and colonialism. Pre: 342 or 343 or 390; or consent. DH

**HWST 496 Kānawai II: Practical Application of Rights (3)** Historical analysis of land use, race and self-determination; introduced to legal case briefing, analysis of legal precedent, practical impacts of rules and regulations and the sociopolitical factors that influence law and law enforcement. A-F only. Pre: 390 or consent.

**HWST 499 Directed Reading/Research (V)** Individual reading/research. Pre: 301, two upper division Hawai'i-related courses, and consent.

**HWST 601 Indigenous Research Methodologies (3)** Reading seminar for developing a Native Hawaiian epistemology from sources in comparative indigenous thought. A-F only. Pre: 107, 270, 341 (or concurrent), 342 (or concurrent), and one of the following: 343 (or concurrent) or 390 (or concurrent) or 490 (or concurrent); or consent.

**HWST 602 Hawaiian Archival Research (3)** Research seminar aimed at familiarizing students with the rich historical primary sources existent in various archives in Honolulu. A-F only. Pre: 107, 270, 341 (or concurrent), 342 (or concurrent), and one of the following: 343 (or concurrent) or 390 (or concurrent) or 490 (or concurrent); or consent.

**HWST 603 Review of Hawaiian Literature (3)** Seminar in review of Hawaiian literature to understand the significance of secondary sources in Hawaiian subjects. This makes up part of the Hawaiian Studies graduate core. A-F only. Pre: 107, 270, 341 (or concurrent), 342 (or concurrent), and one of the following: 343 (or concurrent) or 390 (or concurrent) or 490 (or concurrent); or consent.

**HWST 604 Writing a Hawaiian Thesis (3)** Seminar to help fashion student's research and thesis proposal. To be taken by all HWST MA students as they begin designing their capstone project. Course will be team-taught by HWST faculty. Repeatable one time. A-F only.

**HWST 620 'Ike Pono-Visual/Cultural Interpretations (3)** Graduate seminar and visual studio that examines (from a Kanaka Maoli viewpoint) colonial imaging; collecting and site of contestation; resilience and resistance; and re-righting. A-F only. Pre: 107C, and one course from 220-225, and one course from 320-325; or consent. (Fall only)

**HWST 621 'Ike Maka-Visual/Cultural Knowledge (3)** Graduate seminar and visual studio that carefully examines and develops critical consciousness—from a Kanaka Maoli viewpoint—visual hegemony, rhetorical tropes; and representation—imag(in)ing and re-imag(in)-ing. HWST majors only. A-F only. Pre: 620 or consent. (Spring only)

**HWST 640 Mo'olelo 'O'iwi: Historical Perspectives (3)** Research seminar for developing interpretations of the past from Native Hawaiian and foreign world views with particular emphasis on understanding the meaning of culturally-based knowledge systems. A-F only.

**HWST 650 Hawaiian Geography and Resource Management (3)** Seminar in geography of Hawai'i from a Native Hawaiian perspective that will enable the researcher to define and develop resource management methods consistent with Native Hawaiian understandings and traditions. A-F only. Pre: 107, 270, 341 (or concurrent), 342 (or concurrent), and one of the following: 343 (or concurrent) or 390 (or concurrent) or 490 (or concurrent). (Once a year)

**HWST 670 Kumu Kahiki: Comparative Hawaiian and Tahitian Cosmogonies (3)** Seminar comparing Gods/myths from Ancient Tahiti by Teiura Henry (600 pages) with the six volumes of Hawaiian historians Kamakau and Malo. A-F only. Pre: 341 or consent. (Alt. years)

**HWST 671 Kumu Kahiki: Pacific Life Narratives in Mixed Media and Literature (3)** Research seminar in relevant literary traditions, histories of interaction, colonization, and literary politics in the Pacific region through the examination of life narratives in mixed media and literature. A-F only. HWST majors only. Pre: 603 (or concurrent) or consent. (Once a year)

**HWST 675 Huaka'i Huli Heiau Hawai'inuiākea: Study Abroad on Polynesian Temples (6)** Comparative study of Hawaiian/Polynesian temple design taught over a 3-week period in Hawai'i and Polynesia. Travel costs to be paid by student. Pre: 670

(with a minimum grade of B) and HAW 302 (with a minimum grade of B) or consent. (Summer only)

**HWST 690 Kūkulu Aupuni: Envisioning the Nation (3)** A research seminar designed to provide an overview of community activism and Native Hawaiian empowerment in Hawai'i in contexts that range from local to international, and to provide a foundation for further study and professional growth. A-F only. Pre: 107, 270, 341 (or concurrent), 342 (or concurrent), and one of the following: 343 (or concurrent) or 390 (or concurrent) or 490 (or concurrent); or consent.

**HWST 691 Kūkulu Aupuni: Sovereign Hawaiian State, Domestic Kingdom Law, Governance and Politics (3)** Research seminar on the subject of domestic law, governance, and politics of the Hawaiian Kingdom and the historical relevance of this to the contemporary case for independent, sovereign state continuity under public international law. A-F only. (Alt. years)

**HWST 695 Practicum Research Plan B (V)** Practicum for Plan B. Repeatable unlimited times. CR/NC only. Pre: consent.

**HWST 699 Directed Reading and Research (V)** Repeatable unlimited times. A-F only. Pre: consent.

**HWST 700 Thesis Research (V)** Research for master's thesis. (F) Full-time. S/U for (F) only. Repeatable up to six credits; Repeatable unlimited times for (F). Pre: 700 for (F).

## Health Sciences and Social Welfare (HSSW)

*College of Health Sciences and Social Welfare*

**HSSW 477 Southeast Asian Cultures in Health/Social Welfare (3)** The study of cultures and their implications in the health and social welfare context for a number of countries in Southeast and South Asian region.

**HSSW 478 Pacific Cultures in Health/Social Welfare (3)** The study of cultures and their implications in the health and social welfare context for a number of countries in the Pacific region.

## Hindi (HNDI)

*College of Languages, Linguistics and Literature*

*Students choosing Hindi for the language requirement should realize it may not be offered if demand is limited.*

**HNDI 101 Elementary Hindi (4)** Listening, reading, writing, speaking skills, language structure, and culture integrated in a variety of communicative and creative activities. HSL

**HNDI 102 Elementary Hindi (4)** Continuation of 101. Pre: 101 or consent. HSL

**HNDI 201 Intermediate Hindi (4)** Continuation of 102. Listening, reading, writing, speaking skills, language structure, and culture integrated in a variety of communicative and creative activities. Pre: 102 or consent. HSL

**HNDI 202 Intermediate Hindi (4)** Continuation of 201. Pre: 201 or consent. HSL

**HNDI 301 Third-Level Hindi: Culture (3)** Continuation of 202. Advanced listening, reading, writing, conversation skills, language structure, and culture integrated in a variety of communicative and creative activities based on selected cultural themes. Pre: 202 or consent.

**HNDI 302 Third-Level Hindi: Film (3)** Continuation of 202. Advanced listening, reading, writing, conversation skills, language structure, and culture integrated in a variety of communicative and creative activities based on selected Hindi-Urdu films. Pre: 202 or consent.

## History (HIST)

*College of Arts and Humanities*

**HIST 151 World History to 1500 (3)** Historical narratives and global perspectives on human societies

and cross-cultural interactions from prehistory to 1500; includes ways to think about the past and ways to use primary sources. **FGA**

**HIST 152 World History since 1500 (3)** Continuation of 151. Historical narratives and global perspectives on human societies and cross-cultural interactions from 1500 to present; includes ways to think about the past and ways to use primary sources. **FGB**

**HIST 155 Issues in World History (3)** In examining aspects of the histories of Africa, Asia, the Americas, Europe and Oceania, this course highlights the myriad ways in which global contact has transformed our world and narratives of the past.

**HIST 156 World History of Human Disease (3)** Examines how disease has affected humans in terms of society, culture, politics, religion, and economics. Explores the impact over a broad range of time periods, from pre-history to the present/future. **FGC**

**HIST 161A World Cultures in Perspective (3)** Development of civilizations from prehistoric origins to 1500. Offered as discussion and/or problems course. Alternative for 151 and 152; students in Honors program only. **FGA**

**HIST 162A World Cultures in Perspective (3)** Continuation of 161A. Development of civilization from 1500 to the present. Offered as discussion and/or problems course. Alternative for 151 and 152; students in Honors program only. **FGB**

**HIST 230 Early European Civilization (3)** Political evolution and major economic, social, and cultural development of European states before 1500, including classical and medieval eras. A-F only. (Alt. years) **DH**

**HIST 231 European Civilization 1500-1800 (3)** Political evolution and major economic, social, and cultural development of European states. 1500–1800. **DH**

**HIST 232 Modern European Civilization 1800- (3)** Continuation of 231. Major political, social, economic, and cultural trends from Napoleon to the present. **DH**

**HIST 241 Civilizations of Asia (3)** Survey of major civilizations of Asia from earliest times to 1500; East Asia, Southeast Asia, South Asia. (Cross-listed as ASAN 241) **DH**

**HIST 242 Civilizations of Asia (3)** Continuation of 241. Survey of major civilizations of Asia from 1500 to the present; East Asia, Southeast Asia, South Asia. (Cross-listed as ASAN 242) **DH**

**HIST 245 Atlantic History: Colonies to Revolutions (3)** Comparative and historical survey of colonialism and revolutions in the Atlantic World from 1500 to 1830. (Alt. years) **DH**

**HIST 281 Introduction to American History (3)** Interpretive survey from earliest settlement to 1865. A-F only. **DH**

**HIST 282 Introduction to American History (3)** Interpretive survey from 1865 to the present. **DH**

**HIST 284 History of the Hawaiian Islands (3)** Survey of state and local history from Polynesian chiefdoms to Hawaiian Kingdom to American territory and state. **DH**

**HIST 288 Survey of Pacific Islands History (3)** Survey of Pacific Islands from pre-colonial to modern times; early settlement, cultural contact, colonization, contemporary problems. **DH**

**HIST 294 History of the Philippines (3)** Traces developments in Philippine history and society from precolonial to contemporary times and explores ways in which the peoples of the Philippines embraced, resisted or negotiated new modes of thought, behavior and social organization influenced by the Spanish, American, and Japanese regimes as well as the post-colonial global order. **DH**

**HIST 296 Topics in History (3)** Introduction to methods of historical inquiry; current issues in World, American, European, or Pacific history. Repeatable one time. A-F only. **DH**

*Upper-division standing or consent is a prerequisite to all history courses numbered above 300.*

**HIST 301 India and South Asia to 1700s (3)** Historical survey of India and South Asia from Mohenjo-Daro to the Mughal Empire, tracing political, social, religious, economic, cultural, and intellectual developments from ancient times to the 18th century. **DH**

**HIST 302 India and South Asia since 1700s (3)** Historical survey of India and South Asia from the Mughal Empire to the new millennium, tracing political, social, religious, economic, cultural, and intellectual developments from the 18th century to the present. **DH**

**HIST 305 History of Southeast Asia (3)** Survey of development of civilizations and growth of nations in Southeast Asia, to the 18th century. **DH**

**HIST 306 History of Southeast Asia (3)** Continuation of 305, from 18th century to the present. **DH**

**HIST 309 East Asian Civilizations (3)** Characteristics of East Asian civilizations as they developed in pre-modern China; variant patterns in Japan and Korea; the modernization process to 1500. **DH**

**HIST 310 East Asian Civilizations (3)** Continuation of 309. Period after 1500. **DH**

**HIST 311 History of China (3)** Chinese civilization to the 17th century. **DH**

**HIST 312 History of China (3)** Continuation of 311. Period since the 17th century. **DH**

**HIST 321 History of Japan (3)** Survey of culture, government, economics, and institutions, to 1700. **DH**

**HIST 322 History of Japan (3)** Continuation of 321. Period from 1700. **DH**

**HIST 323 Way of Tea in Japanese History and Culture (3)** History and culture of Japan as revealed in study and practice of the tea ceremony (urasenke): Zen, aesthetics, calligraphy, architecture, ceramics, gardens, politics. (Cross-listed as ASAN 323) **DH**

**HIST 324 The Samurai of Japan (3)** A social, military, and cultural history of Japan's samurai (warrior) class. **DH**

**HIST 327 History of Premodern Korea (3)** Survey of political, economic, social, and cultural developments from earliest times to 1400. **DH**

**HIST 328 History of Modern Korea (3)** Continuation of 327. From 1400 to the present. **DH**

**HIST 331 Ancient Greece I (3)** Political, social, and cultural history of the Minoan, Mycenaean, and Archaic periods. **DH**

**HIST 332 Ancient Greece II (3)** Political, social, and cultural history of the Classical and Hellenistic periods. **DH**

**HIST 333 Ancient Rome: The Republic (3)** Political, social, cultural history from the Etruscans to Augustus. Emphasis on discussion of literary and archaeological materials. (Alt. years: fall) **DH**

**HIST 334 Ancient Rome: The Empire (3)** Political, social, and cultural history from Augustus to 476 A.D. Emphasis on literary and archaeological materials. (Alt. years: spring) **DH**

**HIST 335 Early Middle Ages 300–900 (3)** Interaction of three major forces forming Western European civilization: Classical tradition, Christian religion, Germanic society. **DH**

**HIST 336 High Middle Ages 900–1300 (3)** Topical examination of Medieval European culture: economy, society, religion, politics, thought, and the arts. **DH**

**HIST 337 European Intellectual History (3)** Undergraduate seminar on great debates in Western thought. Discussion of primary source materials; the scientific revolution and Enlightenment. **DH**

**HIST 338 European Intellectual History (3)** Continuation of 337. European thought from French Revolution to the present. **DH**

**HIST 339 Renaissance and Reformation (3)** Political, social, cultural, and intellectual developments in Europe from 1300 to 1600. Emphasis on cultural and intellectual history and its impact on social and political developments; humanism and its influence on thought and reforming movements, Protestant and Catholic Reformations. (Alt. years: fall) **DH**

**HIST 340 Comparative Economic History (3)** Comparative historical study of economic ideas and change since around 1700. Considers the histories of capitalism, poverty, industrialization and labor in Europe, Asia, the U.S., and other regions. (Cross-listed as ECON 341) **DH**

**HIST 342 The History of Economic Thought (3)** Introduces major western economic theorists and ideas since around 1700. Considers the history of views on work, poverty, the market and government, and the relationship of those doctrines to society, philosophy, and public policy. Pre: 151, 152, ECON 130, or ECON 131; or consent. (Alt. years) (Cross-listed as ECON 342) **DH**

**HIST 343 Reacting to the Past (3)** Exploration of moments of crisis and the clash of ideas in their historical context through the use of simulation games. Junior standing or higher. A-F only. **DH**

**HIST 344 Modern Germany (3)** Political, social, economic, and cultural history since 1547. Rise of Austria and Prussia, unification, Bismarckian era, World War I and Weimar Republic, Hitler's Third Reich, post-World War II. **DH**

**HIST 345 France in the Old Regime (3)** Major social, political, and intellectual developments: Renaissance, Reformation, religious wars, Richelieu, Louis XIV, Enlightenment, and Revolution. **DH**

**HIST 346 Modern France (3)** Political, social, economic, and intellectual developments from Revolution and Napoleon to the present. **DH**

**HIST 347 Tudor-Stuart Britain (3)** Traces major developments in British politics, society, and culture between the late Medieval and Modern Eras. **DH**

**HIST 348 Modern England (3)** Interaction of 17th-, 18th-, and 19th-century intellectual, political, economic, and social changes, which together produced the British Empire and modern Britain. **DH**

**HIST 349 British Empire (3)** Origins and expansion of the British empire between the seventeenth and twentieth centuries. Includes imperial policies affecting Britain, Australia, India, Ireland, and Southern Africa. Open to nonmajors. **DH**

**HIST 350 Iberia in Asia and the Pacific (3)** Comparative exploration of the Iberian empires—Spain and Portugal—and their political, economic, and cultural interactions with indigenous societies in Asia and the Pacific. A-F only. Pre: sophomore standing or consent. **DH**

**HIST 351 East European Empires (3)** Comparison of Austrian, Polish, Ottoman, and Russian empires by examining political ideologies, religions, lifestyles, and ethno-linguistic identities. Pre: sophomore standing or consent. (Alt. years) **DH**

**HIST 352 France and Empire (3)** Lecture/discussion exploring the history of France's relationship with imperialism from the Renaissance to the present. Pre: upper division standing or consent. (Once a year) **DH**

**HIST 354 Introduction to Islamic History (3)** Muhammad, the Arab conquests, the Caliphate; fundamentals of Islam; classical Islamic civilization; development of Islam into modern times with emphasis on the Middle Eastern heartland. **DH**

**HIST 355 The Making of the Modern Middle East (3)** Survey of developments that created the system of nation-states in the Middle East. History of the Ottoman Empire and the Republic of Turkey; Egypt; the Arab world; Israel and Iran. Recommended: 354. **DH**

**HIST 356 Survey of African History (3)** The history of Africa from earliest times to the present: the rise of indigenous civilizations, European and

Muslim impact, colonialism and nationalism, and current issues. **DH**

**HIST 358 The World of Mekong (3)** Historical survey, from BC period to present, of the peoples of the Mekong region, an area covering southwestern China, Thailand, Cambodia, Laos, and southern Vietnam. Open to nonmajors. Pre: upper division standing or consent. **DH**

**HIST 361 U.S. Women's History (3)** History of U.S. women and gender relations. Topics include women's work in and outside the household, women's involvement in social movements, changing norms about gender and sexuality, and shared and divergent experiences among women. (Cross-listed as AMST 316 and WS 311) **DH**

**HIST 362 Gender and Sexuality in the Classical World (3)** Critical examination of the construction of gender identity and sexuality in ancient Greece and Rome. Pre: 151, 161, LLEA 122, LLEA 123, LLEA 124, LLEA 227, LLEA 228, or any course in WS, GRK, or LATN; or departmental approval. (Once a year) **DH**

**HIST 371 U.S. Foreign Relations to 1898 (3)** Survey of U.S. foreign relations from initial encounters between Europeans and Native Americans through the 1890s. **DH**

**HIST 372 U.S. Foreign Relations From 1898 (3)** Survey of U.S. foreign relations from the wars of 1898 to the present. **DH**

**HIST 373 American Thought and Culture (3)** Politics, family, philosophy, technology, etc.; their interrelationship within the total society. Pre-Colonial to end of the 19th century. Pre: 151 or HIST 152 or AMST 150 or AMST 201 or AMST 202 or AMST 211 or AMST 212; or consent. (Cross-listed as AMST 343) **DH**

**HIST 374 American Thought and Culture (3)** Continuation of 373: the 20th century. Pre: 151 or 152 or AMST 150 or AMST 201 or AMST 202 or AMST 211 or AMST 212 or consent. (Cross-listed as AMST 344) **DH**

**HIST 378 History of American Business (3)** The evolution of business enterprise from colonial times to the present. Emphasis on entrepreneurship, technological change, labor-management relations, government-business relations, and economic thought. Case studies of industrial development. (Cross-listed as MGT 348) **DH**

**HIST 379 American Empire (3)** Examines the interplay between an "American culture of empire" and the rise of the U.S. as a superpower. Topics: imperialism and political culture, social movements and international affairs, race, gender and class relations. (Cross-listed as AMST 365) **DH**

**HIST 386 Caribbean History (3)** Survey of the history of the Caribbean region from 1500 to the present. A-F only. Pre: sophomore standing or higher, or consent. **DH**

**HIST 391 History of Warfare to 1850 (3)** Classical and guerrilla warfare, revolution, and military systems and institutions. **DH**

**HIST 392 History of Warfare Since 1850 (3)** Continuation of 391, from 1850 to present. **DH**

**HIST 393 U.S. Military History (3)** Survey of development of American military forces from War of Independence to war in Vietnam. **DH**

**HIST 394 History of Science to 1700 (3)** Evolution of scientific thought and its cultural context. Antiquity to 1700. **DH**

**HIST 395 History of Science Since 1700 (3)** Continuation of 394; science, technology, and society since 1700. **DH**

**HIST 396 (Alpha) Introduction to the Study of History (3)** Introduction to the discipline; current trends in Asian, European, American, and Pacific historiography; preparation for senior thesis (496). (B) historiography; (C) education. Pre: history major or consent.

**HIST 401 History of the Indian Ocean World (3)** Explores the transnational history of the Indian

Ocean world, especially the region connected by the western monsoon. Topics include travel, trade, religion, colonialism, nationalism, diaspora, and globalization, including actors like slaves, sailors, women, and merchants. A-F only. Pre: junior or senior standing or consent. (Alt. years) **DH**

**HIST 403 Vietnam: History and Memory (3)** Survey of Vietnamese history with particular attention to the multiple ways that the Vietnamese past has been remembered and represented by different peoples. Open to non-majors. **DH**

**HIST 406 Modern Philippines (3)** Survey of major developments from pre-colonial through Spanish and American colonial periods, the revolution, Japanese occupation, and post-war republic. (Cross-listed as ASAN 406) **DH**

**HIST 407 Modern Malaysia (3)** History of Malay peninsula and northern Borneo, emphasizing developments since 18th century: trade, commerce, foreign migrations, pluralism, nationalism, and Islam. **DH**

**HIST 408 Modern Indonesia (3)** Indonesia from 14th century to present. Emphasis on period from late 18th-century Western colonial impact to struggle for independence and problems of nationhood. **DH**

**HIST 409 History of Islamic Southeast Asia (3)** History of the coming of Islam to Southeast Asia, the spread of its ideas, and its role in the lives of Muslim communities living in the region. Junior standing or higher. GPA of 2.0 or higher. Pre: any HIST course. (Spring only) **DH**

**HIST 410 Twentieth-Century China (3)** An examination of the political, intellectual, economic, cultural, and social transformations of China in the twentieth century. This lecture studies critical events in the making of modern China and explores important issues in the modernization of Chinese life in the twentieth century. **DH**

**HIST 411 Local History of Late Imperial China (3)** Ch'ing government and Chinese society from local and regional perspectives; modes of control and disorder during the 19th century. **DH**

**HIST 412 Local History of 20th-Century China (3)** Sociopolitical change and continuity at local and regional levels since 1900, stressing provincial reform, Hsien and sub-Hsien politics, warlordism, Kuomintang tutelage, and the Chinese Communist movement and rule. **DH**

**HIST 416 Chinese Intellectual History (3)** An interpretive survey of Chinese ideas and values in their cultural, social and political settings from classical age to 1600. Pre: upper division standing or consent. **DH**

**HIST 417 Chinese Intellectual History (3)** Interpretive survey of Chinese thought from 1600 to the contemporary period, with special emphasis on the themes of cultural collision and change. **DH**

**HIST 418 China's Foreign Relations (3)** Systematic review from traditional times, with emphasis on modern and contemporary history, analyses of foreign policy formulation, objectives, and implementation. Recommended: 312. **DH**

**HIST 419 The Chinese Revolution (3)** Origins, development, and meaning of modern revolution in China, 19th century to People's Republic. Recommended: 311 and 312. **DH**

**HIST 420 People's Republic of China (3)** Salient developments from 1949 to the present. Social revolution and modernization, critically relevant foreign relations. Recommended: 312 or 419. **DH**

**HIST 421 China in World History (3)** Interpretive survey of China's changing position, significance, and function in the evolution of world history as a way to provide a better understanding of its past and present. Junior standing or higher. **DH**

**HIST 422 Tokugawa Japan (3)** Japanese history and culture, 1600–1867. Recommended: 321. **DH**

**HIST 423 Okinawa (3)** Survey of social, cultural, economic, and political history from earliest times to present. **DH**

**HIST 424 20th-Century Japan (3)** Problems of Japan's political, economic, and social development since institutional consolidation of Meiji state (c.1890). Pre: upper division standing or consent. **DH**

**HIST 425 Women in East Asian History (3)** Survey of the changing political, social, economic, and cultural positions of women in China, Japan, and Korea from ancient times to the present. Pre: one course in Japanese history or consent. **DH**

**HIST 431 Ancient Near East: Pyramids and Writing Tablets (3)** Civilizations of the Sumerians, Babylonians, Assyrians, ancient Egyptians, Hittites, Hebrews, and Achaemenid Persians. Emphasis on discussion of literary and archaeological materials. **DH**

**HIST 432 Crisis and Conflict in the Middle East (3)** In depth study and analysis of major crises and conflicts in the Middle East since World War II: the Arab–Israeli Wars, revolutions in the Arab countries, the Turkish experiment with secularism, the Iranian/ Islamic revolution, Afghanistan, the Gulf War. Recommended: 354 or 355. **DH**

**HIST 433 Medieval Cultures (3)** Topical study of cultural and cross-cultural issues in the medieval period (circa 300–1500). Class discussion and written work emphasize analysis of primary source documents using cultural and world history theories. Regional focus and readings vary by semester. Repeatable one time. **DH**

**HIST 434 History of Christianity to 1500 (3)** Historical analysis of the main traditions of Christianity and elements of diversity within Europe and in relation to other parts of the world. Focus on the interpretation of primary sources and discussion of cultural issues. (Alt. years: spring) **DH**

**HIST 436 World Environmental History, 1500 to Present (3)** Explores interactions between humans and the natural world from early modern era to the present. Topics include invader species and biotic exchange; environmental politics; and the ecological impact of industrialization, urbanization, science, technology, war, etc. Pre: junior standing or consent. (Once a year) **DH**

**HIST 438 European Cult of the Primitive (3)** Historical investigation of European beliefs in the superiority of primitive societies. Topics include how primitivist ideas shaped historiography, religion, art, gender, political economy, and empire. Pre: upper division standing or consent. (Alt. years: spring) **DH**

**HIST 439 The Darwinian Revolution (3)** Social and intellectual origins of evolutionary thought and its continuing impact; emphasis on Darwin and the Victorian scientific community. Pre: upper division standing or consent. **DH**

**HIST 440 20th-Century Europe (3)** Contemporary problems and their historical background. **DH**

**HIST 441 Expansion of Europe (3)** Historical processes in modern European colonization from 16th to 20th century; impact on non-Europeans in Asia and Africa. (Alt. years: fall) **DH**

**HIST 442 War and Violence in Early Modern Europe (3)** History of the intellectual, social, and cultural causes and consequences of violence, including military conflicts. Pre: upper division standing or consent. (Once a year) **DH**

**HIST 443 Nazi Germany (3)** Origins, establishment, and impact of Hitler's Third Reich. Recommended: 344. (Alt. years: spring) **DH**

**HIST 444 The History of the Holocaust (3)** The origins and progression of the Holocaust, the almost complete destruction of European Jews, and other Nazi genocidal policies. Open to nonmajors. **DH**

**HIST 445 French Revolution and Napoleon (3)** Causes, course, and conduct of the Revolutionary and Napoleonic periods, their impact upon Europe;

emphasis on the conflict of ideologies inherent in the Revolutionary process. **DH**

**HIST 448 Imperial Spain and Portugal (3)** The influence of Spain and Portugal on people and cultures in Europe, Africa, America, and Asia; Portugal's captivity and the defeat of the Spanish Armada. **DH**

**HIST 450 Topics in African History (3)** Selected themes important in African history, including, for example, the politics, economics, societies, and cultures of pre-colonial, colonial, or modern Africa. Topics to be pre-announced. Repeatable one time. (Once a year) **DH**

**HIST 451 (Alpha) History and Literature (3)** Explores the many relationships between history and literature, including how literature has reflected and shaped society in the past and our relationship to the past; (B) United States; (C) Europe; (D) Asia/Pacific; (E) World/Comparative; (F) Provisional topics. Repeatable one time for different alphas, not repeatable for (C). Pre: 151 or 152, or consent. **DH**

**HIST 452 (Alpha) History and Film (3)** Explores the many relationships between history and film including how film has reflected and shaped society in the past and our relationship to the past. (C) Europe; (D) Asia/Pacific. Repeatable one time for different alphas. Pre: junior standing or consent. (Once a year for (D)) **DH**

**HIST 454 Tsarist Russia (3)** Development of the Russian state to the 19th century. Kievan state and early development of culture and art; Mongol era; rise of Moscow, autocracy, and serfdom; Petrine reforms; Western impact; emergence as a major European power. **DH**

**HIST 456 Modern Russia (3)** Creation of the Soviet Union, Stalinization, the Cold War, the collapse of the empire, the post-Soviet era. **DH**

**HIST 457 Russia in Asia and the Pacific (3)** Russian/Soviet Siberia and Central Asia; Russian American Company and the Pacific; evolving relations with Asian and Pacific powers. **DH**

**HIST 458 The American Revolution (3)** Lecture/discussion on the origins, development, and consequences of the American Revolution, explored within the context of the broader revolutionary Atlantic world. Pre: junior standing or consent. (Once a year) **DH**

**HIST 459 African American History (3)** Lecture/discussion on the origins of racial slavery, slave and free black culture, slave resistance and antislavery, post-emancipation black life, the rise of Jim Crow, the Harlem Renaissance, and the Civil Rights Movement. **DH**

**HIST 460 Native American History (3)** Lecture/discussion on the history of North American Indians from the seventeenth century to the present. Open to nonmajors. **DH**

**HIST 461 Early America (3)** Lecture/discussion on Native Americans, Africans, and Europeans in North America from contact to independence. Social, cultural, and economic themes and intersections of race, class, and gender explored. **DH**

**HIST 462 The Early American Republic (3)** Lecture/discussion on the Constitution, the growth of partisan politics, the market revolution, religious revivalism, abolitionism and the expansion of slavery in the U.S. during the age of Jefferson and Jackson. **DH**

**HIST 463 American Civil War Era 1841–1877 (3)** The crisis of the Union: antebellum society and culture, slavery, reform, sectionalism, the Civil War and Reconstruction. **DH**

**HIST 464 Transformation of America 1877–1920 (3)** Selected themes that explain major changes in American life during the late 19th and early 20th centuries, including the westward movement, consolidation of capitalism, world power diplomacy, popular culture, progressivism, and World War I. **DH**

**HIST 465 The United States 1920–1948 (3)** The Roaring Twenties, the Depression, New Deal,

coming of World War II, America during the war, origins of the Cold War. **DH**

**HIST 466 The U.S.: 1948 to the Present (3)** The atomic age and the Cold War, the age of anxiety, the 1960s, the Vietnam War, the Reagan-Bush era, and beyond. **DH**

**HIST 467 American Television History (3)** Lecture/discussion examining the impact of television on American society, culture and politics. Analyzed in depth are family sitcoms, presidential politics, Vietnam and the presentation of gender and ethnicity. Open to nonmajors. **DH**

**HIST 468 Viva Las Vegas! (3)** Upper-division lecture on the historical and cultural significance of Las Vegas in twentieth-century America. Open to nonmajors. **DH**

**HIST 469 The Cold War (3)** Cold War as a global struggle. Topics will include U.S.-Soviet economic and political rivalry, Capitalism vs. Communism as practical policy and ideology, and the force of Third World anti-colonial nationalism. A-F only. Pre: junior standing or higher, or consent. **DH**

**HIST 471 Music, Industry, and Society (3)** History of U.S. music and recording industry. How industry relates to economy as a whole, and how it reflects broad patterns and trends in American culture and society. (Cross-listed as MUS 440) **DH**

**HIST 472 American Social History (3)** Introduction to the new social history; interdisciplinary approaches to the study of the everyday lives of ordinary Americans in past generations. **DH**

**HIST 473 Slavery and Freedom (3)** Examines the history of slavery, race, and abolition in the Americas from a comparative, global perspective, and traces the legacy of slavery in the post-emancipation societies of the New World. (Cross-listed as AMST 432) **DH**

**HIST 474 The American West (3)** Lecture/discussion surveying the conquest, colonization, and consolidation of North American frontiers and the post-frontier development of the American West. **DH**

**HIST 475 Constitutional History of the U.S. (3)** Origins, development of Constitution, Colonial to modern times. **DH**

**HIST 476 Race and Racism in America (3)** Racial ideas and ideologies, and their effects throughout American history. (Cross-listed as AMST 440) **DH**

**HIST 477 History of American Workers (3)** Conditions of labor in major phases of American development; response of labor and community to changing work environment. Capitalism, unionism, race, gender, law, etc. Emphasis on 20th century. (Cross-listed as AMST 431) **DH**

**HIST 478 Colonial Latin America (3)** Pre-Columbian civilizations: Spanish and Portuguese colonization; political, economic, social, and religious evolution to 1810; independence. (Cross-listed as LAIS 468) **DH**

**HIST 479 Latin America Since Independence (3)** Political, economic, and social development since 1825; case studies from Brazil, Mexico, and Cuba. **DH**

**HIST 480 American Environmental History (3)** Survey history of the complex relations between American societies and diverse U.S. ecosystems, from European contact and colonization to the present. (Cross-listed as AMST 425) **DH**

**HIST 481 Pacific Islands I (3)** The Pacific past from first human settlement to the start of the colonial period; emphasis on historiography and analysis of islanders' responses to Euro-American intrusion. **DH**

**HIST 482 Pacific Islands II (3)** The colonial experience to the present. **DH**

**HIST 483 United States in the Pacific (3)** Growth of economic and political interests and policies. **DH**

**HIST 484 The Hawaiian Kingdom 1819–1893 (3)** Transformation of Hawai'i into a state influenced by American and European ideas and institutions and Asian peoples. Pre: upper division standing or consent. **DH**

**HIST 485 History of 20th-Century Hawai'i (3)** Formation of an American Hawai'i with its unique local culture from 1898 to the present. Pre: upper division standing. **DH**

**HIST 489 World Maritime History (3)** Survey of world maritime history from earliest times to the present, with emphasis on the evolution of nautical technology, motives from maritime enterprises, and the impact of cross-cultural encounters between oceanic peoples. (Cross-listed as AMST 489) **DH**

**HIST 490 Maori and American Indians (3)** Compares indigenous sovereignty issues arising among the Maori or Aotearoa-New Zealand and Indian tribes of the U.S. from 1776 to the present. (Once a year) **DH**

**HIST 492 Women and Revolution (3)** Conditions under which women's activism and participation in protest and revolutionary movements developed in the 19th- and 20th-centuries. Cross-cultural comparisons. (Cross-listed as ASAN 492 and WS 492) **DH**

**HIST 495 (Alpha) History Colloquium (3)** Extensive or intensive treatment of special problems. (B) Philippines and Indonesia; (C) U.S. foreign relations; (D) history in Oceania; (E) Chinese traditional government. Recommended for honors students. Pre: 372 (or concurrent) or consent for (C); consent for (B) and (E). **DH**

**HIST 496 (Alpha) Senior Tutorial in History (3)** Analysis of sources and evaluation of methods of historical writing. Students undertake a major research and writing project in field of special interest. Capstone course requires a 20-25 page minimum final research paper. Required for majors except those in Honors Program. (B) United States; (C) Europe; (D) Asia/Pacific; (E) comparative/World. Pre: 396 (or concurrent).

**HIST 499 Directed Reading (V)** Individual projects in various fields. History majors with consent. Maximum 5 credit hours. (1) American; (2) Pacific; (3) Japanese; (4) European; (5) English; (6) Chinese; (7) Russian; (8) Hawaiian; (9) South Asian; (10) Southeast Asian; (11) Korean.

**HIST 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**HIST 602 Seminar in Historiography (3)** History of history and historians; philosophies of history.

**HIST 605 Seminar in Digital History (3)** Examines the various ways that the production, presentation, and learning of history through digital media is changing the way people access and process information about the past. Graduate standing only.

**HIST 609 Seminar in World History (3)** Analysis, research, and discussion of themes and issues in study of history of humankind. Repeatable one time. Pre: graduate standing or consent.

**HIST 610 Topics in World History (3)** Selected themes—feudalism, economic and industrial development, etc.—important in global history. Topics pre-announced. Repeatable one time. Pre: 609.

**HIST 611 (Alpha) Advanced Readings in European History (3)** Selected topics for advanced reading; (B) ancient; (C) medieval; (D) early modern; (E) modern; (G) intellectual. Repeatable one time. Pre: graduate standing or consent. (Alt. years: spring for (D)); (Alt. years: fall for (E))

**HIST 612 Ethnographic History (3)** Critical inquiry into historical representations of the "other" and ways in which modern historians have used culture and other anthropological concepts to write and think about the past.

**HIST 613 Introduction to Cultural Studies (3)** Graduate seminar designed to introduce history students to the multidisciplinary theories that are

appropriate to cultural studies. A-F only. Repeatable one time. Pre: history major or consent.

**HIST 614 (Alpha) Research in European History (3)** Selected topics for advanced research. (B) ancient; (C) medieval; (D) early modern; (E) modern; (G) intellectual. Repeatable one time. Pre: graduate standing or consent. (Once a year)

**HIST 615 (Alpha) Topics in European Colonialism (3)** Selected topics for comparative advanced reading and research. (D) early modern; (E) modern. Repeatable one time. Pre: graduate standing or consent. (Alt. years)

**HIST 616 Topics in Historical Methods and Theory (3)** Seminar covering one specific approach to historical methods or theory. The goal is a deep engagement with a particular historical approach via research and reading not bounded by region, time, or specialty. Repeatable one time. Graduate standing only.

**HIST 617 Atrocity Crimes: Law and History (3)** Seminar on history of mass atrocity and international justice in the modern world. Topics include post-WWII Allied war crimes prosecution, post-cold war ad hoc international criminal tribunals, and contemporary international law and national legal systems. Repeatable one time.

**HIST 618 (Alpha) Advanced Readings in Russian History (3)** (B) early Russia; (C) modern. Repeatable one time. Pre: 350 and graduate standing, or consent.

**HIST 621 (Alpha) Russia in East Asia and the Pacific (3)** (B) advanced readings; (C) advanced research on Siberia, Russian activities in the Pacific basin, evolving relations with Asian and Pacific powers. Repeatable one time per alpha. Pre: 457 and either 454 or 456; or consent.

**HIST 632 (Alpha) Advanced Readings in American History (3)** Interpretations and literature of important themes and problems. (B) early America; (C) the Republic to 1877; (D) industrial America; (E) recent America. Repeatable one time per alpha. Pre: appropriate 400-level U.S. history course or consent for (D) and (E); graduate standing or consent for (B) and (C). (Alt. years for (B)) ((B) Cross-listed as AMST 610)

**HIST 634 (Alpha) Research in American History (3)** (B) early America; (C) the Republic to 1877; (D) industrial America; (E) recent America; (F) foreign relations. Repeatable one time. Pre: appropriate 400 level course or consent.

**HIST 639 (Alpha) Advanced Topics in American History (3)** Seminar in advanced research and readings: (B) social and intellectual; (C) foreign relations; (F) the West; (K) business, labor, and technology. Repeatable one time for (B), (C) and (K). Pre: graduate standing and consent. ((B) Cross-listed as AMST 646); ((F) Cross-listed as AMST 614); ((K) Cross-listed as AMST 647)

**HIST 650 Seminar: Comparative Asia (3)** This reading seminar in the comparative history of modern Asia will introduce graduate students to themes, particularly in social, cultural, and intellectual history, which lend themselves to comparison across the region. Repeatable one time. Pre: graduate standing or consent. (Alt. years)

**HIST 656 Topics in Southeast Asia (3)** Reading and research seminar on themes about the past and present of Southeast Asia in a comparative framework. Pre: graduate standing or consent.

**HIST 657 Historiography of Southeast Asia (3)** Examination of contested boundaries of Southeast Asia, the various historiographic traditions, the colonial legacy, and the current issues emerging from a dialogue of historians from the "region" and the outside world. Repeatable one time.

**HIST 658 Seminar in Modern Southeast Asian History (3)** Graduate level reading seminar in modern Southeast Asian history. Repeatable one time. Pre: graduate standing or consent.

**HIST 659 The Seas in Southeast Asian History (3)** Seminar on the seas in Southeast Asian history. (Alt. years)

**HIST 660 Seminar: Vietnamese History (3)** Reading and research seminar on Vietnamese history. Repeatable one time. Pre: graduate standing or consent. (Alt. years)

**HIST 661 (Alpha) Seminar in Chinese History (3)** Problems and readings in political, social, and cultural history. (B) early; (C) middle; (D) modern. Repeatable one time.

**HIST 662 Seminar: Islam and Islamic Civilization (3)** Readings on the rise, spread, and development of Islamic cultures and civilizations throughout the world down to modern times. Repeatable one time. Pre: graduate standing or consent. Recommended: 354.

**HIST 663 Seminar in South Asian History (3)** Graduate-level reading and research seminar on topics in Indian and South Asian history. Repeatable one time.

**HIST 665 (Alpha) Seminar in Japanese History (3)** Problems, principal sources of bibliographic information. (B) traditional period to c.1600; (C) early modern 1600–1868; (D) 1868 to present; (E) 20th-century diplomatic. Repeatable one time per alpha.

**HIST 667 (Alpha) Seminar in Korean History (3)** Reading major interpretive works, and research in selected topics. (B) reading; (C) research. Repeatable one time per alpha. Pre: graduate standing or consent.

**HIST 675 (Alpha) Seminar in Pacific History (3)** Reading and research on major themes and issues. (B) South Pacific; (C) Micronesia; (D) 19th century; (E) 20th century. Repeatable one time per alpha. Pre: graduate standing or consent.

**HIST 677 Seminar in History of Hawai'i (3)** Reading seminar with short papers required. Covers Kingdom of Hawai'i and 20th-century Hawai'i in alternate years. Repeatable one time. (Alt. years: fall)

**HIST 678 Hawaiian Historical Research: Documents and Methods (3)** Research and writings emphasizing the interpretation of Hawaiian and English language primary sources. Development of source materials, approaches, and methods in Hawaiian history. A-F only. Graduate standing only. Pre: HAW 301 with a B or better, or instructor consent.

**HIST 699 Directed Research (V)** Individual research topics. (1) American; (2) Pacific; (3) Japanese; (4) European; (5) English; (6) Chinese; (7) Russian; (8) Hawaiian; (9) South Asian; (10) Southeast Asian; (11) Korean. Restricted to plan A (thesis) students. Maximum 2 credit hours. Repeatable one time. Pre: consent.

**HIST 700 Thesis Research (V)** Repeatable unlimited times.

**HIST 702 Institutional History of Korea (3)** Major political, economic, and social institutions. Repeatable one time. Pre: graduate standing or consent. (Alt. years: spring)

**HIST 713 Chinese Historical Literature (3)** Reading and use of numerous genres of Chinese historical literature and documents. Chinese bibliography. Knowledge of Chinese required. Repeatable one time.

**HIST 790 Teaching History (1)** HIST 151-152 faculty supervisors mentor their Teaching Assistants who teach the discussion labs. Course addresses issues of teaching strategy, grading and historical content. Enrollment limited to current Teaching Assistants in the World History Program. Repeatable seven times. A-F only. Pre: History graduate Teaching Assistants assigned to 151-152.

**HIST 800 Dissertation Research (V)** Repeatable unlimited times. Pre: consent.

## Honors (HON)

### Honors Programs

*These courses are limited to students in the Honors Programs.*

**HON 101 Introduction to Research and Creative Work at Mānoa (3)** Combines lectures by instructors and faculty guests with workshops and hands-on experience in small group projects, including bibliographic searches, laboratory science, social surveys and interviews. A significant portion is dedicated to writing instruction. Honors Program students only. A-F only.

**HON 120 Mathematical Modes of Thinking (3)** Mathematics as both a language and a thought process expressed in that language. Historical and contemporary relations to culture.

**HON 190 Honors Tutorial (1)** Supplements a 100 or 200 lecture course or standard lab time with discussion section, instructor-intensive lab time or directed research. Limited enrollment. Repeatable three times.

**HON 291 (Alpha) Sophomore Seminar (3)** Special inquiry-based study of multi-disciplinary topics in particular historical, cultural, geographical, environmental, or other contexts. Emphasis on primary sources and/or fieldwork. (B) biological science; (H) humanities; (P) physical science; (R) arts; (S) social science; (T) literature. Repeatable one time. A-F only. Pre: HON or departmental approval. **DB** for (B); **DH** for (H); **DP** for (P); **DA** for (R); **DS** for (S); **DL** for (T)

**HON 301 Public Policy-Making (3)** Students develop understanding of theory, practice, and ethical issues of public policy-making. Combines lecture/discussion and fieldtrips. Students develop policy analysis and strategic plans that identify issues, interests, and methods of influence. Repeatable one time. A-F only. Pre: 101 or 291, or departmental approval. (Cross-listed as POLS 386)

**HON 303 Civic Engagement, Volunteerism & Community Service (3)** Seminar on history and theory and practice of volunteerism in the U.S. Involves comparative study of volunteerism, individual research projects on volunteerism, and conduct of field service activities together with written reports. Repeatable one time. A-F only. Pre: 101 or 291, or departmental approval.

**HON 380 Peer Mentoring (3)** Students develop understanding of dynamics of leadership skills within the contexts of paired to large groups. Significant portion is dedicated to writing and oral communication instruction. Honors Program students only. Pre-semester training sessions, on-going training and supervision. Repeatable one time. A-F only. Pre: 101 or departmental approval.

**HON 399 Internship (V)** Field placement integrated with academic study of institutions and/or organizations. Repeatable 3 times or up to 12 credits. Pre: departmental approval.

**HON 491 Junior Seminar (3)** Project-based experiential learning involving community-based research or creative work. Focus on project design, practical skills, and teamwork. Significant portion is dedicated to writing instruction. Multi-disciplinary topics vary each semester. Honors Program students only. Repeatable one time. A-F only.

**HON 492 Honors Colloquium (3)** Weekly meetings for discussion of enduring issues and problems of an interdisciplinary nature. Limited to candidates for Honors degree. CR/NC only.

**HON 495 Introduction to Research (3)** Library research skills; scholarship of research and creative work; methodological and ethical issues; development of individual proposal or prospectus for Senior Honors Project. Limited to candidates for the Honors degree. Repeatable one time. CR/NC only.

**HON 496 Senior Honors Project (3)** Original research, creative work, performance or other form of scholarly project appropriate to a major and supervised by a faculty member. Limited to candidates for

Honors degree. Repeatable one time for each major. A-F only. Pre: 495 or consent.

**HON 499 Directed Reading/Research (V)** Directed reading and/or research. Repeatable 3 times or up to 12 credits.

*Selected Studies students also have the option of taking A-section courses from the following list when they are offered by departments:*

- AMST 150A America and the World FGB
- AMST 202A Diversity in American Life DH
- AMST 220A Introduction to Indigenous Studies DH
- ANTH 151A Emerging Humanity FGA
- ANTH 152A Culture and Humanity FGB
- ART 101A Introduction to Visual Arts DA
- ART 175A Survey of Global Art I FGA
- ART 176A Survey of Global Art II FGB
- ASAN 241A Civilizations of Asia DH
- ASAN 242A Civilizations of Asia DH
- ASAN 312A Contemporary Asian Civilizations DS
- ASTR 110A Survey of Astronomy DP
- ASTR 120A Astronomical Origins DP
- BOT 101A General Botany DB
- BOT 105A Ethnobotany FGC
- CHEM 181A Honors General Chemistry DP
- COMG 151A Personal and Public Speech DA
- COMG 251A Principles of Effective Public Speaking DA
- ECON 130A Principles of Microeconomics DS
- ECON 131A Principles of Macroeconomics DS
- ECON 300A Intermediate Economics: Macroeconomics Analysis DS
- ECON 301A Intermediate Economics: Price Theory DS
- ECON 317A the Japanese Economy DS
- ECON 362A Trade Policy and Globalization DS
- ENG 100A Composition I FW
- ENG 270A Introduction to Literature: Literary History DL
- ENG 271A Introduction to Literature: Genre DL
- ENG 272A Introduction to Literature: Culture and Literature DL
- ENG 273A Introduction to Literature: Creative Writing and Literature DL
- GEOG 151A Geography and Contemporary Society FGC
- GG 101A Introduction to Geology DP
- HWST 107A Hawai'i: Center of the Pacific DH
- HIST 161A World Cultures in Perspective FGA
- HIST 162A World Cultures in Perspective FGB
- ICS 101A Tools for the Info Age
- ICS 111A Introduction to Computer Science
- ICS 211A Introduction to Computer Science II
- MATH 251A Accelerated Calculus I FS
- MATH 252A Accelerated Calculus II
- MATH 253A Accelerated Calculus III
- MICR 140A Microbiology Laboratory DY

- MUS 107A Music in World Cultures FGC
- PHIL 100A Introduction to Philosophy: Survey of Problems DH
- PHIL 101A Introduction to Philosophy: Morals and Society DH
- PHIL 102A Introduction to Philosophy: Asian Traditions DH
- PHIL 110A Introduction to Deductive Logic FS
- PHYS 170A General Physics I DP
- PHYS 272A General Physics II DP
- POLS 110A Introduction to Political Science DS
- POLS 335A Political Philosophy and Theory DS
- PSY 371A Abnormal Psychology DS
- REL 150A Introduction to the World's Major Religions FGC
- REL 151A Religion and the Meaning of Existence DH
- REL 210A Understanding Christianity DH
- SOC 100A Introduction to Sociology DS
- SOCS 150A Street Science: Evaluating and Applying Evidence in Daily Life
- SOC 300A Principles of Sociology Inquiry DS
- SPAN 201A Intermediate Spanish HSL
- SPAN 202A Intermediate Spanish HSL
- TIM 102A Food and World Cultures FGB

## Human Resources Management (HRM)

*Shidler College of Business*

### HRM 200 Career Development (1)

**HRM 351 Human Resource Management (3)** Survey of the field covering recruitment, selection, training, appraisals, grievance handling, communications, discipline, safety, compensation, and benefits.

**HRM 353 Leadership and Group Dynamics (3)** Develop understanding of theory and research on managerial, entrepreneurial leadership and creativity in organizations. Topics include leadership, decision making, motivation, personality, and rewards within group settings.

**HRM 354 Organizational Change and Effectiveness (3)** Identify and evaluate methods to promote an effective change transition through efficient integration of corporate goals with the organizational culture.

**HRM 361 Labor Problems (3)** Problems and economics of labor; history, structure, government, activities of trade unions. DS

**HRM 399 Directed Reading and Research (V)** Reading and research in a special area within the major field under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty advisor.

**HRM 453 Personnel Compensation (3)** Selected topics. Emphasis on trends, recent issues, job evaluation, incentive systems, salary administration, executive compensation, profit sharing, benefit programs, retirement plans. Pre: 351.

**HRM 455 The Staffing Process (3)** Contemporary practices and trends in personnel planning for a competent work force; legal constraints, recruitment and selection, differential placement, training, career programming. Pre: 351.

**HRM 463 Negotiation and Workplace Dispute Resolution (3)** Theory and practice in negotiating; design and operation of different kinds of workplace

dispute resolution (such as mediation, arbitration, and various alternatives); features exercises on bargaining and negotiation and advocacy and decision skills. Pre: 361 or consent. (Spring only)

**HRM 465 Labor and Social Legislation (3)** Evolution, interpretation, and application of labor and social welfare legislation with special emphasis on impact of labor-management relations. Pre: 361.

**HRM 467 Labor Management Relations (3)** Review and analysis of basic factors that distinguish employment relations; examination of the development of recent legislation and programs at federal, state, and municipal levels. Specific consideration given to current problems on the mainland and Hawai'i. Pre: consent.

**HRM 468 Training and Development (3)** Analysis of the current concepts and practices in the design, delivery, and assessment of training. A-F only.

**HRM 469 Seminar in HRM (3)** In-depth analysis of selected current practices and trends in HRM. May be repeated in a different topic. Pre: consent.

**HRM 671 Human Resource Management (3)** Analysis and critical evaluation of basic issues, policies, and trends in personnel administration.

**HRM 672 Training and Development (3)** Covers issues in design, delivery, and assessment of training, theoretical background of training and development process, types of training process, cross cultural and other types of diversity training and development of training modules.

**HRM 673 Advanced Organizational Behavior (3)** Organizational development (OD) and major concepts in organizational behavior. MHRM majors only. A-F only. (Alt years: fall)

**HRM 674 Finance for Human Resource Management (3)** Intends to give HR professionals a basic overview of the vocabulary and concepts of financial decision-making. Topics include: understanding financial information, budgeting, the finance of retirement and employee benefit and business valuation. MHRM majors only. A-F only. (Alt years: spring)

**HRM 675 Compensation (3)** Survey of compensation methods and procedures including job evaluations, incentive systems, salary administration, fringe benefits, appropriate legislation, policies and strategy issues of compensation systems.

**HRM 676 The Staffing Process (3)** Recruiting and selection to optimize organizations including job design, job analysis, recruitment and selection methods, such as types of interviews and assessment centers, within legislative environment.

**HRM 677 Negotiations and Labor Relations (3)** Theory and practice of negotiation. Exploration of appropriate strategies, tactics, and communication techniques. Study of dyadic multi-party, cross-cultural, and assisted negotiations. MHRM majors only. A-F only. (Alt years: summer)

**HRM 678 International Human Resources (3)** Exploring global trends in human resources with focus on the Asia Pacific region.

**HRM 679 Human Resource Management-Topics (3)** In-depth analysis of selected current practices and trends in human resources. Repeatable four times with change in topics. MHRM majors only. A-F only.

**HRM 680 Human Resource Management Capstone (3)** The final course in the MHRM curriculum. It provides students opportunity to integrate and apply previous course content to their professional organization offering a value-added opportunity to enhance organizational performance. MHRM majors only. A-F only. (Alt years: summer)

## Ilokano (ILO)

*College of Languages, Linguistics and Literature*

**ILO 101 Beginning Ilokano (4)** Listening, speaking, reading, writing. Structural points introduced inductively. Meets four hours weekly. HSL

**ILO 102 Beginning Ilokano (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**ILO 107 Ilokano for Health Sciences (3)** Development of listening, speaking, reading, writing and other communication skills designed specifically for Nursing, Dentistry, Dental Hygiene, Public Health and Social Work students. Culture integrated with language study.

**ILO 201 Intermediate Ilokano (4)** Continuation of 102. Meets four hours weekly; three of four hours devoted to drill and practice. Pre: 102 or consent. **HSL**

**ILO 202 Intermediate Ilokano (4)** Continuation of 201. Pre: 201 or consent. **HSL**

**ILO 301 Third-Level Ilokano (3)** Continuation of 202. Conversation, advanced reading, composition. Meets three times weekly. Pre: 202 or exam, or consent.

**ILO 302 Third-Level Ilokano (3)** Continuation of 301. Pre: 301 or exam, or consent.

**ILO 315 Ilokano Aural Comprehension (3)** Training in listening comprehension of different authentic and simulated materials as presented in documentaries, soap operas, radio and television news and other broadcasts, formal lectures, plays, natural conversations, songs, and student-created sitcoms and dramas. Pre: 202 or consent.

**ILO 331 Contemporary Ilokano Literature (3)** Conducted in Ilokano, this course explores the literary landscape of Ilokano literature from the perspective of Ilokano writers based in the Philippines as well as those outside of the country. Pre: 301 or consent.

**ILO 401 Fourth-Level Ilokano (3)** Continuation of 302. Conducted in Ilokano. Advanced reading, writing, and conversation. Contemporary Ilokano literature; cultural and historical topics. Pre: 302 or equivalent.

**ILO 402 Fourth-Level Ilokano (3)** Continuation of 401. Pre: 401 or exam, or consent.

**ILO 424 Introduction to Ilokano for Interpreters (3)** Techniques for interpreting Ilokano into English and vice versa. A-F only. Pre: 302 or consent.

**ILO 425 Ilokano Interpretation Field Practicum (3)** Provide extensive practical training in consecutive, simultaneous, sight and telephonic interpreting. It requires observation and study of interpretation strategies and techniques in relevant situations. Pre: 301 or consent.

**ILO 451 Structure of Ilokano (3)** Introduction to phonology, morphology, and syntax. Pre: 202 or consent. **DH**

**ILO 486 Ilokano for the Mass Media (3)** Ilokano as the medium for print journalism, for radio show programming, and for television production. Pre: 302 or consent. (Fall only)

## Indo-Pacific Languages (IP)

*College of Languages, Linguistics and Literature*

*In addition to the languages normally offered by the department, other languages commanded by individual faculty members may be offered if demands and staff permit, e.g., classical Arabic, Asilulu, Avestan, Balinese, Javanese, Malaysian, Old Persian, and Sudanese. Interested students should consult the department chair. Language concentrations in certain other degree programs, e.g., through the Interdisciplinary Studies Program, may be arranged. Inquire at the department office.*

**IP 101 Directed Elementary Language Study (4)** Directed study of a South Asian, Southeast Asian, or Pacific language not regularly listed by the department. Pre: consent.

**IP 102 Directed Elementary Language Study (4)** Continuation of 101.

**IP 199 Introductory Language Study (V)** Introductory study of a South Asian, Southeast Asian, or Pacific language. Contact hours and credits determined by student interests and faculty resources. Repeatable up to eight credit hours. Pre: consent.

**IP 201 Directed Intermediate Language Study (4)** Continuation of 102. Pre: consent.

**IP 202 Directed Intermediate Language Study (4)** Continuation of 201.

**IP 261 Topics in Indo-Pacific Literature/Culture (V)** Study of a literature or culture of the Indo-Pacific area through readings in various fields in English. Repeatable up to six credit hours. Pre: consent.

**IP 273 (Alpha) Introduction to Indo-Pacific Language and Culture (3)** Introduction in English to language(s) and culture(s) of Indo-Pacific country or region. (B) Indian; (C) Southeast Asian; (D) Polynesian; (E) Philippines. Pre: 101 and 102 courses in relevant language or consent. **DH**

**IP 299 Intermediate Language Study (V)** Intermediate study of a South Asian, Southeast Asian, or Pacific language. Contact hours and credits determined by student interests and faculty resources. Repeatable up to eight credit hours. Pre: at least six credit hours of elementary study in the same language.

**IP 301 Directed Third-Level Language Study (3)** Continuation of 202. Pre: consent.

**IP 302 Directed Third-Level Language Study (3)** Continuation of 301.

**IP 360 Filipino Food, Music, and Rituals: Art and Culture Studies (3)** Study and analysis of the art and culture of Filipino food, music, and rituals—history, forms, social development, influences, and impact. Sophomore standing or consent. **DS**

**IP 361 Southeast Asian Literature in Translation (3)** Survey in English of traditional and modern literatures of Southeast Asia. (Cross-listed as ASAN 361) **DL**

**IP 362 Philippine Drama: History, Art, Culture (3)** Historical survey from precolonial to contemporary periods. Studies forms, conventions, and literature within the social, political, and cultural context of the times as reflected in the history of Philippine drama. Explores plays in the diaspora. A-F only. Pre: ILO 101 or consent. (Fall only) **DL**

**IP 363 Philippine Contemporary Literature in English (3)** Critical survey of 20th-century Philippine literature written in English; cultural values. Pre: one ENG DL course or consent. (Cross-listed as ENG 375) **DL**

**IP 364 Philippine Popular Culture (3)** Appreciation, re-examination, and analysis of Philippine popular culture produced in the Philippines and in the diaspora; an evaluation of such forms using critical hermeneutic frames. A-F only. Pre: sophomore standing or consent. **DH**

**IP 365 South Asian Literature in Translation (3)** Survey of traditional and modern literatures of South Asia; literature written originally in English. **DL**

**IP 366 South Asian Literature in Translation (3)** Survey of traditional and modern literatures of South Asia; a vernacular literature to be determined by faculty resources and student interest. **DL**

**IP 368 Introduction to South/Southeast Asian Film, History, Theory and Appreciation (3)** Study and analysis of South/Southeast Asian films—history, forms, development, theoretical framework and relationship to cultural, social, philosophical and aesthetic context. (B) Filipino. A-F only. Pre: one of ENG 270-272, or consent. **DH**

**IP 369E Study Abroad: Vietnam (3)**

**IP 373 Vedic Hindu Mythology (3)** Study of major Hindu myths of the Vedic Sanskrit literature within the perspective of ancient Indian civilization. Literary sources will be tapped for understanding creation, cosmogony and celestial, atmospheric and terrestrial divinities. A-F only. Pre: ANTH 200, ASAN 202, HIST 151, LLEA 122, or PHIL 102; or consent. (Fall only)

**IP 374 Classical Hindu Mythology (3)** Study of major myths of Epic Sanskrit literature, primarily with focus of the Ramayana and Mahabharata. Literary sources will be tapped for appreciating myths and

epics, especially with reference to dharma, karma, ways of life. Pre: ANTH 200, ASAN 202, HIST 151, LLEA 122, or PHIL 102; or consent. (Spring only)

**IP 377 Critical Discourses in IPLL Studies: Philippines (3)** Reevaluation and analysis of critical discourses in Philippine languages and literatures and an examination of alternative perspectives to the prevailing studies on Philippine culture; an appreciation of emerging knowledge on the Philippines. Pre: sophomore standing or higher, or consent.

**IP 389 Theories in Ilokano Studies (3)** Examines the various theories employed in the study of Ilokano society, language, and culture from a variety of historical periods. A-F only. Junior standing or higher, or consent. (Alt. years: spring)

**IP 395 Polynesian Folklore in Translation (3)** Traditional Polynesian genres (legends, myths, folktales, fables, proverbs, songs, riddles, jokes) examined in translation and culturally and structurally interpreted. Pre: one of ENG 270-272. **DL**

**IP 396 Philippine Literature and Folklore in Translation (3)** Philippine folk literature translated into English: epics, myths, legends, and other folklore. Classic works of vernacular writers. Pre: one ENG DL course or consent. (Cross-listed as ENG 376) **DL**

**IP 399 Third-Level Language Study (V)** Third-level study of a South Asian, Southeast Asian, or Pacific language. Contact hours and credits determined by student interests and faculty resources. Repeatable up to six credits. Pre: at least 6 credits of intermediate study of the same language.

**IP 401 Directed Fourth-Level Language Study (3)** Continuation of 302. Pre: consent.

**IP 402 Directed Fourth-Level Language Study (3)** Continuation of 401.

**IP 411 Ilokano Literature in Translation (3)** Overview of Ilokano literature from the early writings to the major works of contemporary writers. A-F only. Pre: ILO 201 or consent. **DL**

**IP 427 (Alpha) Topics in Samoan Literature (3)** (B) Writings of Albert Wendt; (C) Samoan women writers. Pre: SAM 227 or one of ENG 270-272; or consent for (B). Pre: SAM 227 or one of ENG 270-273 or WS 245; or consent for (C). **DL**

**IP 431 Rizal's Literary Works in Translation (3)** Interpretation and analyses of Rizal's novels *Noli* and *Fili* as they relate to the social, political, and historical context of the Spanish regime in the Philippines. Pre: one DL course, or consent. **DL**

**IP 432 The Writings of Carlos Bulosan (3)** Intensive study of the major writings of Carlos Bulosan; his literary and cultural milieu with thematic concentration on aesthetics and the issues of diasporic experiences (e.g., immigration, assimilation, nation, etc.) and transnationalism. Pre: 361 or 363 or 396 or 431 or any ENG DL. **DL**

**IP 465 (Alpha) Hawaiian and Indo-Pacific Teaching Practicum (3)** An experienced-based introduction to various approaches in language teaching methodologies and techniques. Students' skills in teaching the Hawaiian or an Indo-Pacific language are developed through supervised teaching, class planning and evaluation. (B) Southeast Asian languages. Repeatable one time. CR/NC only. Pre: 402-level of the language practicum or consent; (B) CAM 402 or IND 402 or THAI 402 (or concurrent) and consent of instructor or equivalent language skills.

**IP 470 Folklore (3)** Theory and method of comparative and analytical folklore study, with special applications to Pacific traditions. Pre: ANTH 200.

**IP 499 Directed Studies (V)** Study of a Pacific, South Asian, or Southeast Asian language through vernacular readings in various academic fields. Repeatable. Pre: third-level language and consent.

**IP 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

## Indonesian (IND)

*College of Languages, Linguistics and Literature*

**IND 101 Elementary Indonesian (4)** Emphasis on the development of communicative competence in both oral and written language. **HSL**

**IND 102 Elementary Indonesian (4)** Continuation of 101. Pre: 101. **HSL**

**IND 103 Beginning Indonesian I (3)** Introduction into the Malay-Indonesian language for the purpose of communication, travel, further study, and enjoyment. (Fall only) **HSL**

**IND 104 Beginning Indonesian II (3)** Introduction into the Malay-Indonesian language for the purpose of communication, travel, further study, and enjoyment. (Spring only) Pre: 103. **HSL**

**IND 201 Intermediate Indonesian (4)** Continuation of 102 or 104. Pre: 102 or equivalent. **HSL**

**IND 202 Intermediate Indonesian (4)** Continuation of 201. Pre: 201. **HSL**

**IND 203 Intermediate Indonesian I (3)** Intermediate Indonesian language study for the purpose of communication, travel, further study, and enjoyment. Pre: 102 or 104 or equivalent language skills in Indonesian or Malay, or consent. (Fall only) **HSL**

**IND 204 Intermediate Indonesian 2 (3)** Intermediate Indonesian language study for the purpose of communication, travel, further study, and enjoyment. Pre: 201 or 203 or equivalent language skills in Indonesian or Malay. (Spring only) **HSL**

**IND 301 Third-Level Indonesian (3)** Continuation of 202. Conducted in Indonesian. Meets three hours a week. Reading, discussion, composition, and projects. Pre: 202 or consent.

**IND 302 Third-Level Indonesian (3)** Continuation of 301. Pre: 301.

**IND 305 Third Level Indonesian (2)** Online course consists of modular, thematic, proficiency-based units exploring the language of the contemporary Indonesian media with an emphasis on reading, writing, and listening comprehension. Not open to students who have taken IND 301. Pre: 202, 204, or consent.

**IND 306 Third Level Indonesian (2)** Online course consists of modular, thematic, proficiency-based units exploring colloquial and formal Indonesian with a strong emphasis on listening and writing comprehension. Not open to students who have taken 302. Pre: 301 or 305 (or equivalent), or consent. (Spring only)

**IND 307 Third Level Indonesian Conversation (2)** Topic-based course aimed to enhance student's listening and speaking skills in the Indonesian language. Not open to students who have taken 301. Pre: 202, 204, or consent. Co-requisite: 305. (Fall only)

**IND 308 Third Level Indonesian Conversation (2)** Topic-based course aimed at enhancing students' listening and speaking skills in the Indonesian language. Not open to students who have taken 302. Pre: 301 or 307, or consent. Co-requisite: 306. (Spring only)

**IND 401 Fourth-Level Indonesian (3)** Continuation of 302. Conducted in Indonesian. Meets three hours a week. Readings in various materials; speaking in various settings. Pre: 302 or 308, or consent.

**IND 402 Fourth-Level Indonesian (3)** Continuation of 401. Pre: 401 or 405.

**IND 405 Fourth Level Indonesian (2)** Online course consists of modular, thematic, proficiency-based units exploring the language of the contemporary Indonesian media with an emphasis on reading, writing, and listening comprehension. Pre: 302, 306, or consent. (Fall only)

**IND 407 Fourth Level Indonesian Conversation (1)** Topic-based course aimed to enhance students' listening and speaking skills in the Indonesian language. Pre: 302, 306, or consent. Co-requisite: 405. (Fall only)

**IND 452 Structure of Indonesian (3)** Introduction to grammar; some sociolinguistic background. Pre: 302 or equivalent, or consent. **DH**

**IND 454 History of Indonesian (3)** Social and linguistic development of Indonesian from roots in earlier Malay to contemporary form and function. Pre: 202 and 452, or consent. **DH**

**IND 461 Modern Indonesian Literature (3)** Selected readings, 1900 to present. Discussion and composition. Pre: 402 or consent. **DL**

## Information and Computer Sciences (ICS)

*College of Natural Sciences*

**ICS 101 (Alpha) Tools for the Information Age (4)** Fundamental concepts and terms of computer technology, application software for problem solving, computer technology trends and impact on individuals and society. (B) general; (T) education. (T) intended for students interested in careers in education.

**ICS 110 Introduction to Programming Through 3D Animations (3)** Introduction to computer programming and object-oriented programming concepts using movies and games where the concept of "object" is visible and animated in 3D. (Once a year)

**ICS 111 Introduction to Computer Science I (4)** Overview of computer science, writing programs. Pre: Recommended: computer experience.

**ICS 141 Discrete Mathematics for Computer Science I (3)** Logic, sets, functions, matrices, algorithmic concepts, mathematical reasoning, recursion, counting techniques, probability theory. **FS**

**ICS 210 Information Systems in Society (3)** Lecture/discussion critically explores sociopolitical dimensions of Information and Communication Technology (ICT), and the information professions. A-F only. Pre: departmental approval. (Once a year)

**ICS 211 Introduction to Computer Science II (3)** Algorithms and their complexity, introduction to software engineering, data structures, searching and sorting algorithms, numerical errors. Pre: grade of "B" or higher in 111 or consent.

*All students wishing to enroll in ICS courses above 211 except ICS 241 must meet the prerequisite grade requirement of B or higher in ICS 111 and 211 prior to registering for the course.*

**ICS 212 Program Structure (3)** Program organization paradigms, programming environments, implementation of a module from specifications, the C and C++ programming languages. Pre: 211 or consent.

**ICS 215 Introduction to Scripting (3)** Introduction to scripting languages for the integration of applications and systems. Scripting in operating systems, web pages, server-side application integration, regular expressions, event handling, input validation, selection, repetition, parameter passing, Perl, JavaScript, and PHP. A-F only. Pre: 211 (or concurrent), or consent. (Once a year)

**ICS 241 Discrete Mathematics for Computer Science II (3)** Program correctness, recurrence relations and their solutions, divide and conquer relations, relations and their properties, graph theory, trees and their applications, Boolean algebra, introduction to formal languages and automata theory. Pre: 141 or consent. **FS**

**ICS 290 Computer Science Careers: An Exploration of the Specialties of Computer Science (1)** Exploration of the specialties of computer science. Meets every two weeks for 2.5 hours to explore specific areas in computer science. CR/NC only. (Once a year)

**ICS 311 Algorithms (3)** Design and correctness of algorithms, including divide-and-conquer, greedy and dynamic programming methods. Complexity analyses using recurrence relations, probabilistic methods, and NP-completeness. Applications to or-

der statistics, disjoint sets, B-trees and balanced trees, graphs, network flows, and string matching. Pre: 211 and 241, or consent.

**ICS 312 Machine-Level and Systems Programming (3)** Machine organization, machine instructions, addressing modes, assembler language, subroutine linkage, linking to higher-level languages, interface to operating systems, introduction to assemblers, loaders and compilers. Pre: 212 (or concurrent), or consent.

**ICS 313 Programming Language Theory (3)** Syntax, semantics, control structures, variable binding and scopes, data and control abstractions. Programming in functional (LISP) and logic (Prolog) programming styles. Pre: 212 and 241, or consent.

**ICS 314 Software Engineering I (3)** System specification, modeling and analysis, prototyping, hierarchical design, program design methods, cost estimation, project management, computer-aided software design. Team-oriented software-design project. Pre: 211 or consent.

**ICS 315 Web Design and Management (3)** Web design principles, XML and HTML, tables, forms, and frames, multimedia objects, security, scripting for web applications, web servers, commercial aspects, new technology. A-F only. Pre: 215 or consent. (Once a year)

**ICS 321 Data Storage and Retrieval (3)** Data storage devices, timing and capacity, programming for files, hashed and indexed files, introduction to relational database systems. Pre: 211 or consent.

**ICS 331 Logic Design and Microprocessors (4) (1 3-hr Lab)** Basic machine architecture, microprocessors, bus organization, circuit elements, logic circuit analysis and design, microcomputer system design. Pre: 212 or consent.

**ICS 332 Operating Systems (3)** Operating system concepts and structure, processes and threads, CPU scheduling, memory management, scheduling, file systems, inter-process communication, virtualization, popular operating systems. A-F only. Pre: 211.

**ICS 351 Network Design and Management (3)** Overview of the internet and its capabilities; introduction to HTTP, TCP/IP, ethernet, and wireless 802.11; routers, switches, and NAT; network and wireless security; practical experience in designing and implementing networks. Pre: 141 and 211, or consent. (Once a year)

**ICS 361 Introduction to Artificial Programming (3)** Introduction to the theory of Artificial Intelligence and the practical application of AI techniques in Functional (Common LISP and/or Scheme) and Logic (Prolog) programming languages. Students gain practical experience through programming assignments and projects. A-F only. Pre: 241 and (212 or 215), or consent.

**ICS 390 Computing Ethics for Lab Assistants (3)** A lecture/discussion/internship on ethical issues and instructional techniques for students assisting a laboratory section of ICS 101. The class uses multiple significant writing and oral presentation activities to help students learn course content. Pre: 101(Alpha) and consent.

**ICS 414 Software Engineering II (3)** Continuation of 314. Project management, quality, and productivity control, testing and validation, team management. Team-oriented software-implementation project. Pre: 314.

**ICS 415 Introduction to Programming for the Web (3)** Introduction to emerging technologies for construction of World Wide Web (WWW)-based software. Covers programming and scripting languages used for the creation of WWW sites and client-server programming. Students will complete a medium-sized software project that uses languages and concepts discussed in class. Pre: 311 or consent.

**ICS 419 The Science, Psychology and Philosophy of Systems Design (3)** Scientific, psychological and philosophical bases of systems design, including a survey of human-factors and ergonomic standards; the nature of innovation and creativity as it relates

to systems design. Web-enhanced course. Pre: two ICS 300-level courses with grade of B or better, or consent. (Once a year)

**ICS 421 Database Systems (3)** Principles of database systems, data modeling, relational models, database design, query languages, query optimization, concurrency control data security. Pre: 311 and 321, or consent.

**ICS 422 Data Processing (3)** Role of data processing in organizations, programming practices, ethics, sequential and indexed file processing, report writing, online transaction processing. Pre: 321 or consent.

**ICS 423 Computer Security (3)** Legal, ethical and technology issues in computer access, confidentiality, authentication, privacy and intellectual property. Pre: both 311 and 312, or consent.

**ICS 424 Application Frameworks (3)** Experience producing applications with at least two different applications frameworks. A-F only. Pre: 212, 311, and 313; or consent.

**ICS 425 Computer Security and Ethics (3)** Theoretical results, security policy, encryption, key management, digital signatures, certificates, passwords. Ethics: privacy, computer crime, professional ethics. Effects of the computer revolution on society. A-F only. Pre: at least two ICS 300-level courses or consent. (Once a year)

**ICS 426 Computer System Security (3)** Information flow, confinement, information assurance, malicious programs, vulnerability analysis, network security, writing secure programs. A-F only. Pre: 351 or 451, or consent. (Once a year)

**ICS 431 Computer Architecture (3)** Memory management, control flow, interrupt mechanisms, multiprocessor systems, special-purpose devices. Pre: 331.

**ICS 432 Concurrent and High-Performance Programming (3)** Principles of concurrent and high performance programming. Multi-threading in C and Java for shared-memory programming. Distributed memory programming with Java. Introduction to cluster computing. A-F only. Pre: 212 or consent. (Once a year)

**ICS 435 Machine Learning Fundamentals (3)** Introduction to machine learning concepts with a focus on relevant ideas from computational neuroscience. Information processing and learning in the nervous system. Neural networks. Supervised and unsupervised learning. Basics of statistical learning theory. Pre: 311 or consent. Recommended: MATH 307. (Once a year)

**ICS 441 Theory of Computation (3)** Grammars, sequential machines, equivalence, minimalization, analysis and synthesis, regular expressions, computability, unsolvability, Gödel's theorem, Turing machines. Pre: 311 or consent.

**ICS 442 Analytical Models and Methods (3)** Applications of mathematical methods in computer science with emphasis on discrete mathematics, numerical computation, algebraic models, operations research. Pre: 311 or consent.

**ICS 451 Data Networks (3)** Network analysis, architecture, digital signal analysis and design; circuit switching, packet switching, packet broadcasting; protocols and standards; local area networks; satellite networks; ALOHA channels; examples. Pre: 212 and 311, or consent.

**ICS 452 Software Design for Robotics (3)** Sensors, actuators, signal processing, paradigms of robotic software design, introduction to machine learning, introduction to computer vision, and robot-to-human interaction. A-F only. Pre: two ICS 300-level courses or consent. Recommended: 312 and 313. (Once a year: spring)

**ICS 461 Artificial Intelligence (3)** Survey of artificial intelligence: natural language processing, vision and robotics, expert systems. Emphasis on fundamental concepts: search, planning, and problem solving, logic, knowledge representation. Pre: 311 or consent.

**ICS 462 Artificial Intelligence for Games (3)** Techniques to stimulate intelligence in video games: movement, pathfinding with A\* search, decision/behavior trees, state machines, machine learning, tactics. Extend games with your own AI implementations; experience "shootout" contests for the best AI algorithm/implementation. Pre: 212 and (314 or 361) and (PHYS 151 or PHYS 170). (Alt. years)

**ICS 464 Human Computer Interaction I (3)** Application of concepts and methodologies of human factors, psychology and software engineering to address ergonomic, cognitive, and social factors in the design and evaluation of human-computer systems. Pre: two ICS 300-level courses or consent.

**ICS 465 Introduction to Hypermedia (3)** Basic issues of interactive access to information in various formats on computers. Available hardware and software: editing, integration, programming. Implementation of a sample information system. Pre: 311.

**ICS 466 Design for Mobile Devices (3)** Lecture introducing design issues, programming languages, operating systems and mark-up languages for internet-enabled mobile devices, such as cell phones and PDAs. A-F or Audit. Pre: 314 or consent. (Spring only)

**ICS 469 Cognitive Science (3)** Introduces basic concepts, central problems, and methods from cognitive science. Identifies contributions from disciplines such as cognitive psychology, linguistics, artificial intelligence, philosophy, and neuroscience. Pre: two ICS 300-level courses or consent.

**ICS 471 Probability, Statistics, and Queuing (3)** A hands-on introduction to probability, statistical inference, regression, Markov chains, queuing theory. Use of an interactive statistical graphics environment such as R. Pre: 241 and 311, or consent.

**ICS 475 Introduction to Bioinformatics Sequences and Genomes Analysis (3)** Introduction to bioinformatics to computer sciences students by focusing on how computer sciences techniques can be used for the storage, analysis, prediction and simulation of biological sequences (DNA, RNA and proteins). A-F only. Pre: one ICS 300-level course or consent. (Once a year)

**ICS 476 Bioinformatics Algorithms and Tool Development (3)** Study of commonly used bioinformatic algorithms, with an emphasis on string, tree, and graph algorithms. Presentation of probabilistic and clustering methods. Implementation of the studied algorithms and design of applications. Pre: 475 or consent. (Once a year)

**ICS 481 Introduction to Computer Graphics (3)** Fundamentals of computer graphics including graphics hardware, representation, manipulation, and display of two- and three-dimensional objects, use of commercial software. Pre: 311 and either MATH 216, MATH 242, or MATH 252A; or consent.

**ICS 483 Computer Vision (3)** Introductory course in computer vision. Topics include image formation, image processing and filtering, edge detection, texture analysis and synthesis, binocular stereo, segmentation, tracking, object recognition and applications. A-F only. Pre: 212 and 311, or consent. Once a year.

**ICS 491 Special Topics (3)** Reflects special interests of faculty. Oriented toward juniors and seniors. Repeatable one time for BS/CS students. Pre: at least two 300-level ICS classes or consent.

**ICS 499 Computer Project (V)** Individual or small-group projects in system design or application under faculty supervision. Pre: consent.

**ICS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**ICS 606 Intelligent Autonomous Agents (3)** Theory, methods and practical applications of autonomous agent systems, including common applications of both software and hardware (robotic) agents. In-depth practical experience with autonomous agents through programming assignments and projects. Pre:

313 or EE 467 (or equivalent), graduate standing; or consent. (Once a year) (Cross-listed as EE 606)

**ICS 611 Compiler Theory and Construction (3)** Design and implementation of compilers, syntactic and semantic descriptions of programming languages, algorithms for syntactic analysis and object code generation. Pre: 312 or consent.

**ICS 612 Theory of Operating Systems (3)** Advanced study in operating systems theory and design with emphasis on case studies and distributed systems.

**ICS 613 Advanced Software Engineering (3)** Fundamental software engineering procedures, including planning, estimation, design, testing, process definition and improvement, and software quality assurance. Measurement techniques are used to support empirically-driven software process improvement throughout the course. Pre: 414 or consent.

**ICS 614 Medical Informatics I (3)** Introduction to the field of medical informatics, which is found at the intersection of clinical science, public health, information science, computer technology and communications technology. Concentration on current issues. Pre: consent.

**ICS 616 Information Architecture and Web Design (3)** User-centered design of websites; survey Information Architecture (IA) systems (organization, navigation, labeling, searching); gain experience in methodologies for creating IA, tools for IA, web standards and usability tests. ICS and LIS majors only. A-F only. Pre: graduate standing in ICS or LIS or related field or consent. (Once a year)

**ICS 621 Analysis of Algorithms (3)** Analysis and design of algorithms: modeling, comparison, measures, applications. Pre: 311.

**ICS 622 Systems Modeling and Evaluation (3)** Mathematical modeling, analysis, optimization, and simulation techniques, applications to design and evaluation of computer software systems. Pre: 311 or consent.

**ICS 623 Data Security (3)** Symmetric encryption algorithms, secure hashing, algorithms, unicity distance, large number and finite field algebra and arithmetic, public key algorithms for encryption, digital signatures, and key exchange. Pre: 311 or consent.

**ICS 624 Advanced Data Management (3)** Exploration of information retrieval and object-relational tools and methods for the management of distributed multimedia database systems. Pre: 321 or 421 or LIS 670, or consent.

**ICS 632 Principles of High Performance Computing (3)** Principles of high performance computing for single-processor and parallel architectures. Detailed coverage of parallel architectures and exposure to shared-memory, distributed-memory, and hybrid parallelism. Hands-on experience with message-passing and multi-threaded programming. A-F only. Pre: graduate standing in computer science or closely related field, or consent. (Once a year)

**ICS 635 Machine Learning (3)** Introduction to key theoretical concepts of machine learning. Practical experience with decision free methods, artificial neural networks. Bayesian belief networks and contemporary statistical methods including regression, clustering and classification. Pre: consent. (Once a year)

**ICS 636 Information Theory in Machine Learning (3)** Basics of information processing and learning in the brain; neural networks; learning algorithms based on information maximization; applications in molecular biology and bioinformatics. A-F only. Pre: graduate standing in computer science or mathematics background, or consent. (Once a year)

**ICS 641 Advanced Theory of Computation (3)** Advanced topics in formal languages, automata, computability, computational complexity. Pre: 441 or consent.

**ICS 651 Computer Networks (3)** Elementary principles of modern computer networking. Detailed

coverage of overall architecture and the physical, data link, and network layers, with emphasis on the network layer. Pre: 461.

**ICS 661 Advanced Artificial Intelligence (3)** Current issues in artificial intelligence, including expert systems, knowledge representation, logic programming, learning, natural language processing. Pre: 461 or consent.

**ICS 663 Pattern Recognition (3)** Nature of the problem in pattern recognition and clustering; explanation of various algorithms. Pre: MATH 371.

**ICS 664 Human-Computer Interaction II (3)** Studies of human performance in designing and using information systems. Emphasizes concepts and methodologies from human factors, psychology, and software engineering relating to human performance. Pre: 464 or consent.

**ICS 665 User Interfaces and Hypermedia (3)** Advanced concepts in construction of interfaces between computers and their users. Hypermedia information structures, guidelines, problems, and tradeoffs. Discussion of selected readings, implementation of prototypes. Pre: 465.

**ICS 667 HCI Design Methods (3)** Advanced analytical and empirical methods for the design and evaluation of usable, useful, and robust human-computer interfaces. Students will apply selected methodologies to a major system design project. Pre: 464 or 465, or consent.

**ICS 668 Social Informatics (3)** An advanced introduction to the design of human-computer systems and other technological artifacts for supporting human collaboration in learning, work and social contexts, and to theoretical perspectives and empirical studies of collaboration that inform such design. A-F only. Pre: 464 or 465 or 664 or 665 or 667 or LIS 677; or consent.

**ICS 669 Social Computing (3)** Participative analysis of online communities and user-generated content collections. Theoretical and practical aspects of online interaction, identity, trust, and virtual social capital. A-F only. (Once a year)

**ICS 674 Evolutionary Computation I: Survey of Methods (3)** Evolutionary computation surveys in the field to prepare students for research. Topics include diverse engineering applications, theory, and concepts including search spaces, representation, objective functions, variation operators, selection, and population based search. Pre: 211 (B or better) and 241 (C or better) and admitted to a graduate program or capable of graduate-level work in computer sciences, or consent. (Once a year: fall)

**ICS 675 Bioinformatics: Sequences Analysis (3)** To expose students to bioinformatics at the biological sequences analysis level (DNA, RNA, proteins). Several bioinformatics methods and algorithms are introduced. Students are required to present one paper and to participate in a small group project. A-F only. Pre: 475 or MBBE 683, or consent. (Once a year)

**ICS 676 Bioinformatics: Microarrays (3)** Introduction to the basic principles of biology relevant for microarray gene expression data and to Bioconductor. Collaborative open-source project to develop a modular general framework for the analysis of cDNA arrays and gene chips. A-F only. Pre: 311 or background in biology, or consent. (Once a year)

**ICS 681 Computer Graphics (3)** Selected advanced topics in computer graphics. Substantial project required. Pre: 481 or consent.

**ICS 682 Numerical Computation (3)** Selected topics in numerical analysis, mathematical software, and scientific computation; examples include sparse matrix methods, finite element methods, mathematical programming. Pre: consent.

**ICS 683 Advanced Computer Vision (3)** Fundamental problems and core concepts and techniques in computer vision, covering both theoretical and practical issues in the field. A-F only. Pre: 483 or consent. (Once a year)

**ICS 686 Digital Video Information (3)** Principles and techniques of technical and context analysis of digital video information. Video capture and editing tools, compression and analysis algorithms, visual culture, narrative structure, juxtaposition of multimedia elements and their effects on information transmission. Pre: graduate standing or consent. (Alt. years)

**ICS 690 Seminar in ICS (1)** Series of talks on advanced research topics. Repeatable unlimited times. CR/NC only.

**ICS 691 Topics in Software (3)** Reflects special interests of faculty in theoretical computer science. Repeatable in different topics. Pre: consent.

**ICS 699 Directed Reading/Research (V)** Repeatable unlimited times. Pre: graduate standing and consent.

**ICS 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**ICS 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable eight times. Pre: candidacy for PhD in computer science.

## Information Technology Management (ITM)

*Shidler College of Business*

**ITM 115 Using Computers and Applications (3)** Using Windows computers browsers, Microsoft Office (or equivalent) and other applications. A-F only.

**ITM 321 Project Management (3)** Project management application and techniques such as planning methods; PERT/CPM forecasting; risk analysis; application in information technology projects and other areas. Pre: BUS 310 and 311.

**ITM 322 Supply Chain Processes (3)** Improving organization productivity with an emphasis on analyzing supply chain processes and principles in terms of scheduling, inventory, quality control techniques, through most current practices. Pre: BUS 310 and 311.

**ITM 352 Programming Application Systems (3)** Introduction to applications programming. Fundamentals, essential logic, file handling, report writing. Emphasis on systems development and disciplined programming. A-F only. Pre: ICS 101(Alpha) or equivalent, or consent.

**ITM 353 Information Systems Analysis and Design (3)** Analysis and design of systems in organizations. Includes role of general systems concepts, systems development life cycle, identifying systems requirements, logical and physical design. Pre: 352 and BUS 311.

**ITM 354 Database Systems (3)** Introduction to database management and data structures, including database planning and design, normalization, relational and network data models, and physical organization and implementation. Pre: 353.

**ITM 360 Current Topics in ITM (3)** Repeatable with permission of department chair. Pre: varies with topic.

**ITM 366 Information Systems in Organizations (3)** Practice of information systems in organizations. Capstone course for MIS majors. A-F only. Pre: 353 and 354 (or concurrent), and BUS 311.

**ITM 385 Electronic Commerce (3)** Survey of electronic commerce technologies and business strategies, with an emphasis on technology and application development. The development of web-based and multimedia applications; the impacts of EC on business strategy; legal and ethical issues. A-F only. Pre: BUS 311 or consent.

**ITM 387 (Alpha) Advanced Topics in Information Systems (3)** Computerized management information systems, operations research or business statistics: (B) software systems economics; (C) advanced topics in programming; (D) web-based application development; (E) advanced technology in MIS; (F) systems development; (G) database systems;

(H) advanced business applications; (J) ethics of technology; (K) business intelligence. Repeatable with permission of department chair. Pre: varies with topic.

**ITM 399 Directed Reading and Research (V)** Reading and research in special area of major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and the faculty advisor.

**ITM 431 Networking and Security (3)** Basic concepts in networking and security. Network standards and technologies. Network planning and design. LANs and WANS, wireless networking. Security threats and countermeasures. Security planning and policies.

**ITM 433 Advanced Security (3)** Designed around the plan-protect-respond cycle. Security threats, cryptographic security, access control, identity management, firewalls, intrusion detection systems, host hardening, and application security. Repeatable one time. Pre: 431 or consent. (Once a year)

**ITM 660 Current Topics in Information Systems (3)** Selected current practices and trends in decision sciences and MIS. May be repeated with change in topic. Pre: BUS 630 and BUS 631, or consent.

**ITM 680 Project Management, Information Technology and Change (3)** Lectures and discussions to contextualize knowledge and techniques of project management in organizational change, globalization and outsourcing, global teamwork, intercultural awareness, negotiation and leadership. Semester long group project. Open to all graduate students. (Once a year)

**ITM 685 Electronic Commerce (3)** Overview and discussion of the latest developments in e-commerce, hardware and software developments to support e-commerce, cases studies of successes and failures, and e-commerce applications with special emphasis on developing countries in Asia. A-F only. Pre: BUS 630 or consent. (Once a year)

**ITM 699 Directed Research (3)** Reading and research in ITM under the direction of a faculty member. A-F only.

**ITM 704 Doctoral Seminar in Information Systems (3)** Extensive and critical review of the IS research literature. Can be retaken for credit. Repeatable three times. A-F only. Pre: CIS 703 (or concurrent) or consent.

**ITM 706 International IT Organizational Research Methods (3)** Overview of current survey methodology and analysis in global information systems research. A-F only. Pre: PhD student status in international management or consent.

**ITM 799 Directed Reading and Research (V)** Reading and research in an area of information technology management under the direction of faculty member(s). A-F only. Pre: PhD student status in international management or consent.

## Institute for Teacher Education (ITE)

*College of Education*

**ITE 312 Introduction to Teaching, Elementary (V)** Standards-based planning, assessment, instruction, reflection; inclusive classroom management; unique multicultural environment; issues in education and curriculum. Developing knowledgeable, effective, caring professionals to support student's academic, social, emotional, physical needs. Emphasis on writing instruction. A-F only. Co-requisite: 317.

**ITE 313 Principles and Methods of Reading Instruction (V)** First of two methods courses focusing on theories and research-based practices related to reading instruction in elementary classrooms. Emphasis on writing instruction. A-F only.

**ITE 314 Principles and Methods of Writing Instruction (V)** Second of two methods courses

focusing on theories and research-based practices related to writing instruction in elementary classrooms. Emphasis on writing instruction. A-F only.

**ITE 315 Field Training – Blended ECE (4)**

Students spend 15 hours per week in settings appropriate to concurrently enrolled classes; supervision provided by participating teacher and college supervisor. Repeatable two times. A-F only. Pre: 415 and SPED 304 (with a minimum grade of B-), or consent. Cross-listed as SPED 315)

**ITE 316 Field Experience (2)** Supervised field experience in schools. Minimum of 8 hours per week in conjunction with professional education courses. Repeatable three times. CR/NC only.

**ITE 317 Field Experience (V)** Supervised field experience in schools. Minimum of 2 full days per week in classrooms, plus mandatory seminar scheduled by UH Mānoa field supervisor. Taken in conjunction with professional education courses. Repeatable five times. CR/NC only.

**ITE 319 Children's Literature (2)** Acquaintance with wide range of children's books; criteria for evaluation of literature; using literature in the classroom. DL

**ITE 321 Social Studies and Science in Early Childhood Education (3)** Assessment, instructional methods, and materials for teaching social studies and science to children in preschool through grade 3. Emphasis on developmentally appropriate practices and lesson planning for teaching social studies and science. A-F only. Pre: 417, and 315 (or concurrent) or SPED 315 (or concurrent). (Alt. years: spring)

**ITE 322 Social Studies, Elementary (V)** Purposes, methods, curriculum, and assessment in teaching social studies. Focus: enriching children's understanding of the communities of which they are a part through inquiry, investigation, collaboration, and expository skills. Emphasis on writing instruction. A-F only.

**ITE 323 Science, Elementary (V)** Science education in elementary school; methods and materials; laboratory activities selected from new science curricula. Repeatable two times or up to 3 credits.

**ITE 324 Mathematics, Elementary (V)** Inquiry-based approach to concepts and algorithms of whole numbers and introduction to geometry/measurement. Laboratory experiences with appropriate manipulatives. Pre: MATH 111 and MATH 112.

**ITE 325 Mathematics, Elementary II (V)** Inquiry-based approach to concepts and algorithms of fractions, decimals, graphing, and probability and statistics. Laboratory experiences with appropriate manipulatives. Pre: 324 or consent.

**ITE 326 Visual Art, Elementary (V)** Scope and organization of art in pK-6 school curriculum, creative use of art media through laboratory experiences.

**ITE 329 Performing Arts Expression, K-6 (V)** Standards-based teaching, with, in, through, and about music, dance, and drama. Developing verbal and non-verbal communication skills through creative expression with an emphasis on planning, teaching, and assessing preK-6 lessons that integrate the performing arts. A-F only.

**ITE 343 Personal and Social K-6 Health Skills (V)** Standards-based planning, teaching, assessment in health education. Developing interactive learning opportunities to teach personal and social responsibility for health through curriculum integration. Training, practice and evaluation of oral communication skills. A-F only.

**ITE 346 Methods of Instruction, Industrial/Agricultural Education (3)** Techniques of individual and group instruction in laboratory and related classes, evaluation of various methods.

**ITE 347 Management of Industrial/Agricultural Facilities (3)** Organization of instruction; handling supplies; maintaining equipment and tools; purchasing materials; keeping records; making inventories.

**ITE 348 Teaching Business and Office Education (3)** Theory and methods of teaching business and of office education courses. Pre: ACC 201 and ACC 202.

**ITE 349 Teaching Marketing and Distribution (3)** Theory and methods of teaching marketing and distribution courses. Pre: MKT 341 or MKT 351.

**ITE 353 Music in the Elementary School (2)** Goals, concepts, literature, materials, procedures, and evaluation for teaching music in grades K–6. For students in elementary education. Not intended for elementary music majors.

**ITE 360 Introduction to Multicultural Education (3)** Concepts and methods to develop sensitivity and awareness of cultural influences on behavior as these relate to the schooling process. (Cross-listed as EDEF 360) DS

**ITE 371 Home Economics Education (3)** Curriculum design. Current educational philosophies and practices in home economics education. Teaching materials and techniques.

**ITE 380 Managing Classrooms (3)** Analysis of the factors that contribute to learning in the classroom and the development of teacher behaviors that promote such learning.

**ITE 390 (Alpha) Student Teaching (V)** Full-time supervised experience in school. (B) dual preparation in ECE and elementary education; (C) elementary; (D) secondary; (S) dual preparation in elementary and special education. CR/NC only. Pre: completion of all other program requirements, passing Praxis II exam(s).

**ITE 391 (Alpha) Seminar for Student Teaching (V)** With student teaching as context, examination of knowledge, skills, and dispositions for teaching; standards-based planning, teaching, assessment, and reflection; inclusive classroom management; professional growth and development; integration of research, theory, and practice. Emphasis on writing instruction and ethical issues in teaching. (B) dual preparation in ECE and elementary education (2); (C) elementary (2); (D) secondary; (S) dual preparation in elementary and special education (1). Repeatable nine times; three times for (B), (C), and (S). CR/NC only.

**ITE 392 (Alpha) Student Teaching Modified (6)** Modified student teaching for individuals who have had prior extensive teaching experience or wish to repeat student teaching. CR/NC only. (C) elementary; (D) secondary. Pre: extensive teaching experience; requirements listed under "student teaching"; approval of review committee; consent. Co-requisite: 391.

**ITE 399 Directed Study (V)** Individual work supervised by instructor. May consist of reading, research, observation/participation, teaching, and/or projects. Repeatable up to 12 credits. Pre: consent of instructor.

**ITE 401 Engaging the Adolescent Learner (3)** Examines how reading, writing, speaking, listening, viewing, technology, etc. are tools for learning content and engaging diverse adolescents across all disciplines. Includes a disciplinary literacies framework influencing curriculum planning, classroom culture, and assessment practices. A-F only.

**ITE 402 (Alpha) Teaching Practicum (3)** Observation, analysis, participation and teaching in middle or high school. A seminar accompanies the field experience. Subject field: (B) art; (C) business and marketing; (D) language arts; (E) physical education; (F) industrial arts/agriculture; (G) mathematics; (H) science; (I) social studies; (J) foreign language; (K) music; (M) home economics; (N) interdisciplinary; (P) English as a Second Language. Repeatable one time. CR/NC only. Pre: admission to COE Secondary Teacher Education Program and 401. Co-requisite: 404 or consent, 404P for (P).

**ITE 403 Seminar in Educational Inquiry (3)** Study and discussion of general school-related topics and issues, e.g., dimensions of elementary and/or secondary schooling, school governance, curriculum design and development, the student learner, class-

room management. Repeatable one time. A-F only. Pre: 401 or consent.

**ITE 404 (Alpha) Teaching in the Subject Field (3)** Purposes, procedures, curricula, evaluation in secondary school subject field: (B) art; (C) business and marketing; (D) language arts; (E) physical education; (F) industrial arts/agriculture; (G) mathematics; (H) science; (I) social studies; (J) foreign languages; (K) music; (M) home economics; (N) interdisciplinary; (P) English as a Second Language. Repeatable seven times for (P). A-F only. Pre: 401 or consent. Co-requisite: 402.

**ITE 405 (Alpha) Teaching Residency, Secondary (V)** Full-time student teaching experience in school. Student teachers will receive training and evaluation for oral communication, organization, and planning skills. Subject field: (B) art; (C) business and marketing; (D) language arts; (F) industrial arts; (G) mathematics; (H) science; (I) social studies; (J) foreign languages; (K) music; (M) home economics; (P) English as a second language. CR/NC only. Pre: successful completion of all required courses; pass the content test(s) required by the state teaching licensure.

**ITE 406 Seminar in Teaching Residency (3)** Analysis and resolution of current ethical issues and practices in classrooms; teaching skills and strategies; curriculum planning, professional growth and development; and integration of teaching experiences with professional standards. Instruction in preparing an extensive written portfolio. A-F only. Pre: successful completion of all required courses or consent.

**ITE 410 Supervision of the Observation-Participation Student (2)** Basic guidelines for developing effective team relationships between the professional teacher and the observation-participation student. Pre: two years' teaching experience and consent.

**ITE 415 Early Childhood: Foundations and Curriculum (3)** Introduction to the field of ECE, birth to 8 years. Emphasizes foundations of the field, historical roots, issues and trends influencing policy and practice, play theory, observation, documentation, and assessment in early childhood settings. Pre: FAMR 331 or consent.

**ITE 415L Early Childhood: Foundations and Curriculum Lab (3)** Direct experience with children in early childhood settings in order to apply concepts from 415, develop skills in observation and assessment and gain perspective on the role of the teacher in ECE settings. CR/NC only. Co-requisite: 415.

**ITE 416 Early Childhood: Foundations and Curriculum (3)** Continuation of 415: focuses on the design, implementation, evaluation of meaningful, challenging integrated curriculum that promotes comprehensive developmental and learning outcomes for diverse young children (pK-3). Pre: 415 or consent. (Cross-listed as EDCS 416)

**ITE 416L Early Childhood: Foundations and Curriculum Lab (3)** Continuation of 415L. CR/NC only. Co-requisite: 416. (Cross-listed as EDCS 416L)

**ITE 417 Developmentally Appropriate Practice: Ages 3–8 (3)** How to plan developmentally appropriate programs for young children, including the design of the learning environment; integrated, thematic planning; child guidance; assessment; and parent involvement.

**ITE 420 Supervision of Student Teaching (3)** Principles and methods; role of supervisor; human resources supervision in student teaching. Open to teachers interested in pre-service teacher education. Pre: three years teaching experience and consent.

**ITE 425 Family and Community Centered Programs (3)** Knowledge and appreciation for the complex characteristics of children, families, and communities. Analysis and development of skills for creating respectful, reciprocal relationships with diverse children and families from diverse backgrounds. Pre: FAMR 331 or consent.

**ITE 430 Advanced Supervision of Student Teaching (3)** Advanced principles and methods: clinical

supervision, observation recording, analysis, interpretation of classroom teaching; human resources supervision in student teaching. Pre: 420, successful supervision of two or more student teachers, and consent.

**ITE 436 Cooperative Vocational Education (3)** Planned work-experience program for special areas of vocational technical education. Acceptable type of wage-earning employment. Minimum of six 40-hour weeks or 240 work hours required. Repeatable unlimited times. Pre: consent.

**ITE 438 Foundations of Vocational Education (3)** Historical and philosophical foundations of vocational technical education, overview of federal and state legislation and contemporary practices. Special emphasis on vocational education program in Hawai'i.

**ITE 439 Office and Marketing Technology (3)** Understanding and use of word processing, spreadsheet, and database software for business applications. Explore software across the office and marketing content areas.

**ITE 440 Curriculum Implications of Multicultural Education (3)** Examination of trends, issues, school practices, and program in multicultural education and its related area of study—bilingual-bicultural education. (Cross-listed as EDCS 440)

**ITE 441 Hawaiian Studies, Methods (3)** Examination of issues in Hawaiian and U.S. views of education and their application to the teaching of Hawaiian studies. Field experience required. A-F only. Pre: 312C, 312D; or consent. Co-requisite for BEd students: 317.

**ITE 444 Education of Exceptional Children in Regular Classroom (3)** Practices that facilitate teaching special needs students in regular classrooms. Techniques for meeting academic needs, managing behavior, motivating students, increasing peer interactions, communication between special and regular educators. Includes an emphasis on instruction in writing. (Cross-listed as SPED 444)

**ITE 445 Educating Exceptional Students in Regular Classrooms, Secondary (3)** Teaching secondary students with disabilities and those who are gifted/talented. Meeting academic/social needs, classroom management, motivation, peer interaction, collaboration between special and regular educators. Includes an emphasis on instruction in writing. (Cross-listed as SPED 445)

**ITE 480 Issues in Computer Education (3)** Integration of microcomputers into school curriculum and key issues related to microcomputer use in education. Pre: ETEC 442 or consent. (Cross-listed as EDCS 480)

**ITE 499 Directed Activity (V)** Individual work supervised by instructor. May consist of reading, research, teaching, and/or projects. Pre: consent of division director.

**ITE 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. CR/NC only. Pre: master's Plan B or C candidate and consent.

**ITE 550 Newspaper in the Classroom (2)**

**ITE 572 Common Core State Standards in ELA: Content and Curriculum for Teachers (V)** Professional development for K-12 teachers to upgrade their knowledge of ELA content and develop their instructional strategies to be consistent with the ELA practices of the Common Core State Standards. Repeatable unlimited times. CR/NC only.

**ITE 578 Common Core State Standards in Mathematics: Content and Curriculum for Teachers (V)** Professional development for K-12 teachers to upgrade their knowledge of mathematics content and develop their instructional strategies to be consistent with the mathematical practices of the Common Core State Standards. Repeatable unlimited times. CR/NC only.

**ITE 582 (Alpha) Practicum in Curriculum Development: Natural Science (2)** For in-service teachers to upgrade subject matter and develop teaching

methods and materials for instruction. Repeatable unlimited times. CR/NC only. Pre: teaching experience.

**ITE 583 (Alpha) Practicum in Curriculum Development: Natural Science (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable unlimited times. CR/NC only. Pre: teaching experience.

**ITE 601 Professional Studies Seminar I (V)** Development of theoretical and practical knowledge base and skills for understanding, analyzing, and responding to teaching issues and problems. A-F only. Co-requisite: 602.

**ITE 602 Field Experience and Seminar I (V)** Supervised field study of a school. Repeatable up to 12 credits. A-F only. Co-requisite: 601.

**ITE 603 Professional Studies Seminar II (V)** Development of pedagogical skills in planning and implementing instruction for target subject area/grade level. A-F only. Pre: 601 and 602. Co-requisite: 604.

**ITE 604 Field Experience and Seminar II (V)** Team collaboration on responding to identified school need; supervised experience in mini-teaching. Repeatable up to 12 credits. A-F only. Pre: 601 and 602. Co-requisite: 603.

**ITE 610 Pre-internship Practicum (V)** Supervised experience in instructional planning and practice teaching. CR/NC only. Pre: 603 and 604. Co-requisite: 611.

**ITE 611 Practicum Seminar (3)** Planning and methods seminar in conjunction with practice teaching. A-F only. Pre: 603 and 604. Co-requisite: 610.

**ITE 612 Teaching Internship (V)** Full-time supervised teaching experience. CR/NC only. Pre: 610 and 611. Co-requisite: 613.

**ITE 613 Internship Seminar (3)** Collaborative problem solving of issues and concerns encountered in current teaching experiences. A-F only. Pre: 610 and 611. Co-requisite: 612.

**ITE 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable 5 times. A-F only. Pre: written consent.

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## Insurance (INS)

*Shidler College of Business*

**INS 300 Principles of Insurance (3)** Risk management and insurance application to business and personal financial decision-making. Introduction to basic risk management concepts and techniques. Analyze various types of insurance: including life, property, casualty, liability, health, disability, and long-term care.

**INS 411 Property and Casualty Insurance (3)** Treatment of risk of financial loss of personal and business property and resulting loss of income occasioned by fire and allied perils. Forms of insurance used by individual business executives and firms including crime, transportation, liability, and worker compensation. Pre: 300.

**INS 431 Life Insurance (3)** Treatment of the risk of premature death through use of various life insurance policies. Policy forms, calculation of premiums, reserves, non-forfeiture values, underwriting, regulation of policy provisions, related coverage. Pre: 300.

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## Interdisciplinary Studies (IS)

*Office of Undergraduate Education*

**IS 099 Mānoa International Exchange (V)** Designed for students accepted for participation in an international exchange program while enrolled at UH Mānoa. Repeatable unlimited times, credit for 12 credits only. CR/NC only. Pre: admittance to an international exchange program.

**IS 100 Marine Option Program Seminar (1)** Statewide overview of ocean issues and organizations involved with marine activities, management, education, research, and business. Exploration of

opportunities for internships, research projects, study and careers. Proposal writing, project implementation, and report preparation guidelines. Orientation to the Marine Option Program. (Cross-listed as BIOL 104)

**IS 250 Personal Development for Effective Teams (3)** Exploration and application of basic leadership theories and processes which foster personal and interpersonal development via cognitive experiential classroom methods and mentoring relationships with experienced peer leaders. (Cross-listed as ENGR 250)

**IS 291 Community Service Practicum (V)** Supervised fieldwork in community agency, arranged by student. Repeatable one time. Pre: written proposal approved by Honors director and appropriate faculty advisor.

**IS 300 Field Study (V)** Pre-arranged systematic field investigation of selected topics. Pre: written proposal approved by Honors director and appropriate faculty member. Repeatable up to 16 credits.

**IS 311 Independent Study Tutorial (V)** Independent study tutorial. A-F only.

**IS 321 Native Americans and Native Hawaiians (3)** Comparative-contrastive examination of similarities and differences between Native Americans and Native Hawaiians as the only indigenous peoples of the U.S. with special attention to sociohistorical parallels and mutual contacts since contact with Europeans. Perspective is explicitly interdisciplinary by drawing not only on sociology and history, but also on archaeology, ethnology, linguistics and still other disciplines. A-F only. Pre: HIST 152 and an introductory course in cultural anthropology, political science or sociology; or consent. (Alt. years) **DS**

**IS 322 Ethnohistory (3)** Review of ethnohistory, i.e. the interdisciplinary, holistic and inclusive investigation of the histories of native peoples drawing not only on documented sources, but also on ethnography, linguistics, archaeology, ecology and other disciplines as an alternative to conventional Eurocolonial history. A-F only. Pre: HIST 152, or consent. (Alt. years) (Cross-listed as ANTH 327) **DS**

**IS 330 Information Technology and Culture (3)** Investigation of the impact of information technologies on contemporary culture from a variety of perspectives. A-F only. Pre: upper division or consent.

**IS 331 Science and Culture (3)** Cultural studies of science from historical, philosophical, sociological and literary perspectives. Examination of intersections of science, race, gender and environment. A-F only. Pre: upper division or consent.

**IS 340 Human Values and the Environment (3)** Examination of nature-culture dynamic over a range of contexts—literary ecology, systems ecology, political ecology, eco-feminism, environmental ethics—in order to articulate new possibilities for interdisciplinary understanding of the human place in nature. A-F only. Pre: any ENG DL or PHIL or GEOG course, or consent. (Once a year)

**IS 347 Pidgin and Creole Languages (3)** Nature, history, structure, and geographic distribution of pidgins and creoles. Pre: LING 102 or consent. (Alt. years) (Cross-listed as LING 347)

**IS 361 People, the Ocean and the Environment (3)** People's impact on quality of coastal and ocean environments, especially Hawaiian; scientific, legal, socioeconomic aspects. Ocean pollution, ocean technology. Pre: OCN 201, ORE 202, or ZOO 200; or consent.

**IS 369 British Life and Culture (3)** For Study Abroad Program students participating in the UH Mānoa Semester in London. Emphasis is placed on understanding within historical contexts important issues for contemporary British society—particularly those of class, power, gender, and race. A-F only. Pre: participation in London Semester Program.

**IS 399 Directed Reading and Research (V)** Directed reading and research. Repeatable two times.

**IS 400 Ocean Internships and Research (V)** Students carry out marine-related internships, practica,

research projects or field experience on- or off-campus with faculty guidance. Repeatable one time. A-F only. Pre: minimum cum GPA of 2.5, junior or senior standing in any field of study and IS 100/BIOL 104 or consent, project proposal. (Cross-listed as BIOL 400)

**IS 410 The Humboldt Brothers' Legacy (3)** Life and thought of the two Humboldt brothers. Alexander (1769-1859) helped to lay the foundations of modern science, including geology, geography, botany, zoology, physiology and anthropology. Older, less well-known Wilhelm (1767-1835) was an influential statesman, classical scholar, man of letters, humanist, political philosopher, anthropologist and linguist, and founded the University of Berlin. Review of the two polymaths' impact on modern science in the Americas, the Pacific and Asia. A-F only. Pre: upper-division or consent. **DH**

**IS 414 Introduction to Linguistic Anthropology (3)** Introduction to the ethnographic study of speech and language. Pre: ANTH 152 or consent. (Once a year) (Cross-listed as ANTH 414 and LING 414) **DS**

**IS 489 Environmental Practicum (3)** Field experience in study and abatement of environmental problems under faculty direction. Project proposal, narrative activity log, and documentary report are required. Pre: upper division standing, courses in appropriate discipline, and consent.

**IS 499 Directed Reading and Research (V)** Directed reading and research. Repeatable one time.

**IS 610 Field Study in Gerontology (V)** Individually designed field experience for advanced certificate in gerontology students. Placements arranged at community programs, research sites, and special projects at the Center on Aging. Repeatable one time.

**IS 611 Integrative Seminar in Gerontology (V)** Integrative seminar. A-F only. Pre: graduate standing or consent.

**IS 650 Principles of Applied Evolutionary Ecology: Biodiversity Loss, Biological Invasions and Emerging Disease (3)** Combined lecture-discussion on the ecological and evolutionary underpinnings of the coupled process of biological invasion, disease emergence and biodiversity loss. A-F only. Pre: consent. (Once a year)

**IS 651L Laboratory A in Applied Evolutionary Ecology: Biodiversity Loss, Biological Invasions and Emerging Disease (2)** Combined lecture-laboratory on the ecological and evolutionary underpinnings of the coupled process of biological invasion, disease emergence and biodiversity loss. A-F only. Pre: consent. (Once a year)

**IS 652L Laboratory B in Applied Evolutionary Ecology: Biodiversity Loss, Biological Invasions and Emerging Disease (3)** Practical laboratory/field rotation on the ecological and evolutionary underpinnings of the coupled process of biological invasion, disease emergence and biodiversity loss. Continuation of 650 and 651L. A-F only. Pre: 650 and 651L, or consent. (Once a year)

**IS 750 Topics in Biocultural Diversity and Conservation (3)** Biological, cultural, and linguistic conservation are intimately linked, but rarely studied simultaneously. Adopts a trans-disciplinary view of diversity and conservation of nature, cultures, and languages, along with issues in anthropology, law, and ethics. (Fall only)

## International Cultural Studies (CUL)

*College of Social Sciences*

**CUL 609 Faculty Seminar Series (1)** Seminar consists of a series of presentations by certificate faculty on topics of ongoing research. Presentations will open current debates about theory and method in cultural studies. Repeatable one time. A-F only.

**CUL 610 International Cultural Studies: History and Theory (3)** Seminar on the history and theory

of interdisciplinary cultural studies. The politics of culture are examined in comparative perspective, focusing on their significance for identity formation, intercultural relations, and global flows of images, people and capital. Approaches to the study of media and popular culture are taken up in terms of their relevance for contemporary issues, especially in Hawai'i and the Asia/Pacific/U.S. region. Repeatable one time. A-F only. (Fall only)

**CUL 750 International Cultural Studies: Research Project (3)** Directed reading and research culminating in a project that engages issues in international cultural studies. Types of projects include scholarly essays, community-based projects, performances or exhibitions. Written statement of purpose and self-evaluation required. A-F only. Pre: 609 and 610.

## Italian (ITAL)

*College of Languages, Linguistics and Literature*

*Students choosing Italian for the language requirement should realize it may not be offered if demand is limited.*

**ITAL 101 Elementary Italian (3)** Conversation, grammar, and reading. **HSL**

**ITAL 102 Elementary Italian (3)** Conversation, grammar, and reading. Pre: 101 or consent. **HSL**

**ITAL 110 Immersion Italian-Elementary (6)** Combined content of 101 and 102 covered in one summer session. (Summer only) **HSL**

**ITAL 160 Intensive Elementary Italian Abroad (V)** Intensive course of formal instruction on the first-year level in Italian language and culture in Italy. **HSL**

**ITAL 201 Intermediate Italian (3)** Reading, conversation, composition. Pre: 102 or 110. **HSL**

**ITAL 202 Intermediate Italian (3)** Continuation of 201. Pre: 201. **HSL**

**ITAL 258 Intermediate Italian Abroad (3)** Intensive course of full-time formal instruction in Italy on the second-year level in Italian language and culture. Pre: 102 or 110 or 160. **HSL**

**ITAL 259 Intermediate Italian Abroad (3)** Continuation of 258. **HSL**

**ITAL 311 Conversation (3)** Systematic practice for control of spoken Italian. Further development of vocabulary for accurate, mature expression. Pre: 202 or consent.

**ITAL 358 Third-Level Italian Abroad (3)** Intensive formal instruction at the third-year level in Italian language skills: reading, writing, grammar, or conversation in an Italian-speaking country. Pre: 202 or 259 or equivalent.

**ITAL 359 Third-Level Italian Abroad (3)** Continuation of 358.

**ITAL 360 Intensive Third-Level Italian Abroad (V)** Intensive formal instruction at the third-year level in Italian language skills: reading, writing, grammar, or conversation in an Italian-speaking country. Pre: 202 or equivalent.

**ITAL 458 Fourth-Level Italian Abroad (3)** Intensive course of full-time formal instruction in Italy on the fourth-year level in Italian language, linguistics, culture, and literature. Pre: 359 or 360 or equivalent.

**ITAL 459 Fourth-Level Italian Abroad (3)** Continuation of 458.

**ITAL 460 Intensive Fourth-Level Italian Abroad (V)** Intensive course of formal instruction on the fourth-year level in Italian language and culture in Italy. For semester programs only. Pre: 360 or equivalent.

## Japanese (JPN)

*College of Languages, Linguistics and Literature*

*All students taking language courses in this program for the first time must take a regularly scheduled placement test; those with no background must come to the Department of East Asian Languages and Literatures*

*for a brief interview. A grade of C or better in the prerequisite courses is required for continuation.*

**JPN 100 Elementary Japanese, Special (3)** Same material as 101, covered more quickly for students with some language background. Pre: placement test. **HSL**

**JPN 101 Elementary Japanese (4)** Listening, speaking, reading, writing, grammar. Meets one hour, four times a week, plus lab work. Pre: placement test or consent. **HSL**

**JPN 102 Elementary Japanese (4)** Continuation of 100 or 101. Pre: 100 or 101, or consent. **HSL**

**JPN 105 Accelerated Elementary Japanese for Pre-Professionals (8)** Content of 101 and 102 covered in one semester. Emphasis on practical Japanese used in professional contexts. Meets two hours, four times a week. Pre: consent. **HSL**

**JPN 111 Elementary Japanese for Oral Communication I (3)** The first of a series of courses focusing on speaking and listening skills necessary to performing in common situations in Hawai'i and Japan. Pre: consent. **HSL**

**JPN 112 Elementary Japanese for Oral Communication II (3)** Continuation of 111. Pre: 100 or 101 or 111, or consent. **HSL**

**JPN 201 Intermediate Japanese (4)** Continuation of 101 and 102. Meets one hour, four times a week, plus lab work. Pre: 102, 105, or placement test; or consent. **HSL**

**JPN 202 Intermediate Japanese (4)** Continuation of 201. Pre: 201 or placement test; or consent. **HSL**

**JPN 205 Accelerated Intermediate Japanese for Pre-Professionals (8)** Content of 201 and 202 covered in one semester. Emphasis on practical Japanese used in professional contexts. Meets two hours, four times a week. Pre: 102, 105; or consent. **HSL**

**JPN 211 Intermediate Japanese for Oral Communication I (3)** Continuation of 111-112. Pre: 102 or 105 or 112; or consent. **HSL**

**JPN 212 Intermediate Japanese for Oral Communication II (3)** Continuation of 211. Pre: 201 or 211, or consent. **HSL**

**JPN 217 Introduction to Japanese Reading and Writing with Basic Kanji (3)** For students who have completed the oral communication courses up through JPN 212 and wish to continue on to JPN 301. Also appropriate for semi-bilingual students who lack literacy skills. Pre: 212 or consent.

**JPN 258 Intermediate Japanese Abroad (4)** Intensive course of formal instruction on the second-year level in Japanese language and culture in Japan. Pre: 102 or 105. **HSL**

**JPN 259 Intermediate Japanese Abroad (4)** Continuation of 258. Pre: 201 or 258, or consent. **HSL**

**JPN 301 Third-Year Japanese (4)** Transitional course employing four skills (listening, speaking, reading, writing) and grammar training to prepare students to address academic content in Japanese. Meets one hour, four times a week, plus lab work. Pre: 202, 205, 217, or placement test; or consent.

**JPN 302 Third-Year Japanese (4)** Continuation of 301. Pre: 301 or placement test, or consent.

**JPN 305 Accelerated Third-Year Japanese (8)** Content of 301 and 302 covered in one semester. Meets two hours, four times a week, plus lab work. Pre: 202, 205, 217, or consent.

**JPN 307 Special Japanese Reading and Writing (3)** For bilingual students whose aural and spoken skills in Japanese were acquired informally. Emphasis on reading and writing through 301 level. Pre: placement test.

**JPN 308 Special Japanese Reading and Writing (3)** Continuation of 307. Pre: 307 or placement test.

**JPN 311 Third-Year Japanese for Professional Communication I (3)** Training in oral communication skills essential for operating in a Japanese-speaking professional environment or workplace. Pre: 202, 205, 212, or placement test; or consent. (Fall only)

**JPN 315 Third-Year Japanese Aural Comprehension (3)** Training in strategies for listening to various types of spoken material presented in narrations, interviews, news broadcasts, and lectures, etc. Pre: 302 or consent.

**JPN 318 Oral Fluency Through Film (3)** Training in oral communication and comprehension skills utilizing the spoken text and visual segments from Japanese film and television dramas. Pre: 301 or consent.

**JPN 332 Advanced Japanese Reading and Writing (3)** Web-based training in Japanese reading and writing to develop skills at the advanced level. Course activities combine independent work with communicative activities on the website. Ideal for in-service professionals seeking language development and maintenance. Repeatable one time. Pre: 301 (or concurrent) or consent.

**JPN 350 Introduction to Japanese Linguistics (3)** Introduction to major areas of linguistic description as applied to Japanese language. Pre: 302 or 305. **DH**

**JPN 358 Third-Level Japanese Abroad (4)** Intensive course of full-time formal instruction on the third-year level in Japanese language and culture in Japan. Pre: 202, 205, 217, or consent.

**JPN 359 Third-Level Japanese Abroad (4)** Continuation of 358. Pre: 301 or 358.

**JPN 370 Language in Japanese Society (3)** Review of the use of Japanese respect language in relation to social structure, interpersonal relationships, and ways of thinking. Pre: 302, 305; or consent.

**JPN 399 Directed Third-Level Reading (V)** For those who need special assistance, e.g., reading texts in area of specialization or at a pace more rapid than those of standard courses. CR/NC only. Repeatable three times. Pre: consent.

**JPN 401 Fourth-Year Japanese I (4)** Continuation of 302 and 305 emphasizing all four skills. Transition to longer and more complex written and spoken Japanese. Meets 50 minutes, four times a week. Pre: 302, 305, 308, or placement test; or consent.

**JPN 402 Fourth-Year Japanese II (4)** Continuation of 401. Transition to longer and more complex written and spoken Japanese. Meets 50 minutes, four times a week. Pre: 401 or placement test; or consent.

**JPN 403 Fourth-Year Japanese for Advanced Speakers I (3)** Continuation of 308 for bilingual students. Pre: 308 or placement; or consent. (Fall only)

**JPN 404 Fourth-Year Japanese for Advanced Speakers II (3)** Continuation of 403 for bilingual students. Pre: 403 or placement; or consent. (Spring only)

**JPN 405 Fourth-Level Japanese Reading: Accelerated (8)** Content of 401 and 402 covered in one semester. Meets two hours, four times a week. Pre: 302, 305, 308, or placement test.

**JPN 407 (Alpha) Readings in Original Texts (3)** (B) newspapers and magazines; (C) social sciences; (D) humanities; (E) modern literature. Pre: 402 or 405, or consent.

**JPN 415 Japanese Aural Comprehension (3)** Training in comprehension of spoken material presented in news broadcasts, documentary narration, formal lectures, etc. Pre: 402, 405; or consent. May be concurrent with 407.

**JPN 420 Fourth-Level Spoken Japanese (3)** Training in oral communication skills in varied social contexts. Pre: 402 or 405.

**JPN 421 Japanese Composition (3)** Writing skills refined through practice in various styles (essays, letters, etc.). Pre: 402, 405; or consent.

**JPN 423 Advanced Listening and Speaking (3)** Training in listening and speaking for bilingual and other advanced learners. Emphasis on formal Japanese such as academic lectures, news, exchanges in business settings, public speaking, etc. Pre: 421 or consent.

**JPN 425 Japanese Translation (3)** Training in techniques of translating Japanese into English. Pre: consent. (Cross-listed as TI 425)

**JPN 431 Advanced Business Writing (3)** Training in advanced business writing for bilingual and other advanced learners. Japanese writing intensive. Pre: 421 or consent.

**JPN 451 Structure of Japanese (3)** Introduction to phonology, morphology, syntax, and semantics of modern colloquial Japanese. Pre: 402 or 405, and 350 or LING 320; or consent.

**JPN 452 Introduction to Japanese Pedagogical Grammar (3)** Introduction to teaching of basic Japanese grammatical patterns. Pre: 350 or LING 320, and 407; or consent.

**JPN 458 Fourth-Level Japanese Abroad (4)** Intensive course of full time instruction on the fourth-year level in Japanese language and culture in Japan. Pre: 302, 305, 308, 359, or consent.

**JPN 459 Fourth-Level Japanese Abroad (4)** Continuation of 458. Pre: 401 or 458.

**JPN 461 Introduction to Classical Japanese (3)** Basic classical Japanese grammar to develop reading skills. Pre: 407 or consent.

**JPN 466 Readings in Classical Japanese (3)** Introduction to major genres of prose and poetry. Repeatable one time with permission. Pre: 461 or consent. **DL**

**JPN 471 Okinawan Language and Culture I (3)** The first of a series of two courses (JPN 471-472) focusing on the language, heritage, and folk culture of Okinawa. Pre: 302, 305, 308, or consent. **DH**

**JPN 472 Okinawan Language and Culture II (3)** The second of a series of two courses (JPN 471-472) focusing on Okinawan literature, language skills, heritage, and cultural understanding. Pre: 471 or consent. **DL**

**JPN 475 Introduction to Japanese Sociolinguistics (3)** Application of general linguistics to social phenomena such as group identity, language and gender, dialects and intercultural communication. Pre: 350 and 370, or consent.

**JPN 485 Advanced Readings in Modern Japanese Literature (3)** Advanced course to foster speed, accuracy and attention to stylistic issues in modern Japanese literature. Pre: 407E and one of 407B, 407C, or 407D; or consent. **DL**

**JPN 486 Advanced Readings in Modern Japanese Contemporary Topics (3)** Advanced course to foster speed, accuracy, and attention to content in reading modern discursive texts. Pre: two of 407B, 407C, 407D, or 407E; or consent. **DH**

**JPN 490 Advanced Japanese Language Study (3)** Advanced course in spoken and written Japanese stressing intensive research using the Internet, electronic mail in Japanese and conventional media. Oral presentations, written reports and journal writing. Repeatable. Pre: 485 or equivalent and consent.

**JPN 493 Project Work in Japanese (3)** Enhances Japanese language skills through a field-based research project on a topic of the individual student's choice. Interviews, surveys, observations, written materials and A/V-assisted oral presentations. Repeatable one time. Pre: 402 or 405 or equivalent, or consent.

**JPN 495 (Alpha) Internship Program (3)** Analysis of intercultural communication processes under faculty supervision through participation in an organization serving native speakers of Japanese. (B) business, repeatable one time; (C) travel industry internship. Repeatable one time. A-F only. Pre: 370 or consent for (C); 431 for (B).

**JPN 499 Directed Fourth-Level Reading (V)** For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. Primarily for graduate students from other departments. CR/NC only. Repeatable three times. Pre: consent.

**JPN 601 Japanese Phonology and Morphology (3)** Introduction to the phonology and morphology of modern colloquial Japanese. Pre: 451 or consent.

**JPN 602 Japanese Syntax and Semantics (3)** Introduction to theories of syntax, sentence structure, parts of speech, constituency, grammatical relations and case marking, word order, passives, causatives, tense, aspect, and embeddings. Pre: 451 or consent.

**JPN 604 Introduction to Japanese Language Pedagogy (3)** Training in the identification and analysis of general problems in Japanese language learning, teaching, and testing by examining theoretical issues and conducting classroom research. Pre: 407 or equivalent, and 451; or consent.

**JPN 605 Research Methodology in Japanese Linguistics and Language Teaching (3)** Japanese-specific training in the formulation of testable hypotheses, in basic statistical and other evaluation techniques, and in the organization and presentation of ideas and data in paper, abstracts, etc. Pre: 407 or equivalent.

**JPN 606 Japanese Sociolinguistics (3)** Introduces theories of language use and provides training in the methodology and analysis of Japanese sociolinguistics. Pre: 407 and 475 or equivalent, or consent.

**JPN 610 (Alpha) Japanese Poetry (3)** Historical survey of major poetic types. Repeatable one time with consent. (B) classical; (C) medieval and Edo; (D) modern. Pre: 466 or consent for (B) and (C); 485 or consent for (D).

**JPN 611 (Alpha) Modern Japanese Literature (3)** Representative literary works, emphasis on fiction. Repeatable one time with consent. (B) Meiji-Taisho (1868-1926); (C) Showa-Heisei (1926-present). Pre: 485 or consent.

**JPN 612 Edo Literature (3)** Critical reading and analysis; emphasis on prose. Repeatable one time with consent. Pre: 466 or consent.

**JPN 613 Medieval Japanese Literature (3)** Critical reading and analysis of Kamakura and Muromachi literature, emphasis on prose. Repeatable one time with consent. Pre: 466 or consent.

**JPN 614 Classical Japanese Literature (3)** Critical reading and analysis of Heian literature; emphasis on prose. Repeatable one time with consent. Pre: 466 or consent.

**JPN 620 Practicum: Teaching Japanese Language (Alpha) (3)** For graduate students who are planning to teach Japanese as a foreign language. Through lectures and discussions on language learning and teaching, and through observation and teaching of a Japanese language class, students will learn to make informed decisions about curriculum and instruction, and will develop instructional skills and practices for analyzing their teaching experiences. (B) beginning level Japanese instruction; (C) advanced level Japanese instruction. Repeatable one time per alpha. Pre: 604 or EALL 601, or consent. (Once a year for (B) and (C)).

**JPN 626 Introduction to Japanese Manuscripts and Xylographs (3)** Introduction to Classical Japanese writing system as found in the xylographs and manuscripts of the Heian and Kamakura periods; reading and analysis of the texts in original script. Repeatable one time. Pre: 461 or 466, or consent. (Alt. years)

**JPN 631 History of the Japanese Language (3)** Survey, theories of origin; related topics in linguistic methodology. Pre: 461 and 601, or consent.

**JPN 632 Teaching Japanese as a Second Language (3)** Practical overview of major problems; motivation; adult second language learning; communicative and linguistic competence; practical classroom techniques of teaching and testing. Pre: 604 or consent.

**JPN 633 Advanced Japanese Sociolinguistics (3)** Variations in language form and use depending on social factors. Pre: 601 or 602 (or concurrent), and 606; or consent.

**JPN 634 Advanced Japanese Syntax and Semantics (3)** Theoretical problems in description of

Japanese; contributions of Japanese linguistic study to syntactic theory. Pre: 602 or consent.

**JPN 640 Themes in Japanese Literature (3)** Intensive study of selected themes in Japanese literature, primarily in the modern period. Repeatable with consent. Pre: 485 or equivalent, or consent.

**JPN 641 Traditional Literary Theory (3)** Reading and analysis of major works of literary theory and criticism from the classical, medieval, and Edo periods. Pre: 466 or consent.

**JPN 642 Kambun (3)** Introduction to kambun [the Japanese manner of reading and writing classical Chinese], with critical reading of kambun by Japanese authors. Pre: 461 or consent.

**JPN 650 (Alpha) Topics in Japanese Linguistics (3)** (C) Japanese/English contrastive analysis; (G) structure; (H) historical change; (K) history of Japanese language studies (*Kokugo-gaku-shi*); (M) morphophonemics; (P) pedagogy; (S) sociolinguistics. Pre: 601 and 602 for (C); 634 for (G); 631 for (H) and (K); 601 for (M); 632 for (P); 633 for (S).

**JPN 699 Directed Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent of chair.

**JPN 710 (Alpha) Research Seminar in Japanese Literature (3)** (M) modern; Pre: 611 (P) pre-modern; Pre: 612, 613, or 614.

**JPN 730 (Alpha) Research Seminar in Japanese Linguistics (3)** (C) Japanese/English contrastive analysis; (G) structure; (H) historical change; (K) history of Japanese language studies (*Kokugo-gaku-shi*); (M) morphophonemics; (P) pedagogy; (S) sociolinguistics. Pre: 451, or 601 and 602 for (C); 634 for (G); 631 for (H) and (K); 601 for (M); 632 for (P); and 633 for (S).

## Journalism (JOUR)

*College of Social Sciences*

**JOUR 150 The Media and Society (3)** Communications media in theory and practice. Development, role, influence; rights, responsibilities, problems, issues, and trends. DS

**JOUR 250 Media Writing (3)** Fundamentals of writing for various news media and public relations; ethics. Sophomore standing only. A-F only. Pre: ENG 100, 100A, 190, or 200.

**JOUR 300 Reporting (3)** Theory and practice of information gathering using a variety of primary and secondary sources, finding information online, use of databases and interviews for writing news stories. Sophomore standing or higher. A-F only. Pre: 250 (with a minimum grade of B) (or concurrent).

**JOUR 307 Photojournalism (3)** Production, selection, and use of digital photographs for publications. Storytelling action and feature photography with digital cameras, worked up through Adobe Photoshop and InDesign programs. Students must have a digital camera. A-F only.

**JOUR 316 Advanced Editing (3)** Intensive training in editing, planning, and organizing stories and visual elements for publication; news judgment; managing projects. Pre: 250 (with a minimum grade of B) or consent.

**JOUR 320 Visual Journalism: Multimedia (3)** Fundamentals of visual journalism; visual theory, principles, and tools to create multimedia journalism projects for online, emerging media, and print platforms. Sophomore standing or higher. A-F only. Pre: 250 (with a minimum grade of B).

**JOUR 325 Magazine Writing (3)** Writing nonfiction articles for magazines, newspapers, and newsletters; preparing material for specific audience; marketing articles.

**JOUR 327 Interpretive Journalism (3)** Writing articles of news analysis, editorials, and critical reviews. Pre: consent.

**JOUR 330 Video Journalism (3)** Fundamentals of video journalism using digital video cameras for writing, reporting, editing, and producing news stories.

Sophomore standing or higher. A-F only. Pre: 250 (with a minimum grade of B).

**JOUR 360 Journalism History and Trends (3)** Development of the news media and trends that may affect the future of journalism. Pre: upper division standing. DS

**JOUR 365 Communication and Law (3)** Role of communication in the legal process; impact of law on communication processes. Pre: COM/JOUR major and junior standing, or consent. (Cross-listed as COM 451) DS

**JOUR 385 Practicum (1)** Working on campus student or quasi-professional publications under professional and faculty supervision. CR/NC only. Repeatable up to three credits. Pre: consent.

**JOUR 390 (Alpha) Journalism/Communications Workshops (V)** Short-term intensive workshops in journalism and mass communication skills and projects. (B) workshop in new media; (C) workshop in reporting; (D) workshop in editing; (E) workshop in broadcast journalism; (F) workshop in public relations. Repeatable in different alphas up to 6 credits. JOUR or COM majors only. Pre: consent. (Cross-listed as COM 390)

**JOUR 401 Journalism Projects/Production (6)** Intense problem-based application of skills and knowledge to production of a major journalism project across multiple media platforms. Repeatable one time with instructor approval. Pre: 300 and 320 and 330 or consent, and ICS 101 or 110 or 111. (Fall only)

**JOUR 402 Media and Community (6)** Intellectual, historical, social and cultural context of contemporary journalism in our community with application through projects. Pre: 300 and 320 and 330 or consent, and ICS 101 or 110 or 111.

**JOUR 407 Advanced Photojournalism (3)** Computer experience in the creation, manipulation, and editing of color news, feature, sports, and documentary images. Study of the ethical and legal dimensions of electronic imaging. Pre: 307 or consent.

**JOUR 425 Publication Layout and Design (3)** Visual display concepts and procedures for newsletters, brochures, newspapers, magazines. Pre: upper division standing.

**JOUR 459 Special Topics (3)** Topics of interest to faculty and students; taught by regular and visiting faculty. Repeatable on different topics to six credit hours. JOUR majors only. Pre: COM/JOUR major and junior standing, or consent. (Cross-listed as COM 459)

**JOUR 460 Media Ethics (3)** Ethics and social responsibility for media professionals. Application of ethical theories and principles to case studies and research projects. A-F only. Pre: any 300-level course in COM or JOUR and junior standing; or consent. (Cross-listed as COM 460)

**JOUR 475 Global Communication (3)** Problems and opportunities of communication in a variety of international contexts. Focus on commerce, diplomacy, and mass communication. JOUR majors only. Pre: COM/JOUR major or consent. (Cross-listed as COM 475) DS

**JOUR 485 Fieldwork (3)** Internship in media or PR operations under professional and faculty supervision. Repeatable two times. CR/NC only. Pre: 250 (with a minimum grade of B) and 300, and either 320 or 330; or consent.

**JOUR 499 Directed Research (V)** Individual research projects. Pre: senior standing and consent of department chair.

## Kinesiology and Rehabilitation Science (KRS)

*College of Education*

*Students registering for 101-187, 323, 331-339, 371, 385, and 470 will be requested to complete a medical history form and a liability disclaimer form on the first*

*day of instruction. All students taking 491-494 must be immunized for hepatitis B virus prior to admission in the class.*

*The minimum required grade for prerequisites for undergraduate-level courses is a grade of C- or better, unless otherwise specified. The minimum required grade for prerequisites for graduate-level courses is a grade of B or better.*

**KRS 101 Physical Fitness (1)** Conditioning exercises and activities to develop and maintain physical efficiency. Motor fitness tests administered to measure status and progress. Repeatable unlimited times, but credit earned one time only.

**KRS 102 Aerobic Fitness: Beginning (1)** Aerobic fitness improvement upon completion of course. Learning and practicing safe total body workout routines done to music. Developing an individual fitness program and recording progress in that program. Repeatable unlimited times, but credit earned one time only.

**KRS 103 Swimming: Beginning (1)** Adjusting to and immersing in water, floating, sculling; correct arm stroke, leg kick, breathing techniques and their coordination. (Student to provide own swimming attire approved by instructor.) Repeatable unlimited times, but credit earned one time only.

**KRS 104 Swimming: Intermediate (1)** Perfecting and integrating basic strokes with added emphasis for distance and speed. (Student to provide own swimming attire approved by instructor.) Repeatable unlimited times, but credit earned one time only. Pre: 103 or consent.

**KRS 105 Swimming: Advanced (1)** Correct techniques used in competitive swimming, racing starts, correct turning techniques, long-distance swimming. (Student to provide own swimming attire approved by instructor.) Repeatable unlimited times, but credit earned one time only. Pre: 104 or consent.

**KRS 106 SCUBA Diving: Beginning (1)** Learning watermanship, equipment handling skills, and the knowledge to become safe divers. Additional costs for equipment, diver manual, dive tables, and certification fee. Repeatable unlimited times, but credit earned one time only.

**KRS 107 Aqua-Aerobic Fitness (1)** Combined lecture-lab-physical activity with emphasis on aerobic fitness improvement through total body aquatic workouts with music, and development of individualized aquatics fitness program. Open to all students. Repeatable unlimited times, but credit earned one time only.

**KRS 110 Golf: Beginning (1)** Rules, etiquette, grip, stance, drive, normal iron shots, approach shots, putting. Repeatable unlimited times, but credit earned one time only.

**KRS 111 Golf: Intermediate (1)** Corrective work on basic swing mechanics and rhythm; adjustments for bunker play, uphill lies, downhill lies, short game around and on the green; handicapping and match play competition. Repeatable unlimited times, but credit earned one time only. Pre: 110 and consent.

**KRS 112 Golf: Advanced (1)** Improving drive, fairway wood shots, long iron shots, control shots, trouble shots, putting, course management, competitive strategy, problems in rules. Greens fees paid by students for play on courses. Repeatable unlimited times, but credit earned one time only. Pre: 111 and consent.

**KRS 115 Bowling (1)** Rules, etiquette, arm swing, approach, execution, scoring, spare pickups. Students pay charge for use of alley. Repeatable unlimited times, but credit earned one time only.

**KRS 120 Badminton (1)** Rules, etiquette, grip, forehand and backhand strokes, serving, smash, drive, net play, offensive and defensive strategy; singles and doubles play. Repeatable unlimited times, but credit earned one time only.

**KRS 123 Folk and National Dances (1)** Popular dances of various national groups, including square dances. Repeatable unlimited times, but credit earned one time only. DA

**KRS 124 Dances of Hawai'i (1)** Background and fundamentals of hula. Selected dances with and without instruments. Repeatable unlimited times, but credit earned one time only. **DA**

**KRS 125 Dances of Hawai'i: Advanced (1)** Advanced techniques in hula movements. Selected dances taught will be more complex, including work with instruments. Individual choreography will be emphasized. Repeatable unlimited times, but credit earned one time only. Pre: 124 or consent. **DA**

**KRS 126 Social Dance: Ballroom (1)** Social dances including fox trot, waltz, swing, and other popular dances. Basic steps, rhythm pattern, styling, and variations are taught. Social etiquette is stressed. Repeatable unlimited times, but credit earned one time only. **DA**

**KRS 127 Social Dance: Latin (1)** Social dances of a Latin flavor including rhumba, cha-cha, tango, samba, and others. Basic steps, rhythm pattern, styling, and variations are taught. Social etiquette is stressed. Repeatable unlimited times, but credit earned one time only. **DA**

**KRS 130 Tennis: Beginning (1)** Rules, etiquette, grip, forehand and backhand strokes, serving, volleying; singles and doubles play. Repeatable unlimited times, but credit earned one time only.

**KRS 131 Tennis: Intermediate (1)** Corrective work in three basic strokes and in net play; the lob, drop shot, overhead smash, and half-volley; applying spin in basic strokes; basic strategy in singles and doubles play. Repeatable unlimited times, but credit earned one time only. Pre: 130 or consent.

**KRS 132 Tennis: Advanced (1)** Improving upon the strokes introduced in 130 and 131; advanced competitive strategy; problems in rules; officiating; elements of tournament play. Repeatable unlimited times, but credit earned one time only. Pre: 131 or consent.

**KRS 135 Volleyball: Beginning (1)** Combined lecture-lab-physical activity with emphasis on beginner skills and knowledge relative to serving, passing, spiking, digging, blocking, and offensive and defensive strategy. Open to all students. Repeatable unlimited times, but credit earned one time only.

**KRS 136 Volleyball: Intermediate (1)** Combined lecture-lab-physical activity with emphasis on improving skills and knowledge through practice and cognitive activities relative to serving, passing, spiking, digging, blocking, and offensive and defensive strategy. Open to all students. Repeatable unlimited times, but credit earned one time only. Pre: 135 or consent.

**KRS 137 Basketball (1)** Rules, passing, shooting, dribbling, rebounding, individual defensive and offensive maneuvers; team offense and defense. Repeatable unlimited times, but credit earned one time only.

**KRS 151 Adapted and Prescribed Exercises (1)** Small group and individual guidance and instruction for students recommended by student health service. Repeatable unlimited times, but credit earned one time only. Pre: consent.

**KRS 152 Weight Training (1)** Kinesiology of lifting and weight training, various types of exercises and methods of training with resistance. Repeatable unlimited times, but credit earned one time only.

**KRS 153 Olympic and Power Lifting (1)** Exercise technique and prescription with an emphasis on anaerobic exercise. Explores advanced periodization models and their utilization, mastery of Olympic lifts, and plyometric programs. Repeatable unlimited times, but credit earned one time only. Pre: 152 or consent.

**KRS 154 Tumbling and Rebound Tumbling (1)** Single and combination stunts on tumbling mats and trampoline, balancing stunts; techniques of spotting; safety procedures. Repeatable unlimited times, but credit earned one time only.

**KRS 156 Heavy Apparatus (1)** Single and combination stunts on side horse, horizontal bar,

parallel bars, still rings; techniques of spotting; safety procedures. Repeatable unlimited times, but credit earned one time only.

**KRS 160 Judo (1)** Rules, etiquette, method of falling and breaking the fall, simple throws and their counters, simple holds and breaking of such holds, randori. (Student to provide own gi.) Repeatable unlimited times, but credit earned one time only.

**KRS 161 Aikido (1)** Rules, etiquette, basic rolls, simple holds and the breaking of such holds, specific physical conditioning exercises. (Student to provide own gi.) Repeatable unlimited times, but credit earned one time only.

**KRS 163 T'ai Chi Ch'uan (1)** Classic forms of t'ai chi ch'uan. Repeatable unlimited times, but credit earned one time only.

**KRS 164 Karate: Beginning (1)** Rules, etiquette, basic stances, blocks, thrusts, kicks, ippon kumite, and selected kata. (Student to provide own gi.) Repeatable unlimited times, but credit earned one time only.

**KRS 165 Karate: Intermediate (1)** Emphasis on improving the basic techniques (stances, punches, kicks, forms, and sparring); introduction to combination techniques. (Student to provide own gi.) Repeatable unlimited times, but credit earned one time only. Pre: 164.

**KRS 167 Wrestling: Beginning (1)** Rules: fundamental defensive and offensive maneuvers and competitive strategy, i.e., takedowns, reversals, escapes, and pinning combinations; conditioning exercises. Repeatable unlimited times, but credit earned one time only.

**KRS 170 Yoga: Beginning (1)** Experiencing yoga and its effects on body, mind and consciousness of individual. Encompasses exercise, breathing techniques, deep relaxation, meditation, practice in concentration, and yogic postures. Repeatable unlimited times, but credit earned one time only.

**KRS 171 Yoga: Intermediate (1)** Corrective work and improvement of basic techniques. Exercise sets and combinations designed to develop endurance, flexibility, muscle and nerve strength, meditation, and deep relaxation technique. Repeatable unlimited times, but credit earned one time only. Pre: 170 or consent.

**KRS 173 Water Polo (1)** Fundamentals of basic water polo skills, namely, ball handling, passing, shooting, dribbling plus a brief introduction into beginning techniques of individual offense and defense. Repeatable unlimited times, but credit earned one time only. Pre: 104 or consent. (Student to provide own swimming attire approved by instructor.)

**KRS 181 Sport Proficiency I: Invasion (3)** Knowledge, skill development, and strategy of various invasion type games and sports. Sports like basketball, soccer, ultimate frisbee and/or others are introduced within a tactical framework. Repeatable one time, but credit earned one time only. A-F only.

**KRS 182 Sport Proficiency II: Net, Field, and Target (3)** Knowledge, skill development, position, and strategy of net, field and target sports. Sports like volleyball, tennis, softball, and golf are introduced within a tactical framework. Repeatable one time, but credit earned one time only. A-F only.

**KRS 185 Floor Exercise Gymnastics (1)** An entry-level course designed to develop students' knowledge of men's and women's gymnastics floor exercise routines, including injury prevention, skill progression, spotting techniques, and routine choreography. Primarily for KRS majors; others admitted on space-available basis. Repeatable unlimited times, but credit earned one time only.

**KRS 186 Track and Field for Physical Education (1)** Knowledge, skills, and rules of various track and field events. Organization of track meets and strategy in competition. Primarily for KRS majors; others admitted on space-available basis. Repeatable unlimited times, but credit earned one time only.

**KRS 187 Softball (1)** Combined lecture-lab-physical activity with emphasis on basic skills, rules, etiquette, offensive and defensive strategies, position play, and game situations. Open to all students. Repeatable unlimited times, but credit earned one time only.

**KRS 201 School Health Problems: Elementary (2)** Responsibilities of elementary school teacher in recognizing and meeting pupils' needs, emphasizing teacher's role in health instruction, health services, school health policies. Repeatable one time.

**KRS 202 School Health Problems: Secondary (2)** Responsibilities of secondary school teacher in recognizing and meeting pupils' needs, emphasizing health instruction, health services, healthful school living, school health policies. Repeatable one time.

**KRS 203 Foundations of Physical Education (3)** Physical education as a professional field. Overview of history, philosophy, and current practices in physical education. Survey of psychological and sociological foundations of exercise and sport. KRS majors or approval. Repeatable one time. A-F only.

**KRS 208 Recreation Services in Contemporary Society (3)** Theories and philosophies in recreation: history; contemporary issues; roles in modern society; relationship to health, physical education, and exercise science.

**KRS 210 Leisure Education and Life Skills Development (3)** Using sports as a learning tool, students will gain awareness, acquire knowledge and develop skills to enhance their classroom, athletic and personal performance. Class topics include current issues and strategies for maintaining healthy lifestyles. Repeatable one time.

**KRS 232 Safety and Risk Management (2)** Understanding the fundamental principles and techniques of safety and accident-prevention programming emphasizing school, home, public places, on the job, and motor vehicle situations. Repeatable one time.

**KRS 238 Outdoor Recreation Management (3)** Objectives and values of outdoor recreation; characteristics and determinants of programs; planning, organization, leadership, and facilities for recreational uses of natural environments. Repeatable one time. Pre: 208 or consent.

**KRS 241 Health Education Curriculum (2)** Objectives of school health program, emphasizing scope and sequence of health instruction; critical examination of health curriculum guides from various states. Repeatable one time. Pre: 201 or 202.

**KRS 249 Programming and Leadership (3)** Factors in planning and leading recreation programs; characteristics and responsibilities of leadership in relation to nature, scope, and resources of a variety of programs. Repeatable one time. Pre: 208 or consent.

**KRS 270 Introduction to Physical Education (4)** Introduction to foundational knowledge for effective teaching, history, philosophy, and current practices in physical education. Provides the basis for later coursework in K-12 physical education. Required field experience. Repeatable one time. A-F only. Pre: consent. (Fall only)

**KRS 271 Evaluation in Health Education (2)** Processes involved in assessing school health education program with emphasis on measurement criteria and instruments, interpretation of data and content, organization and conduct of evaluation program. Repeatable one time. Pre: 201 or 202.

**KRS 302 School's Role in Community Health (2)** Functional interrelationships between school and other community health organizations in solving school-community health problems. Repeatable one time. Pre: consent.

**KRS 305 Principles of Sports Medicine (3)** Examine with some depth, principles of risk management and pathology of athletic injuries, major musculoskeletal structures, and concepts of evaluative skills, treatment, and rehabilitation for common athletic injuries. A-F only. Repeatable one time. **DB**

**KRS 310 Coaching of Football (2)** Theory and strategy of offensive and defensive football coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Repeatable one time. Pre: consent.

**KRS 311 Coaching of Basketball (2)** Theory and strategy of offensive and defensive basketball coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Repeatable one time. Pre: consent.

**KRS 312 Coaching of Baseball (2)** Theory and strategy of offensive and defensive baseball coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Repeatable one time. Pre: consent.

**KRS 313 Coaching of Volleyball (2)** Theory and strategy of offensive and defensive volleyball coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Repeatable one time. Pre: consent.

**KRS 323 Music and Rhythm in Physical Education (3)** Use of music in physical education programming (K-12), emphasizing selection of appropriate music for specific activities as expressive or creative movement, movement exploration, rhythmic gymnastics, and dancing. A variety of strategies for teaching dance will be shared. A-F only. Pre: consent. (Spring only)

**KRS 329 Managing Recreation Services (3)** Administrative framework and procedures pertinent to the operation of agencies providing recreational services to the various publics. Repeatable one time. Pre: 208 or consent.

**KRS 331 Water Safety Training (3)** Theory and methods of advanced lifesaving and water safety leading to American Red Cross Water Safety Instructor (WSI) certification. Repeatable one time. Pre: 104 or consent. (Student to provide own swim attire approved by the instructor.)

**KRS 332 Emergency Care and First Aid Training (3)** Practicum in training of persons to become qualified in emergency care knowledge, basic life support, and first aid skills. First Aid and CPR certificates may be earned. **DB**

**KRS 333 Movement Education I (3)** A movement-based approach to teaching basic motor skills in preschool/elementary physical education. Students actively participate and learn about developmentally appropriate content and pedagogy for children in grades P-5/6. Peer bit teaching is included. A-F only.

**KRS 334 Movement Education II (4)** (3 Lec, 1 1-hr. Lab) Content and pedagogy for teaching Pre/K-5 physical education. Students will learn to plan and teach physical education for children. Peer bit and field teaching included. Repeatable one time, but credit earned one time only. A-F only.

**KRS 335 Coaching of Track and Field (2)** Techniques and rules of sprints, distance runs, relays, hurdles, long jump, high jump, pole vault, shot put, discus, and javelin throws; conduct of track and field meets; specific conditioning and training problems. Repeatable one time.

**KRS 336 Coaching of Swimming (2)** Theory and methods of coaching competitive swimming. Technical, organizational, and administrative aspects. Emphasis on stroke mechanics and training methods. Repeatable one time. Pre: consent.

**KRS 337 Fieldwork in Recreation I (5)** Initial supervised leadership experience in recreational agencies. One hour per week in class discussion sessions. For recreation majors only. Repeatable one time. Pre: consent of recreation advisor.

**KRS 339 Special Recreation (3)** Special recreation as a professional field. Overview of special recreation services. Emphasis on recreation services for special

populations. Repeatable one time. Pre: 208 or consent.

**KRS 353 Structural Kinesiology (3)** Gross human anatomy, emphasizing identification and description of parts of the musculoskeletal system; selected applications to motor activity. Primarily for KRS majors, but open to others with consent. A-F only. Pre: PHYL 103 or 141/141L or consent. **DB**

**KRS 354 Exercise and Sport Physiology (3)** Emphasis on physiological responses to exercises and physical training as related to strength, muscular endurance, cardio-respiratory endurance. Primarily for KRS majors, but open to others with consent. Kinesiology and Rehabilitation Science, Health/Exercise Science and Lifestyle Management, and Physical Education majors only. A-F only. Pre: PHYL 103, or 142/142L (or concurrent), or BIOL 171/171L (or concurrent); or consent. Co-requisite: 354L. **DB**

**KRS 354L Exercise and Sport Physiology Lab (2)** Laboratory section to accompany KRS 354. Emphasis will be hands-on data collection and analysis of the physiological responses to exercise and physical training. Lab report development and scientific writing will also be emphasized. A-F only. Pre: PHYL 142/142L or PHYL 302/302L (or concurrent); or consent. Co-requisite: 354.

**KRS 371 Teaching Techniques I: Elementary (3)** Teaching techniques and methods of elementary physical education. Content to include basic skills and games in a school-based experience. Repeatable up to 6 credits. Primarily for KRS majors. A-F only.

**KRS 372 Teaching Techniques II: Secondary (3)** Teaching techniques and methods of secondary physical education. Content to include invasion, net, field, and target activities. These activities emphasize the tactical approach in a school-based experience. Primarily for KRS majors. A-F only. Pre: 181, 182, admittance to COE, and consent.

**KRS 384 Drugs and Society (3)** Introduction to psychoactive drugs and their effects; drug regulations; education and rehabilitation programs; psycho-social variables related to the decisions to use/abuse drugs. Pre: consent.

**KRS 385 Physical Fitness for Physical Education Teachers (1)** Diagnosis and prescription for basic health and fitness problems, scientific principles of training, guidelines for exercise; essentials of scientific based individualized physical fitness program. Repeatable one time.

**KRS 388 Field Work in Strength and Conditioning I (1)** Supervised practicum in strength training and conditioning. Students will be exposed to the theory and practice of designing and implementing both strength/power, and general conditioning programs. Repeatable one time. Pre: 152, 354 (or concurrent); or consent.

**KRS 395 Personal Health and Wellness (3)** Scientifically based information will be presented to help the student make decisions and take responsibility for his/her own health and health-related behaviors. The student will develop a personal, daily physical activity/exercise program, in which he/she will participate and be monitored. Repeatable one time. **DB**

**KRS 399 Directed Reading (V)** Individual problems. Limited to senior majors in health education, physical education, athletic training, or recreation with a minimum GPA of 2.75 in major field. Repeatable unlimited times.

**KRS 401 Current Trends in Health (3)** Identification and analysis of the most important health issues for individuals, families, schools, and communities. Focus on cultural and local considerations in health promotion and education. Repeatable one time. A-F only.

**KRS 402 Teaching Practicum in Physical Education (3)** Field experience in teaching physical education activities in schools, K-12; techniques in leadership; selection of activities and program evaluation for K-12 licensure. Repeatable two times. A-F only. Pre: admission to COE and consent.

**KRS 403 Guidance and Classroom Management (3)** Guidance principles applied to classroom management for teachers. Pre: consent.

**KRS 404 K-12 Teaching Methods in Physical Education (3)** Methods and materials in teaching physical education activities program; techniques; leadership; selection of appropriate activities and program evaluation for teaching licensure. Repeatable one time, but credit earned one time only. A-F only. KRS majors only.

**KRS 405 (Alpha) Teaching Residency (V)** Full-time supervised experience in elementary and secondary school level. School level corresponds to level of licensure desired. (E) elementary; (S) secondary. Each alpha can be taken one time. Kinesiology & Rehabilitation Science, Physical Education, and Secondary Education-Physical Education majors only. A-F only. Pre: 402 (with a minimum grade of B-) and 404 (with a minimum grade of B-); requirements for registration listed under "student teaching"; or consent. Co-requisite: 406.

**KRS 406 Seminar in Teaching Residency (3)** Analysis and resolutions of issues in teaching residency; teaching strategies and techniques; curriculum planning; professional growth and development. Repeatable one time. A-F only. Pre: 402 and 404, or consent.

**KRS 407 Psychosocial Aspects of Sport (3)** Examination and application of sociological and psychological theories to sport including the influence of race, ethnicity, gender, identity and human development, social class, disabilities, and sexual orientation on the sport experience. A-F only. Pre: consent. **DS**

**KRS 415 Prevent/Care of Athletic Injuries (3)** An examination of the most recent practices and procedures in the prevention and care of athletic and sports injuries. Observational field experiences in athletic training will be required. A-F only. Pre: PHYL 301 (or concurrent with consent) and PHYL 301L (or concurrent with consent). **DB**

**KRS 416 Fundamentals of Ergonomics (3)** Introduction to ergonomics principles and their application in understanding and prevention of Muscular Skeletal Disorders encountered in the working environment including introduction to legal aspects of ergonomics. Pre: 463 or consent.

**KRS 419 Administration in Athletic Training, Exercise Science, Allied Health (3)** An examination of organization and administration in Athletic Training, Allied Health and Exercise Science. Content includes leadership and motivation models, legal liability, ethical considerations and management strategies for all aspects of Health Care Administration. KRS majors only. A-F only.

**KRS 420 Lower Extremity Assessment (3)** An examination of the pathology of injuries to the lower extremities and their care and treatment designed for Athletic Training, Exercise Science and Allied Health professionals. KRS majors only. A-F only. Pre: 353, 415; or consent.

**KRS 421 Upper Extremity Assessment (3)** An examination of the pathology of injuries to the upper extremities and their care and treatment designed for Athletic Training, Exercise Science and Allied Health professionals. Kinesiology and Rehabilitation Science, Health/Exercise Science and Lifestyle Management, and Physical Education majors only. A-F only. Pre: 353 and 415, or consent.

**KRS 423 Curriculum and Supervision (3)** Effective program development, planning, and supervision, including issues in legal liability and administration of all aspects of physical education programming in grades K-12. Repeatable one time. A-F only. Pre: 270 or consent. Majors only.

**KRS 428 Current Issues in Leisure Services (3)** Philosophical foundations and current and emerging issues in leisure services management and programming. Coverage of leisure research and its implications to practice. Repeatable one time. Pre: 238, 249, and 329; or consent.

**KRS 429 Evaluating and Marketing Leisure Services (3)**

Basic methods in marketing, planning, evaluating programs and problem-solving methods, survey research, research design, data analysis, and report generation for park, recreation, and tourism systems. A-F only. Pre: 329 (or concurrent), or consent.

**KRS 432 Emergency Care for the Professional Rescuer (3)**

Combined lecture-lab on advanced emergency care for injuries and illnesses and includes certifications for CPR/First Aid/AED. Class size of approximately 20 students. Open to all majors. Repeatable one time. A-F only. Pre: consent.

**KRS 434 Coaching Athletics (3)** Combined lecture-lab with emphasis on scientific principles, theory and practice, and professional qualities of the coach. A-F only. Pre: consent.

**KRS 437 Camp Resources and Planning (2)**

(1 Lec, 1 3-hr Lab) Combined lecture-lab for camp counselors and camp leadership. Plan and evaluate camp experiences for children and youth, including those with disabilities. Includes field trips. Pre: 331 and 332, or consent.

**KRS 438 Practicum in Camping (V)** Supervised leadership at a camp setting with children and youth, including those with disabilities. Day or residential camps. One full week camping for each credit hour. Maximum of four credit hours. Pre: 437 (or concurrent) or consent.

**KRS 443 Disability and Diversity in Physical Activity (4)** (3 Lec, 1 1-hr. Lab) Participants will explore issues of socio-cultural, sexual orientation, religion, and individuals with exceptionalities, and how these affect a student's learning and behavior in the physical education setting. Required field experience. Repeatable one time. A-F only. (Cross-listed as SPED 443)

**KRS 463 Sport Biomechanics (3)** Concepts and scientific principles essential to efficient human movement; proper application of biomechanical principles to fundamental movements and selected complex motor skills. Repeatable one time, but credit earned one time only. A-F only. Pre: 353, and either PHYS 100, PHYS 151, or PHYS 170; or consent. DB

**KRS 470 Fitness for Life (3)** Physical education teachers will gain knowledge, skills, and experience necessary to plan, implement, and evaluate Fitness for Life curriculum (grades 6-12). Information is guided by national and state standards. Includes lecture, lab, and teaching experiences. Repeatable one time. A-F only. (Once a year)

**KRS 471 K-12 Teaching Methods in Health (3)** Experiences in developing standards-based, interactive learning opportunities to teach personal and social skills for health in schools. Focus on National and Hawai'i Health Content Standards, priority risk/content areas, the Coordinated School Health Program, and responsibilities and competencies. A-F only.

**KRS 472 Learning Communities (3)** Theory, basic research, interactive process, and methodology of the cooperative learning process known as Tribes. Will develop participants' abilities to foster and facilitate learning communities in a variety of settings. Repeatable one time. (Summer only)

**KRS 473 Ethnic Groups and Education in Hawai'i (3)** Identity and learning within and among Hawai'i ethnic groups; study of prejudice and inter-ethnic hostilities as these impact education and teaching. Pre: consent. DS

**KRS 474 Introduction to Statistics in Kinesiology (3)** Basic elements for: descriptive statistics, probability, inference, regression, and correlation analysis. A-F only. Repeatable one time.

**KRS 476 Motor Learning and Performance (3)** Basic consideration is kinesthesia, motor ability, fatigue, developmental factors, practice, motivation in relation to motor learning and human performance. Repeatable one time. Pre: EDEP 311 or consent.

**KRS 477 Motor Development and Learning (4)** (3 Lec, 1 1-hr. Lab) Motor development through the lifespan with emphasis on fundamental principles and patterns. Factors affecting motor learning performance as a function of memory, practice, knowledge of performance, and motivation are incorporated. Required field experience. Repeatable one time. A-F only.

**KRS 478 Adapted Physical Activity in Early Childhood (3)** Concepts of developmentally appropriate practice, importance of movement in overall development, and design of physical activity sessions and environments for young children with and without disabilities are covered. A-F only. Pre: consent.

**KRS 480 Nutrition in Exercise and Sport (3)** Effects of physiologic demands of exercise on nutrition. Emphasis on physiologic and biochemical basis for nutrition recommendations to enhance exercise participation and optimize athletic performance. (Cross-listed as FSHN 480) DB

**KRS 481 Introduction to Research in KRS (3)** Research methods in the study of physical activity, types of research, statistical concepts and techniques, and reporting research results. Repeatable one time.

**KRS 482 Commercial Recreation (3)** Overview of leisure services and trends in commercial, private and employee recreation, and resort and recreational tourism. The social, economic, and environmental significance is examined. Pre: 428 or consent.

**KRS 483 Recreation Planning and Maintenance (3)** Examination of social, economic, and environmental factors of recreation and tourism development. Emphasis on methods, processes, citizen participation, design issues/regulations, and land use. Repeatable one time. Pre: 238 and 329; or consent.

**KRS 484 Promoting a Drug-Free Lifestyle (3)** Standards-based planning, teaching, and assessment to promote a tobacco-, alcohol-, and drug-free lifestyle, K-12. Research-based curriculum and strategies to promote personal and social responsibility for health. Repeatable one time. A-F only.

**KRS 485 Healthy Sexuality Education, K-12 (3)** Standards-based planning, teaching, and assessment for comprehensive sexuality education, K-12. Focus on research-based curriculum and strategies to promote personal and social responsibility for health. A-F only.

**KRS 487 Exercise Assessment and Conditioning Lab (4)** Designed to provide knowledge of laboratory techniques and procedures for aerobic and anaerobic fitness assessment, interpretation of aerobic and anaerobic testing results, and individual exercise program/prescription. A-F only. Pre: 480 and EDEP 429, or consent. (Fall only)

**KRS 488 Practicum in Health and Exercise Science (4)** Application of various testing procedures on human subjects with different physical capacities. Repeatable one time. Pre: 152, 353, 354, and 463; or consent.

**KRS 489 Program Design in Strength Training and Conditioning (3)** Designed to provide theoretical and practical experience in supervision of a strength training center. Content includes program design, exercise techniques, organization, testing, evaluation, methods of strength development, facility design and special populations. Kinesiology & Rehabilitation Science, Health/Exercise Science and Lifestyle Management, and Physical Education majors only. A-F only. Pre: 152, 153, 353, 354, 354L, and 463; or consent.

**KRS 490 Introduction to Athletic Training Clinic (3)** Introduction to the Entry-Level Graduate Athletic Training Education Program and the Clinical Education Plan. Students will be required to document all requirements and demonstrate proficiency in basic clinical skills. Repeatable one time. A-F only. Pre: 332, 354, PHYL 302/L, and 50 hours observation experience in an athletic training clinic. Co-requisite: 415. (Once a year)

**KRS 491 AT Practicum I (3)** Introductory-level supervised experiences within the profession of athletic training. This practicum is required for the KRS entry-level Graduate Athletic Training Education Program. A-F only.

**KRS 492 AT Practicum II (3)** Introductory-level supervised experiences within the profession of athletic training. This practicum is required for the KRS entry-level Graduate Athletic Training Education Program. A-F only.

**KRS 493 Athletic Training Practicum III (3)** Advanced-level supervised experiences within the profession of athletic training. This practicum is a requirement for entry to the KRS Master's Athletic Training Program. A-F only.

**KRS 494 Athletic Training Practicum IV (3)** (5 2-hr Practicum) Advanced-level supervised experiences within the profession of athletic training. This practicum is a requirement for entry to the KRS Master's Athletic Training Program. A-F only.

**KRS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**KRS 600 Counseling in the Schools (3)** History, philosophy, and organization of school counseling programs. Counselor role and functions, legal and ethical issues, contemporary issues, current methodology and resources. (Meets EdD common core elective.) Pre: consent.

**KRS 603 Lower Extremity, Thorax, and Abdomen (3)** Human gross anatomy dissection of the lower extremity, thorax, and abdomen with emphasis on muscles, function, innervation, and vascular supply. Repeatable one time. Enrolled in DRB or KRS graduate programs (including Biomed Sci-Anat/RepoBiol & Phys majors) only or consent. A-F only. (Spring only) (Cross-listed as ANAT 603)

**KRS 604 Upper Extremity, Head, Neck, and Spine (3)** Human gross anatomy dissection of the upper extremity, head, neck, and spine. Emphasis is placed on muscles, function, innervation, and vascular supply. Repeatable one time. Enrolled in DRB or KRS graduate programs (including Biomed Sci-Anat/RepoBiol & Phys majors) only or consent. A-F only. (Fall only) (Cross-listed as ANAT 604)

**KRS 605 Human Growth and Development—Life Span (3)** Life span perspective on psychological, social, and physical development. Major theories and related research on human development; applications in policy planning and service delivery in counseling. Pre: consent.

**KRS 606 Counseling: Theory and Practice (3)** Theory and techniques of counseling and guidance as preparation for practicum and internship. Application in school, college, rehabilitation, and community settings. Pre: consent.

**KRS 607 Scientific Principles of Physical Conditioning (3)** Application of physiological principles to physical conditioning and athletic performance. Pre: graduate standing or consent.

**KRS 608 Muscular Strength and Power Development (3)** Interpretation of scientific principles of muscular strength and power development. Examination of muscular adaptations to increased and decreased use. Pre: graduate standing or consent.

**KRS 609 Athletic Training, Clinical Experience I (3)** (1 Sem, 5 3-hr Practicum) Practicum in which the student will perform the duties and responsibilities of an athletic training student. This practicum must be completed during the first semester post admission into the program. A-F only. Pre: 490; or consent. Co-requisite: 615B.

**KRS 610 Athletic Training, Clinical Experience II (3)** (1 Sem, 5 3-hr Practicum) Practicum in which the student will perform the duties and responsibilities of an athletic training student. This practicum must be completed during the second semester post admission to the program. A-F only. Pre: 609 or consent. Co-requisite: 615U.

**KRS 611 Athletic Training, Clinical Experience III (3)** (1 Sem, 5 3-hr Practicum) Culminating practicum in which the student will perform the duties and responsibilities of a second year graduate athletic training student. A practical field experience in athletic training will be required. A-F only. Pre: 610 or consent. Co-requisite: 615H.

**KRS 612 Athletic Training, Clinical Experience IV (3)** (1 Sem, 5 3-hr Practicum) Culminating practicum in which the student will perform the duties and responsibilities of a second year graduate athletic training student. A practical field experience in athletic training will be required. A-F only. Pre: 611 or consent.

**KRS 613 Athletic Training Clinical Practicum (V)** (1 Sem, 5 4-hr Practicum) Advanced clinical practicum in which the BOC certified or certification-eligible graduate student experiences an enhancement of athletic training knowledge and refinement of athletic training skills. Repeatable up to 10 credits. A-F only. Pre: consent.

**KRS 614 Athletic Training Research Practicum (V)** (1 Sem, 5 4-hr Practicum) Advanced research practicum in which the BOC certified or certification-eligible graduate student deepens their understanding and enhances their critical thinking abilities in order to contribute to the advancement of the discipline and the athletic training profession. Repeatable up to 12 credits. A-F only. Pre: consent.

**KRS 615 (Alpha) Clinical Examination of Pathology (3)** (2 Lec, 1 3-hr Lab) Examination, care and treatment of musculoskeletal, neurological, and neuromuscular conditions and pathology; (B) lower extremities; (H) head, neck and spine; (U) upper extremity. EL-GATEP majors only. Graduate students only. A-F only. Pre: consent for (B); 615B and 615U, or consent for (H); 615B or consent for (U). Co-requisite: 490 and 609 for (B); 490 and 611 for (H); 490 and 610 for (U).

**KRS 616 Advanced Orthopedic Assessment (3)** (2 Lec, 1 3-hr Lab) Advanced knowledge and skills of athletic training as they are specifically applied to the understanding, treatment, and rehabilitation of sport-related injuries. (e.g. epidemiology, legal, ethical concerns, sports psychology, pharm, drug abuse, health issues) Pre: ANAT 604 or consent.

**KRS 617 Therapeutic Interventions: Modalities (4)** (3 Lec, 1 3-hr Lab) The physiology principles and operational procedures and operational procedures of contemporary Therapeutic modalities as they relate to the care and treatment of athletic injuries. Pre: consent.

**KRS 618 Therapeutic Interventions: Rehabilitative Exercise (4)** (3 Lec, 1 3-hr Lab) Concepts and principles of comprehensive rehabilitation programs (e.g. therapeutic goals and objectives, exercise selection, methods of evaluation and recording progress, progression and return to competition criteria, and the physiological effects of tissue trauma and inactivity). Pre: consent.

**KRS 619 General Medical Conditions in Sports Medicine (3)** An examination/evaluation of general medical conditions associated with sports medicine including pathology, care and treatment. Pre: PHYL 301, PHYL 302 or consent. Major restriction: KRS Athletic Training.

**KRS 620 Seminar in Athletic Training (1)** Designed to provide the student with analytical skills and practical experience relative to research as it applies to sports related injuries. Repeatable unlimited times. Pre: consent.

**KRS 621 Advanced Therapeutic Exercise (3)** Advanced concepts and evidence-based principles of rehabilitation programs. Enhancement of previously learned therapeutic exercise techniques and integration of therapeutic modalities and therapeutic exercise, including objective and functional goal setting and evaluation for appropriate progression and expedited return to activity. KRS majors only. Pre: 617 and 618 or basic therapeutic exercise and therapeutic modalities courses, or consent.

**KRS 622 Athletic Training Capstone Experience (3)** Capstone culminating experience preparing the student for the computer-based BOC Exam and for a career in athletic training. Follows the students' didactic and clinical preparation in the 12 competency areas of athletic training. Repeatable two times. KRS majors only. A-F only. Pre: 611 or consent. Co-requisite: 612. (Spring only)

**KRS 623 Administration in Kinesiology (3)** Current problems, trends, and strategies in the administration of athletic training, physical education, recreation, sport and fitness programs in school and non-school settings. Repeatable one time. Pre: consent. (Cross-listed as EDEA 623)

**KRS 625 Introduction to Community Counseling (3)** Philosophy, organization, and function of community service agencies, programs, and institutions as related to professional work in counseling. Pre: consent.

**KRS 626 Introduction to Practicum (3)** Pre-practicum training for supervised experiences in school, community, and human service organizations. Focus on the counseling relationship. Includes a specialty observation-participation field experience.

**KRS 627 Career Development and Vocational Counseling (3)** Theory and practice in career development and vocational counseling with individuals and groups; utilization of educational, vocational, and social resources in career counseling. Pre: consent.

**KRS 628 Research and Evaluation in Rehabilitation (3)** Framework for understanding basic statistics, methodology, and evaluation of research in rehabilitation and related fields. Students will analyze research, conceptualize research, and apply research to practice. Pre: consent.

**KRS 629 Counseling: Group Theory and Practice (3)** Theories and techniques of group counseling and guidance as preparation for practicum and internship. Application in school, college, rehabilitation, and community settings. Pre: 626 or 683, and 606, and consent.

**KRS 630 Tests and Inventories in Guidance (3)** Tests and inventories for the assessment of aptitudes, achievement, and interests. Applications to educational, instructional, and career guidance. Pre: consent.

**KRS 631 Problems of School Adjustment (3)** Principles of behavior affecting interpersonal relationships in school with emphasis on application to actual situations. Pre: consent.

**KRS 632 Theory and Assessment of Intelligence (3)** Theory and supervised experience in individual intelligence testing, psychological report writing; psychometric and social issues in intelligence testing. Pre: 630 and consent.

**KRS 633 Crisis Intervention (3)** Professional concerns about crisis intervention strategies, and counseling skills development. Crisis theory as applied to suicide, sexual assault/rape, natural and man-made disasters, personal loss, terminal illness, life cycle crisis, and the like. A-F only. Pre: 606 or consent.

**KRS 634 Inclusive Physical Activity (3)** Advanced knowledge on issues of socio-cultural, learning styles, diversity, and exceptionalities, and how these influence instruction, engagement, and behavior in physical activity settings across the lifespan. A-F only. Pre: consent. (Cross-listed as SPED 634)

**KRS 635 Elementary Physical Education (3)** Content and pedagogy for teaching preschool/elementary physical education. Students will learn appropriate content and pedagogy for learners in elementary school. Bit teaching and field experiences are included. A-F only. Pre: consent. (Once a year)

**KRS 636 Theory and Assessment of Personality (3)** Personality testing; practice in administration and use of personality assessment; examination of psychometric and social issues. Pre: 630 and consent.

**KRS 637 Cross-Cultural Counseling (3)** Significance of cultural factors in counseling relationships, delivery of counseling services in multicultural settings with attention to Hawai'i. Emphasis on process of cultural learning and implications for counselor roles and functions. Pre: consent.

**KRS 640 Seminar in Physical Activity (3)** Trends, research, and problems related to physical activity across the lifespan. A variety of topics and contexts will be addressed. Enrolled in KRS graduate program only. A-F only. Pre: consent. (Spring only)

**KRS 641 Seminar: Health/Exercise Science (V)** Review of selected current literature in exercise/sport science and leisure studies. Practice of presentation in group setting. Repeatable up to 3 credits. Pre: 673 (or concurrent) or EDCS 632 (or concurrent).

**KRS 643 Secondary Physical Education (3)** Detailed examination of effective physical education curriculum and instruction in middle and high schools. Repeatable one time. A-F only. Pre: consent.

**KRS 646 American College Student (3)** Study of psychosocial characteristics of American college students and college environment, from viewpoint of student personnel work. Pre: consent. (Cross-listed as EDEA 646)

**KRS 660 Marriage, Family, and Child Counseling (3)** Theory/practice of marriage, family, and child counseling, including major model in clinical practice; supervised counseling project by each student. Liability insurance required. Pre: 629 or consent.

**KRS 663 Biomechanics of Human Motion (3)** Principles of motion as applied to sport and physical rehabilitation. Introduction to the technology used in the analysis of motion. Pre: consent.

**KRS 664 Physiology of Exercise (3)** Physiological bases of modern physical training methods and sports science. Repeatable one time. Pre: consent.

**KRS 665 Metabolic Analysis (3)** Theory and practice of metabolic analysis of human performance examining each of the power systems used in energy production during exercise and how to use this information to prescribe exercise programs. Pre: consent.

**KRS 666 Advanced Fitness Assessment and Exercise Prescription (3)** Provides knowledge of field and laboratory techniques and procedures for aerobic and anaerobic fitness assessment, interpretation of testing results and individual exercise program/prescription techniques. Repeatable one time. Pre: consent.

**KRS 667 Body Composition and Weight Management (3)** Analysis of the theory and practice used in the assessment of body composition and human physique. Includes strategies for implementing changes in body composition. Pre: consent.

**KRS 670 Consultation: Theory and Practice (3)** Consultation in educational, business, health, community, and human services agencies. Pre: consent.

**KRS 673 Research Methods in KRS (3)** The use of experimental designs/models in physical education research with emphasis on understanding the concepts, applications, and interpretations of statistical analysis. Pre: consent.

**KRS 674 Assessment in Physical Activity (3)** Overview of assessment purposes, types, practices and procedures used in physical education for those with disabilities. Frequently used motor assessments and practices in collection of data will be specifically addressed. Pre: consent. (Spring only)

**KRS 675 Transdisciplinary Approach to Teaching the Motor Domain (3)** Highlights a transdisciplinary approach for effectively teaching students with disabilities in the motor domain. Important characteristics and components of this approach will be shared. Strategies for its implementation will also be addressed. Pre: consent.

**KRS 680 Principles and Practice of Rehabilitation Counseling (3)** Principles, practices of rehabilitation counseling; review of history and influence of legislation on vocational rehabilitation; current issues, developments, with emphasis on local situation. Pre: consent.

**KRS 681 Medical and Psychosocial Aspects of Disability (3)** Functional implications of chronic illnesses and disabilities on psychological, social and vocational areas of an individual's life. Case studies and presentations will stimulate discussion and help students to apply theoretical information into practical everyday context. Pre: 680 and consent.

**KRS 683 Case Management in Rehabilitation (3)** Knowledge and skills required in case and case-load management in public as well as private sector rehabilitation sites. Emphasis on professional/client relationship, interviewing process, decision-making, goal-setting, recording/documentation, time management, and other tasks. Pre: 680 and consent.

**KRS 684 Psychopathology in Counseling (3)** Discussion-oriented course (potentially Web-based). Examination of theory and practice of diagnosis in the assessment and treatment of mental disorders and the use of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) multi-axial system. Case studies will illustrate diagnostic issues. A-F only. Pre: 606 and 681, and consent.

**KRS 685 Ethical Issues for the Helping Profession (3)** Developing ethical reasoning capabilities for resolution of ethical dilemmas likely to be encountered in counseling, psychology, and specialty practices (e.g., community, rehabilitation, school, mental health, alcohol and substance abuse, marriage and family counseling, and the like). A-F only. Pre: 606 and consent.

**KRS 686 Vocational Evaluation and Assessment in Rehabilitation (3)** Theory, process, and techniques of vocational evaluation and assessment. Assessment methods and processes as they relate to vocational choice and adjustment of special groups. Pre: 681 and consent.

**KRS 687 Assistive Technology in Rehabilitation Counseling (3)** Study of application of assistive technologies to enhance the lives of people with disabilities. Case studies provide the vehicle in guiding students toward integration of available information into reality of actual situations. Special emphasis on the importance of using a consumer-centered approach in providing assistive technology services. A-F only. Pre: 681 and consent.

**KRS 688 Theory and Techniques of Job Placement (3)** Theory, process, and techniques of job readiness, job development, and job placement. Pre: 627 and consent.

**KRS 695 Promoting Physical Activity (3)** Overview of the theoretical and applied study of physical activity epidemiology. Physical activity content includes benefits, factors that influence, levels, valid instruments to assess, and programs to promote physical activity. (Fall only)

**KRS 699 Directed Reading and/or Research (V)** Individual reading and/or research. Repeatable unlimited times. Pre: consent of instructor and department chair.

**KRS 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**KRS 703 (Alpha) Practicum in Counseling (V)** Supervised experience (150 clock hours per semester) in counseling and guidance activities, which includes a weekly class meeting; (E) elementary; (H) secondary; (C) community service; (R) rehabilitation; (U) college. Each alpha is repeatable three times. Pre: 626 or 683, and consent.

**KRS 704 Contemporary Issues in Counseling (3)** Current issues and problems. (Meets EdD common required elective.) Repeatable unlimited times. Pre: consent.

**KRS 733 (Alpha) Internship I (V)** Supervised post-practicum experience (300 clock hours per semester) in counseling and guidance activities, which includes a weekly class meeting; (E) elementary; (H) secondary; (C) community service; (R) rehabilitation; (U) college. Each alpha is repeatable three times. Pre: 703 and consent.

**KRS 734 (Alpha) Internship II (V)** Supervised post-internship I experience (300 clock hours per se-

mester) in counseling and guidance activities, which includes a weekly class meeting; (E) elementary; (H) secondary; (C) community service; (R) rehabilitation; (U) college. Each alpha is repeatable three times. A-F only. Pre: 733 and consent.

**KRS 741 Seminar in School Counseling (3)** In-depth study of professional concerns in school counseling. A-F only. Pre: 703 (E or H) and consent.

**KRS 751 Seminar in Community Counseling (3)** In-depth study of professional concerns in community counseling. A-F only. Pre: 703C and consent.

**KRS 761 Seminar in College Counseling (3)** In-depth study of professional concerns in college counseling. A-F only. Pre: 703U and consent.

**KRS 775 Doctoral Seminar and Research I in Kinesiology (3)** Will expose the PhD student to the basic nature of behavioral and somatic science research. Learning experiences will consist of journal review, laboratory/field techniques, and subject or data collector exposures as directed by faculty mentors. CR/NC only. KRS majors only. Pre: consent.

**KRS 776 Doctoral Seminar and Research II in Kinesiology (3)** Provide the PhD student the opportunity to be involved in research, under the direction of the faculty mentor, as the assistant project director and as the project director for pilot studies. Student will gain experience in these roles with close supervision by the faculty mentor. CR/NC only. KRS majors only. Pre: consent.

**KRS 777 Doctoral Seminar and Research III in Kinesiology (3)** Provide the PhD student the opportunity to assume the role of director of a research project under the supervision of the faculty mentor. The research project will represent a piece of the ongoing line of research of the faculty mentor. Responsibilities will be comparable of a project director of research funded by a research grant. CR/NC only. KRS majors only. Pre: consent.

**KRS 778 Doctoral Seminar IV in Kinesiology (3)** Designed to enable PhD students to gain a perspective of the discipline, both historically and philosophically, prepare them for the issues they may face in the real world, particularly higher education and help them initiate their dissertation. CR/NC only. KRS majors only. Pre: consent.

**KRS 781 Seminar in Rehabilitation Counseling (V)** In-depth study of professional concerns in rehabilitation counseling. A-F only. Pre: 703R and consent.

## Korean (KOR)

### *College of Languages, Linguistics and Literature*

*All students taking language courses in this program for the first time must take a regularly scheduled placement test; those with no background must come to the Department of East Asian Languages and Literatures for a brief interview. A grade of C or better in the prerequisite courses is required for continuation.*

**KOR 101 Elementary Korean (4)** Listening, speaking, reading, writing, grammar. Meets one hour, four times a week, plus lab work. Pre: consent. HSL

**KOR 102 Elementary Korean (4)** Continuation of 101. Pre: 101 or consent. HSL

**KOR 105 Accelerated Elementary Korean (8)** Content of KOR 101 and 102 covered in one intensive course. Four 2-hour sessions per week, Monday-Thursday, plus daily lab work. Pre: placement test or consent. (Fall only) HSL

**KOR 111 Elementary Conversational Korean I (3)** Development of basic skills (listening, speaking and grammar) of spoken Korean, with application to some familiar everyday topics. Pre: consent. HSL

**KOR 112 Elementary Conversational Korean II (3)** Continuation of 111. Pre: 101 or 111, or consent. HSL

**KOR 201 Intermediate Korean (4)** Continuation of 101 and 102. Meets one hour, four times a week,

plus lab work. Pre: 102 or placement test; or consent. HSL

**KOR 202 Intermediate Korean (4)** Continuation of 201. Pre: 201 or placement test; or consent. HSL

**KOR 205 Accelerated Intermediate Korean (8)** Content of KOR 201 and 202 covered in one intensive course. Four 2-hour sessions per week, Monday-Thursday, plus daily lab work. Pre: 102, 105, 112, placement test; or consent. (Spring only) HSL

**KOR 211 Intermediate Conversational Korean I (3)** Further development of listening and speaking skills. The student is expected to be able to comprehend and produce speech at the paragraph level. Pre: 102 or 112, or consent. HSL

**KOR 212 Intermediate Conversational Korean II (3)** Continuation of 211. Pre: 201 or 211, or consent. HSL

**KOR 301 Third-Level Korean (3)** Continuation of 201 and 202. Major emphasis on comprehension of modern written Korean. Chinese characters. Pre: 202 or consent. (Fall only)

**KOR 302 Third-Level Korean (3)** Continuation of 301. Pre: 301 or consent. (Spring only)

**KOR 307 Readings in Chinese Characters I (3)** Training intermediate and advanced learners of Korean to master the reading, writing and usage of some 250 basic Chinese characters as they are used in a wide variety of Korean reading texts. Pre: 202 or consent.

**KOR 308 Readings in Chinese Characters II (3)** Continuation of 307, covering an additional 250 basic Chinese characters. Pre: 307 or consent.

**KOR 380 Korean Proficiency Through TV Drama (3)** Students who try to elevate proficiency level to Advanced by challenging themselves to understand culturally and situationally-rich text, i.e., Korean drama. Increasing Korean proficiency within context is the main objective of the course. Pre: 302 or consent.

**KOR 399 Directed Third-Level Reading (V)** For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. Offered if staff available. CR/NC only. Repeatable three times. Pre: consent.

**KOR 401 Fourth-Level Korean (3)** Continuation of 302. Pre: 302 or consent. (Fall only)

**KOR 402 Fourth-Level Korean (3)** Continuation of 401. Pre: 401 or consent. (Spring only)

**KOR 403 High-Advanced Korean I (3)** Continuation of 402. Emphasis on highest level of listening, speaking, reading and writing, with application to Korean culture, using authentic materials. Pre: 402 or consent. (Fall only)

**KOR 404 High-Advanced Korean II (3)** Continuation of 403. Emphasis on highest level of listening, speaking, reading and writing, with application to Korean culture using authentic materials. Pre: 402 or consent.

**KOR 420 Korean Composition (3)** Training in modern structural and stylistic techniques; writing on designated themes. Repeatable one time. Pre: 402 or consent.

**KOR 421 Media Analysis in Korean I (3)** Focus on analyzing, comparing, and evaluating current media materials in South Korea to develop professional language skills and to deepen knowledge and understanding of contemporary Korean society. A-F only. Pre: 402, or consent. (Once a year)

**KOR 422 Media Analysis in Korean II (3)** Focus on analyzing, comparing, and evaluating current media materials in South Korea and North Korea to develop professional language skills and to deepen knowledge and understanding of contemporary North Korea. A-F only. Pre: 402 or consent.

**KOR 425 Selected Readings in Korean (3)** Selected readings in various disciplines. Repeatable one time with consent. Pre: 402 or consent.

**KOR 451 Structure of Korean (3)** Introduction to phonology, morphology, and history. Pre: 302 or consent.

**KOR 452 Structure of Korean (3)** Introduction to syntax and semantics. Pre: 302 or consent.

**KOR 470 Language and Culture of Korea (3)** Relation of Korean language to literature, history, philosophy, social structure, values, and interpersonal relationships; social and regional varieties. Pre: 402 or consent. **DH**

**KOR 480 Korean Oral Proficiency Through Film (3)** Designed to increase proficiency level from advanced to superior and to deepen cultural awareness. Pre: 402 or consent.

**KOR 485 (Alpha) Korean for Career Professionals (V)** Combined lecture-conference on functional command of various discourse-level features in Korean in domain of (B) economics; (C) political science; (D) computer science; (E) engineering; (F) travel industry management; (G) business; (H) law; (I) medicine; (J) nursing and public health, and (K) others. Repeatable one time. Pre: 402 or diagnostic assessment procedures or consent.

**KOR 486 (Alpha) Korean for Academic Purposes (V)** Content taught in Korean by professional school Korean faculty and flagship instructor in domain of (B) economics; (C) political science; (D) computer science; (E) engineering; (F) travel industry management; (G) business; (H) law; (I) medicine; (J) nursing and public health, and (K) others. Repeatable one time. Pre: 402 or consent.

**KOR 493 Introduction to Traditional Korean Literature (3)** Critical readings from earliest times and presentations that emphasize genre, style, and context. Pre: 402 or consent. **DL**

**KOR 494 Introduction to Modern Korean Literature (3)** Critical readings of 20th-century materials and presentations that emphasize context and the development of style. Pre: 402 or consent. **DL**

**KOR 495 Internship Program (V)** Supervised internship with Korean professional hosts on O'ahu. Students will also attend an on-campus preparatory and follow-up language class. A-F only. Pre: 486, diagnostic assessment procedures; or consent.

**KOR 496 Korean Abroad (V)** Supervised internship with Korean professional hosts in Korea. Students also undergo a one-week training module designed to prepare them to maximize the benefits of the overseas internship. Repeatable up to 3 times. CR/NC only. Pre: 495, diagnostic assessment procedures; or consent.

**KOR 499 Directed Fourth-Level Reading (V)** For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. Primarily for graduate students from other departments. CR/NC only. Repeatable three times. Pre: consent of department chair.

**KOR 613 (Alpha) Korean Verse (3)** Intensive and analytical reading of selected works of Korean lyric and didactic verse (e.g., *hyangga*, *changga*, *hanshi*, *sijo*, *kasa*, free form): (M) modern; (T) traditional. Pre: 494 or consent for (M), 493 or consent for (T).

**KOR 614 (Alpha) Korean Narrative (3)** Intensive and analytical reading of selected works of Korean narrative (e.g., myth, *p'ansori*, shaman song, essay, biography, fiction): (M) modern; (T) traditional. Pre: 494 or consent for (M), 493 or consent for (T).

**KOR 615 (Alpha) Korean Drama (3)** Intensive and analytical reading of selected materials in Korean performing arts (e.g., spectacle, farce play, mask dance, staged narratives, theatrical drama): (M) modern; (T) traditional. Pre: 494 or consent for (M), 493 or consent for (T).

**KOR 621 Media Research in Korean (3)** Focuses on searching, analyzing, and evaluating media data for research in areas of student specializations. Students are required to write short analysis papers and a final research paper. Pre: diagnostic assessment (equivalent to ILR Level 2) or consent. (Once a year)

**KOR 622 Comparative Studies of Contemporary South and North Korean Language (3)** Comparing and analyzing language data to investigate language heterogeneity problems, its causes, and importance of comparative studies in NK/SK language differences; differences in language policy, grammar, and vocabulary, pronunciation, and discourse style. Pre: 621 or consent. (Once a year)

**KOR 623 Interdisciplinary Research in Korean (3)** Combined lecture-discussion on preparing students to be able to conduct interdisciplinary research in Korean. Require advanced-level Korean proficiency. Pre: diagnostic assessment (equivalent to ILR Level 2) or consent. (Once a year)

**KOR 624 (Alpha) Analysis of Korean Academic Discourse (3)** Co-taught by Korean faculty of professional schools and Korean instruction in domain of (B) economics; (C) political science; (D) computer science; (E) travel industry management; (G) business; (H) law; (I) medicine; (J) nursing and public health; and (K) others. Exclusively in Korean. Repeatable one time. Pre: 485 or 623 or consent. (Once a year)

**KOR 631 History and Dialects of Korean Language (3)** Survey of various hypotheses on the genetic relationship of Korean; evolution of Korean from the 15th century to the present; Korean dialects. Pre: 451 and 452, or consent.

**KOR 632 Korean Phonology and Morphology (3)** Review of Korean vocalic and consonantal phonology. Phonological and morphological analysis of Korean derivation and inflection. Pre: 451 or consent.

**KOR 633 Korean Syntax and Semantics (3)** Review of theoretical problems in Korean syntax and semantics; different approaches; and contributions of Korean linguistic study to syntactic and semantic theory. Pre: 452 or consent.

**KOR 634 Korean Sociolinguistics (3)** Variations in form and use depending on sociocultural factors. Role of language in politics, mass media, group identity, bilingualism, and intercultural communication. Pre: 470 or consent.

**KOR 635 Pedagogy of Teaching Korean as a Second Language (3)** Identification and analysis of major problems in Korean language learning, teaching, testing, and materials development by examining theoretical issues and conducting classroom research; practical techniques of teaching and testing skills in listening, reading, speaking, writing and culture. Pre: 451 and 452; or consent.

**KOR 636 Korean Conversation Analysis (3)** Theoretical framework of discourse analysis and review of Korean conversational discourse structures, such as turn-taking, sequence organization, and discourse markers; training for data collection, transcription, and data analysis. A-F only. Pre: 451 and 452; or consent. (Alt. years: fall)

**KOR 640 Literary Translation of Korean (3)** The art and craft of translating traditional and modern Korean literary works into English. Repeatable four times. Pre: 493 and 494, or consent.

**KOR 645 Research in Korean Language Acquisition (3)** Integrating the conceptual aspects of statistics and scientific analysis of human language behavior into the study of Korean as a foreign language. Pre: 635 or consent.

**KOR 652 Major Authors in Modern Korean Literature (3)** Advanced study of major Korean fiction writers from the 1910s to the present with emphasis on critical reading of their lives and writings to arrive at informed appraisal of their contribution to modern Korean literature. Repeatable one time. Pre: 494 or consent. (Cross-listed as ASAN 653)

**KOR 655 Practicum: Teaching Korean as a Second Language (3)** Designed for graduate students pursuing Korean language teaching, while developing practical teaching skills through class observation, action research and discussion under supervision. Pre: 635 or consent.

**KOR 664 Topics and Issues in Modern Korean Literature (3)** Intensive study of selected topics and issues in modern/contemporary Korean fiction, focusing on texts that problematize critical socio-cultural issues in the evolving contexts of modern Korean intellectual history. Repeatable one time. Pre: 494 or consent. (Cross-listed as ASAN 664)

**KOR 699 Directed Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

**KOR 720 Research Seminar in Korean Literature (3)** Advanced study of an author, school, period, genre, or problem leading to a research paper. Repeatable one time. Pre: consent.

**KOR 730 Research Seminar in Korean Language (3)** Advanced study in history and dialects, phonology and morphology, syntax and semantics, sociolinguistics, or pedagogy, leading to a research paper. Repeatable one time. Pre: consent.

## Languages and Literatures of Europe and the Americas (LLEA)

*College of Languages, Linguistics and Literature*

*Courses given in English do not require knowledge of a foreign language.*

### CLASSICS

**LLEA 122 Greek and Roman Mythology (3)** Principal myths of Greek and Roman literature. **DL**

**LLEA 123 Greek and Latin Elements in English (3)** Important roots, prefixes, and suffixes for building a literary vocabulary.

**LLEA 124 Greek and Latin Elements in Scientific Terminology (3)** Important roots, prefixes, and suffixes for building a scientific vocabulary.

**LLEA 151 World Myth to 1500 C.E. (3)** Reading and analysis of myths and legends from around the globe, from before the dawn of writing to 1500 C.E. Students will learn to interpret traditional stories from several theoretical and cross-cultural perspectives. A-F only. **FGA**

**LLEA 301 Biblical Hebrew I (3)** Orthography and structure of Biblical Hebrew, history and development of Hebrew as the sacred language of Judaism, overview of religious and historical development of the Hebrew Bible. Pre: sophomore standing or consent. (Fall only) (Cross-listed as REL 301)

**LLEA 302 Biblical Hebrew II (3)** Reading of selected prose passages from the Hebrew Bible; analysis of literacy forms, paying special attention to stories which have played an important role in the development of the Abrahamic religions. Minimum C- grade required for prerequisites. Pre: 301/REL 301. (Spring only) (Cross-listed as REL 302)

**LLEA 305 Ancient Egyptian Hieroglyphics I (3)** Decipherment of hieroglyphs and reading of Middle Egyptian literary texts. (Fall only)

**LLEA 306 Ancient Egyptian Hieroglyphics II (3)** Decipherment of hieroglyphs and reading of Middle Egyptian literary texts, including Tale of Sinuhe. Pre: 305 or permission of instructor. (Spring only)

**LLEA 327 The Glory of Greece: Ancient Greek Literature in Translation (3)** Major writers: emphasis on Homer, drama, and philosophy. Sophomore standing or higher or consent. Pre: 122 or consent. **DL**

**LLEA 328 The Grandeur of Rome: Ancient Roman Literature in Translation (3)** Major writers: emphasis on Vergil, satire, and novel. Sophomore standing or higher or consent. Pre: 122 or consent. **DL**

### FRENCH

**LLEA 237 French Film (3)** Study of French film history and technique. A-F only. Pre: freshman standing. **DH**

**LLEA 264 French Culture for Americans (3)** Study of the shared cultural and historical foundations of France and the U.S. both past and present. A-F only. **DH**

**LLEA 335 French Literature Since 1800 (3)** Rapid reading in translation; lectures, discussions, reports. Pre: junior standing or one course in French language or literature. **DL**

**LLEA 336 French African Literature (3)** Black African literature in French in 20th century. Major themes of negritude, national political unity, colonialism, traditional culture. Pre: junior standing or one course in French language or literature. **DL**

**LLEA 339 French Literature as Film (3)** Exploration of the distinction between literature and film as artistic genres as well as study of major works of literature in respect to the present, from the Middle Ages through the 20th century. Pre: sophomore standing. **DL**

**LLEA 364 Survey of French Civilizations (3)** A historical survey of the development of French and Francophone cultures. The course is interdisciplinary, dealing with politics, music, art, other forms of cultural expression, and daily life. **DH**

#### GERMAN

**LLEA 338 German Cinema (3)** Introduction to German film history, form, style, theory, and analysis. Sophomore standing or higher. **DH**

**LLEA 340 Classical German Literature (3)** Readings in translation from dramatic works of Lessing, Goethe, Schiller. Philosophical and aesthetic views of leading writers of the Enlightenment, Storm and Stress, and classical periods. **DL**

**LLEA 342 German Fascism and Propaganda (3)** Lecture/discussion. Study of German Fascism and propaganda in German literature, art, and film. Sophomore standing or higher. A-F only. **DH**

#### ITALIAN

**LLEA 236 Italian Film (3)** Study of Italian film history and technique. A-F only. **DH**

**LLEA 334 Italian Literature as Film (3)** Exploration of the distinction between literature and film as artistic genres as well as study of major works of literature in respect to the present, from the Middle Ages through the 20th century. A-F only. Pre: sophomore standing or consent. **DL**

#### RUSSIAN

**LLEA 350 Russian Short Story (3)** Origin and development (19th and 20th century); periods, themes, styles, and major authors. Pre: sophomore standing or consent. **DL**

**LLEA 351 19th-Century Russian Literature (3)** Survey in English of major writers from Pushkin through Chekhov; lectures, discussions, short papers. Pre: sophomore standing or consent. **DL**

**LLEA 352 Russian Literature 1900–1950 (3)** Survey in English of major Russian writers from 1900–1950. Pre: sophomore standing or consent. **DL**

**LLEA 353 20th-Century Russian Arts and Culture (3)** Aspects of culture (literature, film, theater, music, arts, etc.) in 20th century Russian society. Pre: sophomore standing or consent. **DH**

**LLEA 354 Russian Literature Today (3)** Survey in English of contemporary authors and their works for perspective of reality and poetic representation. Pre: sophomore standing or consent. **DL**

**LLEA 355 Russian Film (3)** A study of Russian film from the 1920's to the present. Pre: sophomore standing or consent. **DH**

#### GENERAL AND GRADUATE COURSES

**LLEA 270 Freaks and Monsters (3)** Monsters, freaks and otherness in literature, film, history and medicine. Suitable for non-literature majors. **DL**

**LLEA 371 Europeans in the Pacific (3)** European presence in the Pacific, in relation to literature, art, culture, civilization. Not applicable to language requirement. (*Section 1 taught in Hawaiian. Pre: HAW 202 or consent. Section 2 taught in English.*) **DL**

**LLEA 376 (Alpha) History of World Cinema (3)** Film as a reflection of the 20th century's social,

cultural and political upheavals: (B) World Cinema (1890s to 1950s); (C) World Cinema (1960s to present). Pre: sophomore standing or consent. **DH**

**LLEA 390 Teaching Practicum in Large Lecture Courses (1)** Supervised undergraduate teaching practicum in large-lecture LLEA courses. Repeatable two times. CR/NC only. Pre: completion of course in which practicum will be done and consent of instructor, no waiver.

**LLEA 416 German Literature, Culture and Film: 1989 to Present (3)** Study of German literature, culture and film, 1989 to present. Credit cannot be earned for both 416 and GER 416. Sophomore standing or higher. **DH**

**LLEA 470 Freaks and Monsters 2: The Ethics of Otherness (3)** An interdisciplinary examination of corporeal Otherness. Unusual real and fictional bodies from fairground history, art, anatomy, literature, natural history and ethnology. Discussion of the moral, medical, philosophical and aesthetic dilemmas of spectacular difference. Pre: 270 or consent. **DH**

**LLEA 471 (Alpha) Fantasy and the Fantastic (3)** Cross-cultural study of fantasy and the fantastic in short stories, fairy tales, films and novels from Europe and the Americas in English translation.

Discussion of illusion, identity, time, the future, the bizarre and major concepts in fantasy literature. (B) fairies, devils and fantasy; (C) the fantastic, the strange and science fiction. Repeatable one time in different alphas. Pre: 270 or consent. **DL**

**LLEA 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**LLEA 630 Seminar in Research Methods (3)** Study of basic research methods and tools, including technology. Print and electronic source materials. Information literacy. A-F only. Pre: graduate standing or consent.

**LLEA 671 Western Literature and Cultures in the Pacific (3)** Impact of and reaction to western writings and cultural influences in the Pacific as represented in texts from the 16th century to the present. Pre: graduate standing or consent.

**LLEA 680 (Alpha) Topics in Literature (3)** Study in English of a topic, period, or genre; aesthetic considerations common to European literatures: (B) the modern novel; (C) European literature as a path to self-knowledge; (D) Middle Ages; (E) introduction to literary theory. MA candidates in European languages read works in their major in the original. Pre: graduate standing or consent of department chair.

**LLEA 681 (Alpha) Topics in Language (3)** Study in English of topics, periods, etc., in the languages taught in the department: (B) comparison of Romance languages; (C) interpersonal communication; (D) social perspectives. Repeatable two times for different alphas (up to 9 credits). Pre: graduate standing or consent.

**LLEA 682 Masterpieces of Medieval Welsh Literature (3)** Key prose and poetry underlying the Arthurian tradition in Europe. Language instruction leading to reading knowledge of medieval Welsh. Pre: consent.

**LLEA 699 Directed Research (V)** Repeatable unlimited times. Pre: consent of department chair.

**LLEA 700 Thesis Research (V)** Repeatable unlimited times.

#### LANGUAGE COURSES

**LLEA 199 Directed Language Study (V)** Study in European languages not taught regularly, depending on demand and staff. Pre: consent of department chair.

**LLEA 399 Directed Reading (V)** Pre: limited to senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in major, and consent of department chair.

**LLEA 499 Directed Reading and Research (V)** Independent study of approved reading and research

with faculty supervision. Repeatable two times. A-F only. Pre: consent and departmental approval.

#### Languages, Linguistics, and Literature (LLL)

*College of Languages, Linguistics and Literature*

**LLL 150 Literature and Social Change (3)** Study of works produced in Africa, the Americas, Asia, Europe, and Oceania from prehistory to the present, showing how the spoken and the written word reflect and effect social change. A-F only. **FGC**

**LLL 451 Learning Communities Online and Practical Aspects of Teaching (1)** Online course for pre- or in-service teachers of world languages. Topics include online learning environments, creating online communities, curriculum and lesson planning, and assessment. Maximum enrollment of 20. Not open to those who have taken 455. A-F only.

**LLL 452 Social Aspects of Learning and Technology in the Classroom (1)** Online course for pre- or in-service teachers of world languages. Topics include processes of language teaching and learning, learner characteristics and technology in the classroom. Maximum enrollment of 20. Not open to those who have taken 455. Pre: 451 (or concurrent). A-F only.

**LLL 453 Second Language Acquisition Theory and Methods (1)** Online course for pre- or in-service teachers of world languages. Topics include terminology of language teaching and learning and overview of historical and current approaches. Maximum enrollment of 20. Not open to those who have taken 455. Pre: 451 (or concurrent). A-F only.

**LLL 455 Second Language Learning and Teaching Methodology (3)** Online course for pre- or in-service teachers of world languages. Combines content from 451, 452 and 453. Maximum enrollment of 20. Not open to those who have taken 451, 452 or 453. A-F only.

#### Latin (LATN)

*College of Languages, Linguistics and Literature*

*A grade of C- or better in the prerequisite courses is required for continuation.*

**LATN 101 Elementary Latin (3)** Grammar and vocabulary, with reading of simple Latin. **HSL**

**LATN 102 Elementary Latin (3)** Continuation of 101. Pre: 101. **HSL**

**LATN 201 Intermediate Latin (3)** Development of reading and translation skills. Emphasis on prose. Pre: 102 or equivalent. **HSL**

**LATN 202 Intermediate Latin (3)** Continuation of 201: emphasis on poetry. Pre: 201. **HSL**

**LATN 303 Roman Historians (3)** Selections from Caesar, Sallust, and others. Pre: 201 and 202, or consent. **DL**

**LATN 304 Roman Epic (3)** Selections from Virgil, Ovid, and others. Pre: 201 and 202, or consent. **DL**

**LATN 325 Roman Philosophy (3)** Selections from Lucretius, Cicero, and Seneca. Pre: 201 and 202, or consent. **DL**

**LATN 332 Roman Drama (3)** Selections from Plautus, Terence, and Seneca. Pre: 201 and 202, or consent. **DL**

**LATN 333 Roman Lyric (3)** Selections from Catullus, Horace, and others. Pre: 201 and 202, or consent. **DL**

**LATN 338 Roman Novel (3)** Selections from Petronius and Apuleius. Pre: 201 and 202, or consent. **DL**

**LATN 345 Roman Satire (3)** Selections from Horace and Juvenal. Pre: 201 and 202, or consent. **DL**

**LATN 490 Seminar in Roman Studies (3)** Study of an author or phase in Roman studies. Repeatable unlimited times with consent. Pre: any two 300-level LATN courses, or consent.

## Latin American and Iberian Studies (LAIS)

*College of Languages, Linguistics and Literature*

**LAIS 360 (Alpha) Studies in Culture (3)** Politics of culture and representation. Will consider issues, traditions, movements, texts, and cultural icons for their significance for national and regional identity formation, intercultural relations and global flows of images, people, and capital. (B) Latin America; (C) Iberian Peninsula. Repeatable one time. Pre: sophomore or consent. **DH**

**LAIS 361 Spanish Literature in Translation (3)** Reading and discussion of classic works of Spanish literature. Pre: sophomore standing or consent **DL**

**LAIS 362 Latin American Literature (3)** Reading and discussion of classic works of Latin American literature. Pre: sophomore standing or consent. **DL**

**LAIS 363 U.S. Latino Culture and Literature (3)** The culture and history of U.S. Latinos through an analysis of their literature and arts and their sociopolitical relationship to the U.S. mainstream culture. Pre: sophomore standing or consent. **DH**

**LAIS 365 Spanish Film (3)** A chronological survey of films from Spain, from the Silent Era to the present. Conceptually, a cultural history of Spain in the 20th century, as seen through films. Pre: sophomore standing or consent. **DH**

**LAIS 366 Latin American Film (3)** A chronological survey of films from Latin America, from the Silent Era to the present. Conceptually, a cultural history of Latin America in the 20th century, as seen through films. Pre: sophomore standing or consent. **DH**

**LAIS 368 Households in Cross-cultural Perspective (3)** Study of cross-cultural patterns in household and community level organizations in Latin America and elsewhere. Topics may include gender relations, kinship structures, political economy, impacts of colonialism, modernization, and globalization on households. Sophomore standing or higher. (Cross-listed as ANTH 368) **DS**

**LAIS 372 (Alpha) Indigenous Peoples of Latin America (3)** Survey of the history and culture of the indigenous peoples of Latin America through a study of their literature, texts and practices. (B) Mesoamerica; (C) Andean Region. Repeatable one time for different alphas. Pre: sophomore standing or consent. (Cross-listed as ANTH 372 (Alpha)) **DH**

**LAIS 380 Studies in Culture: Portugal and Brazil (3)** Surveys the cultures of the Portuguese-speaking world from pre-Lusitanian times, including connections with Africa, Asia, the U.S., and Hawai'i. Pre: sophomore standing or consent. **DH**

**LAIS 468 Colonial Latin American History (3)** Pre-Columbian civilizations: Spanish and Portuguese colonization; political, economic, social and religious evolution to 1810; independence. Pre: 360 or consent. (Cross-listed as HIST 478) **DH**

**LAIS 478 New World Rituals and Ideologies (3)** Study of cross-cultural patterns in ritual behaviors and creolization of African, indigenous, and Iberian ideological frameworks in the Americas. Topics may include syncretic religions (voodoo, candomble), Andean Christianity, spiritual conquest, conceptions of death, etc. Sophomore standing or higher. Minimum C- required grade for prerequisites. Pre: 360, or consent. (Fall only) (Cross-listed as ANTH 478 and REL 478) **DH**

**LAIS 495 Topics in Latin American and Iberian Studies (3)** Combined lecture-discussion on selected themes—political, social, cultural—in Iberian or Latin American topics. Topics pre-announced. Repeatable one time. Pre: 360 B or C, or consent. (Once a year)

**LAIS 683 Hispanic Cultural Studies (3)** Critical overview of contemporary theories on Hispanic culture. Issues of identity such as *mestizaje*, hybridity, and pluralism will be discussed from a hemispheric perspective. A-F only. Pre: consent.

## Law (LAW)

*School of Law*

**LAW 501 Organizing for Social Change (V)** Examines conditions that lead people to become active, self-governing agents. Covered are strategies and tactics of organizers, history of social change movements, anti-subordination theories of justice and organizing case studies. Repeatable up to four credits. A-F only. (Once a year)

**LAW 503 Historic Preservation Law (V)** Introduction to the protection of cultural, archaeological, and historical resources with emphasis on key federal and state laws. (Once a year)

**LAW 504 Legal Practice I (V)** Legal practice is the first part of a comprehensive performance program that trains students to practice law, read and write legal analysis and scholarship, and reach their maximum potential as a legal thinker and writer.

**LAW 505 Legal Practice II (V)** Appellate brief writing and oral advocacy. Repeatable up to 3 credits. Pre: 504.

**LAW 507 Employment Discrimination (V)** A study of the law of employment discrimination.

**LAW 508 Negotiation and Alternative Dispute Resolution (V)** Lawyers negotiate settlements in almost all their cases. This class presents a "hands-on," skill-building approach to the newest ideas, as well as centuries-old techniques, about the skill lawyers will use most often in their private practice- negotiation. The class also examines the rapidly developing field of alternative dispute resolution (ADR), including mediation, facilitation, arbitration, and court-annexed ADR. (Cross-listed as CEE 614)

**LAW 509 Contracts I (V)** Law of private agreements. Explores the evolution and application of common law doctrines, and, where applicable, relevant provisions of the Uniform Commercial Code. Examines the bases of promissory liability, contract formation, mutual assent, defenses to enforcement, excuses, remedies and damages, and the rights and interests of third parties. Attention will be paid throughout the course to the role of contracts in a market society and the conflicting interests of certainty, freedom of contract and fairness.

**LAW 510 Contracts II (V)** Continuation of 509. Pre: 509.

**LAW 511 Professional Responsibility (V)** Introductory consideration of selected topics relating to functions, structure, and responsibilities of the legal profession and its future role in society. CR/NC only.

**LAW 512 Reparations and Reconciliation (V)** Seminar addresses a legally and socially important contemporary issue-healing present-day wounds of historic injustice. Considers how to repair the continuing social damage of injustice. (Once a year)

**LAW 513 Criminal Justice (V)** Examination of substantive rules, enforcement procedures, and rationales of criminal law in the U.S.

**LAW 514 Children, Parents and the Law (V)** Exploration of fundamental concepts of law relating to children, ethical issues, and the role of lawyers in assisting children, and how the child's rights and obligations are balanced with those of parents and state. (Once a year)

**LAW 515 Business Reorganization in Bankruptcy (V)** Examination of the rights and remedies available to a failing business and its creditors when the business seeks to reorganize its business and financial affairs under chapter 11 of the federal bankruptcy code. The course is structured as a "practicum," which tracks a single business through restructuring and emphasizes the practical and strategic aspects of lawyering. Recommended: 562.

**LAW 516 Civil Procedure I (V)** Study of pre-trial, trial, and appellate procedures in the federal and Hawai'i courts.

**LAW 517 Civil Procedure II (V)** Continuation of 516. Pre: 516.

**LAW 518 Real Property I (V)** Basic course in property ownership, development, regulation. Emphasis on theory.

**LAW 519 Real Property II (V)** Contract of sale, equitable conversion, deed. Pre: 518.

**LAW 520 Advanced Legal Studies (V)** Faculty members or visiting scholars present selected topics focusing upon subject areas in their area of specialty or expertise. (B) business law; (C) Constitutional law; (D) criminal law; (E) critical legal; (F) education law; (G) health law; (H) intellectual property law; (I) practice of law; (J) public interest law; (K) topic 10; (M) topic 11; (N) topic 12; (O) topic 13; (P) topic 14; (Q) topic 15. Repeatable 3 times.

**LAW 521 Law, Aging and Medicine (V)** Introduction to basic legal issues at the intersection of law, aging and medicine. Addresses various issues confronting elderly; issues confronting the general population including health care financing, decision-making, and bioethics.

**LAW 522 Torts (V)** Torts cover the statutory and common law of negligence, causation, defenses, damages, strict liability, intentional torts and tort policy and reform, with emphasis on national and Hawai'i law. (Spring only)

**LAW 523 Law and Psychology (V)** Approaches psychology as a problem solving tool that can facilitate legal analysis. Covers a variety of areas including jury decision-making, research methodology, social cognition, culture, and behavioral economics, among others. (Once a year)

**LAW 524 Advanced Torts and Insurance Law (V)** Advanced study of several areas of tort law and an introduction to insurance law and policy. This course is of considerable importance to students interested in civil litigation and personal injury law. Recent important developments in Hawai'i tort and insurance law will be included.

**LAW 525 Legislation and Statutory Interpretation (V)** The interrelationship between the legislative and judicial branches of government is explored through a review of Federal and Hawai'i law-making processes, direct democracy, legislative drafting, and theories of the legislative process and statutory interpretation.

**LAW 526 Group Directed Study (V)** Designed for maximum flexibility, this course allows a professor to work with a small number of students on a reading/discussion project of mutual interest. Repeatable up to 15 credits. A-F only. Pre: consent.

**LAW 527 Federal Indian Law (V)** Examines Federal Indian Law, including fundamental concepts and the historical evolution of legal doctrines. Considers the implications of Native Hawaiian sovereignty within the framework of Federal Indian Law. (Once a year)

**LAW 529 Peacemaking (V)** Introduction for lawyers to peace studies and analysis of contemporary armed conflict, pacifism, just war doctrine, historical causes by war, theories of the way to peace and conditions for lasting peace. (Once a year)

**LAW 530 Second-Year Seminar (V)** Seminar required for spring semester of all second-year law students. Substantial paper required. Topics announced in previous fall semester. Placement by lottery.

**LAW 531 Business Associations (V)** After a brief survey of agency, partnerships, and other forms of business organization, the course will cover the fundamentals of corporations, and securities regulation, including disregarding the corporate entity, management and control of closely held corporations, merger, liability under the federal securities laws, takeovers, public registration, exemptions, and derivative suits.

**LAW 532 Health Law (V)** Introduction to medical jurisprudence, medical malpractice, informed consent, health care decisions, medical ethics, the health care industry, managed care, financing health care, and the role of government in health care.

**LAW 533 Constitutional Law I (V)** Introduction to judicial function in constitutional cases, jurisdiction of the U.S. Supreme Court, and discretionary barriers to judicial review.

**LAW 534 Constitutional Law II (V)** Advanced course in constitutional law with special emphasis on rights secured by the First, Fifth, and Fourteenth Amendments to the Constitution of the U.S. Pre: 533.

**LAW 535 Intellectual Property (V)** A study of the law relating to property rights resulting from intellectual effort, including patents, copyright, trademarks, and trade secrets. While the course attempts to provide a unified background in theory and policy for all fields of intellectual property, it emphasizes areas of importance to the general practitioner. Accordingly, the doctrines and policies of the patent system are studied primarily for the light they shed upon the nature of intellectual property protection as a whole and upon the interaction between federal and state law.

**LAW 536 Current Civil Rights Issues (V)** Uses the current U.S. Supreme Court docket to engage in an in-depth study of vital contemporary and statutory rights claims in the area of civil rights and civil liberties law. Pre: 533. (Once a year)

**LAW 537 Constitutional Law: Critical Race Perspectives (V)** Seminar considers the impact of racism on American law and ways that individuals trained as lawyers might combat racism in our culture and within the institutions in which we live and work. Pre: 533. (Once a year)

**LAW 538 Conflict of Laws (V)** Problems respecting the law applicable in transactions or to relationships with elements in more than one state.

**LAW 539 Remedies (V)** Examines both practice aspects and theoretical underpinnings of equitable remedies. Frequently, compensatory damages cannot adequately protect clients or provide them with the relief they need. Topics include temporary restraining orders, preliminary and permanent injunctions, restitution and unjust enrichment, specific performance, and equitable defenses such as unclean hands, laches, and estoppel. Practice issues concerning appeal, jury trials, and the relationship of equity to law are also explored. Repeatable unlimited times.

**LAW 540 Contract Drafting (V)** Hands-on workshop class in drafting contracts, agreement, and similar documents for commercial/business purposes. LAW majors only. Pre: 509 and 510.

**LAW 541 Criminal Procedure (V)** Issues of free press and fair trial, illegal search and seizure, arrest and confession, speedy trial, double jeopardy are covered through student interactions as defense or prosecution attorneys and as judges.

**LAW 542 Advanced Civil Procedure (V)** Addresses various aspects of complex litigation and recent criticism of the civil litigation system itself. Theoretical in emphasis. Developed from two directions: (1) a study jurisprudential material concerning adversarial dispute resolution, the substance/procedure dichotomy and value-identification; and (2) in-depth analysis of procedural aspects of complex cases with special focus on new procedural rules aimed at reducing waste and delay.

**LAW 543 Evidence (V)** "Objection, your Honor!" This course examines the rules of evidence that govern trials in both federal and Hawai'i courts and will focus on such topics as hearsay, witness examination, impeachment, physical and demonstrative evidence, expert testimony, writings, relevance, judicial notice, and presumptions.

**LAW 544 Race, Culture, and Law (V)** U.S. cases and legal theory emphasizing law in the social construction of racial categories, shifts in race-based anti-discrimination law, and the interaction of culture and law in judicial decision-making.

**LAW 545 Licensing Intellectual Property (V)** Theory and practice of the law relating to the transfer of rights in information and other intangibles are examined together with end user license agreements

and the structure and negotiation of upstream licensing mechanisms. Repeatable up to three credits. Pre: 535 or departmental approval. (Once a year)

**LAW 546 (Alpha) Intercession-J Term (V)** January term provides students the opportunity to explore contemporary legal topics with national and international experts. (B) alternative dispute resolution; (C) rule of law; (D) law practice; (E) diversity; (F) access to justice; (G) public law; (H) legal theory; (I) legal practice; (J) rights. Repeatable five times. (Once a year)

**LAW 547 Gender and Law (V)** Examines the ways in which international law and domestic legal systems address the rights of women, gender roles, and gender identity. Uses comparative approach with an emphasis on case studies from the Asia-Pacific region. (Cross-listed as WS 647)

**LAW 548 Immigration Law (V)** An introduction to U.S. Immigration and Nationality Law: a brief overview of historical development of immigration law; analysis of exclusion and deportation grounds and remedies; the study of both immigrant and nonimmigrant visa applications and petitions. Current law on asylum and refugee applications and U.S. citizenship and naturalization requirements.

**LAW 549 Admiralty Law (V)** Introduction to U.S. maritime law and admiralty jurisdiction emphasizing development of rules of maritime law and rights of seamen and maritime workers.

**LAW 550 Corporate and Partnership Taxation (V)** Examines tax aspects of formation, operation, reorganization, and liquidation of partnerships and corporations. Pre: 531, 567.

**LAW 552 Trusts and Estates (V)** Deals primarily with the disposition of family wealth including: the making of wills; the creation, enforcement, administration, and termination of trusts; and intestate succession, including probate.

**LAW 554 Secured Transactions (V)** Introduction to Uniform Commercial Code, particularly Article 9—reducing risk of nonpayment by obtaining an interest in borrowers' property.

**LAW 555 (Alpha) Externship (V)** Legal work for judges and attorney supervisors in public agencies, private law firms, and the legislature. (H) Hawai'i; (P) Pacific. Repeatable three times for (H). CR/NC only. Pre: consent.

**LAW 557 Negotiable Instruments, Payment Systems and Credit Instruments (V)** A study of the Uniform Commercial Code provisions that deal with commercial paper (Article 3), bank collections and deposits (Article 4), funds transfers (Article 4A) and letters of credit (Article 5), as well as material on alternative payment systems, including credit cards, electronic fund transfers and related federal law.

**LAW 558 Corporate Finance (V)** Provides an understanding of the basic financial concepts and tools for lawyers with transactional practices, preferred stock, common stock and convertible securities. Pre: 531 (or concurrent) or consent.

**LAW 559 Labor Law I (V)** Regulation of union-management relations under state and federal laws.

**LAW 560 High Growth Entrepreneurship (V)** An interdisciplinary (JD-MBA) course examining legal, business, and technology issues related to building high growth companies. Student teams develop company feasibility reports and skills necessary to advise or build high growth businesses. Recommended: 531. Law students only. (Once a year) (Cross-listed as ME 680)

**LAW 561 Administrative Law (V)** Procedure and remedies for resolving controversies between citizens and government officials exercising administrative power.

**LAW 562 Debtors' and Creditors' Rights (V)** Bankruptcy laws and rules, laws of liens, receiverships. Pre: 554 or consent.

**LAW 563 Trial Practice (V)** Examination of sequential stages of pre-trial and trial practice in

a problem setting. Topics include investigation, pleadings, motions, discovery, voir dire examination, opening statements, direct and cross examination, closing argument, selected evidentiary problems, post-trial motions, and appellate practice. Students engage in simulated exercises, and their work is critiqued. CR/NC only. Pre: 543 or consent.

**LAW 564 Pre-Trial Litigation (V)** Theory and practice of civil pre-trial litigation with focus on pleading, discovery, and pre-trial motions. CR/NC only.

**LAW 565 Securities Regulation (V)** An introduction to American securities regulation and focuses on the registration and reporting process required of public companies as well as securities litigation. Repeatable three times. Recommended: 531.

**LAW 566 Non-Profit Organizations Workshop (V)** Examines the meaning, scope, and role of non-profit organizations in contemporary society, and focuses on selected non-tax laws and primary tax issues relevant to non-profits. Law students only. Recommended: 531 and 567. (Once a year)

**LAW 567 Federal Income Taxation (V)** Surveys the entire federal income tax system, with emphasis on those areas of greatest importance to non-tax lawyers. Students are expected to develop proficiency in the use of the Internal Revenue Code and Treasury Regulations.

**LAW 568 Family Law (V)** Legal forms of—and responses to—formation, maintenance, and dissolution of the family. Marriage, annulment, divorce, alimony, separation agreements, child custody and adoption, parentage.

**LAW 569 Sales (V)** In-depth study of Uniform Commercial Code, Article 2—domestic sales of goods, including warranties, manner, time and place of performance, buyers' and sellers' remedies for breach of contract, limitations of freedom of contract.

**LAW 571 Federal Courts (V)** An examination of the jurisdiction and law-making powers of the federal courts, standing issues, appellate jurisdiction of the Supreme Court, federal-question and diversity-of-citizenship jurisdiction of the federal district courts, immunities from suit in the federal courts possessed by governmental entities and officers, intervention by federal courts in state proceedings, and choice of law in the federal courts. Particular emphasis on relevant Federal Rules of Civil Procedure. Pre: 533 (or concurrent).

**LAW 572 International Protection of Human Rights (V)** The growing body of international human rights laws, including procedural law and role of non-governmental organizations.

**LAW 573 Jurisprudence (V)** Relationships between the concepts of law and morality with views of legal and moral philosophers.

**LAW 574 State and Local Government Law (V)** City, town, county, district governments: administrative organization; regulatory powers; police power; local governmental taxation; relationship between local, state, and federal government.

**LAW 576 Directed Study and Research (V)** Individual research and writing under the direction of faculty.

**LAW 580 Land Use Management and Control (V)** Survey course of public land use management.

**LAW 583 Real Estate Development and Financing (V)** Federal and state laws in the practice of real estate development and financing law. Condominium, securities, subdivision, consumer protection, and mortgage areas.

**LAW 584 Civil Rights (V)** Focuses on the civil rights of Americans and introduces alternative remedies and procedures for securing these rights.

**LAW 589 Labor and Employment Law (V)** Employment law, statutory rights affecting the employment relation, and alternative contract provisions to secure the parties' intentions. Focus on the practical application of labor and employment law. Materials relating to the unionized employment relationship.

Emphasis on the labor arbitration process and possibly, to issues regarding internal union affairs.

**LAW 590 (Alpha) Workshops and Clinics (V)** (B) prosecution clinic; (C) defense clinic; (D) elder law clinic; (E) environmental law clinic; (G) estate planning workshop; (I) native Hawaiian rights clinic; (J) family law clinic; (K) entrepreneurship and small business clinic; (M) mediation clinic; (N) lawyering skills workshop; (P) mediation workshop; (Q) immigration clinic; (R) child welfare clinic; (S) Hawai'i Innocence Project I; (T) Hawai'i Innocence Project II; (U) legislation and statutory interpretation; (W) advanced elder law clinic (3). Repeatable one time for (K), (I), and (J); repeatable two times for (W). LAW majors only for (R), (S), (T), (U), and (W). CR/NC and letter grade option for (J); CR/NC only for (N), (P), (Q), and (W). Pre: 543 for (B) and (C); 521 or consent for (D); 529 or 561 or LWEV 582 for (E); 552 and 567, or consent for (G); 568 or consent for (J); 548 for (Q); 590D for (W). (Once a year for (K)) (Alt. years for (U))

**LAW 591 Government Contracts Law (V)** A primer on statutory, regulatory, and decisional laws that shape the government procurement process; covers contract relationships between private party contractors and federal, state, and local governments; examines the federal acquisition process, bids and proposals, and contract award controversies before judicial and administrative tribunals; reviews socio-economic contracting provisions and programs and Qui Tam litigation.

**LAW 595 Internet Law and Policy (V)** A primer on the impact of the development and use of new technologies on global business and social culture. E-commerce, telecommunications, information technology, government regulation, and social policy have all been brought together by the use of the internet. The revolutionary medium of the internet has required legal practitioners to reassess the applicability of current laws and policies that protect and govern members of the global community. Explores the legal implications of the new global economy, copyright law in cyberspace, e-commerce, privacy, security, trademarks, domain names, tort liability, criminal activity, regulation in cyberspace, speech, and social and ethical issues.

**LAW 599 (Alpha) Independent Study (V)** Field work companions to 590 clinics. (F) independent study. Repeatable up to six credits. CR/NC only for (F). Pre: consent for (F).

## Law-Environmental Law (LWEV)

### School of Law

**LWEV 503 Wildlife and Natural Resources Law (V)** Seminar covering federal and Hawai'i laws that govern the management of wildlife resources, with a particular focus on wildlife conflicts arising in Hawai'i.

**LWEV 504 Conservation Transactions (V)** Real estate transactions are an important and growing conservation strategy; examines land transactions within the environment of conservation. (Once a year)

**LWEV 512 Environmental Compliance and Regulated Industries (V)** In depth study of the federal and state environmental laws that impact modern businesses and industries, and exploration of the compliance issues that arise under the statutes, regulations and case law.

**LWEV 527 (Alpha) Topics in Environmental Law (V)** Study of contemporary topics in environmental law to change periodically as to issues and topics. (B) advanced environmental law; (C) regulatory; (D) legislature; (E) policy; (F) judicial. Repeatable six times.

**LWEV 528 International Environmental Law (V)** Study of the international regulation of activities and processes used to prevent environmental degradation and to preserve resources of environmental value. Pre: LWPA 585 (or concurrent).

**LWEV 529 Environmental Litigation Seminar (2)** Seminar on the techniques, law, and strategy

involved in federal and state court environmental litigation.

**LWEV 530 Climate Change Law and Policy (V)** Climate change is a core challenge that will influence law and policy well into the future. Will study climate change science, litigation, law and policy at state, national, and international levels. (Once a year)

**LWEV 540 Hazardous Waste Law (V)** Examination of major federal statutes, regulatory and case law, and Hawai'i counterparts. Policies behind hazardous waste laws and their impact on individuals, community, and businesses.

**LWEV 582 Environmental Law (V)** Basic policy questions and problems concerning environment. Examination of federal and Hawai'i statutes. Focus on environmental problems of Hawai'i.

**LWEV 588 Legal Aspects of Water Resources and Control (V)** Legal aspects of water and water rights with focus on Hawai'i.

**LWEV 592 Domestic Ocean and Coastal Law (V)** Examination of the history of U.S. and Hawai'i sea-use law; comprehensive coverage of modern issues concerning the use of the sea including special Hawaiian problems. Repeatable one time.

**LWEV 593 International Ocean Law (V)** Examination of the history of international sea-use law, including comprehensive coverage of modern problems and issues concerning the use of the sea among nations.

## Law-Journal and Team Credits (LWJT)

### School of Law

**LWJT 536 (Alpha) Moot Court Team (V)** An honors program for students who prepare for and compete in national advocacy. (C) client counseling; (E) environmental law; (H) Native American; (J) Jessup international; (K) international environmental law; (O) other. Repeatable one time. CR/NC only. Pre: selection by competition.

**LWJT 545 Law Review (V)** Students selected for the *Law Review* editorial board have responsibility for editorial research, writing, and production of the *Law Review* published by the School of Law. Repeatable four times. CR/NC only.

**LWJT 546 Asian-Pacific Law Journal (V)** Students selected for the Asian-Pacific Law and Policy Journal editorial board have writing, researching, editorial and production responsibility for publication of the journal. Repeatable four times. CR/NC only.

## Law-Legal Writing (LWLW)

### School of Law

**LWLW 530 Law Thesis (V)** Intensive writing that satisfies the law school's upper division writing requirement and results in advanced law paper of publishable quality, extending over two consecutive semesters of study. Repeatable up to 4 credits. LAW majors only. A-F only.

**LWLW 537 Law Teaching Seminar I (V)** Interdisciplinary seminar used LP I assignments and additional readings to discover and deliver the theoretical and practical underpinnings of substantive law assignments and the methodology used to teach them. Instructor approval required. Repeatable up to eight credits.

**LWLW 538 Law Teaching Seminar II (V)** Interdisciplinary seminar uses LP II assignments and additional readings to discover and deliver the theoretical and practical underpinnings of appellate advocacy and negotiation the methodologies used to teach them. Instructor approval required. Repeatable one time. (Spring only)

**LWLW 539 Legal Composition Seminar I (V)** Study of principles and practices of teaching legal discourse one-to-one, transferring materials from composition theory and linguistics into practical papers and methods to assist students to research and

write legal documents. Instructor approval required. Repeatable one time. (Fall only)

**LWLW 540 Legal Composition Seminar II (V)** Study of principles and practices of teaching scholarly legal discourse and appellate advocacy one-to-one, transferring composition theory and linguistics into individualized methods make the legal writing process efficient and the product effective. Instructor approval required. Repeatable one time. (Spring only)

## Law-LLM Master of Law (LWLM)

### School of Law

**LWLM 570 Introduction to American Law (V)** General introduction to the fundamental principles and distinctive aspects of the American legal system and its institutions. Pre: LL.M. students only.

**LWLM 580 U.S. Legal Research and Writing (V)** Introduction to the basic principles of American legal research and writing. Students review techniques of case and statutory analysis and learn to write a professional legal memoranda and client opinion letters. LAW majors only.

## Law-Pacific and Asian Law (LWPA)

### School of Law

**LWPA 506 International and Foreign Law Research (V)** Global issues play a significant role in the 21st century practice of law. Introduces students to legal information resources and methods for engaging in international, comparative, and foreign law research.

**LWPA 514 Law and Society in Japan (V)** An extended historical review of the foundations of Japanese law in society: Japan's adoption and adaptation of Chinese legal doctrines, continental European legal structures and ideas, and American influences. Consideration of the structure of contemporary law in Japan: a look at the various players in the legal system, some important legal doctrines, and the real-world operation of Japan's laws today.

**LWPA 553 Asian Pacific Insolvency Law (V)** Comparison of corporate insolvency law of selected Asian and Pacific island countries, with a focus on recently enacted laws and pending proposals that have followed the 1997 Asian Financial Crisis. Law students only. Recommended: LAW 515, LAW 554, LAW 562. (Alt. years)

**LWPA 556 Asian Comparative Labor Law (V)** Area studies of Asian legal systems and issues, focusing on administration of Asian labor laws in a comparative context. Possible effects on foreign direct investment and foreign migrant contract workers. Comparison of Chinese, Japanese and other legal approaches in dealing with common issues.

**LWPA 564 International Criminal Law (3)** Designed to give an understanding of international criminal law. Will review all aspects of international criminal law from substantive international crimes to criminal liability and sentencing by domestic and international tribunals. LAW majors only.

**LWPA 565 Law and Society in Korea (3)** Provides students with an understanding of the law, society, and legal systems in Korea. Areas of law including constitutional, civil, criminal, and business are discussed. Emphasis on South Korea. LAW majors only.

**LWPA 575 (Alpha) Topics in International Legal Studies (V)** Selected topics presented by faculty members or visiting scholars, focusing upon subjects in the Pacific and Asian area. (C) China; (G) global; (J) Japan; (K) Korea; (P) Pacific; (S) Southeast Asia. Repeatable six times for (C), (J), (K), (P), (S); not repeatable for (G).

**LWPA 577 Japanese Business Law (V)** Focus on the legal environment facing foreign businesses operating in Japan. Includes consideration of the business environment and culture, issues relating to governmental oversight, contract consciousness, corporate law, and dispute resolution. Uses the example of an actual joint venture between an American and a

Japanese company as a tool for studying the relevant issues from a practical perspective.

**LWPA 578 Chinese Business Law (V)** Introduction to business and commercial law in the People's Republic of China. After a brief overview of China's political and legal systems, the course will examine basic areas of domestic business legislation, including torts, property, and contract law, the regulation of private business, the reform of state enterprises, the development of company and securities laws, and the regulation of land-use and other property rights. More specialized topics, such as arbitration and dispute resolution, the Chinese approach to intellectual property issues, or the use of joint ventures and other foreign investment vehicles, may also be included.

**LWPA 579 International Business Transactions (V)** An examination of the law, rules, and practices relating to transborder commercial transactions. Roughly half of the semester focuses on international sales transactions, the remaining portion focuses on domestic and multinational governance of the international business arena.

**LWPA 581 Native Hawaiian Rights (V)** Status and evolution of rights of native Hawaiians to the land and its usufructs. Potential of utilizing native rights based on statute, custom, and use to fashion new and expanded rights.

**LWPA 582 (Alpha) Topics-Native Hawaiian Law (V)** Specific topic areas will be the subject of focus from year to year, depending upon current developments and issues in Native Hawaiian and Indigenous law in Hawai'i, the nation, and internationally, and expertise of faculty and visiting faculty. (B) policy and governance; (C) business and economic development; (D) law and culture; (E) Indigenous peoples, (F) Indigenous environment and sustainability. Repeatable up to 9 credits. LAW students only.

**LWPA 583 Legal History of Hawai'i (3)** Designed to acquaint the student with the unique legal history of Hawai'i, emphasizing particular legal controversies that have shaped the law of our island society. LAW majors only.

**LWPA 585 International Law (V)** Evolving process of formulating rules to govern nations and peoples of the world in their attempts to solve problems recognized as requiring global solutions.

**LWPA 586 Law and Society in China (V)** Overview of the historical foundations of Chinese law and introduction to the present legal system in the People's Republic of China. Repeatable one time. (Cross-listed as ASAN 686)

**LWPA 587 Comparative Law (V)** Introduction to the civil law tradition, particularly as exemplified by the legal systems of East and Southeast Asia. After a brief review of comparative law study and the historical development of the civil law, the course will examine the structure and role of the courts, judicial process, the legal profession and constitutional law and administrative law in Western Europe and in the Asian civil law countries.

**LWPA 594 Pacific Islands Legal Systems (V)** Study of substantive rules of one or more Pacific Islands jurisdictions, development of legal systems, relationship of legal systems to culture and tradition.

**LWPA 596 International Intellectual Property (V)** Primer on the World Intellectual Property Organization and the treaties it administers. Will explore the various international legislative and judicial developments in intellectual property as well as analyze international methods to harmonize several regional and national laws to protect rights in trademarks, patents, and copyrights. Students will be exposed to issues of territoriality and jurisdiction, international antitrust issues, and international dispute resolution, and human rights implications of international intellectual property rights protections. Pre: LAW 535.

## Law-Ulu Lehua (LWUL)

*School of Law*

**LWUL 501 Ulu Lehua Seminar (V)** Introduces foundational concepts in American legal systems. Engages students in legal analysis and techniques of legal advocacy. Repeatable one time. CR/NC only.

**LWUL 502 American Legal Systems II (V)** Introduces conceptual and historical foundations of systems of public and private ordering in the U.S. and its territories. Subjects include federalism, constitutional democracy, separation of powers, and the common law. Repeatable one time. CR/NC only.

## Library and Information Science (LIS)

*College of Natural Sciences*

*All LIS courses numbered 600 or higher (except LIS 680 Seminar for Beginning Librarians) may be taken only by graduate students admitted to the LIS Program or with approval from the LIS Program Chair.*

*A grade of B- or better in the prerequisite courses is required for continuation.*

**LIS 500 Master's Plan B/C Studies (1)**

**LIS 591 Library and Information Studies Workshop (V)** Designed for in-service librarians and other information specialists needing to update their professional skills, focus on a particular topic, or learn new approaches and concepts. Repeatable for credit. Credits earned in these courses cannot be applied for graduate degrees.

**LIS 601 Introduction to Reference and Information Services (3)** Philosophy, principles, and practice of reference services in libraries, information centers and information literacy. Bibliographic control, reference research, reference interview, online searching, evaluation of bibliographic and Webliographic material. Field component. MLISc degree required course.

**LIS 605 Metadata Creation for Information Organization (3)** Theory and practice of metadata creation for organization of information resources, cataloging code for resource description and access, Library of Congress and Dewey Decimal Classification schemes, use of OCLC. MLISc degree required course.

**LIS 606 Advanced Cataloging and Classification (3)** Continues 605 with study of authority work, and further study of non-book materials cataloging, including electronic and internet resources. Extensive use is made of OCLC Connexion cataloging client. Pre: 605.

**LIS 610 Foundations of the Information Professions (3)** Lecture/discussion/survey of the information professions, development of professional identity, professional values and ethics, historical development, current issues in the information professions. MLISc degree required course.

**LIS 611 Intellectual Freedom (3)** Seminar surveying the core philosophical principles and practices of intellectual freedom with special application to librarianship and information sciences. LIS majors only. Pre: departmental approval. (Alt. years)

**LIS 612 History of Books and Libraries (3)** History of written communication; the recording, preservation and transmission of knowledge. Development of libraries through the mid-twentieth century as instruments of cultural transmission.

**LIS 615 Collection Management (3)** Principles and issues of collection management and care. Criteria and tools for selecting and deselecting materials. Relationships with publishers/producers. MLISc degree required course.

**LIS 618 Government Documents (3)** Survey of government documents at the federal, state/local and international levels in all formats. Covers methods of acquisition and organization, including depositary arrangements. Current issues of government

information dissemination policies and practices discussed. Pre: 601 or consent.

**LIS 619 Preservation Management (3)** Introduction to preservation management. Focus on management strategies for preservation of materials in libraries and archives. Covers preservation planning, condition surveys, disaster planning, grantsmanship, and basic issues relating to deterioration.

**LIS 620 Conservation of Library and Archival Materials (3)** In-depth exploration of the nature of library and archival materials and factors that cause deterioration. Hands-on approach provides practical experience testing, analyzing basic conservation treatments, understanding the role of conservation in preservation planning. Pre: 619 or consent.

**LIS 647 Systems Analysis for Information Management (3)** Overview of systems analysis; its techniques, benefits and limitations. Focus on libraries and information agencies, although concepts are applicable to other settings. Structured, top-down solutions stressed throughout. Object oriented techniques and data modeling tools are reviewed. Pre: 670.

**LIS 650 Management of Libraries and Information Centers (3)** Theories and principles of administration for effective management of libraries and information centers, with emphasis on planning, resource allocation, team skills, project management, assessment, leadership, outreach, and advocacy. MLISc degree required course.

**LIS 652 Introduction to Archives Management (3)** Study of archival principles and management theories applicable to all types of archives. Includes policy, appraisal, computer, and micrographic applications, ethical and legal issues.

**LIS 653 Seminar in Archival Studies (3)** Theory of archival studies from historical and contemporary perspectives. Includes public administration, legislation, and relationship to other repositories. Pre: 652 or consent.

**LIS 660 Information Sources and Systems in Science (3)** Bibliographical structure and sources in the basic and applied sciences, including physics, chemistry, biology, medicine, agriculture, engineering. Field component. Pre: 601 or consent.

**LIS 663 Database Searching (3)** Techniques and strategies for searching professional online databases and web information resources. Query formulation using controlled vocabularies, free text and specialized functions to match retrieved resources with user needs. MLISc degree required course. Pre: 601.

**LIS 665 Teaching Information Technology Literacy (3)** Lecture/discussion on history, theories, principles, practices and concepts of library and information literacy instruction, learning theory and user-based research methods. Examines program design, administration and evaluation. Field research component. Pre: 601.

**LIS 667 Advanced Database Searching (3)** Lecture with demonstrations of advanced features of online information retrieval systems and search engines, including natural language searching, citation-based searching, term mapping, similarity searching, result ranking and clustering for power search Web databases. Pre: 663.

**LIS 670 Introduction to Information Science and Technology (3)** Survey of topics in information science and technology. Lectures and discussions emphasize practice, problems and theory relating to information storage, retrieval and dissemination provision technology in libraries and information centers.

**LIS 671 Digital Librarianship (3)** Lecture with demonstrations to introduce the essential types of digital resources and the software tools for finding high quality and relevant information efficiently from digital journal archives and reference databases. Pre: 601 or 670.

**LIS 672 Technology for Libraries and Information Centers (3)** Survey of theories, concepts,

methods and practices relating to the application of information technology to support the administration and use of information resources. Includes digital, printed and audiovisual materials. Pre: 605, 670; or consent.

**LIS 674 Database Design and Creation (3)** Designing and creating textual and/or directory databases from the viewpoint of information specialists and content providers. Needs analysis, file design, record content and structuring, software choice. Students implement prototype database. Pre: 670.

**LIS 675 Database Content Evaluation (3)** Lecture discussing and demonstrating the principles and methods of using criteria in evaluating databases used by librarians and information professionals, such as database coverage, source base, currency, accuracy and quality of information. Pre: 601 or 670, or consent.

**LIS 677 Human Dimension in Information Systems (3)** Lecture/discussion on human element in information systems, including physical, cognitive and affective behavior in interaction with information systems. Information retrieval, human-computer interaction and cognitive science research, quantitative and qualitative research methods. Research component. Pre: 670.

**LIS 678 Personalized Information Delivery (3)** Study of the components of personalized information systems: information filtering systems with emphasis on modeling and representation of documents, queries, user information preferences, and user-system interaction. Topics include advanced Information Retrieval (IR) models, metadata and markup languages, query operations, thesaurus based IR, acquisition of user profiles, and user/system performance evaluation. Pre: 647, 663, 670, 674, ICS 321, ICS 421, or ICS 624; or consent.

**LIS 680 Seminar for Beginning School Librarians (1)** Series of five seminar meetings on topics, issues for beginning school librarians. Emphasis on building skills and support networks to help entry level professionals create effective school library programs. Repeatable two times. CR/NC only.

**LIS 681 Books and Media for Children (3)** History and criticism of children's literature. Contemporary books and media. Trends in book publishing and media production. Developmental needs and interests of children. Selection and evaluation. Research studies.

**LIS 682 Books and Media for Young Adults (3)** History and criticism of literature for young adults. Contemporary books and media. Trends in media for young adults. Developmental needs and interests of adolescents. Selection and evaluation. Research studies.

**LIS 683 Services in Libraries (3)** Planning and implementing services and programming in public and school libraries. Trends, issues, networking, public relations, outreach, competencies, services for the disabled and other special groups.

**LIS 684 Administration of School Library Media Centers (3)** Effective management of school library media centers. Philosophy and objectives, standards, personnel, facilities, resources, budget, services, library instruction, public relations, program planning and evaluation. Required for Librarian HDOE licensure.

**LIS 685 Traditional Literature and Oral Narration (3)** Analysis of traditional literature including Asian and Pacific Island resources. Selection and evaluation of traditional literature emphasizing cultural values. Introduction to oral tradition, history and techniques of storytelling.

**LIS 686 Information Literacy and Learning Resources (3)** Study of information literacy models. Integration of information literacy with K-12 curriculum units and lessons. Evaluation of print and multimedia resources to meet student and curricular needs. Required for Librarian HDOE licensure. (Spring only) (Cross-listed as EDCS 686 and ETEC 686)

**LIS 687 Hawaiian Studies Information Resources (3)** Survey of reference and research materials in Hawaiian studies. Includes historical and contemporary works, arts, humanities, social and natural sciences, media. Covers approaches to reference service, collection building and management.

**LIS 688 Pacific Islands Information Resources (3)** Study of reference tools and bibliographic sources for Pacific Islands studies, including exam of online catalogs, databases and web sites. Focus on Melanesia, Micronesia and Polynesia (excluding Hawai'i). Pre: 601 or consent.

**LIS 689 Asian-American Resources for Children and Youth (3)** Study of Asian-American resources for young people: socio-historical roots, evaluation and selection, curricular and program uses in a multicultural context.

**LIS 690 Internship (3)** Field experience in library or information agency settings with supervision of professional librarians or information specialists. Available to classified students only. Selection based on academic advisor approval, application form, interview and possession of required competencies. Students must apply and be accepted before registration. Selection is by agency. CR/NC only. Pre: 601 and 663 (or concurrent).

**LIS 693 Special Topics in Librarianship (V)** Includes issues of topical interest in the profession. Concentrates on the major topic of current interest, such as library service to the aged, reprography, medical librarianship, knowledge management, art librarianship, cartography.

**LIS 694 Special Topics in Information Technology (V)** Includes issues of topical interest in information technology. Concentrates on one major topic of current interest, such as information transfer, networks, library information systems, artificial intelligence applications. Repeatable up to nine credits.

**LIS 695 Seminar in Research in Librarianship (3)** Various methodologies and application to problems of librarianship. Evaluation of research studies; developing, writing, and critiquing proposals. Experience with statistical packages for data analysis.

**LIS 696 Practicum School Librarianship (V)** Skill development and application of academic study through observation and practice in a fieldwork program with accompanying seminar. Required for school library certification in Hawai'i. Repeatable up to six credits. CR/NC only. Pre: 12 credits in LIS degree program and consent of practicum coordinator required.

**LIS 699 Directed Reading and/or Research (V)** Individualized program of directed reading and/or research outside the scope of regularly titled courses. Enrollment requires approval before end of previous semester, with specification of goals, work requirements, number of credits, rationale. Repeatable up to six credits.

**LIS 700 Thesis Research (V)** Research for master's thesis. Repeatable nine times. Pre: 695.

**LIS 701 Seminar in International Librarianship (3)** International and comparative librarianship; professional organizations; comparative methodology; research; periodicals; international agencies; influence of literacy and social, cultural, political factors.

**LIS 705 Asian Research Materials and Methods (3)** Literature of Asia in Western and Asian languages; bibliography, reference tools, research methods, sources, published and archival repositories. Repeatable one time. (Cross-listed as ASAN 705)

## Linguistics (LING)

*College of Languages, Linguistics and Literature*

**LING 102 Introduction to the Study of Language (3)** Non-formal introduction to language, emphasizing the everyday use of language, its relevance to contemporary issues in society, and local language issues. Content studied through lecture, readings, and writing; emphasis on writing as a grading criterion. DS

**LING 103 Language and Symbolic Reasoning (3)** Introduction to language as a formal symbolic system and to the techniques of analysis and reasoning that reveal its workings. A-F only.

**LING 105 Language Endangerment, Globalization, and Indigenous Peoples (3)** Focus on language endangerment and globalization. Students are introduced to case studies on language endangerment from around the world and throughout history. Offered through the distance-learning Unit Mastery program. A-F only. FGB

**LING 120 Language as a Window to the Mind (3)** Introduction to language-related phenomena, which gives insight into the organization of the human mind. Combines lecture, discussion and group projects.

**LING 150 (Alpha) Language in Hawai'i and the Pacific (3)** Introduction to the study of language and language-related issues, with a focus on Hawai'i and the Pacific; (B) unit mastery; (C) lecture discussion. A-F only. DS

**LING 201 Language Documentation for Non-Linguists (2)** Provides training in the fundamentals of language documentation and conservation for non-linguists. Repeatable two times. CR/NC only. Pre: proficiency in a lesser studied language and consent.

**LING 320 General Linguistics (3)** Introduction to the formal analysis of language, focusing on phonetics, phonology, morphology, syntax, semantics, historical linguistics, language acquisition, and related topics. DS

**LING 331 Computer Applications (3)** Background; uses for machine translation, dictionary programs, speech synthesis, grammar modeling, etc. Pre: 320 (or concurrent) or consent.

**LING 344 Languages of the World (3)** Survey of major language families; typological classification and language universals; writing systems, "contact" languages. Variety of grammatical structures illustrated by selected languages. Pre: 320 or consent. DS

**LING 346 The Philippine Language Family (3)** Introduction; phonological and grammatical systems; historical developments; emphasis on Filipino, Cebuano, and Ilokano. Pre: grade of B or better in 102 or 320 and experience with a Philippine language, or consent. DH

**LING 347 Pidgin and Creole Languages (3)** Nature, history, structure, and geographic distribution of pidgins and creoles. Pre: 102 or consent. (Alt. years) (Cross-listed as IS 347)

**LING 410 Articulatory Phonetics (3)** Intensive training in recognition, reproduction, and recording of human speech sounds; preparation for fieldwork with unrecorded languages and for clinical work in speech pathology. DH

**LING 412 Psycholinguistics (3)** The mental processes involved in producing, understanding, and acquiring language. Students will conduct a small psycholinguistic experiment. Open to nonmajors. Pre: one of 102, 320, PSY 100, or SPA 300; or consent. DS

**LING 414 Introduction to Linguistic Anthropology (3)** Introduction to the ethnographic study of speech and language. Pre: ANTH 152 or consent. (Once a year) (Cross-listed as ANTH 414 and IS 414) DS

**LING 415 Language and Gender (3)** The role of language in the construction of gender and in the maintenance of the gender order. Field projects explore hypotheses about the interaction of language and gender. No previous knowledge of linguistics required. A-F only. (Cross-listed as ANTH 413) DS

**LING 416 Language as a Public Concern (3)** How does language serve as a proxy for larger social questions? Focuses on four main themes: language revitalization, discrimination on the basis of accent, gender miscommunication and the English Only Movement. A-F only. Pre: 102 or 320 or consent. DS

**LING 420 Morphology (3)** Theory of word structure; analysis of a variety of morphological types. Pre: 320 (or concurrent) or consent. **DH**

**LING 421 Introduction to Phonological Analysis (3)** Phonological analysis and theory. Pre: 410. **DH**

**LING 422 Introduction to Grammatical Analysis (3)** Syntactic analysis and grammatical theory. Pre: 320 or consent. **DH**

**LING 423 Cognitive Linguistics (3)** Conceptual systems and language from a cognitive science perspective. Linguistic evidence on conceptual structure, reasoning, categorization, and understanding. Open to nonmajors. Pre: 102, 320, ICS 111, or PSY 100; or consent.

**LING 430 Animal Communication (3)** Investigates animal communication from the perspective of modern linguistics. Dispels common misconceptions about "talking animals" and shows how the cognitive, biological, and environmental needs and opportunities of animals determine what and how they communicate. A-F only. Pre: 102 or consent. **DS**

**LING 431 Computational Modeling (3)** Hands-on introduction to modeling language. Focuses on connectionism, relations between language perception, and motor control. Requires no programming experience. Open to nonmajors. Pre: 102, 320, ICS 111, or PSY 100; or consent.

**LING 441 Meaning (3)** Theories of how literal and figurative language encode meaning and processes of meaning encoding and decoding. Open to nonmajors. Pre: 102, 320, ICS 111, or PSY 100; or consent.

**LING 445 Polynesian Language Family (3)** Introduction to the language family of Hawaiian, Samoan, Tahitian, Tongan, etc.; models of migration and settlement and linguistic evidence; subgrouping and reconstruction of Proto-Polynesian; linguistic characteristics of present-day languages; language endangerment and conservation in Polynesia. Pre: 320 with a grade of B or better, or consent. **DS**

**LING 451 Induction of Linguistic Structure (3)** Phonological and grammatical structures of a previously uncodified language are determined by linguistic analysis of data obtained from speakers of the language. Pre: 102 or 320, or consent. **DH**

**LING 470 Children's Speech (3)** Individual strategies, baby talk, language socialization, language variation including multilingualism. Relation of cognitive to language development. Pre: 320. **DS**

**LING 499 Directed Research (V)** Repeatable up to 3 credits. CR/NC only. Pre: consent.

**LING 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**LING 611 Acoustic and Auditory Phonetics (3)** Principles of acoustics and audition as they relate to speech sounds, use of computer-based analysis tools to investigate acoustic properties of speech. Pre: 421 or consent.

**LING 615 The Nature of Language (3)** Language as a communication system, current theories of grammar, meaning, sociolinguistics, linguistic change and comparison.

**LING 617 Language Acquisition and Language Revitalization (3)** Provides training relevant to the study and revitalization of heritage languages and endangered languages. Pre: 320 or equivalent.

**LING 621 Phonology (3)** Phonological theory and problems of analysis. Pre: 421 or consent. (Fall only)

**LING 622 Grammar (3)** Grammatical theory and problems of analysis. Pre: 422 or consent.

**LING 623 Semantics and Pragmatics (3)** Ways in which the interpretation of sentences in natural language depends upon the literal meaning of propositions and their logical (semantic) and conversational (pragmatic) inferences. Pre: 422 or consent.

**LING 630 Field Methods (3)** Work with native speakers of lesser-known languages to develop techniques for data collection and analysis. Repeatable unlimited times. Pre: 421 and 422 and one of 621 or

622; or consent.

**LING 631 Language Data Processing (3)** Preparation of language data for computer processing; use ready-made programs; write simple language processing programs using SNOBOL4. Applications to student's research. Pre: 421 and 422, or consent.

**LING 632 Laboratory Research (3)** Laboratory methods for research in linguistics. Introduction to hardware, software, research designs and basic analysis techniques commonly used in laboratory-based research. Combines lecture, laboratory work and discussion. Pre: graduate standing.

**LING 640 (Alpha) Topics in Linguistics (3)** History of the discipline, schools of linguistic thought, current issues, etc. Repeatable unlimited times. (E) English linguistics; (F) phonology and phonetics; (G) general; (H) history of the discipline; (S) sociolinguistics; (X) syntax; (Y) psycholinguistics. Pre: consent.

**LING 645 The Comparative Method (3)** Introduction to historical-comparative linguistics; attention to both Indo-European and languages with few or no written records. Pre: 421 and 422, or consent.

**LING 646 The Comparative Method (3)** Continuation of 645. Pre: 645.

**LING 670 Developmental Linguistics (3)** Survey of the literature in language acquisition; emphasis on relation to linguistic theory. Pre: 421 and 422, or consent.

**LING 680 Introduction to Language Documentation (3)** Covers history, method, and theory behind language documentation, and the role of language endangerment in the field. Discussion on skills required to undertake documentation; topics may vary depending on the emphases of the instructor. Pre: 320 or consent.

**LING 699 Directed Research (V)** CR/NC only. Repeatable unlimited times. Maximum six credit hours. Pre: graduate standing and consent.

**LING 700 Thesis Research (V)** Repeatable up to 12 credit hours.

**LING 710 Methods of Language Documentation (3)** Students learn to conduct best-practice digital language documentation projects, from equipment purchase to data collection to data annotation to archiving and presentation. Pre: 680 or consent.

**LING 730 Advanced Laboratory Research (3)** Advanced laboratory methods for research in linguistics. Specialized and/or advanced uses of hardware, software, research designs, and analysis techniques. Specific topic varies: check with department. Combines lecture, laboratory work and discussion. Repeatable four times. Pre: 632 or consent.

**LING 750 (Alpha) Seminar (3)** Reporting and discussion of current research in linguistics. (E) ethnolinguistics; (F) phonology and phonetics; (G) general; (M) semantics; (Q) language acquisition; (R) written language; (S) sociolinguistics; (X) syntax; (Y) psycholinguistics. Repeatable unlimited times. Pre: consent.

**LING 770 Areal Linguistics (3)** Structures of languages of various areas of the world; diffusion. Repeatable unlimited times. Pre: consent.

**LING 799 Apprenticeship in Teaching Linguistics (V)** Experience-based introduction to college-level teaching; doctoral students serve as student teachers to professors; responsibilities include supervised teaching and participation in planning and evaluation. Repeatable one time. Pre: admission to doctoral program and consent.

**LING 800 Dissertation Research (V)** Repeatable unlimited times.

## Management (MGT)

*Shidler College of Business*

**MGT 320 Fundamentals of Entrepreneurship (3)** Covers the role of new ventures and entrepreneur-

ship in the world economy, the formation, funding, marketing, structure and implementation of business ventures.

**MGT 341 Behavior in Organizations (3)** Contributions made by sociology, psychology, and related behavioral sciences to the understanding and prediction of human behavior in organizations. Pre: BUS 315. **DS**

**MGT 342 Multinational Business Management (3)** Introduction to the unique problems and challenges in managing multinational business enterprises. Systems approach to the management process in such multinational firms stressed. Pre: BUS 315.

**MGT 343 Comparative Management Systems: United States and Japan (3)** Similarities and differences in managers, in process of management, and in relevant environmental constraints in Japan and the U.S. Pre: BUS 315.

**MGT 344 Seminar in Management (3)** In-depth analysis of selected current practices and trends in administration. May be repeated with change in topic. Pre: consent.

**MGT 345 Entrepreneurial Ventures (3)** Integrative course in entrepreneurship designed around the development of an original business concept and the completion of a comprehensive business plan for a new venture. Intended as final course for students completing entrepreneurship minor. Pre: 320 or consent.

**MGT 348 History of American Business (3)** The evolution of business enterprise from colonial times to the present. Emphasis on entrepreneurship, technological change, labor-management relations, government-business relations, and economic thought. Case studies of industrial development. (Cross-listed as HIST 378) **DH**

**MGT 399 Directed Reading and Research (V)** Reading and research in a special area within the major field under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty advisor. Repeatable up to six credits.

**MGT 450 Family Business (3)** The exploration of business, personal, and interpersonal issues associated with a family owned and managed company. Topics include: family psychology and organizational structure, life cycles in family business, strategic family and business planning, succession planning, family business conflict resolution, estate planning, the role of professional managers, and others. This is not a course about how to become an entrepreneur or how to start or manage a business. It is most appropriate for those students who are part of a family that owns and manages a business. Pre: BUS 315 or graduate status, or consent.

**MGT 460 Asia Pacific Business Systems (3)** Business systems in Asia Pacific countries including Japan, Korea, China, Taiwan, Singapore, and Hong Kong in terms of particular organization strategies and how they relate to the industrial trade policies. Pre: BBA core excluding BUS 345, or consent.

**MGT 461 Corporate Entrepreneurship (3)** Exploration of the nature and role of entrepreneurship behavior inside larger, established organizations. An examination of obstacles to entrepreneurial activity and approaches to creating work environments that foster entrepreneurship. Pre: 320 or consent.

**MGT 643 (Alpha) Advanced Organizational Behavior (3)** (B) experiential learning (EL); (C) organizational development (OD) and major concepts in organizational behavior.

**MGT 644 Comparative Management (3)** Cross-cultural analysis of the values and environmental constraints that shape management patterns and policies. Emphasis on Pacific area nations.

**MGT 645 New Venture Management (3)** Technical aspects of entrepreneurship, components and requirements for developing a business plan.

**MGT 650 Management Topics (3)** In-depth analysis of selected current practices and trends in administration. May be repeated four times with change in topic. Pre: consent.

**MGT 651 Corporate Entrepreneurship (3)** Entrepreneurship behavior involving the founding of new business units within established companies; understanding and dealing with barriers to entrepreneurship in corporations; recognizing corporate entrepreneurship opportunities; and learning various approaches organizations can take to increase entrepreneurship. A-F only. Pre: consent. (Once a year)

**MGT 660 Negotiation (3)** Theory and practice of negotiation. Exploration of appropriate strategies, tactics, and communication techniques. Study of dyadic multi-party, cross-cultural, and assisted negotiations.

**MGT 670 (Alpha) International Management and Industrial Relations (3)** Selected topics in international management and industrial relations: (B) Chinese management systems; (C) Japanese management systems; (D) management of multinational corporations; (F) contemporary issues in international business foreign direct investment; (G) cross-cultural communication in international business; (H) interactive strategies in Asian culture; (I) international human resource management; (J) international joint ventures; (K) international management of technology; (M) Korean management systems; (N) multinational corporation and environmental issues; (O) strategy of the multinational corporation; (P) international transfer of technology. Repeatable four times. Pre: consent.

**MGT 671 International Strategic Management (3)** Analysis of the strategic management of firms engaged in multinational business including specific content on Asia. Permits students to focus on specific countries such as China and Japan. A-F only. (Spring only)

**MGT 680 Entrepreneurship for Science and Technology (3)** Recognizing and screening technology opportunities, the commercialization process, intellectual property acquisition, business model related to high technology strategies needed for growth in high tech firms. A-F only. Pre: 645 or consent. (Once a year)

**MGT 681 Asian/Pacific Entrepreneurship (3)** Innovative ventures, issues related to noticing opportunities, conceptualizing and developing a business model, starting and growing a new venture with specific emphasis on the Asian/Pacific region. A-F only. Pre: consent. (Once a year)

**MGT 701 Cross-Cultural Management (3)** Provides tools to compare and contrast management practices across nations and to examine the role of culture in shaping those practices. A-F only. Pre: PhD student status in international management or consent.

**MGT 704 PhD Seminar—Corporate Strategy and International Business (3)** Objectives include: explore research topics in corporate strategy and international business, examine conceptual and empirical literature on management of the multinational corporation, and prepare students for comprehensive examination. A-F only. Pre: PhD student status in international management or consent.

**MGT 799 Directed Reading and Research (V)** Reading and research in an area of management under the direction of faculty member(s). A-F only. Pre: PhD student status in international management or consent.

## Maori (MAO)

*College of Languages, Linguistics and Literature*

**MAO 101 Beginning Maori I (3)** Listening, speaking, reading, writing, grammar. Meets three hours weekly. HSL

**MAO 102 Beginning Maori II (3)** Continuation of 101. Meets three hours weekly. Pre: 101. HSL

**MAO 201 Intermediate Maori I (3)** Continuation of 102. Meets three hours weekly. Pre: 102. HSL

**MAO 202 Intermediate Maori II (3)** Continuation of 201. Meets three hours weekly. Pre: 201. HSL

**MAO 261 Maori Literature and Culture (3)** Survey of literature concerning myths, traditions, poetry and song as well as contemporary literature (in English) relating to the Treaty of Waitangi, Maori prophetic sayings. Students who have previously taken this course as PACS 492 may not take this course. Pre: consent. DL

**MAO 301 Advanced Maori Language and Culture (3)** Advanced Maori language and culture. Pre: 202, no waiver. (Fall only)

**MAO 302 Advanced Maori Language and Culture (3)** Advanced Maori language and culture. Pre: 301. (Spring only)

**MAO 361 Modern Maori Literature and Culture (3)** Survey of modern Maori and Hawaiian literature and culture from the mid-twentieth and early twenty-first centuries. Pre: 261 or consent. (Fall only) DL

**MAO 384 Te Reo Waiata: Māori Language in Song (3)** Survey and analysis of Maori song poetry texts, traditional and contemporary, and their development and performance over time. Pre: 102 or HAW 202, or consent.

## Marketing (MKT)

*Shidler College of Business*

**MKT 311 Consumer Behavior (3)** Analysis of consumer behavior and motivation; principles of learning, personality, perception, and group influence, with emphasis upon mass communication effects. Pre: BUS 312 or consent. (Cross-listed as PSY 385) DS

**MKT 321 Marketing Research (3)** Research aids to marketing management; nature of the research process; planning research including problems of sampling and measurement; experimental and non-experimental methods and techniques; analysis of data. Pre: BUS 310 and BUS 312, or consent. DS

**MKT 331 Marketing Communications (3)** In-depth coverage of the major communication tools used in marketing such as advertising, sales promotion, public relations and the internet. Emphasis on integrated marketing communications. Pre: BUS 312 or consent.

**MKT 332 Integrated Communication Campaigns (3)** Management of integrated marketing communications campaigns. Includes: conducting target market and competitor research, developing creative content and media strategies, production of communication materials and completion of major real world project. Pre: 331 and BUS 312.

**MKT 341 Retailing Management (3)** Principles, functions, and analysis of opportunities and problems in retailing; location and layout; merchandise planning; buying and selling; organizational forms and design; expense analysis and control; coordination of store activities. Pre: BUS 312 or consent.

**MKT 351 Professional Selling (3)** Emphasis on selling technique, social-psychological principles of persuasion, and interpersonal communication. Lecture, discussion, and application of relevant principles and techniques. A-F only. Pre: BUS 312 or consent.

**MKT 352 Sales Management (3)** Delves into the sales management process. Through a variety of activities, students gain experience in sales planning, recruiting and training sales people, methods of motivating and compensating, territory management and sales team communications. Pre: BUS 312 or consent.

**MKT 361 Seminar in Marketing (3)** Study and discussion of significant topics and problems in the field of marketing. May be repeated four times with change in topic. Pre: consent and usually senior standing.

**MKT 362 Internet Marketing (3)** Examines use of internet in the marketing of goods and services; for example new product development, marketing research, direct sales and marketing communications on the World Wide Web. Real world projects provide opportunities for application. Pre: BUS 311 and BUS 312, or consent.

**MKT 363 Customer Relationship Management (3)** Focuses on the evolving field of customer relationship management. Students learn how to manage marketing information and decision-making systems that maximize customer retention and build long-term relationships. A-F only. Pre: BUS 311, or consent.

**MKT 372 Marketing for New Ventures (3)** Examines role of marketing in the formation and launch of entrepreneurial ventures within and outside of ongoing businesses. Emphasis on new product development and low cost, high impact marketing activities. Pre: BUS 312 or consent.

**MKT 381 Multinational Marketing (3)** Principles and topics related to international marketing, with emphasis on strategic planning and applications. Pre: BUS 312 or consent.

**MKT 391 Marketing Strategies (3)** Decision-making by the marketing executive; integration of all elements of the marketing program based on actual business situations. Pre: 311, 321, and one other marketing course above 311; or consent.

**MKT 399 Directed Reading and Research (V)** Reading and research in a special area of major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and the faculty advisor. Repeatable unlimited times.

**MKT 410 Software Tools in Marketing (3)** Focuses on computer software tools designed to help managers make more informed marketing decisions. Through hands-on experience, students learn software skills useful in marketing management, marketing research, sales and advertising. A-F only. Pre: BUS 310 and BUS 312; or consent.

**MKT 411B Imagination, Entrepreneurship and Business Problem-Solving (3)** Application of creative process to problems encountered in venture creation/growth. Student problem-solving styles are characterized and implications drawn for generation of breakthrough ideas. Tools for facilitating creative solutions to marketing problems are investigated. Pre: junior standing and BUS 312; or consent.

**MKT 651 Advanced Marketing Management (3)** A case course in the application of advanced marketing methods. Pre: BUS 623 or consent.

**MKT 652 Japanese Marketing Systems (3)** Specialized study of Japanese marketing systems, considers both global and domestic marketing activities in the context of the Japanese economy. Pre: BUS 623 or consent.

**MKT 653 International Marketing Management (3)** Integrated and comparative approach to international marketing management. Emphasis on the development of a competitive strategy in a global environment. Applications to both developing and industrialized markets. Pre: BUS 623 or consent.

**MKT 654 Marketing Communications Management (3)** Emphasis on developing integrated advertising, sales promotion, public relations and internet communication strategies that build brand equity. Includes relevant customer behavior and real world applications. Pre: BUS 623 or consent.

**MKT 656 Creativity in Marketing (3)** Thought processes that relate to creativity. Through a series of exercises, students experience enriched creativity and enhanced communication skills. Pre: BUS 623 or consent.

**MKT 657 Services Marketing (3)** Conceptual understanding of distinctive aspects of services, services management, and services research. Pre: BUS 623 or consent.

**MKT 658 Marketing in the Information Age (3)** Examines new marketing opportunities and challenges in the information age from a balanced perspective of theory and practice. Real-world cases and practices will be used to systematically supplement the principles and theories introduced. A-F only. Pre: 623 or consent. (Fall only)

**MKT 690 Advanced Seminar in Marketing (3)** Significant topics, problems in marketing. Repeatable unlimited times. Pre: BUS 623 or consent.

**MKT 701 International Marketing Theory (3)** Focuses on the building blocks of theory, their use, and evolution within a marketing context. Explores marketing theories, theory construction, and the creation of marketing knowledge. A-F only. Pre: PhD student status in international management or consent.

**MKT 702 International Cross-Cultural Consumer Behavior (3)** Focuses on consumer behavior theory with a strong emphasis on cross-cultural research issues and methodology. Provides in-depth review of important published work in traditional and cross-cultural consumer behavior fields. A-F only. Pre: PhD student status in international management or consent.

**MKT 703 International Marketing Strategy Doctoral Seminar (3)** Focuses on theories of strategic marketing and planning. Explores the theoretical principles of marketing concepts, tools, and processes that can be used to help an organization develop a sustainable competitive advantage. A-F only. Pre: PhD student status in international management or consent.

**MKT 704 Advanced Topics in International Marketing Seminar (3)** Selected topics in any aspect of international marketing to increase exposure to the range of issues researchers commonly confront. A-F only. Pre: PhD student status in international management or consent.

**MKT 799 Directed Research (V)** Reading and research in an area of marketing under the direction of faculty member(s). A-F only. Pre: PhD student status in international management or consent. Mathematics (MATH)

## Marine Biology (MBO)

*College of Natural Sciences/School of Ocean and Earth Science and Technology*

**MBO 601 Marine Biology-Environments and Organisms (4)** (3 hr Lec, 3 hr Lab) Introduction to the diversity of marine organisms and the many specialized coastal, reef, and oceanic habitats in which they live. Lab and field research exercises will complement lecture subjects. Graduate standing in Marine Biology graduate degree program only. A-F only. Pre: consent. (Fall only) (Cross-listed as OCN 601)

**MBO 611 Introduction to Quantitative Methods in Fisheries Science (4)** (2 Lec, 1 3-hr Lab) Fisheries and population models including growth, stock-recruitment, surplus production, age-structured and size-based, parameter estimation, uncertainty characterization, resampling methods, and scientific computing. Graduate students only. A-F only. Pre: MATH 215 or 216, or MATH 241 or 242, or consent. (Alt. years)

**MBO 740 Advanced Topics in Quantitative Biology (V)** Reflects faculty expertise and needs for graduate training in quantitative methods for biology, including statistical, computational, and analytic approaches. Format (lecture/lab/discussion) will vary by topic. Repeatable unlimited times. Graduate students only. A-F only.

## Mathematics (MATH)

*College of Natural Sciences*

*The minimum required grade for prerequisites is a grade of C (not C-) or better, unless noted otherwise.*

**MATH 100 Survey of Mathematics (3)** Selected topics designed to acquaint nonspecialists with ex-

amples of mathematical reasoning. May not be taken for credit after 215 or higher. FS

**MATH 111 Math for Elementary Teachers I (3)** Understanding, communicating, and representing mathematical ideas, problem solving, reasoning, and using symbolism. Operations and properties of operations with particular attention to sets. Prospective elementary education majors only.

**MATH 112 Math for Elementary Teachers II (3)** Understanding, communicating, and representing mathematical ideas, problem solving, and argumentation. Counting, introduction to measurement, the standard operations on the natural numbers, equations, and inequalities. Pre: 111. FS

**MATH 134 Precalculus: Elementary Functions (2)** Algebra review, functions with special attention to polynomial, rational exponential and logarithmic functions, composed and inverse functions, techniques of graphing. Credit not allowed for 134 and 140, or 134 and 161. Pre: two years of high school algebra, one year of plane geometry.

**MATH 140 Precalculus: Trigonometry and Analytic Geometry (3)** Studies trigonometric functions, analytic geometry, polar coordinates, vectors, and related topics. This course is the second part of the precalculus sequence. Credit allowed for one of 134, 135, or 140. Pre: 134, 135, or 161 or assessment exam. FS

**MATH 161 Precalculus and Elements of Calculus for Economics and the Social Sciences (3)** Algebra review, functions with special attention to polynomial, rational, exponential, and logarithmic functions, algebra of functions, techniques of graphing, differentiation and integration of algebraic functions, applications in economics and social sciences. Credit allowed for only one of 134, 135, or 161. FS

**MATH 190 Introduction to Programming (2)** (3 hr) Introduction to numerical algorithms and structured programming using Fortran, MATLAB, or other appropriate language. Pre: one semester of calculus (203, 215, 241, 242, 243, 244, 251A, 252A, or 253A) (or concurrent), or consent.

**MATH 203 Calculus for Business and Social Sciences (3)** Basic concepts; differentiation and integration; applications to management, finance, economics, and the social sciences. Pre: 134, 135, or 161, or assessment exam. FS

**MATH 215 Applied Calculus I (4)** Basic concepts; differentiation, differential equations and integration with applications directed primarily to the life sciences. Pre: 140 or assessment exam. FS

**MATH 216 Applied Calculus II (3)** Differential calculus for functions in several variables and curves, systems of ordinary differential equations, series approximation of functions, continuous probability, exposure to use of calculus in the literature. Pre: 215 or consent.

**MATH 241 Calculus I (4)** Basic concepts; differentiation with applications; integration. Pre: 140 or 215 or assessment exam. FS

**MATH 242 Calculus II (4)** Integration techniques and applications, series and approximations, differential equations. Pre: 241 or 251A or a grade of B or better in 215; or consent.

**MATH 243 Calculus III (3)** Vector algebra, vector-valued functions, differentiation in several variables, and optimization. Pre: 242 or 252A, or consent.

**MATH 244 Calculus IV (3)** Multiple integrals; line integrals and Green's Theorem; surface integrals, Stokes's and Gauss's Theorems. Pre: 243 or consent.

**MATH 251A Accelerated Calculus I (4)** Basic concepts; differentiation with applications; integration. Compared to 241, topics are discussed in greater depth. Pre: assessment and consent, or a grade of A in 140 and consent. FS

**MATH 252A Accelerated Calculus II (4)** Integration techniques and applications, series and approximations, differential equations, introduction to

vectors. Pre: 251A, or a grade of B or better in 241 and consent.

**MATH 253A Accelerated Calculus III (4)** Vector calculus; maxima and minima in several variables; multiple integrals; line integrals, surface integrals and their applications. Pre: 252A.

**MATH 257 History of Mathematics (3)** The historical development of mathematical thought. Pre: 216 or 242 or 252A.

**MATH 301 Introduction to Discrete Mathematics (3)** Symbolic logic, sets and relations, algorithms, trees and other graphs. Additional topics chosen from algebraic systems, networks, automata. Pre: one semester of calculus from mathematics department; or consent. Recommended: one semester programming.

**MATH 302 Introduction to Differential Equations I (3)** First order ordinary differential equations, constant coefficient linear equations, oscillations, Laplace transform, convolution, Green's function. Pre: 216 or 243 (or concurrent) or 253A (or concurrent), or consent.

**MATH 303 Introduction to Differential Equations II (3)** Constant coefficient linear systems, variable coefficient ordinary differential equations, series solutions and special functions, Fourier series, partial differential equations. Pre: 302, 311 (or concurrent); or consent.

**MATH 304 Mathematical Modeling: Deterministic Models (4)** Deterministic mathematical modeling emphasizing models and tools used in the biological sciences. Topics include difference equations, qualitative behavior solutions of ODEs and reaction-diffusion equations. A computer lab is included. Pre: 216 or 242 or 252A, or consent.

**MATH 305 Mathematical Modeling: Probabilistic Models (4)** Probabilistic mathematical modeling emphasizing models and tools used in the biological sciences. Topics include stochastic and Poisson processes, Markov models, estimation, Monte Carlo simulation and Ising models. A computer lab is included. Pre: 216 or 242 or 252A, or consent. Recommended: 304.

**MATH 307 Linear Algebra and Differential Equations (3)** Introduction to linear algebra, application of eigenvalue techniques to the solution of differential equations. Students may receive credit for only one of 307 or 311. Pre: 243 (or concurrent) or 253A (or concurrent), or consent.

**MATH 311 Introduction to Linear Algebra (3)** Algebra of matrices, linear equations, real vector spaces and transformations. Emphasis on concepts and abstraction and instruction of careful writing. Students may receive credit for only one of 307 or 311. Pre: 243 (or concurrent) or 253A (or concurrent), or consent.

**MATH 321 Introduction to Advanced Mathematics (3)** Formal introduction to the concepts of logic, finite and infinite sets, functions, methods of proof and axiomatic systems. Learning mathematical expressions in writing is an integral part of the course. Pre: 243 (or concurrent) or 253A (or concurrent), or consent.

**MATH 331 Introduction to Real Analysis (3)** A rigorous axiomatic development of one variable calculus. Completeness, topology of the plane, limits, continuity, differentiation, integration. Pre: 242 or 252A, and 321 (or concurrent); or consent.

**MATH 351 Foundation of Euclidean Geometry (3)** Axiomatic Euclidean geometry and introduction to the axiomatic method. Emphasis on writing instruction. Pre: 243 or 253A, and 321 (or concurrent); or consent.

**MATH 352 Non-Euclidean Geometries (3)** Hyperbolic, other non-Euclidean geometries. Pre: 351 or consent.

**MATH 371 Elementary Probability Theory (3)** Sets, discrete sample spaces, problems in combinatorial probability, random variables, mathematical

expectations, classical distributions, applications. Pre: 216, 242, or 252A; or consent.

**MATH 373 Elementary Statistics (3)** Estimation, tests of significance, the concept of power. Pre: 371 or consent.

**MATH 402 Partial Differential Equations I (3)** Integral surfaces and characteristics of first and second order partial differential equations. Applications to the equations of mathematical physics. Pre: 243 or 253A, or consent. Recommended: 244 and 302.

**MATH 403 Partial Differential Equations II (3)** Laplace's equation, Fourier transform methods for PDEs, higher dimensional PDEs, spherical harmonics, Laplace series, special functions and applications. Pre: 402 or consent.

**MATH 405 Ordinary Differential Equations (3)** Systems of linear ordinary differential equations, autonomous systems, and stability theory applications. Optional topics include series solutions, Sturm theory, numerical methods. Pre: 302 and 311, or consent.

**MATH 407 Numerical Analysis (3)** Numerical solution of equations, interpolation, least-squares approximation, quadrature, eigenvalue problems, numerical solution of ordinary and partial differential equations. (These topics are covered in the year sequence 407–408.) Pre: 307 or 311, and one semester programming; or consent.

**MATH 408 Numerical Analysis (3)** Continuation of 407. This is the second course of a year sequence and should be taken in the same academic year as 407. Pre: 407 or consent.

**MATH 411 Linear Algebra (3)** Vector spaces over arbitrary fields, minimal polynomials, invariant subspaces, canonical forms of matrices; unitary and Hermitian matrices, quadratic forms. Pre: a grade of B or better in 311 or consent.

**MATH 412 Introduction to Abstract Algebra (3)** Introduction to basic algebraic structures. Groups, finite groups, abelian groups, rings, integral domains, factorization, polynomial rings, field extensions, quotient fields. Emphasis on writing instruction. (These topics are covered in the year sequence 412–413.) Pre: 311 or 321 or consent.

**MATH 413 Introduction to Abstract Algebra (3)** Continuation of 412. This is the second course of a year sequence and should be taken in the same academic year as 412. Emphasis on writing instruction. Pre: 412 or consent.

**MATH 414 Operations Research: Discrete Models (3)** Techniques of mathematical programming. Topics may include linear programming, integer programming, network analysis, dynamic programming, and game theory. Pre: 307 or 311, or consent.

**MATH 416 Operations Research: Probabilistic Models (3)** Queuing theory, inventory theory, Markov chains, simulation. Pre: 307 or 311, and 371, or consent.

**MATH 420 Introduction to the Theory of Numbers (3)** Congruences, quadratic residues, arithmetic functions, distribution of primes. Emphasis is on teaching theory and writing, not on computation. Pre: 311 or 321 or consent.

**MATH 421 Topology (3)** Geometric and combinatorial topology. Surfaces, homology, Euler characteristics, winding numbers. Jordan curve theorem. Pre: 321 or consent.

**MATH 431 Principles of Analysis I (3)** Topology of  $\mathbb{R}^n$ , continuous functions, Riemann integration, sequences and series, uniform convergence, implicit function theorems, differentials and Jacobians. Emphasis on teaching mathematical writing. (These topics are covered in the year sequence 431–432.) Pre: 311 and 331, or consent.

**MATH 432 Principles of Analysis II (3)** Continuation of 431. This is the second course of a year sequence and should be taken in the same academic year as 431. Emphasis on writing instruction continues. Pre: 431 or consent.

**MATH 442 Vector Analysis (3)** Vector operations, wedge product, differential forms, and smooth mappings. Theorems of Green, Stokes, and Gauss, both classically and in terms of forms. Applications to electromagnetism and mechanics. Pre: 244 or 253A, and 307 or 311, or consent.

**MATH 443 Differential Geometry (3)** Properties and fundamental geometric invariants of curves and surfaces in space; applications to the physical sciences. Pre: 244 or 253A, and 311; or consent.

**MATH 444 Complex Analysis (3)** Analytic functions, complex integration, introduction to conformal mapping. Pre: 244 or 253A; recommended 307, 311, 321 or 331; or consent.

**MATH 449 Topics in Undergraduate Mathematics (3)** Advanced topics from various areas: algebra, number theory, analysis, and geometry. Repeatable unlimited times. Pre: consent.

**MATH 454 Axiomatic Set Theory (3)** Sets, relations, ordinal arithmetic, cardinal arithmetic, axiomatic set theory, axiom of choice and the continuum hypothesis. Pre: 321 or graduate standing in a related field or consent.

**MATH 455 Mathematical Logic (3)** A system of first order logic. Formal notions of well-formed formula, proof, and derivability. Semantic notions of model, truth, and validity. Completeness theorem. Pre: 454 or consent.

**MATH 471 Probability (3)** Probability spaces, random variables, distributions, expectations, moment-generating and characteristic functions, limit theorems. Continuous probability emphasized. Pre: 244 (or concurrent) or 253A (or concurrent), or consent.

**MATH 472 Statistical Inference (3)** Sampling and parameter estimation, tests of hypotheses, correlation, regression, analysis of variance, sequential analysis, rank order statistics. Pre: 471 or consent.

**MATH 475 Combinatorial Mathematics (3)** Finite configurations. Topics may include counting methods, generating functions, graph theory, map coloring, block design, network flows, analysis of discrete algorithms. Pre: 311 or consent.

**MATH 480 Senior Seminar (2)** Seminar for senior mathematics majors, including an introduction to methods of research. Significant portion of class time is dedicated to the instruction and critique of oral presentations. All students must give the equivalent of three presentations. CR/NC only. Pre: one 400-level mathematics course or consent.

**MATH 490 Mathematical Biology Seminar (1)** Reports on research in mathematical biology, reviews of literature, and research presentation. Required for Certificate in Mathematical Biology. Repeatable one time. Pre: junior standing or higher and consent. (Cross-listed as BIOL 490)

**MATH 499 Directed Reading (V)** Limited to advanced students who must arrange with an instructor before enrolling. Repeatable up to six credits.

**MATH 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**MATH 511 Problem Solving for Teachers (1)** Practicing teachers develop and improve their problem-solving skills by working on challenging mathematical tasks. Students improve their mathematics content knowledge by working on problems and learning to design challenge problems for their own classes. Practicing teachers in grades K–12 only. Repeatable unlimited times. CR/NC only.

*All 600-courses prerequisites graduate standing or consent.*

**MATH 602 Ordinary and Partial Differential Equations (3)** Classical existence and uniqueness theory for ODEs and PDEs, qualitative properties, classification, boundary value and initial value problems, fundamental solutions, other topics.

**MATH 603 Ordinary and Partial Differential Equations (3)** Continuation of 602. This is the

second course of a year sequence and should be taken in the same academic year as 602.

**MATH 611 Modern Algebra (3)** Modules, Sylow theorems, Jordan–Holder theorem, unique factorization domains, Galois theory, algebraic closures, transcendence bases. (These topics are covered in the year sequence 611–612.)

**MATH 612 Modern Algebra (3)** Continuation of 611. This is the second course of a year sequence and should be taken in the same academic year as 611.

**MATH 613 Group Theory (3)** Sylow theorems, solvable groups, nilpotent groups, extension theory, representation theory, additional topics.

**MATH 615 Ring Theory (3)** Ideal theory in Noetherian rings, localization, Dedekind domains, the Jacobson radical, the Wedderburn–Artin theorem, additional topics.

**MATH 618 Lattice Theory (3)** Introduction with applications to general algebra. Partially ordered sets, decomposition theory, representations of lattices, varieties and free lattices, coordinatization of modular lattices.

**MATH 619 Universal Algebra (3)** Introduction to basic techniques, including subalgebras, congruences, automorphisms and endomorphisms, varieties of algebras, Mal'cev conditions.

**MATH 621 Topology (3)** Properties of topological spaces; separation axioms, compactness, connectedness; metrizable; convergence and continuity. Additional topics from general and algebraic topology. (These topics are covered in the year sequence 621–622.)

**MATH 622 Topology (3)** Continuation of 621. This is the second course of a year sequence and should be taken in the same academic year as 621.

**MATH 625 Differentiable Manifolds I (3)** Differentiable structures on manifolds, tensor fields, Frobenius theorem, exterior algebra, integration of forms, Poincaré Lemma, Stoke's theorem.

**MATH 631 Theory of Functions of a Real Variable (3)** Lebesgue measure and integral, convergence of integrals, functions of bounded variation, Lebesgue–Stieltjes integral and more general theory of measure and integration. (These topics are covered in the year sequence 631–632.)

**MATH 632 Theory of Functions of a Real Variable (3)** Continuation of 631. This is the second course of a year sequence and should be taken in the same academic year as 631.

**MATH 637 Calculus of Variations (3)** Simple variational problems, first and second variation formulas. Euler–Lagrange equation, direct methods, optimal control.

**MATH 644 Analytic Function Theory (3)** Conformal mapping, residue theory, series and product developments, analytic continuation, special functions. (These topics are covered in the year sequence 644–645.)

**MATH 645 Analytic Function Theory (3)** Continuation of 644. This is the second course of a year sequence and should be taken in the same academic year as 644.

**MATH 649 (Alpha) Topics in Mathematics (3)** (B) logic; (D) analysis; (E) commutative rings; (F) function theory; (G) geometric topology; (H) operator theory; (I) probability; (J) algebra; (K) special; (M) lattice theory and universal algebra; (N) non-commutative rings; (O) transformation groups; (P) partial differential equations; (Q) potential theory; (R) algebraic topology; (S) functional analysis; (T) number theory and combinatorics; (U) differentiable manifolds II. Repeatable up to nine credits for (U); unlimited times for the other alphas.

**MATH 655 Set Theory (3)** Axiomatic development, ordinal and cardinal numbers, recursion theorems, axiom of choice, continuum hypothesis, consistency and independence results.

**MATH 657 Recursive Functions and Complexity (3)** Recursive, r.e., Ptime, and Logspace classes.

Nondeterminism, parallelism, alternation, and Boolean circuits. Reducibility and completeness.

**MATH 671 Advanced Probability (3)** Independence and conditioning, martingales, ergodic theory, Markov chains, central limit theorem. A-F only. Pre: 631 (with a minimum grade of B) or consent. (Alt. years)

**MATH 672 Stochastic Processes (3)** Stationary, Gaussian, and Markov processes. A-F only. Pre: 671 (with a minimum grade of B) or consent. (Alt. years)

**MATH 681 Graph Theory (3)** Connected graphs and digraphs. Graph embeddings. Connectivity and networks. Factors and factorizations. Coverings. Coloring. Applications.

**MATH 695 Directed Reading and Research for Plan B Masters Students (V)** Maximum of 3 credit hours. Repeatable two times. Graduate standing in MATH. A-F only.

**MATH 699 Directed Reading and Research (V)** Maximum of 3 credit hours. Repeatable unlimited times.

**MATH 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times. Pre: consent.

**MATH 799 Apprenticeship in Teaching (V)** An experience-based introduction to college-level teaching; students serve as student teachers to professors; responsibilities include supervised teaching and participation in planning and evaluation. Open to graduate students in mathematics only. Repeatable up to six credits. CR/NC only. Pre: graduate standing in mathematics and consent.

**MATH 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

## Mechanical Engineering (ME)

### College of Engineering

*Preference in registration is given to declared engineering majors. Please consult the current Schedule of Courses for confirmed offerings each semester.*

**ME 113 Introduction to Engineering Design I (2)** (1 Lec, 1 2-hr Lab) Introductory experience in analysis, synthesis, and design. Teamwork and project required. Pre: high school physics or consent.

**ME 213 Introduction to Engineering Design (3)** (1 Lec, 1 2-hr Lab) Introductory experience in communication, presentation, professional ethics, social responsibility, engineering economics, quality control, and computer-aided drafting. Teamwork and project required. Pre: PHYS 170.

**ME 271 Applied Mechanics II (3)** Dynamics of particles and rigid bodies; force, acceleration, impulse-momentum, work-energy. A-F only. Pre: C or better in CEE 270; MATH 244 (or concurrent) or MATH 253A (or concurrent). (Cross-listed as CEE 271) DP

**ME 311 Thermodynamics (4)** Basic laws, closed and open systems. Work, heat, concept of entropy. Properties of pure simple substances. Ideal gases. Introduction to power and refrigeration cycles. Pre: grade of C or better in PHYS 170 and MATH 244 (or MATH 253A). DP

**ME 312 Applied Thermodynamics (3)** Gas mixtures, generalized thermodynamic relationships, combustion and thermochemistry, chemical equilibrium, power and refrigeration cycles. Pre: grade of C or better in 311. DP

**ME 322 Mechanics of Fluids (3)** Incompressible and compressible ideal fluids, effects of viscosity. Similitude, boundary layer flow, elementary gas dynamics. Pre: grade of C or better in 311 and CEE 271 or ME 271. (Spring only) DP

**ME 331 Materials Science and Engineering (3)** Electronic, atomic, and crystalline structure of materials and their effect on the mechanical, electrical, optical, and magnetic properties of engineering metals, ceramics, polymers, and composites. Pre: CHEM 162, MATH 242 and PHYS 170. DP

**ME 341 Manufacturing Processes (3)** Manufacturing components. Energy requirements for various

manufacturing methods. Selection and design of manufacturing methods to obtain components with desired size/shape/properties. Pre: 331 or consent. DP

**ME 342 Manufacturing Processes Lab (2)** (1 Lec, 1 2-hr Lab) Manufacturing laboratory: tension/compression tests, cold rolling, welding, casting, statistical process control, programming and milling using a CNC machine. Pre: 341 (or concurrent) or consent. DY

**ME 360 Computer Methods in Engineering (3)** Numerical solutions for algebraic and transcendental equations, simultaneous linear algebraic equations, integration and differentiation; integration of ordinary differential equations. Engineering applications. Pre: MATH 190 (or EE 160), MATH 244 (or MATH 253A) and MATH 302 (or MATH 307).

**ME 371 Mechanics of Solids (3)** Stress, strain and constitutive relations for elastic solids. Design of shafts, beams, columns and cylinders. Failure theories, statically indeterminate systems. Pre: CEE 270 (grade of C or better), MATH 244 (or MATH 253A) and MATH 302 (or MATH 307). DP

**ME 372 Component Design (3)** Design, analysis, and selection of machine components: shafts, screws, fasteners, welds, rolling contact bearings, journal bearings, gears, clutches, brakes, belts, and roller chains. Pre: 213, and either 371 or CEE 370. DP

**ME 374 Kinematics/Dynamics Machinery (3)** Velocity and acceleration analysis of planar mechanisms; kinematic synthesis of linkages, cams, and gears; static and dynamic force analysis of mechanisms; balancing of machinery. Pre: CEE 271 or ME 271 (C or better), MATH 244 (or MATH 253A) and either MATH 302 or MATH 307. DP

**ME 375 Dynamics of Machines and Systems (3)** Lumped-parameter modeling of dynamic physical systems. Methods of analysis, including transform techniques. Time response and frequency response. Modal analysis. Pre: CEE 271 or ME 271 (C or better), and either MATH 302 or MATH 307. DP

**ME 402 Dynamics Systems Laboratory (2)** (1 Lec, 1 2-hr Lab) Analysis, design, fabrication, testing and characterization of engineering instrumentation. Computer-based data acquisition methods. Techniques and procedures associated with carrying out dynamic measurements within the constraints of cost, time and accuracy. A-F only. Pre: one of 360, MATH 407, or PHYS 305 (or concurrent for any); and 375 (or concurrent). DY

**ME 403 Advanced Mathematics for Engineers (3)** Applications of ordinary differential equations, Laplace transform, vector field theory, matrices, line integrals. Pre: MATH 244 (or MATH 253A), and MATH 302 (or MATH 307).

**ME 404 Computational Fluid Dynamics (3)** Basic computational fluid dynamics; four important partial differential equations; introduction to finite element method: Interpolation and Galerkin method; finite element method for transport phenomena; some algorithms for parallel computing. A-F only. Pre: 422 (or concurrent), and either 360, MATH 407 or PHYS 305; or consent. (Once a year)

**ME 417 Applied Thermal Engineering (3)** Principles, design and analysis of practical thermal systems. Engineering applications. Valve, compressor, condenser and evaporator technologies. System integration and control. Thermal loads and thermal comfort. Pre: 312 and 422 (or concurrent). DP

**ME 418 Power and Propulsion (3)** Principles, performance, and design of gas turbine power plants and propulsion systems. Pre: 312 and 422 (or concurrent). DP

**ME 419 Astronautics (3)** The space environment (vacuum, neutral, radiation, and plasma); motion in gravitational fields; orbit transfers; Earth-satellite operations; rocketry; propulsion analysis and performance; reentry dynamics; interplanetary trajectories; attitude dynamics and stabilization. A-F only. Pre: 422 or consent. (Spring only)

**ME 422 Heat Transfer (3)** Steady and unsteady conduction; steady convection and radiation; heat exchangers. Pre: 322. (Fall only) DP

**ME 423 Mass Transfer (3)** Elementary mass diffusion; diffusion in a stationary medium; diffusion in a moving medium; low and high mass transfer theories; simultaneous heat and mass transfer; condensation, evaporation, and boiling; transpiration cooling; species boundary layers; engineering and design of heat and mass exchangers; current refrigerants and environmental regulations. A-F only. Pre: 422 or consent. DP

**ME 424 Introduction to Gas Dynamics (3)** One-dimensional compressible flow involving change of area, friction, heat transfer. Normal and oblique shocks. Prandtl-Meyer flow. Application to nozzles, diffusers, airfoils. Pre: 312 and 322. DP

**ME 425 Thermal Management of Electronic Systems (3)** To introduce concepts in the thermal management of electronics, and to develop sound technical tools to approach modern electronic packaging and cooling applications. A-F only. Pre: 422 or consent. (Spring only)

**ME 426 Scaling Methods in Engineering (3)** Scaling methods and optimization under global constraints; multi-scale optimal design of mechanical, thermal, and natural systems; effectiveness of heat, fluid, and convective trees; theoretical design optimization of manmade and natural power systems; analysis of time dependent structures. A-F only. Pre: 371 and 422, or consent. (Spring only)

**ME 433 Failures in Materials (3)** Analysis of component failures due to imperfections, fatigue, brittle fracture, wear, corrosion, bending, impact, and overload. Fracture mechanics. Case studies. Pre: 331 or consent. DP

**ME 434 Materials Selection for Design (3)** Methodology for the selection of materials for mechanical applications to prevent mechanical failure and environmental degradation. Design considerations associated with the use of metals, ceramics, polymers, and composites. Pre: 341 and 371, or consent. DP

**ME 435 Experimental Methods in Materials Research (3)** (1 Lec, 2 2-hr Lab) Common experimental techniques in materials testing and research: x-ray diffraction, optical and electron microscopy, thermal and mechanical properties, electrochemical methods—theory and hands-on experience. Pre: 341 and consent.

**ME 436 Corrosion Engineering (3)** Basics of corrosion processes and emphasis on corrosion control. Thermodynamics and kinetics of corrosion, metal alloys and their behavior, corrosion control techniques (cathodic protection, anodic protection, coatings, and inhibitors). Pre: 341 and 342, or consent. DP

**ME 446 Advanced Materials Manufacturing (3)** (2 Lec, 1 2-hr Lab) Introduction to anisotropic materials, advanced manufacturing techniques for composite and intelligent materials, joining of composites, thin film processing and stereolithography, computer aided manufacturing and rapid prototyping, manufacturing process optimization, open-ended manufacturing projects. Pre: 341, 342, and senior standing; or consent. DP

**ME 447 Introduction to Nanotechnology (3)** (3 Lec) Tools and techniques of micro- and nanotechnology in design, modeling, simulations, analysis, fabrication, testing and characterization; nano-materials, nano-structures, nano-composites, nano-coating, nano-optics, nano-electronics and nano-biotechnology. A-F only. Pre: senior standing or consent. DP

**ME 451 Feedback-Control Systems (3)** Analysis/design of feedback systems. Compensator design via root locus and Bode analysis. Routh/Nyquist stability. State space representation and introduction to MIMO formulation. Controllability/observability. Application to physical dynamic systems such as industrial robots. Pre: 375 or EE 315 or consent. DP

**ME 452 Robotics (3)** Principles and design methods for autonomous systems. Pre: senior standing. DP

**ME 453 Energy Conversion Systems (3)** Energy conversion and its impact on the environment. Conventional, hydroelectric, nuclear fission and fusion, solar, wind, ocean, geothermal, and biomass power; energy storage, transmission and conservation. Pre: 312, 322, and 422 (or concurrent); or consent. **DP**

**ME 455 Nuclear Power Engineering (3)** Nuclear reactor principles. Reactor heat transfer, heat generation and removal. Design and analysis of reactor power systems and plants. Pre: 312 and 422. **DP**

**ME 471 Experimental Stress Analysis (3)** (1-3 hr Lab) Techniques of experimental stress analysis: strain and deflection measurement of beams and shafts, strain to stress conversion, principal and maximum shearing stresses, failure in biaxial stress states, stress concentrations, residual stresses, buckling, creep, electrical resistance strain gages, brittle coatings, photoelastic methods, transducers. A-F only. Pre: 371 and departmental approval. (Spring only)

**ME 473 Mechanical Vibrations (3)** Response of machines and systems to transient and periodic excitation. Vibration isolation and transmissibility. Modal analysis of multi-degree-of-freedom systems. Applications to design. Pre: 371, 375; or consent. **DP**

**ME 474 Fundamentals of Acoustics (3)** Plane and spherical acoustic waves. Transmission, reflection, radiation, and absorption. Near and far fields, radiation patterns. Applications to noise control. Instruments. Pre: 375, EE 211; or consent. **DP**

**ME 480 Thermofluid Measurements and Design (3)** Measurement techniques in thermodynamics, fluid mechanics, and heat transfer. Hands-on experience with instrumentation. Open-ended design of thermofluid systems. Contemporary engineering ethics issues. Final report and presentation are required. A-F only. Pre: 422 (or concurrent).

**ME 481 Design Project I (3)** (1 1-hr Lec, 2 2-hr Lab) Engineering ethics, engineering design methodology, design process, project planning, decision making, materials selection, economic analysis, quality control, finite element analysis, initiation of an open-ended design project. A-F only. Pre: 372 (or consent) and 375 (or concurrent).

**ME 482 Design Project II (3)** (1 Lec, 2 2-hr Lab) Continuation of design project initiated in ME 481. Extension of conceptual design to final design and a prototype. Analysis, materials and part selection, synthesis of working systems. Computer-aided design and finite element modeling. Manufacturing specifications, shop drawings, and a final report are required. A-F only. Pre: 481.

**ME 491 Special Topics in Mechanical Engineering (3)** Specialized topics in thermosciences, mechanics, materials, systems, or design. Pre: consent.

**ME 492 Special Topics in Mechanical Engineering (3)** Specialized topics in thermosciences, mechanics, materials, systems, or design. Pre: consent.

**ME 499 Project (V)** Investigation of advanced problems in mechanical engineering design or development. Student must find faculty sponsor before registering. Pre: senior standing.

**ME 500 Master's Plan B/C Studies (1)**

**ME 610 Renewable Energy Engineering and Sustainability (3)** Analysis of principles of operation of renewable energy systems, and its interactions with sustainability. Fundamentals of renewable energy production, storage, and distribution. Pre: consent.

**ME 611 Advanced Thermodynamics (3)** Introduction to general principles of classical thermodynamics. Main topics include equilibrium conditions, thermodynamic relations, Legendre transformations, Maxwell relations, stability of thermodynamic systems, phase transitions, and critical phenomena. Graduate students only. A-F only. Pre: 311 or consent.

**ME 615 Advanced Aerodynamics (3)** Advanced topics in aerodynamics, two- and three-dimensional wing theory, slender-body theory, lifting surface methods, vortex and wave drag, analytical and

numerical methods, for computing unsteady aerodynamic behavior and introduction to flight-dynamics. A-F only. Pre: 322 and 626, or consent. (Once a year)

**ME 618 Boiling and Two-Phase Flow (3)** Two-phase flow pattern and flow pattern maps; two-phase flow models (homogeneous, separate, drift flux, annular); laminar and turbulent film condensations; boiling incipience; pool boiling heat transfer; flow boiling heat transfer; critical heat flux (CHF). A-F only. Pre: 422 (or equivalent) or consent. (Spring only)

**ME 620 Biological Fluid Mechanics (3)** Review of Newtonian fluid mechanics. Blood rheology and flow in elastic tubes. Murray's Law and pulsatile flow propagation. Microcirculation dynamics and biological transport. Aquatic movement and comparative biological examples. Pre: 322 and 422, or consent. (Spring only)

**ME 622 Convection Heat Transfer (3)** Heat transfer in laminar and turbulent boundary layers. Analogy between heat, momentum, mass transfer. Pre: 422 and 626.

**ME 625 Numerical Methods in Fluid Mechanics and Heat Transfer (3)** Integration of ordinary differential equations. Finite difference solutions of partial differential equations with applications to conduction and convection. Introduction to finite element methods. Pre: 422, and either MATH 190 or EE 160.

**ME 626 Viscous Flows (3)** Formulation and properties of the Navier-Stokes equations; exact solutions; creeping flows; lubrication theory; laminar boundary layers; laminar stability, and transition to turbulence; turbulent boundary layers. Pre: 322. (Fall only)

**ME 630 Rheology (3)** Vector and tensor operations. Constitutive equations. Generalized Newtonian fluids and linear viscoelastic fluids. Rheometry and experiments. Flow of suspensions. Advanced topics and rheology of polymers, food products, biomaterials and asphalt, laboratories. Pre: 626 or consent. (Spring only)

**ME 635 Corrosion Theory (3)** Application of electrochemical theory and materials science to corrosion and oxidation reactions. Effect of environment, especially marine. Cathodic protection, coatings, inhibitors, treatment of water systems. Pre: 331.

**ME 636 Fundamentals of Electrochemistry (3)** Thermodynamics of cells, electrode kinetics, mass transfer by migration and diffusion, microelectrode techniques, forced convection, impedance, double-layer structure, and adsorbed intermediates in electrode processes. Pre: consent.

**ME 645 Clinically Driven Design and Development (3)** Exploration of simple, cost-effective alternatives in medicine through different stages of concept generation, design analysis, and prototype validation and investigation of their commercialization potential. Graduate students only. Pre: 342 or consent.

**ME 646 Mechanics and Design Composites (3)** Introduction to composites; anisotropic elasticity and laminate theory; hygrothermal effects; composite beams, columns, rods, plates, and shells; energy method; failure theories; joining of composites, computer-aided design in composites. Pre: 371 or consent.

**ME 647 Nanoscience and Nanotechnology (3)** Science and applications of nanotechnology. Synthesis of nanostructures; nanoscale structure characterization by electron microscopy and Raman spectroscopy; electrical, thermal, and mechanical properties of nanostructures; fabrication of nanodevices; energy, environmental, and biological applications of nanomaterials. A-F only.

**ME 650 Surface Phenomena (3)** Fundamental and modern concepts of colloid and surface science. Main topics include surface thermodynamics, capillarity and wetting phenomena, surface forces, surfactants, and particles. Pre: 311 or consent. (Fall only)

**ME 651 Automatic Control (3)** Linear optimal feedback control, discrete time optimal control, fundamentals of adaptive control, application to motion and force control of robot arms and manipulators. Pre: 451, EE 351; or consent.

**ME 660 Introduction to Fuel Cell Technology (3)** Working principles of all major fuel cell types; fundamentals of proton exchange membrane (PEM) fuel cells; state-of-the-art theoretical models and diagnostic technologies for PEM fuel cells. A-F only. Pre: 422 (or equivalent) or consent. (Spring only)

**ME 671 Continuum Mechanics (3)** Cartesian tensors in mechanics, coordinate transformations, analysis of stress and strain, principal values, invariants, equilibrium and compatibility equations, constitutive relations, field equations. Problems in elasticity. Recommended: 371 or CEE 370, or consent. (Cross-listed as CEE 671)

**ME 672 Finite Element Analysis (3)** Introduction to finite element analysis and design in mechanical engineering. Applications to machine design, vibrations, elasticity, heat transfer. Pre: 360, 371; or consent.

**ME 678 Advanced Dynamics (3)** Lecture on rigid-body dynamics. Topics include: dynamical systems; motion representation and constraints; Newtonian mechanics; Lagrangian mechanics; Hamilton's principle; stability analysis; introduction to multibody dynamics. Pre: 375 or equivalent, or consent.

**ME 680 High Growth Entrepreneurship (V)** An interdisciplinary (JD-MBA) course examining legal, business, and technology issues related to building high growth companies. Student teams develop company feasibility reports and skills necessary to advise or build high growth businesses. Recommended: 531. Law students only. (Once a year) (Cross-listed as LAW 560)

**ME 691 Seminar (1)** Current problems in all branches of mechanical engineering. All graduate students are required to attend; registrants are expected to present talks. Pre: graduate standing.

**ME 696 Advanced Topics in Mechanical Engineering (V)** Highly specialized topics in thermosciences, mechanics, materials, system, or design. Pre: consent.

**ME 699 Directed Reading or Research (V)** Directed study on subject of mutual interest to student and a staff member. Student must find faculty sponsor before registering. Repeatable unlimited times. Pre: graduate standing.

**ME 700 Thesis Research (V)** Thesis for degree of MS in mechanical engineering. Repeatable unlimited times. Pre: admission to candidacy and consent of thesis advisor.

**ME 799 Directed Instruction (V)** Student assists in undergraduate classroom and/or project instruction under the direction and close supervision of faculty member. CR/NC only. Pre: admission to PhD candidacy or consent.

**ME 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times. Pre: candidacy for PhD in mechanical engineering.

## Medical Education (MDED)

### School of Medicine

**MDED 527 Evidence-Based Medicine (1)** Critical appraisal track designed to improve the student's ability to seek and evaluate new medical knowledge. MD majors only. CR/NC only. (Spring only)

**MDED 528 Unit 8 Block Electives (V)** Through lectures, self-assessments and independent study, second-year medical students will consolidate their knowledge of the application of the biological sciences to patient care. CR/NC only. Pre: 557.

**MDED 541 Clinical Skills Assessment (1)** Required comprehensive interdepartment multidisciplinary assessment program for fourth-year medical students. CR/NC only. Pre: FMCH, MED, OBGN, PED, PSTY, SURG 531 or 532.

**MDED 545 (Alpha) Senior Interdisciplinary Electives (V)** Fourth-year elective in which students study selected interdisciplinary topics. CR/NC only. (B) medical education elective; (C) complementary and alternative medicine; (D) leadership in underserved care. MED majors only for (D). CR/NC only for (D). Pre: FMCH, MED, OBGN, PED, PSTY, SURG 531 or 532. (Spring only for (D))

**MDED 551 MD 1 Health and Illness (5)** Introduction to concepts of health and disease through lectures, laboratories, and colloquia intended to broaden the learning from MD 1 health care problems in tutorials. MD majors only. CR/NC only. Pre: consent. Co-requisite: 551L. (Fall only)

**MDED 551L MD 1 Health and Illness Tutorials (3)** Introductory series of problem-based learning tutorials for first-year medical students focusing on concepts of health and disease through MD 1 health care problems. MD majors only. CR/NC only. Co-requisite: 551. (Fall only)

**MDED 552 MD 2 CV/Pulmonary (7)** Concepts focusing on cardiovascular and pulmonary systems through integrated basic science lectures, laboratories, and colloquia intended to broaden the learning from MD 2 health care problems in tutorials. CR/NC only. Pre: 551 and 551L. Co-requisite: 552L. (Fall only)

**MDED 552L MD 2 CV/Pulmonary Tutorials (4)** Advanced series of problem-based learning tutorials for first-year medical students focusing on cardiovascular and pulmonary health care problems. CR/NC only. Pre: 551 and 551L. Co-requisite: 552. (Fall only)

**MDED 553 MD 3 Renal/Hematology (7)** Concepts focusing on renal and hematologic systems through integrated basic science lectures, laboratories, and colloquia intended to broaden the learning from MD 3 health care problems in tutorials. CR/NC only. Pre: 552 and 552L. Co-requisites: 553L. (Spring only)

**MDED 553L MD 3 Renal/Hematology Tutorials (4)** Advanced series of problem-based learning tutorials for first-year medical students focusing on renal and hematologic health care problems. CR/NC only. Pre: 552 and 552L. Co-requisite: 553. (Spring only)

**MDED 554 MD 4 GI/Endocrine (7)** Concepts focusing on gastrointestinal and endocrine systems through integrated basic science lectures, laboratories, and colloquia intended to broaden the learning from MD 4 health care problems in tutorials. CR/NC only. Pre: 553 and 553L. Co-requisite: 554L. (Spring only)

**MDED 554L MD 4 GI/Endocrine Tutorials (4)** Advanced series of problem-based learning tutorials for first-year medical students focusing on gastrointestinal and endocrine health care problems. CR/NC only. Pre: 553 and 553L. Co-requisite: 554. (Spring only)

**MDED 556 MD 6 Locomotor System, Nervous System and Behavioral Problems (8)** Concepts focusing on the locomotor/neurological systems and behavioral problems through integrated basic science lectures, laboratories, and colloquia intended to broaden the learning from MD 6 health care problems in tutorials. CR/NC only. Pre: 554 and 554L. Co-requisite: 556L. (Fall only)

**MDED 556L MD 6 Locomotor System, Nervous System, and Behavioral Problems (6)** Advanced series of problem-based learning tutorials for second-year medical students focusing on neurological/locomotor systems and behavioral health care problems. CR/NC only. Pre: 554 and 554L. Co-requisite: 556. (Fall only)

**MDED 557 MD 7 The Life Cycle (7)** Concepts focusing on the life cycle through integrated basic science lectures, laboratories, and colloquia intended to broaden the learning from MD 7 health care problems in tutorials. CR/NC only. Pre: 556 and 556L. Co-requisite: 557L. (Spring only)

**MDED 557L MD 7 The Life Cycle Tutorials (4)** Advanced series of problem-based learning tutorials

for second-year medical students focusing on the life cycle health care problems. CR/NC only. Pre: 556 and 556L. Co-requisite: 557. (Spring only)

**MDED 563 Third Year Colloquia (2)** A series of lecture-discussions intended to broaden the perspectives of the Unit VI experiences and health-care problems. Repeatable one time. CR/NC only. Pre: 551 and 557.

**MDED 564 Senior Seminars (4)** Review of topics and issues that will prepare senior students for the end of their undergraduate training and the start of their internship. CR/NC only.

**MDED 571 Introduction to Clinical Skills (2)** Introductory lectures and laboratories on history taking and physical exam skills. Repeatable one time. MD majors only. CR/NC only. Pre: consent. Co-requisite: 551. (Fall only)

**MDED 572 Unit 2 Clinical Skills (2)** History and physical exam skills pertinent to the health care problems in Unit 2. MD majors only. CR/NC only. Pre: 571 or consent. (Fall only)

**MDED 573 Unit 3 Clinical Skills (2)** History and physical exam skills pertinent to the health care problems in Unit 3. MD majors only. CR/NC only. Pre: 572 or consent. (Spring only)

**MDED 574 Unit 4 Clinical Skills (2)** History and physical exam skills pertinent to the health care problems in Unit 4. MD majors only. CR/NC only. Pre: 573 or consent. (Spring only)

**MDED 576 Unit 6 Clinical Skills (3)** History and physical exam skills pertinent to the health care problems in Unit 6. MD majors only. CR/NC only. Pre: 574 or consent. (Fall only)

**MDED 577 Unit 7 Clinical Skills (2)** History and physical exam skills pertinent to the health care problems in Unit 7. MD majors only. CR/NC only. Pre: 576 or consent. (Spring only)

**MDED 581 Unit 1 Community Health (2)** Field experience placing students in community settings to work with health care professionals as they provide services to patients. Repeatable two times. MD majors only. CR/NC only. Pre: consent. Co-requisites: 551 and 571. (Fall only)

**MDED 582 Unit 2 Community Health (2)** Field experience placing students in community settings to work with health care professionals as they provide services to patients. Repeatable two times. MD majors only. CR/NC only. Pre: 581 or consent. (Fall only)

**MDED 583 Unit 3 Community Health (2)** Field experience placing student in community settings to work with health care professionals as they provide services to patients. MD majors only. CR/NC only. Pre: 582 or consent. (Spring only)

**MDED 584 Unit 4 Community Health (2)** Field experience placing student in community settings to work with health care professionals as they provide services to patients. MD majors only. CR/NC only. Pre: 583 or consent. (Spring only)

**MDED 590 (Alpha) Preclinical Electives (V)** Elective for first and second year medical students. (B) projects in medical education; (C) healer's art; (D) introduction to student research; (E) health and wellness; (F) quality improvement. Repeatable one time. CR/NC only. Pre: 551.

**MDED 595 (Alpha) Topics in Medical Education (V)** Summer selectives in medical education for second-year medical students. (B) rural health preceptorship; (C) health issues of the Pacific Basin; (D) projects in medical education; (E) manikin simulations; (F) learning resources; (G) cardiovascular case maps; (H) pulmonary case maps; (I) clinical skills preceptors; (J) global health perspectives. Repeatable up to four credits. MD majors only. CR/NC only. Pre: 554. (Fall only)

**MDED 599 Research in Medical Education (V)** An elective for medical students to work on research projects related to improving medical education, student wellness, and community health under the

direction of a faculty member in the Office of Medical Education. Repeatable nine times.

## Medical History (MDHX)

### School of Medicine

**MDHX 699 Directed Research (V)** Repeatable unlimited times.

## Medical Technology (MEDT)

### School of Medicine

**MEDT 151 Introduction to Medical Technology (2)** Designed to acquaint students to the field of medical technology (clinical laboratory science). Repeatable one time.

**MEDT 301 The Clinical Laboratory (3)** (2 Lec, 1 3-hr Lab) Theory and clinical application of medical laboratory methods and healthcare professional relationships. MEDT majors only. Repeatable one time. Pre: consent.

**MEDT 331 Clinical Lab Management (3)** Student will become familiar with fundamental administration of a clinical laboratory to include technical, personnel, and financial management areas. Repeatable one time. CR/NC only. Pre: consent.

**MEDT 431 Clinical Parasitology (2)** (1 Lec, 1 3-hr Lab) Modern diagnostic practices in parasitology. Repeatable one time. Pre: MICR 351 or consent.

**MEDT 451 Hematology (1)** (1 3-hr Lab) Fundamental study of blood in normal and pathological states: formation, development, and classification of blood cells. MEDT majors only. Pre: major or consent.

**MEDT 451L Hematology Lab (2)** (1 Lec, 1 3-hr Lab) Laboratory to accompany MEDT 451. MEDT majors only. Pre: major or consent. Co-requisite: 451.

**MEDT 463 Clinical Microbiology II (3)** (1 Lec, 2 3-hr Lab) Modern practices in diagnostic microbiology. Repeatable one time. MEDT majors only. A-F only. Pre: 431 or consent.

**MEDT 464 Immunohematology (3)** (2 Lec, 1 3-hr Lab) Antigen-antibody relationships in human blood, study of blood groups, clinical problems in transfusion. Repeatable one time. MEDT majors only. Pre: MICR 461 or consent. (Spring only)

**MEDT 471 Clinical Biochemistry I (4)** Biochemical processes in human health and disease states. Repeatable one time. MEDT majors only. Pre: CHEM 273 or consent. (Spring only) DB

**MEDT 472 Clinical Biochemistry II (4)** Continuation of 471. Repeatable one time. MEDT majors only. Pre: 471 or consent. (Once a year)

**MEDT 477 Clinical Lab Methods and Analyses I (3)** (1 6-hr Lab) Lab experiments illustrating fundamental principles and methods of clinical laboratory analyses. Repeatable one time. MEDT majors only. Pre: 471.

**MEDT 478 Clinical Lab Methods and Analyses II (3)** (2 Lec, 1 3-hr Lab) Continuation of 477. Pre: 477.

**MEDT 481 Professional Issues in Medical Lab Science (1)** Discussions about various professional issues through oral presentations and critiquing of peer presentations. Repeatable one time. MEDT majors only. Pre: 451L.

**MEDT 495 Special Topics in Medical Technology (V)** Acquaints student with role of the medical technologist and overlap of major sciences in clinical situations to help student develop qualities unique to med technology. Repeatable one time. CR/NC only. Pre: consent.

**MEDT 499 Directed Reading and Research (V)** Repeatable one time.

**MEDT 531 Advanced Lab Management Concepts and Contemporary Issues (1)** Concepts in clinical laboratory management and discussion of contemporary issues for graduates and practicing clinical laboratory scientists. Repeatable one time. Pre: 331 or consent. (Summer session only)

**MEDT 551 Advanced Clinical Laboratory Hematology and Hemostasis (1)** Advanced-level study of hematology and hemostasis through clinical laboratory cases. Repeatable one time. Pre: 451 or consent. (Summer only)

**MEDT 591 Clinical Training in Medical Technology (28)** Application of theory and simulated laboratory experiences in immuno-hematology, clinical chemistry, microbiology, parasitology, hematology, coagulation, urinalysis, immunology, to meet stated career entry-level competencies. Repeatable one time. Pre: BS in MEDT.

**MEDT 690 Seminar in Medical Technology (1)** Analysis of research and recent literature pertaining to various aspects of medical technology. Repeatable one time. Pre: consent.

## Medicine (MED)

### School of Medicine

**MED 531 Internal Medicine Clerkship (16)** Required for third-year medical students, 11-week duration. Ambulatory care and hospital-based experience. Pre: third-year medical student standing.

**MED 532 Internal Medicine Longitudinal Clerkship (8)** Six-month long clerkship in ambulatory setting, and six-week hospital-based experience. Repeatable one time. Pre: third-year standing and concurrent registration in 532 courses.

**MED 541 Advanced Medicine Clerkship (6)** Required 4 weeks duration for fourth-year medical students. Advanced experiences in ambulatory and hospital-based medical care. Proficiency in this course may be established by examination. CR/NC only. Pre: fourth-year standing and completion of 531, or consent.

**MED 545 (Alpha) Electives in Medicine (V)** Fourth-year electives in which students study selected topics within field of medicine. (B) allergy/immunology; (C) cardiology; (D) medicine elective in Asia; (E) dermatology; (F) endocrinology; (G) gastroenterology; (H) general internal medicine: ambulatory care; (I) general internal medicine: inpatient; (K) hematology; (M) nephrology; (N) neurology; (O) nuclear medicine; (P) oncology; (Q) pulmonary diseases; (R) research in medicine; (S) rehabilitation medicine; (T) rheumatology; (W) internal medicine sub-internship. Pre: 531 or 532 for (C), (E), (F), (G), (H), (K), (M), (N), (O), (Q), (R), (S), and (T); 541 for (D) and (W).

**MED 546 (Alpha) Electives in Medicine (V)** Fourth-year electives in which students study selected topics within field of medicine. (B) extramural electives in medicine (miscellaneous); (C) internal medicine seminar; (D) infectious disease; (E) internal medicine sub-internship; (F) research in bioethics; (G) neurology critical care; (H) medical informatics. Repeatable one time for (B)–(E); not repeatable for (F); repeatable two times for (H); repeatable three times for (G). CR/NC only. Pre: 531 or 532 for (B) and (C); 541 for (E) and (H).

**MED 599 Directed Research (V)** Pre: consent.

## Meteorology (MET)

### School of Ocean and Earth Science and Technology

**MET 101 Introduction to Meteorology (3)** For nonscience majors and prospective science teachers. Basic atmospheric physics, sun-Earth-atmosphere interrelationships, pollution, major weather systems, weather forecasting, weather of Hawai'i. DP

**MET 101L Introduction to Meteorology Lab (1)** (1 3-hr Lab) Exercises with meteorological data and measurement systems. Characteristics of Hawaiian winds, temperatures, and rainfall. Pre: 101 (or concurrent) or 200 (or concurrent). DY

**MET 199 Introduction to MET Undergraduate Directed Research (V)** Students gain familiarity with MET research. Students can select 1–3 credits per semester for maximum 6 credits over 4 semesters. Students must pre-arrange research and reading content with instructor. Repeatable up to six credits.

Freshman and sophomore standing only. CR/NC only. Pre: instructor approval.

**MET 200 Atmospheric Processes and Phenomena (3)** Atmospheric variables, gas laws, radiation processes, thermodynamics, conservation laws, dynamic approximations, clouds and precipitation, convection, atmospheric circulations, mid-latitude and tropical weather systems, forecasting, climate. Pre: PHYS 170 and MATH 241. DP

**MET 302 Atmospheric Physics (3)** Energy and thermodynamics, statics and stability, physical processes of cloud formation, radiation and Earth-atmosphere heat balance, kinetic theory, optical effects. Pre: MATH 242, PHYS 272, and MET 200; or consent. DP

**MET 303 Introduction to Atmospheric Dynamics (3)** Scalar and vector development of basic laws of hydrodynamics, equations of motion, kinematics, divergence and vorticity, viscosity and turbulence, introduction to numerical weather prediction, general circulation. Pre: 302 and MATH 244. DP

**MET 305 Meteorological Instruments and Observations (3)** (2 Lec, 1 3-hr Lab) First- and second-order measurement systems. Response of wind, temperature, and recording instruments. Discussion of advance system including radar. Planning of field programs. Pre: 302 and PHYS 272/272L. DP

**MET 310 Global Environmental Change (3)** Global environmental change problems such as carbon dioxide and the greenhouse effect, acid rain, chlorofluorocarbons and the ozone layer, global deforestation and the effect on climate, etc. Pre: 200, OCN 201, GG 101, GG 103, or GG 170; or consent. (Cross-listed as OCN 310) DP

**MET 320 Programming for Meteorologists (3)** Scientific programming in Fortran 77, graphics software and meteorological applications. A-F or Audit. Pre: 302 (or concurrent) and MATH 241; or consent.

**MET 395 Undergraduate Internship (V)** Experiential approach to earth science; students serve as interns to field professionals; responsibilities include supervised field work. Open to undergraduate SOEST majors. Repeatable one time. CR/NC only. Pre: junior/senior standing and consent. (Fall only)

**MET 402 Applied Atmospheric Dynamics (3)** Advanced concepts in dynamics: vorticity, cyclogenesis, jet streams, fronts, mesoscale circulations. Pre: 303. DP

**MET 405 Satellite Meteorology (3)** (2 Lec, 1 3-hr Lab) Orbital elements, ephemerides, viewing geometry; radiation, satellite sensors; interpreting satellite data; applications to synoptic meteorology and forecasting. Pre: 302. DP

**MET 406 Tropical Meteorology (3)** History; tropical clouds and hydrometeors; typhoons; monsoons; local and diurnal effects. Pre: 303. DP

**MET 412 Meteorological Analysis Lab (3)** (2 3-hr Lab) Techniques of portraying and analyzing atmospheric structure and weather systems in middle and high latitudes; modern methods of forecasting extratropical systems. Pre: 303 or concurrent. (Alt. years)

**MET 416 Tropical Analysis Lab (3)** (2 3-hr Lab) Techniques of portraying and analyzing atmospheric structure and weather systems in tropical and equatorial regions; forecasting tropical systems. Pre: 303 or concurrent.

**MET 495 Undergraduate Thesis (3)** Capstone for senior Meteorology majors. Undergraduate thesis project includes literature review, experiment or research design, data collection and analysis, technical writing of a final thesis paper and oral presentation of the paper. Senior standing only. A-F only. Pre: 302, 303 (or concurrent).

**MET 600 Atmospheric Dynamics I (3)** Governing equations for moist atmospheric motions, approximations, basic theoretical models, boundary layer dynamics, atmospheric waves, quasi-geostrophic

theory for mid-latitudes. Pre: 402, and either MATH 402 or MATH 405; or consent.

**MET 601 Atmospheric Dynamics II (3)** Overview of dynamic meteorology, numerical weather prediction, geophysical fluid instabilities, approximate dynamical systems, atmospheric general circulation, stratospheric dynamics. Pre: 600 or consent. (Alt. years)

**MET 606 Cumulus Dynamics (3)** Dynamics of convective systems: tornadoes, waterspouts, squall lines. Interactions with synoptic scale. Pre: 620 or consent. (Alt. years)

**MET 607 Mesoscale Meteorology (3)** Scale analysis. Observational and theoretical aspects of mesoscale circulation systems. Pre: 600 or consent. (Alt. years)

**MET 610 Tropical Climate and Weather (3)** Climate and general circulation of the tropics; El Niño and Southern Oscillation; intraseasonal oscillation; trade winds; tropical weather systems; energy balance; typhoons. Pre: 303 or consent.

**MET 614 Tropical Cyclones (3)** Lecture covering fundamentals of tropical cyclone structure, motion, and impacts on society. Observations from satellites, aircraft, ships and buoys, and numerical simulations focusing on storm structure and track. Some forecasting exercises. Repeatable one time. Pre: 600 and 610, or consent. (Alt. years)

**MET 616 Monsoon Meteorology (3)** Synoptic components of monsoons, regional and temporal variability, numerical models, research exercises. Pre: 610 or consent. (Alt. years)

**MET 620 Physical Meteorology (3)** Molecular kinetics, atmospheric thermodynamics, cloud physics, precipitation processes, atmospheric electricity, scattering and absorption of solar radiation, absorption and emission of infrared radiation, radiative transfer. Pre: 302 or consent.

**MET 628 Radar Meteorology (3)** (2 lec, 1 3-hr lab) Radar hardware, electromagnetic propagation and scattering, radar equation, signal processing, precipitation estimation and polarimetric applications, Multi-Doppler wind synthesis, mobile and spaceborne radars, forecasting, and data assimilation applications. A-F only. Pre: 620 (with a minimum grade of B- or higher) or consent. (Alt. years)

**MET 631 Statistical Meteorology (3)** Probability; frequency distributions of atmospheric variables; linear models; time series analysis (frequency and time domain); principal component analysis; statistical weather forecasting and verification. Pre: MATH 371. (Alt. years)

**MET 632 Advanced Statistical Methods in the Geosciences (3)** Methods for numerous multivariate analyses will include singular spectrum, extended empirical orthogonal function, singular-value decomposition, canonical correlation, discriminant and cluster analysis. Other advanced topics include wavelet analysis, statistical downscaling and Bayesian analysis. A-F only and audit. Pre: 631 or consent. (Every 3rd year)

**MET 665 Small-Scale Air-Sea Interaction (3)** Observations and theory of small-scale processes which couple the atmosphere and ocean boundary layers, including introduction to turbulence theory and parameterization of turbulent fluxes. Pre: MATH 402 and 403 (or their equivalents) and either 600 or OCN 620; or consent. (Alt. years) (Cross-listed as OCN 665)

**MET 666 Large-Scale Ocean-Atmosphere Interactions (3)** Lecture/seminar introduces physical oceanography and meteorology students to the state-of-the-art theories and observations of large-scale ocean-atmosphere interaction, as well as conveying the fundamental understanding that has been developed during the past 30 years. Emphasis will be on phenomena such as El Niño/Southern Oscillation, the North Atlantic Oscillation, the Pacific Decadal Oscillation, and global climate change. Repeatable one time. Pre: 600 or OCN 620, or consent. (Alt. years) (Cross-listed as OCN 666)

**MET 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

**MET 700 Thesis Research (V)** Repeatable unlimited times.

**MET 702 Numerical Weather Prediction (3)** (2 Lec, 1 3-hr Lab) Fundamental methods and techniques in numerical weather prediction: time differencing, spatial finite differencing, spectral methods, numerical stability, explicit and implicit methods. Modern operational and research forecast models. Hands-on laboratory includes simple to complex dynamic models, with a term project. Repeatable one time. Pre: 600 or OCN 620; MATH 407 or 408; or consent. (Alt. years)

**MET 704 Climate and Climate Variability (3)** Physical basis of climate, numerical climate models, paleoclimatic indicators, modern instrumental climate records, assessment of human impact on climate, predictions of future climate. Repeatable one time. Pre: 600 or OCN 620, or consent. (Alt. years)

**MET 706 Tropical Climate Dynamics and Modeling (3)** Overview of current progress in tropical climate dynamics with a particular focus on large-scale atmosphere-ocean interactions; introduction of basic numerical techniques for students to construct and run immediate tropical atmosphere and ocean models. Pre: 600.

**MET 708 General Circulation of the Atmosphere (3)** Theory, observations, large-scale analyses, and global model simulations that describe characteristic large-scale circulation of the Earth's atmosphere. Includes zonally averaged climatology, asymmetric features of the general circulation, and El Niño-Southern Oscillation phenomenon. Repeatable one time. Pre: 600 or consent. (Alt. years)

**MET 752 Special Topics in Meteorology (3)** Concentrated studies on selected atmospheric problems. Repeatable two times. Pre: 600 or consent.

**MET 765 Seminar in Meteorology (1)** Participation in departmental seminars and presentation of a seminar on research results. Includes written critiques of departmental seminars. Repeatable three times. Pre: consent.

**MET 800 Dissertation Research (V)** Repeatable unlimited times.

## Microbiology (MICR)

*College of Natural Sciences*

**MICR 130 General Microbiology (3)** Role of microorganisms; how they affect people, property, and the environment. A basic survey course covering broad aspects of biochemistry, genetics, molecular biology, and physiology; host-parasite relationships, public health, bacterial, mycotic and viral diseases; epidemiology; ecology of soils and water; environmental pollution; food microbiology; industrial applications at an introductory level. Not open to those with credit in 351 or equivalent. **DB**

**MICR 140L Microbiology Laboratory (2)** (2 2-hr Lab) Primarily for students in nursing and dental hygiene. Pre: 130 (or concurrent). **DY**

**MICR 314 Research Ethics (1)** Introduction to the ethical issues faced by individuals and institutions involved in scientific research. Based on case studies, students will discuss and write about ethical issues in research. Issues include humans and animals in research, mentoring, authorship, ownership of data, genetic technologies and record keeping. This course is designed for students with majors in the natural sciences. A-F only. Pre: BIOL 172 (or concurrent), or MATH 321 (or concurrent), or PHYS 170 (or concurrent), or CHEM 272 (or concurrent); or consent. (Cross-listed as MCB 314) **DS**

**MICR 351 Biology of Microorganisms (3)** Anatomy, chemistry, physiology, genetics, development, and environmental interactions of microorganisms. Pre: BIOL 171 or equivalent, CHEM 272/272L; or consent. Co-requisite: 351L. Recommended: BIOL 275/275L. **DB**

**MICR 351L Biology of Microorganisms Lab (2)** (2 3-hr Lab) Laboratory exercises to accompany 351. Pre: CHEM 272/272L, and BIOL 171, or equivalent. Co-requisite: 351. **DY**

**MICR 361 Introductory Bioinformatics (4)** (3 Lec, 1 3-hr Lab) Introductory bioinformatics will provide a basic foundation of biological information (DNA, protein, genome and proteome) by using information technology (IT). A-F only. Pre: BIOL 275 and BIOL 275L, or consent. (Fall only)

**MICR 401 Marine Microbiology (3)** Evolution, ecology, biochemistry, genetics and physiology of marine bacteria by examining defined systems and organisms. Pre: BIOL 265/265L and BIOL 275/275L and BIOL 301 (or concurrent)/301L (or concurrent), and OCN 201; or 351/351L; or consent. **DB**

**MICR 401L Marine Microbiology Laboratory (1)** (1 3-hr Lab) Laboratory to accompany 401. Pre: BIOL 265/265L and BIOL 275/275L and BIOL 301 (or concurrent)/301L (or concurrent) and OCN 201; or 351/351L; and 401 (or concurrent); or consent. **DY**

**MICR 410 Advanced Topics in Microbiology (2)** Capstone for (but not limited to) senior microbiology majors. Current and seminal research in microbiology, critical analysis of the methods and logic of experimental design. Lecture and discussion of primary literature. A-F only. Pre: 351 and three other 400-level courses (or concurrent), or consent. (Once a year)

**MICR 431 Microbial Physiology (3)** Fundamental physiological and metabolic processes of bacteria; emphasis on growth, functions of cell structures, varieties of energy metabolism, metabolic regulation, and differentiation at the prokaryote level. Pre: 351. **DB**

**MICR 431L Microbial Physiology Lab (2)** (2 3-hr Lab) Components and metabolism of the bacterial cell; emphasis on techniques of analysis of metabolism and molecular structure. Co-requisite: 431. **DY**

**MICR 461 Immunology (3)** Structure and biological actions of antigens and antibodies; fundamentals of antibody synthesis; the relation of immunology to biology and medical sciences. Pre: 351 or BIOL 172; or consent. Recommended: BIOL 275/275L. (Cross-listed as MCB 461) **DB**

**MICR 461L Immunology Lab (2)** (2 3-hr Lab) Basic exercises and experiments in immunology, immunochemistry, immuno-biology to illustrate principles of 461. Co-requisite: 461 or consent. (Cross-listed as MCB 461L) **DY**

**MICR 463 Microbiology of Pathogens (3)** Host-parasite relationships in microbial diseases of humans and animals with emphasis on bacterial pathogens. Pre: 351 and 461; or consent. Co-requisite: 463L or consent. **DB**

**MICR 463L Microbiology of Pathogens Lab (2)** (2 3-hr Lab) Characterization of bacterial pathogens. Isolation, identification, and diagnosis. Co-requisite: 463 or consent. **DY**

**MICR 470 Microbial Pathogenesis (3)** Fundamental mechanisms of infectious diseases at the molecular level. Emphasis on the role of genetics in host-pathogen interactions. Pre: 351/351L or consent. **DB**

**MICR 475 Bacterial Genetics (3)** Genetic analysis and molecular basis of transmission replication, mutation, and expression of heritable characteristics in prokaryotes. Pre: 351 or BIOL 275, or consent. (Cross-listed as MCB 475) **DB**

**MICR 475L Bacterial Genetics Lab (2)** (2 3-hr Lab) Techniques for study of transfer and expression of prokaryotic genes: transformation, conjugation, transposon mutagenesis, preparation and analysis of plasmid and chromosomal DNA. Pre: 475 (or concurrent). (Cross-listed as MCB 475L) **DY**

**MICR 485 Microbes and Their Environment (3)** Distribution, diversity, and roles of microorganisms in terrestrial, freshwater, and marine ecosystems.

Importance of bacteria in pesticide degradation, bioremediation of oil spills, sewage treatment, biocontrol, food fermentation. Pre: BIOL 172 and CHEM 272, or consent. **DB**

**MICR 485L Microbes and Their Environment Lab (2)** (2 3-hr Lab) Techniques for study of interaction of microorganisms with and within their natural habitats; symbiosis between microorganisms and plants and animals; role of microorganisms in element cycling; food fermentation by bacteria. Pre: 485 (or concurrent) or consent. **DY**

**MICR 490 Virology (3)** Basic principles of virus biology. Topics include methods for virus study, virus structure, replication, gene expression, pathogenesis and host response. Pre: 351 or BIOL 275, or consent. **DB**

**MICR 490L Virology Lab (2)** (2 3-hr Lab) General laboratory techniques and related theories in virology; including isolation, cell culture, assay, purification, and identification of viruses. Pre: 351/351L or BIOL 275/275L and 490 (or concurrent); or consent. **DY**

**MICR 499 Microbiological Problems (V)** Directed reading and research. Limited to senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in microbiology, or consent.

**MICR 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**MICR 601 Molecular Cell Biology (3)** Provide fundamental concepts and dynamic characteristics of the molecules of the prokaryotic and eukaryotic cell, their biosynthesis and regulation, and the mechanisms that regulate cellular activities. A-F only. Pre: basic course in cell and molecular biology, or consent. (Fall only) (Cross-listed as MBBE 601)

**MICR 614 Research Ethics (1)** Introduction to ethical issues faced by individuals and institutions involved in scientific research. Moral reasoning, humans and animals in research, mentoring, authorship, ownership of data and genetic technologies. MICR graduates only. A-F only. Pre: graduate standing in MICR or related field, or consent. (Once a year)

**MICR 625 Advanced Immunology (3)** Detailed reports and discussions on selected advanced topics and current research literature. Pre: 461 or consent. (Alt. years: spring)

**MICR 630 Microbial Genome (3)** Advanced studies of Microbial genome: relation to functional genomics, structural genomics, and proteomics. A-F only. Pre: 351 and one 400-level MICR course, or consent. (Alt. years)

**MICR 632 Advanced Microbial Physiology (3)** Selected topics. Pre: 431 or consent. (Alt. years: spring)

**MICR 646 Plant-Bacterial Interactions (3)** Diagnosis, molecular biology, genetics, and infection mechanisms of bacterial plant pathogens and symbionts. Pre: one of 351, 475, or BIOC 481; or consent. (Cross-listed as PEPS 646)

**MICR 652 Advanced Marine Microbiology (3)** Advanced studies of marine microorganisms in diverse habitats with consideration of applications of marine microbes, interactions with higher organisms, phylogeny and diversity, and past and current methods. A-F only. Pre: 351 and 401, or consent. (Alt. years)

**MICR 655 Advanced Virology (3)** Detailed reports and discussions on selected advanced topics and current research literature. Pre: 463, 490, BIOC 441; or consent. (Alt. years: fall)

**MICR 671 Bacterial Genetics (3)** Directed study and discussion of research literature on bacterial and bacterial virus mutation, genetic recombination, evolution and control mechanisms. Pre: graduate standing; undergraduates that have taken 475 may register with consent. (Alt. years: spring)

**MICR 680 Advances in Microbial Ecology (3)** Highlights in microbial ecology; interaction of mi-

croorganisms with abiotic and biotic components of their environments. Modern techniques for study of autecology and synecology of microorganisms. Pre: 485 or consent. (Alt. years: spring)

**MICR 681 Host-Parasite Relationships (3)** Mechanisms of pathogenicity of microorganisms and defense mechanisms of human and animal hosts. Review of contemporary literature. Pre: 463 or consent. (Alt. years: fall)

**MICR 685 Molecular and Cellular Bacterial Pathogenesis (3)** Detailed examination of the molecular and cellular mechanisms of bacterial pathogenesis. Overview of key literature, synthesis of scientific problems into research proposals. Pre: 431, 463, or 470; or consent. (Alt. years: spring)

**MICR 690 Seminar (1)** Required of graduate students. Repeatable unlimited times; only one credit will count toward the degree.

**MICR 695 Research Literature Review (1)** Review of primary literature in a selected area of microbiology. Repeatable ten times; three credit limit. A-F only. Pre: graduate status or consent.

**MICR 699 Directed Research (V)** Selected problems in microbiology. Repeatable unlimited times. Pre: consent.

**MICR 700 Thesis Research (V)** Repeatable unlimited times.

**MICR 795 Special Topics in Microbiology (V)** Selected topics in any aspect of microbiology. Repeatable unlimited times.

**MICR 800 Dissertation Research (V)** Repeatable unlimited times.

## Military Science and Leadership (MSL)

### ROTC Programs

*A weekly two-hour leadership laboratory is required for courses numbered 200 and above. This laboratory is optional for the 100-level courses. The laboratory includes practical application of leadership skills, land navigation, basic tactical skills, and physical fitness training.*

**MSL 100 Introduction to Physical Fitness (1)** Hands-on participatory course following the Army's physical fitness program. Classes conducted three days per week with Army ROTC cadets. Focus is on aerobic conditioning, muscular strength and endurance. Repeatable three times.

**MSL 101 Introduction to Military Science I (2)** Introduces cadets to personal challenges and competencies critical for effective leadership; personal development of life skills such as goal setting, time management, physical fitness, and stress management related to leadership, officership, and the Army profession. Focus on developing basic knowledge and comprehension of Army Leadership Dimensions while understanding the ROTC program, its purpose in the Army, and its advantages for the student.

**MSL 101L Introduction to Military Science I Lab (1)** Practical application in adventure training, one-rope bridges, rifle marksmanship, land navigation, drill and ceremonies, physical training. Co-requisite: 101.

**MSL 102 Introduction to Military Science II (2)** Overviews leadership fundamentals such as setting direction, problem-solving, listening, presenting briefs, providing feedback and using effective writing skills. Explores leadership values, attributes, skills, and actions in the context of practical, hands-on, and interactive exercises. Cadre role models and building stronger relationships among cadets through common experience and practical interaction are critical.

**MSL 102L Introduction to Military Science II Lab (1)** Practical application in adventure training, one-rope bridges, rifle marksmanship, land navigation, drill and ceremonies, physical training. Co-requisite: 102.

**MSL 201 Intermediate Military Science I (3)** Explores creative and innovative tactical leadership strategies and styles through historical case studies

and engaging in interactive student exercises. Cadets practice aspects of personal motivation and team building by planning, executing, and assessing team exercises. Focus is on continued development of leadership values and attributes through understanding of rank, uniform, customs and courtesies.

**MSL 202 Intermediate Military Science II (3)** Challenges of leading complex, contemporary operational environments. Dimensions of cross-cultural challenges of leadership in a constantly changing world are highlighted and applied to practical Army leadership tasks and situations. Cadets develop greater self awareness as they practice communication and team building skills, and tactics in real world scenarios. Provides a smooth transition to MSL 301.

**MSL 203 ROTC Basic Camp (6)** Four-week summer course conducted at Ft. Knox, Kentucky. Substitutes for ROTC basic course (101, 102, 201, and 202) and fulfills course requirement for admission to ROTC advanced courses. Credit will be given for 203 or basic courses, but not both. Pre: consent.

**MSL 301 Leading Small Organizations I (4)** (2.5 Lec, 1.5-hr Lab) Challenges cadets to study, practice, and evaluate adaptive leadership skills with demands of the ROTC Leader Development Assessment Course (LDAC). Challenging scenarios related to small unit tactical operations will develop self-awareness and critical thinking skills. Cadets will receive systematic, specific feedback on their leadership abilities, and analyze/evaluate their leadership values, attributes, skills and actions. Pre: 101, 102, 201, 202; or consent.

**MSL 302 Leading Small Organizations II (4)** (2.5 Lec, 1.5-hr Lab) Intense situational leadership challenges to build cadet awareness and skills in leading small units. Decisionmaking, persuading, and motivating team members under fire are explored, evaluated, and developed. Military operations are reviewed to prepare for the ROTC LDAC. Cadets apply principles of Law of Land Warfare, Army training, and motivation to troop leading procedures; and are evaluated on what they *know* and *do* as leaders. Pre: 101, 102, 201, 202; or consent.

**MSL 303 ROTC Advanced Camp (6)** Six-week summer field training exercise conducted at Fort Lewis, Washington. Arduous and intensified leadership training is conducted throughout the six-week period. Required for U.S. Army commissioning. Pre: 301, 302, and consent.

**MSL 391 History of Military Warfare (3)** Lecture/discussion on the art and science of warfare with concentration on U.S. military history from the Colonial Period onward. Generally restricted to Army ROTC students, with few exceptions to non-ROTC students. A-F only. Pre: consent.

**MSL 399 Directed Reading and Research (V)** Limited to military science students who have had at least one previous military science course for which a grade of B or higher was earned and a cumulative GPA of 2.0 or better. Pre: consent.

**MSL 401 Leadership Challenges and Goal Setting (4)** (2.5 Lec, 1.5-hr Lab) Develops proficiency to plan, execute, and assess complex operations; function as a staff member, provide leadership performance feedback to subordinates. Situational opportunities to assess risk, make ethical decisions, and provide coaching to fellow ROTC cadets; challenged to analyze, evaluate, and instruct younger cadets. Pre: 101, 102, 201, 202, 301, and 302; or consent.

**MSL 402 Transition to Lieutenant (4)** (2.5 Lec, 1.5-hr Lab) Explores dynamics of leading in complex situations of current military operations. Examines differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Interaction with non-government organizations, civilians on the battlefield, and host nation support are examined and evaluated. Case studies, scenarios, and What Now, Lieutenant? exercises prepare cadets to lead as commissioned officers in the U.S. Army. Pre: 101, 102, 201, 202, 301, 302, and 401; or consent.

**MSL 499 Advanced Military Research (V)** Directs the student to conduct detailed research on a military topic and present to the department leadership plus assist MSL 400 series students on a battle analysis. Repeatable up to eight credits. Must be in Military Science and Leadership Program or Military Service member in junior or greater standing. Pre: departmental approval.

## Molecular Biosciences and Bioengineering (MBBE)

### College of Tropical Agriculture and Human Resources

**MBBE 304 Biotechnology: Science and Ethical Issues (3)** Introduction to the concepts, goals, ethical issues and consequences of biotechnology using real-life case studies of cloning, DNA fingerprinting, gene therapy and genetical engineering. Pre: BIOL 171 or consent. (Cross-listed as BIOL 304)

**MBBE 375 Essential Biochemistry (3)** Introduction to basic concepts of cellular biochemistry and metabolic pathways as applied to nutritional, medicinal and environmental biochemistry. A-F only. Pre: CHEM 152 or CHEM 272 or BIOC 341, or consent.

**MBBE 401 Molecular Biotechnology (3)** General principles, applications, and recent advances of the rapidly growing science of biotechnology. Topics include impact of biotechnology on medicine, animal sciences, environment, agriculture, forensics, and economic and socio-ethical issues. Pre: C (not C-) or better in BIOL 275 or consent. (Cross-listed as BIOL 401) **DB**

**MBBE 402 Principles of Biochemistry (4)** Molecular basis of living processes in bacteria, plants and animals; emphasis on metabolism of carbohydrates, lipids, proteins and nucleic acids. Pre: C (not C-) or better in BIOL 275/275L, CHEM 272 and CHEM 273; or consent. (Cross-listed as BIOL 402 and PEPS 402) **DB**

**MBBE 402L Principles of Biochemistry Lab (2)** (1 Lec, 1 3-hr Lab) Principle techniques of biochemical laboratory. A-F only. Pre: 402 (or concurrent), BIOL 402 (or concurrent). **DY**

**MBBE 405 Marine Functional Ecology and Biotechnology (3)** Marine functional genomics, biodiversity of marine natural habitats, marine microbial communities and their ecological functions, interactions of marine microbes and their host, climate change and marine biodiversity, marine biotechnology. A-F only. Pre: OCN 201 or MICR 130, or consent. (Spring only) (Cross-listed as OCN 403)

**MBBE 408 Molecular Cellular Biology II (3)** Cell structure and function. Structure, chemistry, and functions of organelles and macromolecules. Pre: C (not C-) or better in BIOL 407; or consent. (Cross-listed as BIOL 408) **DB**

**MBBE 412 Environmental Biochemistry (3)** Biochemical and chemical principles of occurrence, distribution, biotic and abiotic conversion, fate, and impact of synthetic and natural molecules in the environment. Important pollutants will be used as case studies to illustrate the principles. A-F only. Pre: CHEM 152 or CHEM 272, and CHEM 162 or CHEM 171; or consent. (Spring only) (Cross-listed as PEPS 412) **DB**

**MBBE 461 Biotechnology for Teachers (3)** Principles, methods, classical examples, recent development, benefits and concerns of modern biotechnology. Pre: BIOL 304 or equivalent.

**MBBE 480 Integrative Genomics and Biotechnology (3)** Integration of molecular genetics, virology, plant molecular biology, and bioinformatics. Gene silencing, functional genomics, and the development of expression systems for the production of heterologous proteins. A-F only. Pre: 401 and BIOL 275/275L; or consent. (Fall only) **DB**

**MBBE 480L Integrative Genomics and Biotechnology Lab (3)** Laboratory to accompany 480. A-F only. Pre: 401 and BIOL 275/275L; or consent. (Spring only) **DY**

**MBBE 483 Introduction to Bioinformatics**

**Topics for Biologists (3)** Focuses on the use of computational tools and approaches to analyze the enormous amount of biological data (DNA, RNA, protein) available today. A-F only. Pre: BIOL 171 (or equivalent), or consent. (Once a year) (Cross-listed as BIOL 483)

**MBBE 490 Lab Automation: Advanced Techniques in Plant Molecular Biology (3)** Combined lab lecture on semi-automated systems used to analyze and manipulate nucleic acids and proteins. A-F only. Pre: 401 and BIOL 275/275L, or consent. (Once a year)

**MBBE 491 Special Topics in MBBE (V)** Study and discussion of special topics and problems in molecular biosciences and bioengineering. Pre: consent.

**MBBE 499 Directed Research (V)** Supervised individual instruction in laboratory research problems in biochemistry, molecular and cellular biology, genomics, and genetics. Repeatable 3 times or up to 16 credits. Limited to qualified undergraduate students. A-F only.

**MBBE 601 Molecular Cell Biology (3)** Provide fundamental concepts and dynamic characteristics of the molecules of the prokaryotic and eukaryotic cell, their biosynthesis and regulation, and the mechanisms that regulate cellular activities. A-F only. Pre: basic course in cell and molecular biology, or consent. (Fall only) (Cross-listed as MICR 601)

**MBBE 607 Advanced Food Science I (3)** Advanced topics in chemical and physical characteristics of foods as well as their role in human nutrition. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological science, physics, and biochemistry. Basic knowledge of food science is expected; or consent. (Cross-listed as FSHN 607)

**MBBE 610 Molecular Biosciences Seminar (1)** Study and discussion of significant topics and problems in plant physiology, biochemistry, and molecular biology. Repeatable three times. A-F only.

**MBBE 620 Plant Biochemistry (3)** Comprehensive study of chemical constituents and biochemical processes unique to the plant kingdom with emphasis on selected aspects of current interest. A-F only. Pre: 402 or consent.

**MBBE 621 Metabolic Engineering (4)** Principles and methodologies of metabolic engineering. Concepts of metabolic networks. Establishment of metabolic flux analysis and metabolic control analysis. Systems biology framework for integration of mathematical modeling and global measurements at metabolite, protein and transcription levels. Pre: BIOL 275, MATH 311, and MICR 351; or consent.

**MBBE 625 Biosensor Principles and Applications (3)** Elaboration of common biochemical interactions used to quantify biological molecules, and the electrical technologies used to detect them. Discussion of the desirable properties of biosensors, miniaturization and applications related to medicine, agriculture, bioproduction and environment. Pre: consent. (Cross-listed as BE 625)

**MBBE 650 DNA and Genetic Analysis (2)** Combined lecture-lab for students interested in genetic analysis of humans, animals, and other species. Molecular techniques, such as PCR, DNA marker identifications, transgenics, expression analysis and functional genomics, are included. Open to nonmajors. Pre: graduate standing or consent. (Cross-listed as ANSC 650 and FSHN 650)

**MBBE 651 Signal Transduction and Regulation of Gene Transcription (3)** Lecture/discussion on molecular mechanisms involved in the transmission of regulatory signals from the cell surface to the nucleus. A-F only. Pre: CMB 621, and CMB 654 or equivalent; or consent. (Fall only)

**MBBE 652 Molecular Plant Fungi Interactions (3)** Focuses on the actions of plant pathogens and the responses of compatible and incompatible host plants. Latest research on this topic will be evaluated

by discussing publications reporting pathogenesis mechanics. Graduate standing only. Pre: 405 or PEPS 405, or 480, or MICR 351. (Every 2 years) (Cross-listed as PEPS 652)

**MBBE 680 Methods in Plant Molecular Biology (3)** (1 Lec, 2 3-hr Lab) Advanced methodology and research strategies. Hands-on laboratory training in basic and current molecular procedures for plant research. Pre: one of BIOC 481 or BIOL 407.

**MBBE 683 Advanced Bioinformatics Topics for Biologists (4)** Teaches problem-solving with bioinformatic tools. Real-world problems will be provided and worked out, students encouraged to provide their own research problem where they require assistance. Graduate student must work on genomics research project requiring bioinformatic analysis, working knowledge of UNIX OS, Perl, Java or C. A-F only. Pre: ICS 471 and ICS 491 and ICS 691 (or equivalent), or consent. (Alt. years)

**MBBE 687 Advanced Lab Techniques (1)** (1 Lec, 2 3-hr Lab) Advanced laboratory techniques used in life science research. Pre: graduate standing or consent. (Cross-listed as ANSC 687 and FSHN 687)

**MBBE 691 Advanced Special Topics in MBBE (V)** Study and discussion of advanced special topics and problems in molecular biosciences and bioengineering. Pre: graduate standing or consent.

**MBBE 699 Directed Research (V)** Repeatable up to 64 credits.

**MBBE 700 Thesis Research (V)** CR/NC only.

**MBBE 800 Dissertation Research (V)** CR/NC only.

**Molecular and Cell Biology (MCB)**

*College of Natural Sciences*

**MCB 314 Research Ethics (1)** Introduction to the ethical issues faced by individuals and institutions involved in scientific research. Based on case studies, students will discuss and write about ethical issues in research. Issues include humans and animals in research, mentoring, authorship, ownership of data, genetic technologies and record keeping. This course is designed for students with majors in the natural sciences. A-F only. Pre: BIOL 172 (or concurrent), or MATH 321 (or concurrent), or PHYS 170 (or concurrent), or CHEM 272 (or concurrent); or consent. (Cross-listed as MICR 314) **DS**

**MCB 461 Immunology (3)** Structure and biological actions of antigens and antibodies; fundamentals of antibody synthesis; the relation of immunology to biology and medical sciences. Pre: MICR 351 or BIOL 172; or consent. Recommended: BIOL 275/275L. (Cross-listed as MICR 461) **DB**

**MCB 461L Immunology Lab (2)** (2 3-hr Lab) Basic exercises and experiments in immunology, immunochemistry, immuno-biology to illustrate principles of 461. Co-requisite: 461 or consent. (Cross-listed as MICR 461L) **DY**

**MCB 472 The Biology of Cancer (3)** Integrative, in-depth focus on the genetics, cell biology, and molecular basis of cancer. Combination of classroom lectures and problem-based discussions in small groups. Addresses ethical implications of cancer research and treatment. A-F only. MCB or BIOL majors only. Senior standing or higher. Pre: BIOL 407 (or concurrent) and BIOL 408 (or concurrent) or consent. (Spring only) (Cross-listed as BIOL 472)

**MCB 475 Bacterial Genetics (3)** Genetic analysis and molecular basis of transmission replication, mutation, and expression of heritable characteristics in prokaryotes. Pre: MICR 351 or BIOL 275, or consent. (Cross-listed as MICR 475) **DB**

**MCB 475L Bacterial Genetics Lab (2)** (2 3-hr Lab) Techniques for study of transfer and expression of prokaryotic genes: transformation, conjugation, transposon mutagenesis, preparation and analysis of plasmid and chromosomal DNA. Pre: 475 (or concurrent). (Cross-listed as MICR 475L) **DY**

**Music (MUS)**

*College of Arts and Humanities*

*Applied music courses appear at the end of this section.*

**MUS 106 Introduction to Music Literature (3)** Elements, styles, and forms of music, from listener's standpoint. **DH**

**MUS 107 Music in World Cultures (3)** Folk, popular, and art music from major regions of the world, with emphasis upon Asia and the Pacific; representative styles and regional characteristics. **FGC**

**MUS 108 Fundamentals of Western Music (3)** Fundamental concepts in organization of music as expressive medium in Western culture. Roles of composer, performer, and listener. Notation as mode of communication. Discovery and verification of ideas through laboratory experience. **DA**

**MUS 114 University Chorus (1)** Performance of choral literature from Renaissance to present. Previous choral experience not required. Repeatable unlimited times. **DA**

**MUS 121 (Alpha) Class Instruction I (1)** Basic principles of performance; relevant problems in literature. (B) voice; (C) piano; (D) guitar. Cannot be audited. **DA**

**MUS 122 (Alpha) Class Instruction II (1)** Basic principles of performance; relevant problems in literature. (B) voice; (C) piano; (D) guitar. Repeatable in different sections. Cannot be audited. Pre: 121 or consent. **DA**

**MUS 123 (Alpha) Pacific Music Performance Class (1)** Basic principles of performance of Pacific music. Relevant problems at elementary level. (B) slack key guitar; (C) 'ukulele. Repeatable in different sections. Pre: 121D or consent for (B); 108 or consent for (C). **DA**

**MUS 125 First-Level Secondary Piano (1)** Piano as secondary performance field; application of theory to problems in improvising, harmonizing, creating accompaniments, transposing, and sight-reading at keyboard. For music majors. Pre: consent. Co-requisite: 281 or consent.

**MUS 126 First-Level Secondary Piano (1)** Piano as secondary performance field; application of theory to problems in improvising, harmonizing, creating accompaniments, transposing, and sight-reading at keyboard. Continuation of 125. For music majors. Pre: 125 or consent.

**MUS 127 (Alpha) Asian Music Performance Class (1)** Basic principles of performance of Asian music. Relevant problems in literature at elementary level. (B) koto; (C) shamisen; (E) shakuhachi. Cannot be audited. Pre: consent. **DA**

**MUS 128 (Alpha) Asian Music Performance Class (1)** Basic principles of performance of Asian music. Relevant problems in literature at elementary level. (B) koto; (C) shamisen; (D) South Indian singing; (E) shakuhachi. Cannot be audited. Pre: consent. **DA**

**MUS 155 Percussion Techniques (2)** Similar to 151 using percussion instruments. A-F only.

**MUS 156 Brass Techniques (2)** Similar to 151 using brass instruments. A-F only.

**MUS 157 String Techniques (2)** Fundamental performance techniques, materials, and teaching skills on string instruments for students preparing to teach instrumental music. A-F only. (Once a year)

**MUS 158 Woodwind Techniques (2)** Fundamental performance techniques, materials, and teaching skills on woodwind instruments for students preparing to teach instrumental music. A-F only. (Once a year)

**MUS 199 Recital Attendance (0)** Attendance at approved departmental concerts. Required of all music majors (BMus, six semesters; BA and BE, four semesters). Repeatable unlimited times. CR/NC only.

**MUS 225 Second-Level Secondary Piano (1)** Continuation of 125-126; increased emphasis on

piano literature up to intermediate level. Pre: 126 or consent.

**MUS 226 Second-Level Secondary Piano (1)** Continuation of 225. Pre: 225 or consent.

**MUS 240 Creative Applications of Music Technology (3)** Introductory laboratory experience. Teaches musicians fundamental technology concepts through creative projects. Exposes students to a variety of music and audio software. A-F only. Pre: music majors or minors or consent.

**MUS 250 Introduction to Music Education (1)** Survey of American education, with an emphasis on music learning, teaching and philosophy, school structure and governance, diversity and multi-cultural education, and professional ethics. Supervised clinical and field experiences required. MUS majors only. A-F only. (Alt. years)

**MUS 251 Diction for Singers (3)** Diction and phonetics of English, Italian, liturgical Latin, German, and French for singers and choral conductors. Pre: 232B or consent.

**MUS 253 Elementary Music in Action (3)** (3 Lec, 1 1-hr Lab) Musical concepts, philosophy and pedagogy: use of media, singing, movement, and instruments; as well as resources for an active elementary music classroom. **DA**

**MUS 265 History of Western Music to 1750 (3)** Development of Western music from its origins to 1750. Styles, schools, composers. Pre: 282 or consent. **DH**

**MUS 266 History of Western Music After 1750 (3)** Development of Western music from 1750 to the present. Styles, schools, composers. Pre: 282 or consent. **DH**

**MUS 270 World of Music: Asia/Pacific (3)** Study of music as social process, sound system, aesthetics, and world view. Emphasis on Hawai'i, Asia, and the Pacific and the ways music creates links across the region and among people. Pre: ability to read music and one introductory music course (108, 114, 121-126, 151-156) or consent. (Fall only) **DH**

**MUS 280 Basic Theory and Aural Skills (3)** Fundamentals of music theory, notation, sight-singing, and dictation. Pre: 108 or consent.

**MUS 281 Theory I (2)** Materials and organization of music; analysis, writing, and keyboard application. Pre: 280 or consent. Co-requisite: 283 or consent.

**MUS 282 Theory II (2)** Continuation of 281. Pre: 281 or consent. Co-requisite: 284 or consent.

**MUS 283 Aural Training I (1)** Perception, identification, and notation of musical sounds through dictation and sight singing. Pre: 280 and ability to sing diatonic melodies at sight, or consent. Co-requisite: 281 or consent.

**MUS 284 Aural Training II (1)** Continuation of 283. Pre: 283 or consent. Co-requisite: 282 or consent.

**MUS 285 Theory III (2)** Detailed study of theory: writing, analysis, keyboard application. Pre: 282. Co-requisite: 287 or consent.

**MUS 286 Theory IV (2)** Continuation of 285. Pre: 285. Co-requisite: 288 or consent.

**MUS 287 Aural Training III (1)** Advanced level of perception, identification, and notation of musical sounds through dictation and sight-singing. Pre: 284. Co-requisite: 285 or consent.

**MUS 288 Aural Training IV (1)** Continuation of 287. Pre: 287. Co-requisite: 286 or consent.

**MUS 289 Introductory Practicum in Music Composition (V)** Original composition; specific approaches to creative writing. Repeatable. Pre: 282 and 284; or consent.

**MUS 311 (Alpha) Ethnic Music Ensembles I (1)** Performance of literature for groups of various sizes and kinds at introductory level (B) Hawaiian; (C) Japanese; (D) Chinese; (E) Korean; (F) Okinawan; (G) Philippine; (H) gamelan; (I) gagaku; (J) Tahitian; (K) Oceanic; (M) other. Repeatable unlimited times. Pre: upper division standing or consent. **DA**

**MUS 312 Hula/Chant Ensemble I (2)** Ancient style. Pre: upper division standing or consent. **DA**

**MUS 325 Conducting (1)** Problems in directing instrumental and choral ensembles. Score reading, rehearsal techniques, and basic interpretive problems. Pre: 286 and 288.

**MUS 326 Advanced Conducting (2)** Continuation of 325. Pre: 325 or consent.

**MUS 340 Electronic Music (3)** Basic techniques of electronic sound synthesis. Pre: 240 or consent.

**MUS 341 Audio Recording/Mixing/Sound Design (3)** Preproduction, mixing, setup and recording suitable for film. Mixing techniques in software for small systems. Sound design using original synthesis techniques to enhance film and support stories. Pre: 240 or consent. (Alt. years)

**MUS 342 Digital Audio Synthesis and Multimedia Applications (3)** Sound control through graphical interfaces. Advanced digital audio synthesis techniques. Audio control of graphics and video. Introduction of alternate controllers. Pre: 240 or consent. (Once a year)

**MUS 353 Integrating Music in the Elementary School (3)** Application of musical concepts through an integrated approach. This includes strategies, world music, literature, materials and resources for the elementary classroom curriculum. Pre: 253 or consent.

**MUS 354 General Music Methods (3)** Required for K-12 music specialists. Scope and nature of music in the lives of children and adolescents; planning, teaching, learning, and evaluating music in elementary, middle, and high school curriculum. A-F only. Pre: 250, 286, and 288, or consent.

**MUS 354L General Music Methods Lab (1)** Observation, analysis, participation and teaching in the elementary school. Supervised 20 hours of field experiences required. MUS majors only. CR/NC only. Pre: 286 and 288, or departmental approval. Co-requisite: 354. (Every 3rd semester)

**MUS 355 Instrumental Music Methods (3)** Objectives, materials, and procedures of instrumental music in schools. A-F only. Pre: 250, 286, and 326 (or concurrent); or consent.

**MUS 355L Instrumental Music Methods Lab (1)** Observation, analysis, participation and teaching in the elementary school. Supervised 20 hours of field experiences required. MUS majors only. CR/NC only. Pre: 250, 286, and 326 (or concurrent); or consent. Co-requisite: 355. (Every 3rd semester)

**MUS 356 Choral Music Methods (3)** Objectives, materials, and procedures of choral music in schools. A-F only. Pre: 250, 286, or consent.

**MUS 356L Choral Music Methods Lab (1)** Observation, analysis, participation and teaching in the elementary school. Supervised 20 hours of field experiences required. MUS majors only. CR/NC only. Pre: 354, or departmental approval. Co-requisite: 356. (Every 3rd semester)

**MUS 358 Piano Pedagogy (2)** Concepts, materials, and procedures for class and individual instruction in piano. Pre: 282.

**MUS 359 Piano Pedagogy (2)** Continuation of 358. Pre: 358 or consent.

**MUS 360 Music in Film (3)** Lecture investigating the role of music in narrative film, and developing critical skills through close study of films and their music. Understanding styles and techniques of film music within larger aesthetic trends and historical contexts. Pre: 106 or consent. (Once a year) **DH**

**MUS 370 Music in Modern America (3)** Varieties of music, including jazz and other popular forms; relevant antecedents. Pre: sophomore standing; freshmen with consent only. **DH**

**MUS 381 Counterpoint (3)** Form, texture, and style in music literature from Renaissance to present. Formal analysis and writing. Contrapuntal textures and forms. Pre: 286.

**MUS 382 Form and Analysis (3)** Form, texture, and style in music literature from Renaissance to present. Formal analysis and writing. Larger forms with various textures; recent contemporary approaches to continuity. Pre: 265, 266, and 286.

**MUS 383 Orchestration (3)** Basic principles of scoring for orchestra and band; instrumental ranges, timbres, transpositions; transcribing or composing for band, orchestra, and chorus. Pre: 286 or consent.

**MUS 386 Theory and Practice of Jazz Improvisation (2)** Development of an improvising technique through analysis and performance practice. For instrumentalists only. Pre: 285 and 287.

**MUS 399 Directed Study (V)** Limited to majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in music. Pre: consent.

**MUS 400 Topics in Music (V)** Topics in history, literature, theory, applied music, music education, and ethnomusicology; for music majors. Consult department for topics and specific dates. Repeatable up to twelve credits. Pre: 281 and appropriate lower division music courses; or consent.

**MUS 407 Music Cultures of the World (3)** Folk, popular, and art music from major regions of the world, with emphasis upon Asia and the Pacific, representative styles and regional characteristics. Pre: junior standing or consent. **DH**

**MUS 410 (Alpha) Ensembles (1)** Performance of literature for ensembles and performing groups of various sizes and kinds; (B) Hawaiian chorus; (C) University Chamber Singers; (D) piano-vocal collaboration; (E) composer-performer collaboration; (F) chamber music; (G) guitar; (K) jazz; (M) contemporary music; (N) theater music; (O) percussion; (P) digital and electronic musical arts; (Q) piano-instrumental collaboration. Repeatable unlimited times. A-F only for (E) and (Q). Pre: audition or consent. **DA**

**MUS 411 (Alpha) Ethnic Music Ensembles II (1)** Performance of literature for ensembles and performing groups of various sizes and kinds, (B) Hawaiian; (C) Japanese; (D) Chinese; (E) Korean; (F) Okinawan; (G) Philippine; (I) Asian; (J) Tahitian. Repeatable unlimited times. Pre: 311 in same section or consent. **DA**

**MUS 412 Hula/Chant Ensemble II (2)** Ancient style. Pre: 312 or consent.

**MUS 413 Hula/Chant Ensemble III (2)** Ancient style; halau protocol. Repeatable nine times. Pre: 412.

**MUS 414 University Concert Choir (1)** Performance of a cappella literature and major choral works. Repeatable unlimited times. Pre: choral experience and consent. **DA**

**MUS 415 Opera Workshop (V)** Opera in performance. Styles and characterizations. Performance of scenes and one complete work. Repeatable unlimited times. Pre: upper division standing or consent. **DA**

**MUS 416 (Alpha) University Symphony Orchestra (1)** Performance of orchestra literature, including major works for chorus and orchestra, opera and dance; (B) symphony; (C) chamber orchestra. Repeatable unlimited times. Pre: audition or consent. **DA**

**MUS 417 University Javanese Gamelan (1)** Performance of jogja and solo gamelan traditions; Ujon-Ujon, Wajang Kulit, Wajang Wong. Repeatable unlimited times. Pre: 311H or consent. **DA**

**MUS 419 (Alpha) University Band (1)** Performance of literature, including works by contemporary composers. (B) symphonic wind ensemble; (C) symphonic band; (D) concert band; (E) marching band; (F) marching band percussion. Repeatable unlimited times. Pre: audition or consent. **DA**

**MUS 420 (Alpha) Music Literature Lab (2)** Problems of style and interpretation and their implications in performance. Inquiry with laboratory performance. (B) solo voice. Repeatable one time for (B). Pre: consent.

**MUS 421 Acting V: Musical Comedy (3)** Essential training in skills required to perform in musicals. Students present scenes from musical comedies for criticism and review. Repeatable unlimited times. Pre: one of 231B, THEA 321, THEA 322, or consent; and/or audition. (Cross-listed as THEA 421) **DA**

**MUS 422 Piano Repertoire (1)** Focused study on a specific area of piano literature. Extensive score study, analysis, performance practices, technique and listening lists will be studied. A-F only. Pre: 2 semesters of 232C or consent. Repeatable six times for different topics. (Alt. years)

**MUS 423 Keyboard Skills I (2)** Practical keyboard applications including transposition, keyboard harmonization, figured bass, improvisation, score reading and sight reading. A-F only. Pre: 282 and 2 semesters of 232C, or consent. (Alt. years)

**MUS 424 Keyboard Skills II (2)** Continuation of 423. A-F only. Pre: 423 or consent.

**MUS 440 Music, Industry, and Society (3)** History of U.S. music and recording industry. How industry relates to economy as a whole, and how it reflects broad patterns and trends in American culture and society. (Cross-listed as HIST 471) **DH**

**MUS 441 Scoring Techniques for Films (3)** Aspects of scoring original music for films. Use of small systems, and software production tools. Music production techniques (including Foley and sound effects) and music for television also covered. Repeatable one time. Pre: 341 or consent. (Alt. years)

**MUS 450 Music Technology for Teachers (3)** Studio course designed for music education majors or musicians interested in discovering and utilizing technology resources to enhance the music teaching or learning process. A-F only. Pre: 286 or consent.

**MUS 451 Perspectives on K-12 Music Education (2)** Required for K-12 music education majors. Topics include music learning, classroom management, assessment, and national standards. A-F only. MUS ED majors only. Junior standing or higher. Pre: 250, 286, 288, and EDEP 311; or consent. (Fall only)

**MUS 452 Advanced String Pedagogy (2)** Study of intermediate to advanced techniques and pedagogical approaches to violin, viola, cello, and double bass in both individual and class settings. A-F only. Pre: 157 or consent. (Alt. years: spring)

**MUS 454 Music in Special Education (3)** Designed for music educators, elementary, and special education majors or musicians interested in understanding and preparing to use music with special education students. Will be offered both as a campus and online course. A-F only. Pre: 353 or EDEP 311, or consent.

**MUS 457 Asian and Pacific Music in Education (3)** Musical concepts in songs, dances, and instrumental music of Asia, Hawai'i, and other Pacific Islands, appropriate for K-12. Pre: 353, 354, or 355 and 356. **DA**

**MUS 459 Vocal Pedagogy (3)** Scientific studies of vocal mechanism; application to techniques of singing. Pedagogical methods for individual voice instruction; participation in applied music teaching. Pre: 286 and 288.

**MUS 461 (Alpha) Eras of Western Music History (3)** Changing styles and forms in periods of European art music from 500 A.D. to the present. (B) medieval; (C) Renaissance; (D) Baroque; (E) Classic; (F) Romantic; (G) 20th century. Repeatable one time for different alphas. Pre: 265 and 266, or consent.

**MUS 462 (Alpha) Studies in Western Music History (3)** (B) music of the United States. Pre: 265 and 266, or consent.

**MUS 463 (Alpha) Topics in Music Literature (3)** (B) symphonic music; (C) concerto; (D) chamber music; (E) choral music; (F) solo song; (G) wind band literature; (H) guitar literature. Repeatable one time for different alphas. Pre: 265 and 266, or consent.

**MUS 464 Opera (3)** Historical study from Monteverdi to present. Pre: 265 and 266, or consent.

**MUS 465 Piano Literature I (2)** Study of the evolution of piano literature from its precursors in the Renaissance to the beginning of the 19th century; development of historical styles, intensive listening and analysis. Pre: 265 and 266, or consent.

**MUS 466 Piano Literature II (2)** Continuation of 465. Study of the evolution of piano literature from the beginning of the 19th century to the present day; development of historical styles, intensive listening and analysis. A-F only. Pre: 465 or consent. (Alt. years)

**MUS 467 Music and Ethics (3)** Studies music's roles in religious traditions and politics, as identity formation, and music's relationship with lyrics in a variety of forms. Readings approach these issues from the question of ethics. A-F only. Pre: 265 and 266, or consent. (Once a year)

**MUS 472 Sound Systems of World Musics (3)** Music-theoretical study of sound organization as defined by various cultures and development of aural analysis in world musics. Pre: junior standing or consent.

**MUS 477 History of Rock and Roll (3)** An examination of rock and roll from various perspectives including economics, regionalism, freedom of expression. Pre: upper division standing or consent. **DH**

**MUS 478 (Alpha) Musical Cultures (3)** The study of a musical culture area. (B) Hawai'i; (C) China; (D) Japan; (E) Korea; (F) Indonesia; (G) Philippines; (H) India; (I) Polynesia; (P) Africa; (Q) other. Repeatable one time for different alphas. Pre: junior standing or consent. ((H) Cross-listed as ASAN 478)

**MUS 479 Topics in Ethnomusicology (3)** Problem-oriented cross-cultural investigation of music and music organization. Pre: junior standing or consent. **DH**

**MUS 484 Composition for Music Majors (1)** Original composition; specific approaches to creative writing. Intended for music majors not majoring in composition. Repeatable one time. MUS majors only. A-F only. Pre: 286 and 288.

**MUS 485 Intermediate Practicum in Music Composition (V)** Creative writing beginning with smaller forms. Repeatable unlimited times. Pre: 286 and 288, or consent.

**MUS 487 Advanced Practicum in Music Composition (3)** Creative writing in larger forms. Composition majors only. Repeatable one time. Pre: 485 or consent.

**MUS 488 Contemporary Techniques (2)** Theoretical techniques in music of the 20th and 21st centuries; emphasis on writing as the synthesis of concepts. Investigation of important stylistic movements. Pre: 286 or consent.

**MUS 495 Senior Project (1)** Capstone project designed by student, who must find and work with faculty advisor before enrolling. Also subject to advance approval by departmental committee. Repeatable up to four credits. A-F only. Pre: senior standing and consent.

**MUS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**MUS 565 Western Music History Review (3)** Online course surveys representative composers, musical styles, and genres from the Western tradition. Repeatable one time. Pre: graduate standing and consent or departmental approval.

**MUS 600 (Alpha) Seminar (3)** Selected problems in (B) composition; (C) ethnomusicology; (D) music literature; (E) performance repertory; (F) music education; (H) theory. Repeatable nine times. Pre: graduate standing or consent; also 661 for (D) and (E).

**MUS 601 Advanced Topics in Music (V)** Advanced topics in history, literature, theory, applied music, music education, and ethnomusicology; some

in intensive modular format. Repeatable nine times. Pre: appropriate lower division music courses or consent and graduate standing.

**MUS 649 College Level Teaching Practicum (1)** Practical experience teaching at the college level. Examination of elements for successful college teaching. Repeatable two times. MUS majors only. Graduate students only. A-F only. Pre: consent.

**MUS 651 Foundations of Music Education (3)** Music and music education in their philosophic, aesthetic, social, historical, and psychological dimensions. Pre: graduate standing and consent.

**MUS 655 Music in Childhood Education (3)** Principles and programs in teaching music to children in early childhood settings and elementary school. Curriculum development, analysis of research, and current approaches. Pre: 353 or 354, teaching experience, and graduate standing.

**MUS 657 World Musics in Undergraduate Education (2)** Concepts and materials at junior college and undergraduate levels. Preparation for structuring and teaching courses in non-Western musics. Pre: graduate status in music and 107 or 407 (or concurrent).

**MUS 659 Seminar in College Music Teaching (3)** Examines components of good teaching, adult learning theories, course organization, methodologies, evaluation, and other music issues. For students planning a college teaching career in music. Pre: consent.

**MUS 660 (Alpha) Studies in Music Literature (3)** Detailed study by chronological period. (B) medieval; (C) Renaissance; (D) Baroque; (E) Classic; (F) Romantic; (G) 20th century. Repeatable in different alphas. Pre: 661 or consent.

**MUS 661 Bibliography and Library Resources in Music (3)** Basic materials and techniques; includes retrieval techniques from online computer catalog. Pre: graduate standing or consent.

**MUS 670 (Alpha) Regional Music (3)** Musical content and historicosocial context of principal musical traditions. (B) Asia; (C) Oceania. Repeatable nine times. Pre: consent.

**MUS 678 (Alpha) Advanced Problems in Ethnomusicology (3)** (B) transcription of music performance; (D) other. Pre: consent.

**MUS 680 (Alpha) Studies in Music Theory (3)** (B) stylistic counterpoint to 1700; (C) stylistic counterpoint from 1700; (D) advanced analysis; (E) comparative theory; (F) history of theory; (G) contemporary techniques and resources; (H) atonal analysis and set theory; (I) Schenkerian analysis. Pre: 286 and graduate standing.

**MUS 685 Intercultural Composition (3)** Examination of compositional approaches, techniques, and characteristics of works with East Asian influences in Western concert settings. Composing idiomatically for East Asian instruments. Repeatable one time. MUS majors only. Graduate students only. A-F only. Pre: graduate standing or consent.

**MUS 687 Masters Composition Practicum (3)** Original composition in all forms. Masters-level composition students only. Repeatable five times. A-F only. Pre: consent.

**MUS 695 Plan B Master's Project (V)** Independent study for students working on a Plan B master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. A maximum of 3 credits may be earned in MUS 695. Graduate standing in music education or music composition. A-F only.

**MUS 699 Directed Work (V)** Reading and research in ethnomusicology, musicology, music education; reading and practice in theory, composition, or performance. Repeatable unlimited times. Pre: consent of chair and department chair.

**MUS 700 Thesis Research (V)** Repeatable unlimited times.

**MUS 701 (Alpha) Topics in Music (3)** Advanced topics in musicology; theory, ethnomusicology,

and music education. (B) psychology of music; (C) research in music education; (D) research methods in musicology; (E) advanced diction for singers. Repeatable in different alphas. Pre: appropriate to topic or consent.

**MUS 702 Seminar for Doctoral Students (V)** Selected topics centering on areas pertinent to the student's degree needs and research interests. Pre: admission to PhD program in music or consent.

**MUS 750 (Alpha) Seminar in Music Education (3)** Selected problems in music education. (B) childhood; (C) adolescence/adults; (D) major issues. Pre: graduate standing and consent.

**MUS 787 Doctoral Composition Practicum (3)** Original composition in all forms. Doctoral-level composition students only. Repeatable five times. A-F only. Pre: consent.

**MUS 800 Dissertation Research (V)** Repeatable unlimited times. Pre: candidacy for PhD degree and consent of dissertation chair.

### APPLIED MUSIC

*For information on sections, requirements, and costs, consult the music department.*

*Instruction is given in 14 individual lessons per semester, either one half-hour lesson per week (1 credit hour) or one full-hour lesson per week (2 or more credit hours). Lessons are not made up unless instructor is notified a reasonable time in advance of the excused absence.*

*Registration for lessons and choice of teachers must be approved by the department chair.*

*Assignment and admission to these courses are based on tests and auditions given by the department during the advising and registration period. Applied music courses cannot be audited or taken CR/NC.*

**MUS 230 (Alpha) Elementary Applied Music, Ethnic (V)** Instruction in instrumental performance at elementary level. Study of works representative of literature. (B) koto; (C) shamisen; (E) Hawaiian chant; (F) shakuhachi; (I) other. Repeatable for four semesters. Pre: audition or consent.

**MUS 231 (Alpha) Applied Music, Western (1)** For nonmajors or music majors in secondary performance fields. Individual instruction in solo vocal or instrumental performance at elementary level. Representative works. (B) voice; (C) piano; (D) organ; (F) recorder; (G) classical guitar; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable for four semesters. Pre: audition or consent.

**MUS 232 (Alpha) Applied Music, Western (V)** For music majors or intended majors. Individual instruction in solo or instrumental performance at first performance level. Representative works. Weekly repertoire laboratory required. (B) voice; (C) piano; (D) organ; (G) classical guitar; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable for six semesters. Pre: audition.

**MUS 330 (Alpha) Advanced Applied Music, Ethnic (V)** Individual instruction in instrumental and dance performance at advanced level. See 230 for list of sections. Repeatable for six semesters. Pre: advancement from 230 or consent.

**MUS 331 (Alpha) Applied Music, Western (V)** For nonmajors or for music majors in secondary performance fields. Individual instruction in solo vocal or instrumental performance at an advanced level. See 231 for list of sections. Repeatable for six semesters. Pre: advancement from 231 or consent.

**MUS 332 (Alpha) Applied Music, Western (V)** For music majors. Individual instruction in solo vocal or instrumental performance at the junior level. Representative works. Weekly repertoire laboratory required. Half recital required to complete junior level. See 232 for list of sections. Repeatable for three

semesters. Pre: four semesters of 232 and promotion by board examination.

**MUS 432 (Alpha) Applied Music, Western (3)** For music majors. Individual instruction in solo vocal or instrumental performance at the senior level. Representative works. Weekly repertoire laboratory required. Full recital required for completion of this performance level. See 232 for list of sections. Repeatable for three semesters. Pre: two semesters of 332 and advancement by board examination.

**MUS 635 (Alpha) Graduate-Level Applied Music (3)** For students accepted for MMus in performance. Individual instruction in solo vocal or instrumental performance at graduate performance level. Representative works. (B) voice; (C) piano; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable two times.

**MUS 636 Graduate Recital (V)** For students accepted for MMus in performance. Individual instruction in solo vocal or instrumental performance at graduate level; full recital required. (B) voice; (C) piano; (H) violin; (I) viola; (J) cello; (K) bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion.

### Native Hawaiian Health (NHH)

*School of Medicine*

**NHH 499 Directed Reading/Research (V)** Individual reading and/or research. Repeatable unlimited times. Junior standing or higher. Pre: consent.

**NHH 501 Scientific Basis of Medicine (2)** Introduction to medical science stressing key historical figures and significant events to exemplify the development of scientific methods. Special emphasis on writing skills, health team concept, and culture and contributions of the Pacific. CR/NC only. Pre: admission to Imi Ho'ola Post-Baccalaureate Program.

**NHH 502 Scientific Basis of Medicine (2)** Continuation of 501. CR/NC only. Pre: 501.

**NHH 503 Medical Biology I (11)** (2 Lec, 2 Tutorial, 1 3-hr Lab) Foundation in medical sciences, including anatomy, physiology, microbiology, pathology, and pharmacology (focus on respiratory, cardiovascular, and urinary systems); develop critical thinking and problem-solving skills. Includes lectures, problem-based tutorials, and histology and gross anatomy labs. Pre: admission to Imi Ho'ola Post-Baccalaureate Program.

**NHH 504 Medical Biology II (11)** (2 Lec, 2 Tutorial, 1 3-hr Lab) Continuation of 503. Pre: 503.

**NHH 505 Medical Biochemistry I (6)** Provide background knowledge of chemistry, biochemistry, and molecular biology with emphasis in principles of biochemical processes as well as clinical correlations to medical conditions; develop critical thinking, standardized test taking skills, and problem-solving skills. Pre: admission to Imi Ho'ola Post-Baccalaureate Program.

**NHH 506 Medical Biochemistry II (6)** Continuation of 505. Pre: 505.

**NHH 513 Native Hawaiian Health and Traditional Healing (1)** Introduction to Native Hawaiian health issues and traditional healing practices. MD majors only. CR/NC only. Pre: MDED 551 or consent.

**NHH 545 Native Hawaiian Health Care (V)** Clinical experience in the Native Hawaiian Health Care System and community health care centers, incorporating both western and traditional Hawaiian medicine. Open to fourth year medical students interested in Native Hawaiian Health Care. Pre: MED 531 or MED 532.

**NHH 575 Seminar in Issues of Social Justice in Health (1)** Social justice provides an analytical and prescriptive framework to understand health inequi-

ties; understand connections between social forces and health outcomes, and the role of the individual student in improving social justice in the health system. Graduate standing only. Pre: MDED 551. (Spring only)

**NHH 595 Clinical Skills Preceptorship in the Lau Ola Clinic of the Department of Native Hawaiian Health (V)** Provides a focused experience in clinical medicine with opportunities to practice the history and physical examination in Lau Ola, the clinical setting of the Department of Native Hawaiian Health. Repeatable one time. MD majors only. CR/NC only. Pre: MDED 574 or consent. (Fall only)

**NHH 699 Directed Reading/Research (V)** Individual reading and/or research. Repeatable unlimited times. Graduate standing only. Pre: consent.

### Natural Resources and Environmental Management (NREM)

*College of Tropical Agriculture and Human Resources*

**NREM 203 Applied Calculus for Management, Life Sciences, and Human Resources (3)** (2 Lec, 1 1-hr Lab) Applications of calculus (limits, continuity, derivatives, exponential and logarithmic functions, partials, integrals) to problems in business management, social sciences, and life sciences. Applies symbolic techniques and quantitative methods in problem solving, utilizes concept of proof as a chain of inferences, and promotes development of reasoning skills and mathematical logic in bridging theory and practice. **FS**

**NREM 210 Introduction to Environmental Science (3)** Analysis of our environment with emphasis on understanding relationships and interactions of physical, biological, technological, and political components using scientific methods of inquiry. Food supply and safety, water quality, pollution control, biodiversity, environmental policy. Open to nonmajors. (Cross-listed as PEPS 210) **DB**

**NREM 220 Agricultural and Resource Economics (3)** Introduction to basic economics concepts, including demand, supply, exchange, market price and market failure. Economic evaluation and policy for the uses of various natural resource endowments, especially in production agriculture, is included. A-F only. **DS**

**NREM 301 Natural Resources Management (3)** Biological and physical science aspects of natural resource management at local, national, and global scales. Topics covered include resource management of soil, water, forests, wetlands, coasts and wildlife. NREM majors only. A-F only. Pre: 210, CHEM 151 or higher, BIOL 172; or consent. (Spring only) **DB**

**NREM 301L Natural Resources Management Lab (1)** (1 3-hr Lab) Laboratory and field methods covering biological and physical principles and concepts in natural resource management. Emphasis on basic field measurement techniques and computer skills commonly used in managing natural resources. A-F only. Co-requisite: 301. (Spring only) **DY**

**NREM 302 Natural Resource and Environmental Policy (3)** Introduction to American government policy in natural resources and environmental protection at federal, Hawai'i state and county levels. Policy principles, legal structure, governmental agencies, major statutes and programs, analytical techniques, program assessments. A-F only. Pre: 210 or (BIOL 101 or higher) or GEOG 101 or (GG 101 or higher); and 220 or one ECON course or two DS courses. **DS**

**NREM 304 Fundamentals of Soil Science (4)** (3 Lec, 1 3-hr Lab) Origin, development, properties, management of tropical soils; classification of Hawaiian soils. A-F only. Minimum prerequisite grade of C or consent. Pre: CHEM 161 and 161L, or consent. (Fall only) (Cross-listed as TPSS 304) **DP DY**

**NREM 306 Environmental Ethics (3)** Application of traditional moral theories to environmental issues. Development and evaluation of specific environmen-

tal ethical theories. Application of ethical theories to environmental decision-making. A-F only. Pre: 210 or GEOG 101 or PHIL 101 or PHIL 103. (Alt. years)

**NREM 310 Statistics in Agriculture and Human Resources (3)** Theory, applications, and presentation of statistical reasoning. Descriptive, probability, and inferential reasoning for one-variable analysis with extensions to multiple variable cases. A-F only.

**NREM 311 Current Topics in Plant Science (1)** An undergraduate seminar that provides the presentation and discussion of topics of current relevance to students preparing for careers in applied plant sciences. Oral focus designation. A-F only. Pre: 210 or TPSS 200, or consent. (Cross-listed as TPSS 311)

**NREM 341 Accounting and Financial Analysis (3)** Principles and methods of agricultural accounting. Preparing and interpreting financial statements. Sources and costs of credit, capital budgeting, tax management, estate planning. Repeatable one time. A-F only. Pre: 220 or ECON 130 or consent. (Cross-listed as TPSS 341) **DS**

**NREM 351 Enterprise Management (3)** Introduction of practical concepts and methods used in business management. Introduce broad range of business strategies. Understand the critical role each strategy plays. Facilitate student's practice of analytical and critical thinking through case studies. (Cross-listed as TPSS 351)

**NREM 358 Basic Environmental Benefit Cost Analysis (3)** Fundamentals of benefit-cost analysis with extensions to environmental impacts and projects; case studies. Pre: 220 or ECON 130 or consent. **DS**

**NREM 380 Tropical Forestry/Agroforestry (3)** (2 Lec, 1 3-hr Lab) Biophysical and socioeconomic description and analysis of major tropical forestry and agroforestry management systems, including Hawai'i and the Pacific Basin. The role of traditional land use, pressures from regional and global development, and efforts to create sustainable, diverse systems for rural communities will be discussed. Pre: CHEM 151 or higher and BIOL 171 or higher. (Alt. years: spring) **DB**

**NREM 399 Directed Study (V)** Limited to exceptional undergraduate students qualified to carry on advanced study. Pre: consent.

**NREM 420 Community and Natural Resource Management (3)** Theory and tools for working with groups and communities in the management of natural resources is presented using a participatory format. Topics include sustainable development, extension programming, participatory learning and communication, evaluation, and conflict management. Pre: two social science courses or consent. (Fall only) **DS**

**NREM 429 Spreadsheet Modeling for Business and Economic Analysis (3)** Introduction to quantitative decision-making methods for effective agribusiness management in resource allocation, scheduling, logistics, risk analysis, inventory, and forecasting. Emphasis on problem identification, model formulation and solution, and interpretation and presentation of results. Pre: 220 or ECON 130, and 310 or ECON 321; or consent. (Once a year) (Cross-listed as ECON 429 and TPSS 429) **DS**

**NREM 450 Wildlife Ecology and Management (3)** Lecture-based overview of the history, ecology, and management of wildlife species (i.e., terrestrial vertebrates) from around the world and Hawai'i. One or two field trips may be required. Class size limited to 25 students. Pre: BIOL 172 or consent. (Alt. years)

**NREM 461 Soil and Water Conservation (3)** Past and present issues in soil and water conservation will be examined. Principles of erosion, conservation tillage, irrigation, and drainage will be discussed. Land-based threats to coastal zones and watershed management will also be covered. Pre: 301 or 304. **DP**

### **NREM 463 Irrigation and Water Management**

**(3)** Basic soil-water-plant relationships, irrigation water requirements, irrigation efficiencies, different methods of irrigation, planning, design and management of an irrigation system, fertigation and impact of irrigation on soil and water quality. Pre: 203 (or equivalent) and NREM/TPSS 304 (or equivalent), or consent. (Alt. years) (Cross-listed as TPSS 463)

**NREM 467 Natural Resources Conservation Planning (3)** Combined lecture and hands-on field course on theory and practice of natural resource conservation planning. Includes individual and group projects. Pre: undergraduate junior or senior or graduate standing. Recommended: at least one upper division course in soils, natural resources, planning, physical geography, or related area; or consent. (Alt. years) **DP**

**NREM 475 Plant Nutrient Diagnosis in the Tropics (3)** Designed for students to identify essential nutrients required by plants; diagnose nutrient disorders in plants; and propose environmentally sound solutions to correct disorders. Pre: 304/TPSS 304 (or concurrent) and BIOL 172. (Cross-listed as TPSS 475)

**NREM 477 Geographic Information Systems for Resource Managers (4)** Combined lecture-lab on the basic concepts and principles of geographic information systems, remote sensing, and global positioning system. Practical skills to be developed by solving real natural resources and environmental problems. Pre: either 310 or MATH 140 or MATH 373, and 301; or consent. (Once a year)

**NREM 480 Applied Forest Ecology (3)** Application of ecological theory to sustainable management of forest resources in Hawaii and beyond, including silviculture (production of timber and nontimber forest products), restoration (restoring damaged or degraded forests), and conservation (conserving existing forest resources). A-F only. Pre: 301 and 380 or consent. (Alt. years)

**NREM 491 Topics in Natural Resources and Environmental Management (V)** Study and discussion of significant topics and problems. Offered by visiting faculty and/or for extension programs. Repeatable five times up to four credits. A-F only. Pre: consent.

**NREM 492 Internship (1)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: 301.

**NREM 492L Internship Experience (3)** Internship work experience for NREM majors. NREM majors only. A-F only. Pre: 301 (or concurrent) and consent.

**NREM 494 Environmental Problem Solving (3)** (2 Lec, 1 3-hr Lab) Senior-level capstone for NREM and related majors. Ecosystem management within problem-solving context. Applications of research and analytical methods, management tools to case studies. Focus on student teamwork and oral communications. NREM majors only. A-F only. Pre: senior in NREM (or consent) and 310. (Once a year)

**NREM 499 Directed Study (V)** Repeatable up to four credits. Pre: senior standing and consent.

**NREM 500 Master's Plan B/C Studies (V)** Enrollment for degree completion. Repeatable up to 3 credits. Pre: master's Plan B or C candidate and consent.

**NREM 600 Evaluation of Natural Resource Management (3)** Critical evaluation of natural resource management approaches. Emphasis on the physical, chemical, and biological aspects within an environmental context. Pre: graduate standing or advanced undergraduate standing, and consent.

**NREM 601 Economic Analysis of Natural Resource Management (3)** Lecture/discussion providing an economic framework for assessing natural resource management projects and environmental policies. Use of case studies to demonstrate applica-

tions of the framework in selected subject areas. (Spring only) Pre: one ECON course.

**NREM 605 Research Skills (2)** Assists the student in developing skills necessary to write a research grant and design a research proposal. NREM majors only. A-F only. (Fall only)

**NREM 611 Resource and Environmental Policy (3)** Exploration of institutional and policy dimensions of natural resource development, management, allocation, markets and pricing, focusing on their environmental impacts. Emphasis on policy analysis using case studies and empirical findings. Original paper required. A-F only. Pre: ECON 300 or ECON 301, or consent. (Fall only)

**NREM 612 Predicting and Controlling Degradation in Human-Dominated Terrestrial Ecosystems (3)** Historic, present, and projected trends in understanding and managing human-dominated ecosystems; predicting, measuring and mitigating degradation especially in terrestrial ecosystems with a focus on small volcanic islands in tropical settings. A-F only. Pre: 301 and 304 (or equivalent) and 600. Recommended 461, or consent. (Fall only)

**NREM 627 Applied Microeconomic Analysis (3)** Economic applications to the agricultural and non-agricultural industries are emphasized. Econometric techniques are used to estimate demand, supply, production and cost functions which are analyzed in terms of economic theory and market information. A-F only. Pre: AREC 626 and ECON 627, or consent.

**NREM 631 Sustainable Agriculture Seminar (2)** Critical evaluation of existing and alternative cropping systems from a long-term perspective. Value conflicts and resolution. Pre: graduate standing or advanced undergraduate standing, and consent.

**NREM 637 Resource Economics (3)** Analysis of problems of development and management of natural resources with emphasis on resources in agriculture and role in economic development. Pre: ECON 608 and ECON 629. (Cross-listed as ECON 637)

**NREM 652 Information Research Skills (1)** Examines the use of libraries and information technology for scholarly investigation in support of scientific research; provides experience utilizing and critically evaluating a variety of print and electronic sources in basic and applied sciences. Pre: consent. (Cross-listed as ANSC 652, FSHN 652, and TPSS 652)

**NREM 658 Advanced Environmental Benefit Cost Analysis (3)** Advanced environmental benefit-cost analysis will require that proficiency be demonstrated on fundamentals and address topics related to sustainability, including income equality, non-market goods, risk, cost of public funds, and the social discount rate.

**NREM 660 Hydrologic Processes in Soils (3)** (2 Lec, 1 3-hr Lab) Hydrologic properties in soils and the processes involved in water infiltration drainage and solute transport. Emphasis on key parameters required for modeling. Recommended: CEE 424 or consent. (Fall only) (Cross-listed as BE 664 and CEE 625)

**NREM 662 Watershed Hydrology (3)** Application of basic hydrologic processes and management practices occurring on small islands watersheds. Pre: 203 or equivalent and 304 or equivalent; or consent. (Once a year)

**NREM 664 Small Watershed Modeling (3)** Introduction to process-based modeling of watershed with emphasis on model applications. Deals with the characterization and simulation of small watershed hydrologic and pollutant transport processes. Pre: CEE 424 (or concurrent) or GG 425 (or concurrent) or BS degree from NREM, or consent. (Spring only)

**NREM 665 Coastal and Wet and Ecology and Management (3)** Study of marshes, mangroves, sea grass beds, and coral reefs. Emphasis on the hydrology, biogeochemistry, productivity, and community dynamics of these systems. Response to perturbations and management strategies will also be discussed. Pre: advanced undergraduate coursework in hydro-

ogy, soils, and ecosystem ecology recommended. (Alt. years)

**NREM 671 International Agricultural Systems (2)** Analysis of trends and strategies in international agricultural research and development. International agricultural research centers (IARC), Food and Agriculture Organization (FAO), university networks and consortia, and private voluntary organizations (PVOs). Pre: graduate standing or advanced undergraduate standing, and consent.

**NREM 677 Remote Sensing of the Environment (3)** Fundamentals, techniques, and applications of remote sensing for natural resource assessments and environmental monitoring. Lab consisting of field radiometric exercises, computer modeling of energy-matter interaction, processing, and analysis of remotely sensed imagery. Pre: one physics course (e.g. PHYS 151), one calculus course (e.g. 203), and one statistics course (e.g. 310), or consent. Recommended: either GEOG 470 or GG 460 or one introductory remote sensing course. (Alt. years)

**NREM 680 Ecosystem Ecology (4)** (2 Lec, 1 3-hr Lab) Principles of ecosystem ecology with emphasis on tropical forests, human impacts, and global environmental change. Factors controlling ecosystem structure, productivity, nutrient cycling, plant-soil-atmosphere interactions, and energy balance. Field and laboratory methods in ecosystem science. Pre: advanced undergraduate coursework in ecology and soil science; graduate standing; and consent. (Alt. years; spring)

**NREM 682 Restoration Ecology (3)** Graduate seminar on foundations of restoration ecology, application of ecological theory to restoration practice. Emphasis on restoration of structure and function in degraded terrestrial ecosystems using case studies from Hawai'i and around the world. Pre: advanced undergraduate ecology course and graduate standing, or consent. Completion of 680 recommended, but not required. (Alt. years)

**NREM 685 Landscape Ecology (3)** Focuses on the history, theories, and contemporary views of landscapes; including scale, land cover, land use, landscape metrics, disturbance regimes, land management, landscape change, the relationship of landscapes to species, and modeling. Pre: graduate students, or consent. (Alt. years)

**NREM 690 Conservation Biology (3)** Theories and concepts of ecology, evolution and genetics for conservation of biological diversity. Topics will include restoration ecology, management planning, laws and policies, biological invasions. Pre: BIOL 375 and either ZOO 480 or BOT 462; and either ZOO 410, 439, 620, 623, BOT 453, 454, 456, or 492. (Cross-listed as BOT 690 and ZOO 690)

**NREM 691 Advanced Topics in Natural Resources and Environmental Management (V)** Study and discussion of significant topics and problems at an advanced level. Offered by visiting or existing faculty as a special course. Repeatable one time. Pre: graduate standing or consent.

**NREM 695 Master's Plan B Capstone Preparation (1)** Preparation for NREM Master's Plan B capstone experience. NREM majors only. A-F only. Pre: 600 (or concurrent), 601, 605 (or concurrent), a graduate methods course, and at least 12 graduate elective credits. (Fall only)

**NREM 696 Master's Plan B Capstone Experience (3)** Capstone experience for NREM Master's Plan B students. NREM majors only. A-F only. Pre: 695 or concurrent.

**NREM 699 Directed Research (V)** Repeatable unlimited times. Pre: graduate standing.

**NREM 700 Thesis Research (V)** Repeatable unlimited times.

**NREM 701 Research Seminar (1)** Presentation and discussion of student research proposals, theses and dissertations, and research presentations by NREM faculty, students, and invited speakers. A-F only. Pre: consent.

**NREM 800 Dissertation Research (V)** Repeatable unlimited times.

## Natural Sciences (NSCI)

### College of Natural Sciences

**NSCI 101 Natural Sciences and Life-Pulling the Puzzles Apart (1)** Journey through the Natural Sciences finding fun, excitement, and success in science, mathematics, engineering, medicine, and all that is the natural sciences. Focus upon challenging world-views of belief, invention, impact, and ethics.

**NSCI 501 Seminar for Science Teachers (V)** Seminar and discussions of current and significant topics and problems in science where teachers can exchange new and innovative teaching ideas and strategies. Repeatable. Pre: in-service teachers or consent.

**NSCI 503 Computers in Classroom (V)** Combined lecture, laboratory and discussion on the use of computers as a teaching tool in the classroom. To be taught in a hands-on manner appropriate for the science teachers. Restricted to in-service teachers or consent. Repeatable one time.

**NSCI 504 Mathematics Workshop for Teachers (V)** An in-depth study of topics from intermediate and high school mathematics. Restricted to in-service teachers or consent. Repeatable one time. A-F only.

**NSCI 505 Physics Workshop for Teachers (V)** Major concepts of physics taught by means of hands-on conceptual activities for elementary and secondary teachers. Restricted to in-service teachers, or consent. Repeatable one time. (Cross-listed as PHYS 505)

**NSCI 619 Seminar on Science Teaching (2)** Effective teaching methods; organization of courses, lectures, laboratory exercises; development and evaluation of examinations; computers and audio-visual aids. Open to graduate students in various science disciplines. Repeatable one time. (Cross-listed as ZOO 619)

*See also the biology professional development course, BIOL 501, under the Biology (BIOL) course listing in this section of the Catalog.*

## Nursing (NURS)

### School of Nursing and Dental Hygiene

*The minimum required grade for undergraduate pre-requisite courses is C (70%) or better, unless otherwise specified.*

*Demonstrating knowledge competency in graduate courses requires a passing grade of B- or 80%. A grade of C+ or less will not count towards degree requirements, unless otherwise specified.*

**NURS 210 Health Promotion Across the Lifespan (3)** Focuses on a health promotion model of care, assessment, and communication skills. It introduces the nurse's roles, code of ethics, and evidence-based practice. NURS majors only. A-F only. Pre: admission to the School of Nursing and Dental Hygiene, or consent. Co-requisite: 210L, 211, and 212.

**NURS 210L Health Promotion Across the Lifespan Lab (6)** Clinical course focuses on a health promotion model of care, assessment, and communication skills. Introduces nurse's roles, code of ethics, and evidence-based practice. NURS majors only. CR/NC only. Co-requisites: 210, 211, and 212.

**NURS 211 Professionalism in Nursing (2)** Professional responsibilities of nursing practice are examined through the history of nursing, practice and education, legal and ethical issues, contemporary issues, and nursing roles. NURS majors only. A-F only. Pre: admission to the School of Nursing and Dental Hygiene, or consent. Co-requisite: 210, 210L, and 212.

**NURS 212 Pathophysiology (3)** Focus on pathophysiological concepts that are basic to understanding illness and injury and the corresponding spectrum of human responses, which serve as a foundation for the formulation of clinical decisions and care planning. NURS majors only. A-F only.

Pre: admission to the School of Nursing and Dental Hygiene, or consent. Co-requisite: 210, 210L, and 211.

**NURS 220 Health and Illness I (4)** Focuses on nursing assessment to support identification of risk factors and detection/prevention of complications from illness. NURS majors only. A-F only. Pre: 210, 210L, 211, and 212, or departmental approval. Co-requisite: 220L.

**NURS 220L Health and Illness I Lab (6)** Clinical course focuses on using nursing assessment to support identification of risk factors and detection/prevention of complications from illness. Nursing skills are integrated into clinical experiences. NURS majors only. CR/NC only. Pre: 210, 210L, 211, and 212. Co-requisite: 220.

**NURS 301 Introduction to Evidence Based Practice and Health Promotion (3)** Provides an introduction to the HSN Competencies and spiraling of concepts and is based on the assumption of student responsibility for learning. Emphasis on research evidence to support nursing care. NURS majors only. A-F only.

**NURS 320 Health and Illness II: Family Health (4)** Nursing care and health promotion for maternal-newborn and pediatric clients and families in the acute care and community settings. Utilization of family theories and assessment tools for providing culturally sensitive, client-centered care. NURS majors only. A-F only. Pre: 220 and 220L. Co-requisite: 320L.

**NURS 320L Health and Illness II-Family Health Lab (6)** Nursing care and health promotion for maternal-newborn and pediatric clients and families in acute care and community settings. Utilization of family theories and assessment tools when providing culturally sensitive, client-centered care. NURS majors only. CR/NC only. Pre: 220 and 220L. Co-requisite: 320.

**NURS 340 Contemporary Ethical Issues in Health Care (3)** Explore contemporary ethical issues and their legal implications in health care. Focus on decision-making in professional practice and social policy formation. Pre: open to non-nursing majors with consent.

**NURS 343 Gerontology: Its Nursing Implications (3)** Explores attitudes toward the aged, biological and psychological aspects, ethnicity, sexuality, nutritional problems, community resources, other related topics. Pre: open to non-nursing majors with consent.

**NURS 344 Nursing in the Multicultural Milieu (3)** Relates values, beliefs, attitudes, family organization, lifestyles, and health practices in different ethnic groups to health-care and nursing practice. Pre: open to non-nursing majors with consent.

**NURS 360 Health and Illness III (3)** Focuses on complex situations requiring strong recognition skills, and rapid decision making. The evidence base supporting assessment and nursing intervention is explored. NURS majors only. A-F only. Pre: 320 and 320L or departmental approval. Co-requisite: 360L.

**NURS 360L Health and Illness III Lab (6)** Clinical course focuses on complex situations requiring application of strong recognition skills and rapid decision making. Evidence base supporting assessment and nursing intervention is explored. NURS majors only. CR/NC only. Pre: 320 and 320L. Co-requisite: 360.

**NURS 361 Health Education and Promotion (2)** Provides an overview of the concepts and application of health education and health promotion theories and principles as applies to individuals, groups, and the larger public. Pre: open to non-nursing majors with consent. (Fall only) (Cross-listed as DH 361)

**NURS 362 Professionalism in Nursing II (1)** Continuation of 211. Focus is on current issues in nursing and health care and nursing roles. Principles of organizational structure, leadership, decision-making, priority setting, and change will be discussed.

NURS majors only. A-F only. Pre: 320 and 320L, or departmental approval. Co-requisite: 360 and 360L.

**NURS 363 Introduction to Nursing Research (3)** Introduction to the research process and an understanding of the applicability of the scientific approach to nursing. Repeatable one time. NURS majors only. A-F only. Pre: any of the following stat courses: MATH 115, PSY 210, SOCS 225, BUS 310, NREM 310, ECON 321, and EDEP 429; or consent.

**NURS 399 Directed Reading/Research I, II (V)** Limited to juniors and seniors in nursing.

**NURS 411 NCLEX Review (2)** Overview of the NCLEX-RN licensure examination and regular, systematic practice in taking multiple choice examinations. Pre: open to non-nursing majors with consent.

**NURS 420 Cooperative Education in Nursing (V)** A two-semester course with seminar in professional role development in addition to paid work experience in nursing at a local agency. Upper division NURS majors only. Repeatable one time. CR/NC only. Pre: 360 and 360L.

**NURS 421 Summer Internship (3)** Summer practicum experience for students to learn the role of the professional nurse by building on previously learned knowledge and skills in the nursing program. Repeatable two times. NURS majors only. CR/NC only. Pre: 360 and 360L, or consent. (Summer only)

**NURS 431 Complementary and Alternative Therapies (3)** Survey of complementary and alternative therapies used for health promotion of individuals and groups. NURS majors only. A-F only. Pre: open to non-nursing majors with consent.

**NURS 439 Management for Health Professionals (3)** Explores basic management concepts. Emphasizes problem solving methods as a means of determining situationally appropriate actions in institutional and community settings. Upper division NURS majors only. Senior standing or higher. Co-requisite: 475 or consent.

**NURS 450 Community, Public, and Global Health Nursing (5)** Theory course focuses on community, public, and global health nursing with an emphasis on strategies applied to improve health and decrease health inequities at the local as well as national and international levels. NURS majors only. A-F only. Pre: 360, 360L, and 363. Co-requisite: 450L.

**NURS 450L Community, Public, and Global Health Nursing Lab (4)** Clinical course focuses on community, public, and global health nursing with an emphasis on strategies applied to improve health and decrease health inequities at the local as well as national and international levels. NURS majors only. CR/NC only. Pre: 360, 360L, and 363. Co-requisite: 450.

**NURS 452 Cultural Aspects of Health Management in Populations Indigenous to Hawai'i, the Pacific, and Asia (3)** Focuses on cultural aspects that influence health management in indigenous populations of Hawai'i, the Pacific, and Asia, with an emphasis on development of culturally sensitive strategies to promote and improve health management. Repeatable one time. NURS majors only. Undergraduate majors only. A-F only.

**NURS 453 Introduction to Genetics in Nursing Practice (3)** Fundamentals of genetics and genomics, including principles of inheritance in humans; cells and development, chromosome structure and function, and implications on health. Includes overview of topics relevant to genetics/genomics in the clinical setting. NURS majors only. A-F only. Pre: 212, 220, 220L, and 363.

**NURS 460 Complex Nursing and Leadership (4)** Theory course emphasizes the judgments, knowledge, and skills necessary for nursing practice, including case management and quality management experiences. The experience focuses on complex clinical judgments, interdisciplinary team functioning, and leadership. NURS majors only. A-F only. Pre: 450 and 450L, or consent. Co-requisite: 460L.

**NURS 460L Complex Nursing and Leadership Lab (6)** Clinical course emphasizes application of knowledge and skills necessary for nursing practice, including case management and quality management experiences. Focuses on complex clinical judgments, interdisciplinary team functioning, and leadership. NURS majors only. CR/NC only. Pre: 450 and 450L. Co-requisite: 460.

**NURS 461 Advanced Pathophysiology and Neurobiology (3)** Provides an advanced understanding of pathophysiologic mechanisms and neurobiology underlying human illness across the lifespan. Provides a foundation for formulating clinical decisions and therapeutic plans of care to promote disease prevention and health promotion. NURS majors only. A-F only.

**NURS 475 Complex Nursing Practice (2)** Examination of continuity of care for clients with complex needs within the health care system. Emphasis on quality and case management. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. NURS majors only. A-F only. Co-requisites: 439 and 475L.

**NURS 475L Complex Nursing Practice Lab (5)** Delivery of comprehensive nursing care to clients with complex needs in community and/or acute care settings. Emphasis on quality management, continuity of care, culture, and ethics. NURS majors only. A-F only. Co-requisite: 439 and 475.

**NURS 499 Directed Reading and Research (3)** Planned individualized study or research in specialized area related to interprofessional collaborative practice. Repeatable one time. Senior undergraduate NURS students only. Pre: consent.

**NURS 500 Master's Plan B/C Studies (1)**

**NURS 501 Professionalism in Nursing (2)** Introduction to history of nursing and leaders in the field. Will explore contemporary nursing issues and research. Strategies to foster adherence to a professional code of ethics in practice will be examined. NURS majors only. A-F only. Pre: admission into MEPN. (Once a year)

**NURS 502 Pathophysiology (3)** Web-enhanced on pathophysiologic concepts as a basis of illness and injury and the corresponding spectrum of human response, which serves as a foundation for the formulation of clinical decisions and care planning. NURS majors only. A-F only. Pre: admission into MEPN. (Once a year)

**NURS 503 Pharmacology for Nursing Practice (3)** Essential principles of pharmacology using a pathophysiologic approach with emphasis on administering medications and evaluating their effects. NURS majors only. A-F only. Pre: admission into MEPN. Co-requisite: 501, 502, 504, 504L, 505, 505L. (Once a year)

**NURS 504 Health Assessment (2)** Concepts/theories of health assessment, data collection, and analysis to distinguish between health/wellness, risk factors or health deviations across the lifespan. Attention to principles of communication and interviewing. NURS majors only. A-F only. Pre: admission into MEPN. Co-requisite: 501, 502, 503, 504L, 505, 505L. (Once a year)

**NURS 504L Health Assessment Lab (2)** Application of assessment skills in dry lab and clinical settings, with attention to principles of communication, interviewing and physical examination skills. NURS majors only. CR/NC only. Pre: admission into MEPN. Co-requisite: 501, 502, 503, 504, 505, 505L. (Once a year)

**NURS 505 Foundations of Nursing Science (2)** Nursing process and scientific based nursing interventions to meet basic human needs using basic psycho-motor skills to support assessment, intervention, and evaluation activities. NURS majors only. A-F only. Pre: admission into MEPN. Co-requisite: 505L. (Once a year)

**NURS 505L Foundations of Nursing Science and Practice Lab (4)** Application of the nursing process and scientific based nursing interventions to meet basic human needs using basic psycho-motor skills to support assessment, intervention, and evaluation activities. NURS majors only. CR/NC only. Pre: admission into MEPN. Co-requisite: 505. (Once a year)

**NURS 507 Bio-Behavioral Health Nursing (2)** Biopsychosocial theories of human behavior related to function, alteration, and/or disruption of mental processes; reviews current knowledge related to nursing care, psychiatric treatment/psychosocial rehabilitation of identified mentally ill adults/children and their families. NURS majors only. A-F only. Co-requisite: 507L. (Once a year)

**NURS 507L Bio-Behavioral Health Nursing Clinic/Lab (2)** Application of current knowledge regarding human behavior related to function, alteration, and/or disruption of mental processes; applies current knowledge related to nursing care, psychiatric treatment/psychosocial rehabilitation of identified mentally ill adults/children and their families. NURS majors only. CR/NC only. Co-requisite: 507. (Once a year)

**NURS 508 Nursing Care of Childbearing Families (2)** Introduction to the theoretical concepts of holistic nursing care of the perinatal family. Women's and men's health issues are discussed. NURS majors only. A-F only. Co-requisite: 508L. (Once a year)

**NURS 508L Nursing Care of Childbearing Families Clinic/Lab (2)** Application of the nursing care of the mother and family. The student will apply clinical and theoretical concepts of holistic nursing care for women experiencing customary and complicated perinatal processes. NURS majors only. CR/NC only. Co-requisite: 508. (Once a year)

**NURS 509 Nursing Care of Children and Families (2)** Examines the bio/psycho/social response of the child and family to health and illness, as well as nursing care for acute and chronic conditions. Lab course taken concurrently. NURS majors only. A-F only. Co-requisite: 509L. (Once a year)

**NURS 509L Nursing Care of Children and Families Clinic/Lab (2)** Accompanies and supports Pediatric Nursing to provide educational experiences in the hospital and outpatient or community settings. NURS majors only. CR/NC only. Co-requisite: 509. (Once a year)

**NURS 513 Acute Care Nursing (3)** Addresses the bio/psycho/social human health response to a wide range of conditions. Health promotion, risk reduction and disease detection and nursing care treatment in the acute setting will be covered. NURS majors only. A-F only. Co-requisite: 513L. (Once a year)

**NURS 513L Acute Care Nursing Lab (3)** Application of the bio/psycho/social human health response to a wide range of conditions. Application of health promotion, risk reduction and disease detection and nursing care treatments in the acute care setting. NURS majors only. CR/NC only. Co-requisite: 513. (Once a year)

**NURS 517 Clinical Immersion to Nursing Practice (3)** Examination of continuity of care for clients with complex needs. Emphasis on application of leadership, management, and quality improvement in the clinical setting. Admission to MEPN only. A-F only. Pre: 504, 505, 507, 508, 509, and 513. Co-requisite: 517L.

**NURS 517L Clinical Immersion to Nursing Practice Lab (5)** Deliver comprehensive nursing care to clients with complex needs in community and/or acute care settings. Leadership, management, and quality improvement competencies are stressed. Admission to MEPN only. CR/NC only. Pre: 504, 505, 507, 508, 509, and 513. Co-requisite: 517.

**NURS 518 Introduction to Community and Public Health Nursing (2)** Introduces community and public health nursing with an emphasis on application to nursing practice in the community

and public health settings. Restricted to matriculated MEPN students only. A-F only. Pre: completion of 501, 502, 503, 504, 504L, 505, and 505L (with a minimum grade of B- or better for 501, 502, 503, 504, and 505; CR for 504L and 505L). Co-requisite: 518L. (Spring only)

**NURS 518L Introduction to Community and Public Health Nursing Lab (3)** Application of health promotion, risk reduction, and disease prevention and detection and nursing care treatments in the community setting. Restricted to matriculated MEPN students only. CR/NC only. Pre: completion of 501, 502, 503, 504, 504L, 505, and 505L (with a minimum grade of B- or better for 501, 502, 503, 504, and 505; CR for 504L and 505L). Co-requisite: 518. (Spring only)

**NURS 600 Epidemiology for Advanced Nursing (3)** Introduction to epidemiologic principles and methods, with an emphasis on its application to nursing practice. Students taking for one credit will focus on application of epidemiology to advanced nursing practice. NURS majors only. A-F only. (Once a year)

**NURS 605 Health Promotion and Disease Prevention (3)** Teaching and learning concepts applied to health promotion and prevention of common health and illness conditions with culturally diverse individuals, families, groups, and communities. Includes didactic (30 hrs) and fieldwork (45 hrs). Repeatable one time. Pre: classified graduate student status in the SONDH.

**NURS 608 Genetics and Health Care (3)** Addresses the scientific, psycho-social, ethical, cultural, and spiritual issues surrounding genetic disease, genetic testing, and living with an inherited condition. Repeatable one time. Pre: graduate standing or consent.

**NURS 609 Health Policy (3)** Review of contemporary national health policies, issues and concerns; and international comparison of health policy evolution; includes didactic and 45 hours of fieldwork experiential learning.

**NURS 611 Psychiatric-Mental Health Assessment and Diagnosis (3)** Identification and synthesis of pertinent biopsychosocial and cultural data to complete advanced psychiatric-mental health assessments and diagnoses.

**NURS 612 Advanced Assessment and Clinical Reasoning (2)** Provides a framework for the development of advanced skills for systematic and comprehensive data collection, organization, precise recording, accurate assessment and communication of data reflecting the biopsychophysical status of individuals across the life span. Masters nursing students only. A-F only.

**NURS 612L Advanced Assessment and Clinical Reasoning Lab (1)** Clinical lab and practicum for advanced practice nursing. Emphasis on integration of knowledge, skills and outcome evaluation. Masters nursing students only. A-F only.

**NURS 613 Pathophysiology for Advanced Practice (3)** Provides an understanding of normal physiological mechanisms and pathological processes to serve as a foundation for clinical assessment, decision making, and clinical management across the lifespan. Pre: enrollment as a classified student in a graduate program in the SONDH.

**NURS 615 Clinical Skills and Procedures for Advanced Practice Nursing (V)** Clinical laboratory that focuses on clinical skills and procedures performed by advanced practice nurses (nurse practitioners and/or clinical nurse specialists). Topics will vary by section and semester. Repeatable up to 12 credits. NURS majors only. CR/NC only.

**NURS 616 Psychobiology of Human Behavior and Psychopharmacology (3)** Survey of the psychobiological basis of selected human behaviors and mental disorders across the lifespan and psychopharmacologic treatments prescribed by health care providers. Pre: consent.

**NURS 617 Human Responses to Acute and Chronic Illness-A (3)** The first of two courses that focuses on the delivery of advanced practice nursing in the assessment, diagnosis, and management of common acute and chronic adult health problems in the acute care setting. NURS majors only. A-F only. Pre: 612, 612L, and 613; no waiver. (Once a year)

**NURS 618 Human Responses to Acute and Chronic Illness-B (3)** Second of two courses that focuses on the delivery of advanced practice nursing in the assessment, diagnosis and management of common acute and chronic adult health problems in the acute care setting. NURS majors only. A-F only. Pre: 612, 612L, and 613; no waiver. (Once a year)

**NURS 620 Nursing Research and Theory for Practice (3)** Examination of theory and the research process to prepare masters prepared nurses for utilization of knowledge for provision of quality care. Pre: enrollment as a classified student in the graduate degree program in SONDH.

**NURS 621 Acute and Episodic Care Management (3)** Diagnosis and management of health and illness with emphasis on clients with common acute/episodic conditions seen in context of family and community. Advanced practice nurse-client relationship, practice roles, and culturally relevant care are included. A-F only. Pre: 612/612L, 613, and 629. Co-requisite: 675.

**NURS 623 Psychopharmacology (3)** Survey of biopsychological bases of and biotherapies for major mental disorders, including the schizophrenias, affective and personality disorders, pediatric and geriatric problems, and neurological dysfunctions with appropriate applications to health care. Pre: graduate standing or consent.

**NURS 624 Adolescent and Family Psychiatric-Mental Health Care (3)** Seminar on theory/research in advanced psychiatric-mental health nursing of adolescents and families representing diverse populations. Emphasis on developmental and nursing theories, evidence-based practice, therapeutic modalities and disease management of psychiatric illness. Pre: 611 (or concurrent) or consent. (Once a year)

**NURS 625 Advanced Nursing Roles (3)** Provides students with an understanding of different roles of the advanced professional nurse; an ability to proactively manage the environment of their specialty practice; includes 45 hours of field work experience. A-F only.

**NURS 628 Child Health: Special Health Needs (3)** Provides a theoretical basis required for specialized clinical competence in adapting recent findings on child/parent assessments, social and health risk indicators, the role of environment, and multidisciplinary settings in the care of pediatrics. NURS majors only. A-F only. Pre: NURS major, 612/612L and 633 and 634, and 3 credits of 675; or consent. Co-requisite: 675. (Once a year)

**NURS 629 Pharmacology for Nurses in Advanced Practice (3)** Prepares APNs to evaluate, monitor, and prescribe pharmaceuticals to treat acute and chronic illness across lifespan. Emphasis on drug indications, mechanisms of action, clinical efficacy, adverse effects, interactions, monitoring, education, and cost effectiveness. Enrollment as a classified student in a SONDH graduate degree program. Repeatable unlimited times. Pre: 613 (or concurrent) or consent.

**NURS 630 Transforming Healthcare through Collaboration, Informatics, and Policy (3)** Will explore the role of collaboration using an interdisciplinary approach of health informatics and policy in transforming health and health systems.

**NURS 632 Therapeutic Modalities (3)** Therapeutic modalities used in advanced practice psychiatric-mental health nursing with individuals, families, and groups representing culturally diverse populations. Pre: 611.

**NURS 633 Child Health: Promotion and Maintenance (3)** Presents normal developmental,

physiological and social needs of children within the context of family; then focuses on the management of common acute and chronic illnesses of children.

**NURS 634 Child Health: Advanced Pediatric Acute/Chronic Care (3)** Focuses on the evaluation of pediatric clients with higher acuity and more complex management issues. Emphasizes critical analysis of evidence based research in pediatric health care. Pre: Admission into the PNP and FNP program, 612/612L, 633, and completed 3 credits of 675 and/or consent.

**NURS 635 Women's Health: Promotion and Maintenance (3)** Provides a foundation of concepts necessary to maintain and promote women's health, including developmental, physiological and social needs of women of all ages and the management of common health problems and concerns specific to women. Pre: 612/612L, 613, and 629. Co-requisite: 675.

**NURS 638 Child and Adolescent Psychiatric-Mental Health (3)** Theory and research in advanced practice psychiatric-mental health nursing of children and adolescents representing culturally diverse populations. Emphasis on growth and development, assessment and diagnosis, and therapeutic modalities. A-F only. Pre: 620 (or concurrent).

**NURS 639 Disciplinary Knowledge I (3)** Exploration of a variety of philosophies of science and examination of factors influencing the development of nursing theory and the emergence of nursing as a discipline.

**NURS 640 Chronic Illness Management (3)** Management of chronic illness using selected health care systems in culturally diverse communities. Management includes practice, consultation, education, research, and evaluation. Pre: 612/612L, 613, and 629. Co-requisite: 675.

**NURS 641 Advanced Nursing in the Global Health Environment (3)** Exploration and analysis of key global health topics of concern for APNs. A-F only.

**NURS 646 Advanced Psychiatric-Mental Health Practicum (V)** Supervised application of theories, research, and skills for advanced practice psychiatric-mental health nursing with individuals, families, and groups representing culturally diverse populations. Includes the program's capstone experience. Repeatable five times. Pre: 611 (or concurrent). Co-requisite: 611 or 632.

**NURS 647 Family Systems in Health and Illness (3)** Family systems approach to include selected family theories, family research and family centered culturally sensitive clinical assessment and intervention in health and illness situations. Pre: graduate standing or consent.

**NURS 650 Complementary and Traditional Care (3)** A review of theoretical systems and approaches to complementary and traditional care in culturally diverse populations with a focus on wellness. Appropriate for all health-care professionals.

**NURS 655 Tests and Measurement in Nursing Education (3)** Testing and evaluation applied to nursing education. NURS majors only. A-F only. Pre: consent. (Once a year)

**NURS 660 (Alpha) Selected Topics in Nursing (3)** Advanced study, exploration of special topics in clinical nursing. (1) current issues in professional nursing.

**NURS 661 Human Resource Management in Healthcare Agencies (3)** Analyze and critically evaluate basic issues, policies and trends in human resource management as it applies to health care agencies. A-F only. Pre: consent.

**NURS 662 Leadership and Management of Health Organizations (3)** Study of theoretical, conceptual and practical knowledge of leadership and management as applied to changing healthcare environments.

**NURS 663 Analysis of Healthcare Delivery Models (3)** Analysis of various clinical management concepts and health-care delivery systems influencing outcomes, process, and costs in the delivery of care.

- NURS 664 Seminar and Practicum in Nursing Executive Leadership (3)** Supervised practicum to build mid to senior level nursing leadership competencies and facilitate change in complex healthcare organizations. Pre: 663 (or concurrent) or consent.
- NURS 665 Clinical Economics and Finance (3)** Economic and financial concepts and tools for use in developing and managing patient care processes.
- NURS 668 Community Based Participatory Research (CBPR) for Advanced Practice Nurses (3)** Online course focuses on use of CBPR methods by Advanced Practice Nurses to address population level issues amenable to nursing interventions; 15 hours of didactic and 90 hours of field experience are included. A-F only. (Once a year)
- NURS 669 Introduction to Evidence-based Practice (3)** Introduces evidence-based practice models for use in nursing practice. Distinguishes process improvement, evidence-based practice, and research. Develops skills in searching, critiquing, and synthesizing the literature, pertinent to a clinical problem. A-F only. Pre: permission of course faculty. (Fall only)
- NURS 670 Advanced Practice Nursing During Public Health Disasters (3)** The role of the advanced professional nurse in public health preparedness, planning and response. Includes 45 hours of field work where the student will practice emergency response functional roles. NURS majors only. A-F only. Pre: consent. (Summer only)
- NURS 671 Biostatistics: Application in the Advanced Nursing Practice Setting (3)** Includes basic bio-statistical techniques and the application of statistical findings to practice programmatic decisions. NURS majors only. A-F only. Pre: graduate standing in the Department of Nursing or consent. (Once a year)
- NURS 672 Advanced Practice Community Public Health Nursing Practicum (V)** Student will conduct a complex service project for a public or community based agency. May be taken for 1-6 credits. (45 hours of practicum experience awarded for each one credit of the course) Repeatable one time. A-F only. Pre: 24 credits of MS in Community Public Health Nursing Program or consent.
- NURS 673 Implementation and Evaluation Strategies for Evidence-Based Practice (3)** Using knowledge of translational science, designs an implementation plan for a practice guideline. Determines evaluation methods and selects outcome variables that best measure success. Discusses institutionalization of, and identifies facilitators and barriers to, practice change. NURS majors only. Graduate standing only. A-F only. Pre: 669. (Spring only)
- NURS 675 Advanced Practice Clinical (V)** Application of concepts and principles of assessment, diagnosis, management and evaluation of clients in supervised clinical practicum for advanced practice nursing. Repeatable unlimited times. A-F only. Pre: 612/612L, 613, and 629 (or concurrent).
- NURS 680 Cultural Competency in Nursing Education (3)** Evaluates the impact of history on the culture of nursing and nursing education. Explore strategies to provide education in a culturally sensitive manner to culturally diverse students. NURS majors only. A-F only. Pre: graduate standing, or consent.
- NURS 682 Health and Healing Practices of Populations with Health Disparities in Hawai'i and Other Places (3)** Teaching and learning concepts applied to health promotion and the prevention of common conditions of disease among populations with health disparities in Hawai'i and other places; includes didactic and 45 hours of field experience. NURS majors only. A-F only. (Spring only)
- NURS 690 Curriculum Evaluation in Nursing Education (3)** Current trends of planning for evaluation and critical analysis and application of curriculum evaluation frameworks in nursing education. NURS majors only. A-F only. Pre: 747 or consent.
- NURS 693 Advanced Practice Clinical for Clinical Nurse Specialists (V)** Application of concepts and principles of education, consultation, research, and management and evaluation of clients in supervised clinical practicum for adult health clinical nurse specialist students. Repeatable five times. NURS majors only. A-F only. Pre: 612 (or concurrent), 612L (or concurrent), 613 (or concurrent), and 629 (or concurrent); or consent.
- NURS 695 Successful Aging: Physiologic (3)** Advanced study of the functional, cultural, psychological, and socioeconomic phenomena that impact the physiology of normal and abnormal aging. Emphasis is on promoting successful aging among elder residents of the Pacific Basin and applications to primary health care. Pre: consent.
- NURS 696 Nursing Education Capstone (3)** A culminating experience in nursing education program designed for students to integrate, critique, extend, and apply knowledge gained in the program. NURS majors only. A-F only. Pre: consent. (Spring only)
- NURS 699 Directed Study or Research (V)** Directed study of problems related to nursing theory and practice. Repeatable unlimited times. Pre: consent.
- NURS 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.
- NURS 702 Philosophical Thoughts (3)** Introduces the major fields of philosophy for use in research. Frameworks for the evaluation and critique of philosophical approaches to research will be explored, debated, analyzed, and applied as relevant to the PhD student's dissertation. NURS majors only. A-F only. (Fall only)
- NURS 721 Instrument Development and Evaluation in Research (3)** Theory of testing and evaluation applied to nursing research in culturally diverse populations. NURS majors only. A-F only. Pre: consent. (Once a year)
- NURS 730 Principles of Evidence-based Practice for Advanced Nursing (3)** Evaluates conceptual models for use in evidence-based practice. Refines skills in searching and critiquing the literature for application to practice change. Synthesizes a body of literature to design interventions pertinent to a practice problem. A-F only. (Fall only)
- NURS 739 Advanced Nursing Science (3)** Provides opportunities to know and practice the process of theory development in nursing and to test concepts, relationships, and models about health behavior in culturally diverse populations.
- NURS 741 Quantitative Methods and Measures (3)** Critical analysis of quantitative research methods used to analyze problems of interest to nursing in culturally diverse populations. Repeatable three times. Pre: 620 or equivalent course and an advanced statistics course; or consent.
- NURS 742 Qualitative Methods I (3)** Introduction to qualitative research methods in the development of nursing disciplinary knowledge related to culturally diverse populations. Pre: 620 or consent.
- NURS 743 Qualitative Methods II (3)** Advanced in-depth exploration of the data collection, data analysis and methodological issues in the qualitative research traditions (ethnography, grounded theory, phenomenology and critical theory) used in nursing research. NURS majors only. A-F only. Pre: 742 (or equivalent) or consent. (Once a year)
- NURS 744 Seminar on Women and Health (3)** Women's health and the role of women health professionals. Current literature and research regarding attitudes, roles, rights, and health care. Pre: consent. (Cross-listed as SW 776)
- NURS 745 Creative Learning Strategies for Adults (3)** Analysis of forces that affect adult learners. Concept of lifelong learning vis-à-vis development of creative strategies that assist maturing, self-directed persons to develop their potentialities. NURS majors only. (Cross-listed as EDEA 745 and EDEP 745)
- NURS 747 Curriculum Development (3)** Current theories, issues, and trends of curriculum development in nursing. Application and critiques of related research. NURS majors only.
- NURS 748 Supervised Practicum in Teaching (V)** Supervised experience in instructional planning and teaching. Repeatable up to 10 credits. NURS majors only. Pre: 747 (or concurrent) or consent.
- NURS 750 Leadership and Management of Healthcare Systems (3)** Integrate scientific findings from various fields of study to the leadership and management of healthcare systems to ensure the delivery of quality and safe care. A-F only. (Fall only)
- NURS 751 Concept Development and Analysis (3)** First course offering in-depth analysis of specific concepts and theoretical formulations of nursing and other disciplines pertinent to the student's area of research interest. Addresses human responses to health in culturally diverse populations. Pre: 739.
- NURS 752 Advanced Statistics I (3)** Advanced application of general linear model theory to analyze complex problems of interest to nursing in culturally diverse populations. NURS majors only. A-F only. Pre: 741 (or equivalent) or consent. Once a year.
- NURS 753 Advanced Statistics II (3)** Advanced application of multivariate statistics to analyze complex problems of interest to nursing in culturally diverse populations. A-F only. Pre: 741 and 752 or equivalent courses, or consent. Once a year.
- NURS 760 Trends in Healthcare (3)** Evaluates the historical foundations of healthcare systems and their relationship to current issues and trends in healthcare services. Analyzes the variations in healthcare delivery systems across nations and the impact on health outcomes. A-F only. (Fall only)
- NURS 761 Translational Science (3)** Synthesis and analysis of interventions and variables that influence the rate of adoption of innovations. Application of concepts to patient populations and systems of healthcare. A-F only. (Fall only)
- NURS 767 Culturally Competent Research Methods (3)** Analysis of concepts, issues, and methods in conducting culturally competent research in the health field. Pre: graduate methods course or consent.
- NURS 768 Advanced Clinical Economics and Finance (3)** Theory and practice of financial management to achieve high quality and cost effectiveness in healthcare. Hybrid course which combines face-to-face with online learning. NURS majors only. A-F only. Pre: 665, no waiver. (Alt. years)
- NURS 774 Best Practices in Leading Healthcare Patient Safety and Quality (3)** Examination of quality of health care, the process of managing health-care outcomes and costs in the delivery of care through the interdisciplinary process.
- NURS 775 Capstone Field Study (3)** Supervised experience in executive nursing leadership to address important health issues for high-risk or under-served populations utilizing an interdisciplinary systems-based approach. Pre: 664 and 774 (or concurrent), or consent.
- NURS 776 Doctor of Nursing Practice Scholarly Inquiry Project (V)** Under the guidance of their academic and external advisors, students will synthesize, integrate, and translate newly acquired knowledge and skills in the implementation and evaluation of their selected project over the course of their program. Repeatable unlimited times. CR/NC only.
- NURS 777 Nursing Research Practicum (3)** Faculty guided research opportunity to gain mastery of research skills and techniques through participation in mentored research. Repeatable one time. A-F only. Pre: 741 (with a minimum grade of B-), 742 (with a minimum grade of B-), 751 (with a minimum grade of B-) and a quantitative methods course.
- NURS 796 Grant Writing and Grant Management (3)** Designed to introduce students to grants, grant writing, and grant management. Combined

lecture discussion, seminar, and exercises on grants, grant writing, and grant management for health sciences. Open to NURS students only, others with approval. Repeatable one time. NURS majors only. Pre: instructor consent.

**NURS 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable nine times. Pre: consent.

## Obstetrics and Gynecology (OBGN)

*School of Medicine*

**OBGN 531 7-Week OB/GYN Clerkship (10)** 7-week basic obstetric/gynecology clerkship. Repeatable one time. Pre: third year standing.

**OBGN 532 Obstetrics and Gynecology Longitudinal Clerkship (5)** Year-long clerkship in outpatient setting, covering assessment, diagnosis, treatment, and/or management of common gynecologic problems and normal and complicated pregnancies. Emphasis on prevention and health maintenance. Repeatable two times. Pre: third-year standing, and concurrent registration in 532 courses.

**OBGN 545 (Alpha) Electives in OB/GYN (V)** Opportunities for advanced study of selected topics. (B) labor and delivery; (C) outpatient clinic at Queen's; (D) Sub-internship in family planning; (E) high-risk OB; (F) endocrinology; (G) oncology; (H) topics with individual preceptor; (I) extramural electives; (J) urogynecology and pelvic reconstructive surgery. Repeatable twice for each alpha. CR/NC only. Pre: 531 or 532.

**OBGN 599 Directed Reading/Research (3)** Pre: consent.

## Ocean and Earth Science and Technology (OEST)

*School of Ocean and Earth Science and Technology*

*The following courses are not part of a specified department's curriculum. These courses are highly interdisciplinary in nature, drawing on faculty expertise from throughout SOEST and the Mānoa campus. They are not based in any of the departments but are administered and coordinated by the associate dean's office.*

*OEST 735 is a key element of the graduate ocean policy certificate program.*

**OEST 099 International Exchange Study/Research (V)** Study overseas in an approved international exchange or similar program. Repeatable three times. CR/NC only. Pre: consent of academic advisor.

**OEST 101 Natural Hazards (3)** Science of natural hazards: impact on human civilization of events in the lithosphere, atmosphere, biosphere, and hydrosphere (e.g., earthquakes, hurricanes, red tides, and floods), and impact of humans on their exposure to and mitigation of the hazards. DP

**OEST 350 Ethics in Scientific Research (1)** Introduction to issues of ethics in scientific research and scientific misconduct. GG, GES or MET majors only. (Spring only)

**OEST 510 Earth Sciences Professional Development Education (V)** Specialized Earth Science topics workshops designed for in-service teachers who wish to learn new approaches and content areas in geology and geophysics, meteorology and oceanography. Repeatable up to 12 credits. Credits earned cannot be applied for graduate degrees.

**OEST 696 Communicating Ocean Sciences (3)** Application of current learning theory and pedagogical practices in formal and informal learning environments to improve communication and instructional skills. Graduate students from multiple science disciplines welcome. Requires knowledge of biology, earth sciences, and/or chemistry. Pre: at least one course in introductory biology, geology, earth science, chemistry or marine science, an interest in ocean science, and enthusiasm for teaching science; or consent. (Spring only)

**OEST 699 Directed Reading/Research (V)** Selected interdisciplinary ocean/earth-related topics involving science, technology, engineering, and/or policy. Repeatable one time. Pre: consent.

**OEST 735 Ocean Policy and Management (3)** Interdisciplinary approach to problems relating to humans and their interactions with the world's oceans and coasts. Focus includes institutions for governing the world's oceans and coasts at all scales and on the role of scientific knowledge in managing marine and coastal resources. Repeatable one time. Pre: OCN 331, GEOG 435, or consent. (Cross-listed as SOCS 735)

## Ocean and Resources Engineering (ORE)

*School of Ocean and Earth Science and Technology*

*A grade of B- or better is required in all prerequisite courses, except 330, which requires a grade of C- or better.*

**ORE 202 Ocean Technology—Man in the Sea (3)** Survey of human activities in the ocean, from the most traditional to the most innovative technical and engineering accomplishments. DP

**ORE 330 Mineral and Energy Resources (3)** Hard mineral and petroleum origins, exploration and exploitation. Renewable and non-renewable resources distribution. Political and scientific constraints. A-F only. Pre: 202 or OCN 201, or consent. (Cross-listed as OCN 330) DP

**ORE 411 Buoyancy and Stability (3)** Ship nomenclature and geometry, hydrostatic principles of surface ships and underwater vehicles in free-floating, partially waterborne, and damaged conditions. Subdivision of ships. Launching. Pre: CEE 270 or equivalent. DP

**ORE 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B candidate and consent.

**ORE 601 Ocean and Resources Engineering Laboratory (3)** Design, construction, and evaluation of an engineering system. Laboratory and field experience and data analysis supplemented with appropriate theory. Pre: 603 and 607, or consent.

**ORE 603 Oceanography for Ocean Engineers (3)** Physical, chemical, biological, and geological ocean environments for ocean engineers. Introduction to ocean dynamical processes and general circulation. Ocean measurement techniques, theory of underwater acoustics. Sonar, swath bathymetry, and tomography applications. Pre: consent.

**ORE 607 Water Wave Mechanics (3)** Governing equations in free surface flow, deterministic and probabilistic wave theories, wave transformation, wave-induced coastal currents, tides, ocean engineering operational sea state, and design wave criteria. Pre: consent.

**ORE 608 Probability and Statistics for Ocean Engineers (3)** Probability and statistical analysis including distributions, multiple regression and correlation, autocovariance, cross-spectra, and practical applications in ocean engineering. Pre: 607 or consent.

**ORE 609 Hydrodynamics of Fluid-Body Interaction (3)** Hydrodynamics of ships, coastal and offshore structures. Wave forces by potential theory and by Morison's equation. Method of source distribution for potential flow problems. Flows with prescribed body motion, fixed and freely floating bodies. Pre: 607 or consent.

**ORE 612 Dynamics of Ocean Structures (3)** Response of floating platforms and vessels to wave action, spectral analysis in sea keeping. Frequency and time domain analyses of rigid body motions in six degrees of freedom. Pre: 411 or consent. Co-requisite: 609 or consent.

**ORE 630 Structural Analysis in Ocean Engineering (3)** Structural and finite element analyses and design of ocean structures to withstand hydrostatic

and hydrodynamic loading of the sea. Considerations include material type, safety factor, stress concentration, and fatigue. Pre: consent. Co-requisite: 411.

**ORE 641 Environmental Fluid Dynamics (3)** Fluid dynamics for coastal and estuarine environments. Turbulent mixing processes in homogeneous and stratified fluids. Buoyancy driven flows, internal hydraulics, topographic effects and estuarine circulation. Spill and pollutant dispersal. Pre: 603 or consent.

**ORE 654 Applications in Ocean Acoustics (3)** Using sound to observe the ocean. Fundamentals of propagation. Topics include marine mammals, navigation and communication, seismics, ships, wind and rain, ocean dynamics, flow and biological imaging and measurement, seafloor mapping, and the forward/inverse problem. Pre: consent. (Once a year)

**ORE 661 Coastal and Harbor Engineering (3)** Planning and design of seawalls, groins, jetties, breakwaters, and layout of ports. Design requirements for harbor entrances and channels. Littoral drift and sedimentation problems. Navigation and mooring requirements. Pre: 607 or consent.

**ORE 664 Nearshore Processes and Sediment Transport (3)** Sediment transport by waves and currents in coastal areas and its effect on morphological processes. Effect of man-made structures on littoral drift and shoreline. Pre: 607 or consent.

**ORE 677 Marine Renewable Energy (3)** Ocean thermal energy conversion (OTEC) systems: applicability, thermodynamics, design challenges; wave energy converters: floating devices, oscillating water column, optimal hydrodynamic performance; current, tidal, and offshore wind power. Pre: 607; basic knowledge of thermodynamics desirable.

**ORE 678 Marine Mineral Resources Engineering (3)** Activities in marine minerals development are examined in a multidisciplinary systems approach involving engineering, Earth and environmental sciences and economics. Pre: graduate standing consent.

**ORE 695 Plan B Master's Project (3)** Independent study for students working on a Plan B master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. Pre: master's candidacy in ORE.

**ORE 699 Directed Reading or Research (V)** Repeatable unlimited times. Pre: graduate standing and consent.

**ORE 700 Thesis Research (V)** Repeatable unlimited times. Pre: candidacy for MS in ocean and resources engineering.

**ORE 707 Nonlinear Water Wave Theories (3)** Higher-order theories. Forced oscillations. Stoke's theory. Nonlinear shallow-water wave equations and hydraulic jumps; effects of rotation. Internal waves. Analytical techniques necessary will be developed as course progresses. Pre: 607 with a B- grade.

**ORE 766 Numerical Methods in Ocean Engineering (3)** Formulation and application of numerical methods for simulating and solving ocean engineering problems. Mathematical and computational fundamentals; accuracy and stability; numerical interpolation, differentiation, and integration; boundary element, finite difference, and finite element methods. Pre: consent.

**ORE 783 (Alpha) Capstone Design Project (3)** Major design experience based on knowledge and skills acquired in earlier coursework and incorporating realistic constraints that include economic, environmental, ethical, social, and liability considerations. Emphasis is placed on teamwork and consultant-client relationship. (B) coastal engineering; (C) offshore engineering; (D) ocean resources engineering. Pre: 411, 601, 603, and 607; or consent.

**ORE 791 Special Topics in Ocean and Resources Engineering (V)** Content will reflect special interests of visiting and permanent faculty. Pre: consent.

**ORE 792 Seminar in Ocean and Resources Engineering (1)** Attendance at 15 approved seminars is required along with submission of notes.

**ORE 800 Dissertation Research (V)** Repeatable unlimited times. Pre: candidacy for PhD in ocean and resources engineering.

## Oceanography (OCN)

*School of Ocean and Earth Science and Technology*

*The minimum required grade for undergraduate prerequisites is a C (2.0) or better, and graduate prerequisites is a B (3.0) or better.*

**OCN 100 Global Environmental Science Seminar (1)** Seminar to introduce new GES majors to the research interests of GES faculty and the research facilities available within SOEST. Restricted to GES majors. CR/NC only. (Fall only)

**OCN 120 Global Environmental Challenges (3)** Scientific approach to evaluating human-caused environmental challenges and their potential solutions. Open to non-majors. (Spring only) **DP**

**OCN 199 Introduction to Directed Research (V)** Reading and research in any area of Oceanography under the direction of a faculty member. Repeatable up to six credits. CR/NC only.

**OCN 201 Science of the Sea (3)** Structure, formation, and features of ocean basins; seawater properties and distributions; currents; waves; tides; characteristics of marine organisms; marine ecological principles; man and the sea. Field trip required. **DP**

**OCN 201L Science of the Sea Laboratory (1)** Experiments, computer exercises and field trips demonstrating the geological, physical, chemical and biological principles of earth and ocean sciences. A-F only. Co-requisite: 201. **DY**

**OCN 310 Global Environmental Change (3)** Global environmental change problems such as carbon dioxide and the greenhouse effect, acid rain, chlorofluorocarbons and the ozone layer, global deforestation and the effect on climate, etc. Pre: 201, MET 200, GG 101, GG 103, or GG 170; or consent. (Cross-listed as MET 310) **DP**

**OCN 310L Global Environmental Change Laboratory (2)** (2-hr Lab) Laboratory to supplement OCN 310. Quantitative aspects of global environmental change will be addressed through problem-solving and computer modeling. A-F only. Pre: MATH 242, PHYS 170/170L, CHEM 161/161L, and OCN 310; or consent. Co-requisite: 310 or consent. (Fall only) **DY**

**OCN 312 Geomathematics (3)** Mathematical methods of geologic and geophysical science. Emphasis on application to earth-science problems using linear algebra, vector calculus, ordinary differential equations, and numerical solutions. Pre: MATH 242 or consent. (Cross-listed as GG 312)

**OCN 315 The Role of Models in Global Environmental Science (3)** Introduction to philosophy of science for those with some background in the natural sciences. Special emphasis on issues arising from the construction and use of models. Pre: any course 200 or above in PHIL or any course 200 or above with either DB or DP designation, or consent. (Alt. years: spring) (Cross-listed as PHIL 315)

**OCN 320 Aquatic Pollution (3)** Pollution of freshwater and marine systems by human activities. Causes, consequences, and correctives. Pre: 201 or consent. **DP**

**OCN 330 Mineral and Energy Resources of the Sea (3)** Hard mineral and petroleum origins, exploration, and exploitation. Renewable and non-renewable resources distribution. Political and scientific constraints. Pre: 201, ORE 202; or consent. (Cross-listed as ORE 330) **DP**

**OCN 331 Living Resources of the Sea (3)** Marine fisheries, aquaculture, and law of the sea. Principles of management of renewable resources. Political and scientific constraints and limitations. **DB**

**OCN 363 Earth System Science Databases (3)** Combined lecture, discussion, and laboratory on global Earth system databases and satellite instrumentation, including computer laboratory. A-F only. Pre: 310/310L, and MATH 244; or consent. **DP**

**OCN 395 Undergraduate Internship (V)** Experiential approach to earth science; students serve as interns to field professionals; responsibilities include supervised field work. Undergraduate SOEST majors only. Open to GES majors. Repeatable one time. CR/NC only. Pre: junior/senior standing and consent.

**OCN 399 Directed Reading (V)** Directed reading in earth system science, oceanography, or environmental science. Repeatable up to 6 credits. Pre: consent.

**OCN 401 Biogeochemical Systems (3)** Relationship of biogeochemical cycles in the atmosphere, lithosphere, and biosphere to global chemical cycles and planetary climatic conditions. GES degree foundation and capstone course. A-F only. Pre: 201, 310/310L or MET 310/310L or OEST 310/310L, BIOL 172/172L, CHEM 162/162L, GG 101/101L, MATH 241, MATH 243 & 252A, MATH 373 (or ECON 321), MET 200, PHYS 170/170L, and PHYS 272/272L; or consent. (Fall only) **DP**

**OCN 403 Marine Functional Ecology and Biotechnology (3)** Marine functional genomics, biodiversity of marine natural habitats, marine microbial communities and their ecological functions, interactions of marine microbes and their host, climate change and marine biodiversity, marine biotechnology. A-F only. Pre: 201 or MICR 130, or consent. (Spring only) (Cross-listed as MBBE 405)

**OCN 423 Marine Geology (3)** Sediments, structure, geophysics, geochemistry, history of ocean basins and margins. Pre: GG 200 and GG 302, or consent. (Cross-listed as GG 423) **DP**

**OCN 430 Introduction to Deep-Sea Biology (3)** (1.5 Lec, 1.5 Discussion) Biology and ecology of deep-sea organisms and communities. Topics including benthic-pelagic coupling, depth zonation, energetics, diversity, adaptations, hydrothermal vents, seamounts, abyssal plains, deep-sea resource extraction and global climate change. A-F only. Pre: 201 and BIOL 265, or consent. (Alt. years)

**OCN 435 Climate Change and Urbanization (3)** The following topics will be addressed: How are cities impacted by, and impacting climate change? How do urbanization, alteration of atmospheric processes, and extreme weather events affect urban systems and populations? A-F only. Pre: 363 or consent. (Fall only)

**OCN 444 Plate Tectonics (3)** (2 Lec, 1 3-hr Lab) Quantitative geometrical analysis techniques of plate tectonics theory; instantaneous and finite rotation poles; triple-junction analysis; plate boundary stresses. Pre: GG 200 or consent. (Alt. years) (Cross-listed as GG 444)

**OCN 450 Aquaculture Production (3)** Theory and practice of aquaculture: reproduction, yield trials, management, economics, and business case studies of fish, crustaceans, and molluscs. Field classes held at commercial farm and hatchery. Pre: ANSC 321 and ANSC 445; or BIOL 172/L and CHEM 162/L or higher. (Cross-listed as ANSC 450) **DB**

**OCN 480 Dynamics of Marine Ecosystems: Biological-Physical Interactions in the Oceans (3)** Combined lecture and discussion examining biological and physical interactions in the oceans and their impacts on the functioning of marine ecosystems. GES majors only. A-F only. Pre: 201, 201L, 310/310L, and PHYS 272/272L; or consent. (Alt. years)

**OCN 481 Introduction to Ocean Ecosystem Modeling (3)** Introduction to modeling biogeochemical and physical oceanic processes by building a coupled model of the Pacific to investigate physical effects on plankton blooms. Students learn ecosystem dynamics, basic numerical methods, and Matlab programming. A-F only. GES majors only. Pre: 310 or PHYS 272, and OCN/GG 312 (with a minimum grade of B-). (Spring only)

**OCN 490 Communication of Research Results (2)** Lecture/discussion to provide instruction and

experience in oral and written presentation of scientific results and material. Registration limited to GES majors in their final semester. A-F only. Pre: consent.

**OCN 496 Topics in Global Environmental Science (V)** Lecture and discussion or seminar. Current topics in environmental science explored in detail. Typically offered by faculty in their specialties, or developed in response to student interest. GES majors only. Repeatable one time or up to six credits. Pre: consent.

**OCN 499 Undergraduate Thesis (V)** Directed research in which the student carries out a scientific project of small to moderate scope with one or more chosen advisors. The student must complete a document in the style of a scientific journal article. Repeatable one time or up to six credits. Pre: consent.

**OCN 601 Marine Biology-Environments and Organisms (4)** (3 hr Lec, 3 hr Lab) Introduction to the diversity of marine organisms and the many specialized coastal, reef, and oceanic habitats in which they live. Lab and field research exercises will complement lecture subjects. Graduate standing in Marine Biology graduate degree program only. A-F only. Pre: consent. (Fall only) (Cross-listed as MBIO 601)

**OCN 620 Physical Oceanography (3)** Introduction to properties of seawater, oceanographic instruments and methods, heat budget, general ocean circulation, regional oceanography, waves, tides, sea level. Formation of water masses, dynamics of circulation. Repeatable one time. Pre: MATH 242 (or concurrent), or consent.

**OCN 621 Biological Oceanography (3)** Factors governing productivity, population dynamics, distribution of organisms in major ecosystems of the ocean, emphasis on ecology of pelagic zone. OCN majors only. Pre: consent.

**OCN 622 Geological Oceanography (3)** Marine geological processes, ocean basin structure and tectonics, sedimentation. Pre: GG 101.

**OCN 623 Chemical Oceanography (3)** Chemical processes occurring in marine waters; why they occur and how they affect oceanic environment. Pre: CHEM 171.

**OCN 625 Aquatic Photosynthesis (3)** Biochemical and biophysical concepts of photosynthesis. Application and interpretation of ecological processes of photosynthesis in aquatic systems. Open to nonmajors. A-F only. Pre: consent. (Spring only)

**OCN 626 Marine Microplankton Ecology (4)** (3 Lec, 1 3-hr Lab) Distribution, abundance, and ecology of marine microplankton, including bacteria, algae, and protozoans, with an emphasis on metabolic rates and processes. Pre: consent. (Fall only)

**OCN 627 Ecology of Pelagic Marine Animals (4)** (3 Lec, 1 3-hr Lab) Ecology of pelagic animals including feeding, energetics, predation, and anti-predation tactics. Life-history strategies, vertical flux of materials, population dynamics, fisheries. Pre: consent. (Spring only)

**OCN 628 Benthic Biological Oceanography (4)** (3 Lec, 1 3-hr Lab) Processes controlling the structure and function of benthic communities, including organism-sediment-flow interactions, sediment geochemistry, feeding strategies, recruitment, succession, and population interactions. Pre: consent.

**OCN 629 Molecular Methods in Marine Ecology (3)** Molecular methods for studying marine functional ecology; emphasis on hand-on tools for ecological and biogeochemical processes of microbes; developing practical skills for research project in marine microbial ecology and biological oceanography. A-F only. Pre: 403, 626, 627, or 628; or consent. (Fall only)

**OCN 630 Deep-Sea Biology (3)** (1.5 Lec, 1.5 Discussion) Biology and ecology of deep-sea organisms and communities. Topics including benthic-pelagic coupling, depth zonation, energetics, diversity, adaptations, hydrothermal vents, seamounts, abyssal plains, deep-sea resource extraction, and global climate change. Pre: consent. (Alt. years)

**OCN 631 Ocean Minerals (3)** Distribution, origin, processes of formation. Sulfides, oxides, and placer minerals. Comparative studies of continental ore bodies. Submarine rift, subduction, and abduction. Pre: one of 622, 623, GG 407, or GG 603.

**OCN 633 Biogeochemical Methods in Oceanography (3)** (1 Lec, 2 3-hr Lab) Current methods of analysis used in the ocean sciences, both in the field and in the laboratory. An ocean-going field trip provides students with hands-on training in sample collection and processing. The latter is followed by laboratory analyses of the collected samples throughout the remainder of the semester. Pre: BIOL 171 and CHEM 161 and GG 101; or consent.

**OCN 637 Aquatic Microbial Geochemistry (3)** The synergy between the biogeochemistry of element cycling and the microbial organisms involved, interfacing across disciplines from the perspective of a practical blend of aquatic chemistry, microbiology, biogeochemistry, and molecular biology. Pre: 623 and consent. (Alt years: fall)

**OCN 638 Earth System Science and Global Change (3)** Global view of the planet and how it functions as an integrated unit. Biogeochemical processes, dynamics, and cycles, and analysis of natural and human-induced environmental change. Chemical history of ocean-atmosphere-sediment system and co-evolution of the biota. Repeatable one time. Pre: BS in environmentally related science or one year of chemistry, physics, and calculus. (Cross-listed as GG 638)

**OCN 640 Observational Physical Oceanography (3)** Application of the scientific method; physical regimes in the ocean; ocean processes and observational strategies; resolution, sampling, array design and observing systems; models and data assimilation; major field programs; operational oceanography and climate prediction. Pre: 620 and consent.

**OCN 641 Origin of Sedimentary Rocks (3)** (2 Lec, 1 3-hr Lab) Environment of deposition and subsequent diagenesis of modern and ancient sediments. Petrogenesis of siliclastic, carbonate and orthochemical rocks. Sedimentology, sedimentary petrography and geochemistry. Repeatable one time. Pre: consent. (Cross-listed as GG 641)

**OCN 642 Elemental Composition Changes (3)** Changes in the chemical composition of meteorites, bulk Earth, Earth's mantle and crust, sedimentary rocks, hydrosphere and biosphere, and underlying principles. Pre: consent. (Cross-listed as GG 642)

**OCN 643 Topics in Marine Geochemistry (3)** Seminar on a broad topic; discussion and critique of research papers. Repeatable one time. Pre: 623 or consent.

**OCN 644 Sedimentary Geochemistry (3)** Geochemical thermodynamics and kinetics and their use in interpreting the origin of sediments, sedimentary rocks, and natural waters over a range of pressure-temperature conditions. Pre: CHEM 171, MATH 242, PHYS 152; or consent. (Cross-listed as GG 644)

**OCN 650 Math Techniques for Oceanographers (5)** (3 Lec, 2 3-hr Lab) Introduction to numerical methods, data analysis, error propagation, box models, linear and nonlinear least squares, perturbation theory, numerical integration. Pre: MATH 244 or MATH 253A.

**OCN 660 Ocean Waves I (3)** Survey of wave types-acoustic, capillary, gravity, inertial, vorticity. Basic wave concepts emphasized: phase and group velocities, standing waves, energy conservation, dispersion, refraction, diffraction. Rotation and boundary effects are covered: reflection, basin modes, trapping, tides. Pre: MATH 402 or consent.

**OCN 661 Ocean Waves II (3)** Baroclinic gravity waves, inertial waves, mid-latitude Rossby waves, topographic waves, equatorial waves. Pre: 660 or consent.

**OCN 662 Marine Hydrodynamics (3)** Introduction to classical hydrodynamics and continuum mechanics. Techniques for solution of Navier Stokes

equations on various scales of oceanic motion; potential theory, dynamic modeling, and viscous and rotational processes. Pre: MATH 403.

**OCN 665 Small-Scale Air-Sea Interaction (3)** Observations and theory of small-scale processes which couple the atmosphere and ocean boundary layers, including introduction to turbulence theory and parameterization of turbulent fluxes. Pre: MATH 402 and MATH 403 (or their equivalents) and either 620 or MET 600, or consent. (Alt. years) (Cross-listed as MET 665)

**OCN 666 Large-Scale Ocean-Atmosphere Interactions (3)** Lecture/seminar introduces physical oceanography and meteorology students to the state-of-the-art theories and observations of large-scale ocean-atmosphere interaction, as well as conveying the fundamental understanding that has been developed during the past 30 years. Emphasis will be on phenomena such as El Niño/Southern Oscillation, the North Atlantic Oscillation, the Pacific Decadal Oscillation, and global climate change. Repeatable one time. Pre: 620 or MET 600, or consent. (Alt. years) (Cross-listed as MET 666)

**OCN 667 Advanced Geophysical Fluid Dynamics I (3)** Basic concepts and equations to describe large-scale ocean circulation; numerical models; boundary layers; models of wind-driven circulation of a homogeneous ocean. Pre: 620 and 662, or consent.

**OCN 668 Advanced Geophysical Fluid Dynamics II (3)** Thermodynamics of stratified fluids; convection; mixing; models of the thermohaline circulation; the role of eddies in the large-scale ocean circulation. Pre: 667 or consent.

**OCN 674 Paleooceanography (3)** Study of the paleoceanographic and paleoclimate evolution of the Earth's oceans, atmosphere, and biosphere. Repeatable one time. Pre: consent. (Alt. years) (Cross-listed as GG 674)

**OCN 680 Dynamics of Marine Ecosystems: Biological-Physical Interactions in the Oceans (3)** Combined lecture/discussion examining biological and physical interactions in the oceans and their impacts on the functioning of marine ecosystems. A-F only. Pre: previous course in marine science, or consent. (Alt. years)

**OCN 681 Introduction to Ocean Ecosystem Modeling (3)** Introduction to modeling biological and physical oceanic processes by building a coupled model of the Pacific to investigate physical effects on biological production. Students will learn biological-physical dynamics, basic numerical methods, and Matlab programming. Pre: 620, 621, or consent. (Alt. years)

**OCN 699 Directed Research (V)** Repeatable unlimited times. Pre: consent. CR/NC only.

**OCN 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**OCN 750 Topics in Biological Oceanography (V)** Seminar. Literature and concepts in one of several active fields considered in detail. Repeatable up to 12 credits. Pre: consent.

**OCN 760 Topics in Physical Oceanography (V)** Near-shore processes, advanced mathematical techniques, recent developments, etc. Typically given by visiting professors in their specialties, or in response to student interest. Repeatable up to 12 credits.

**OCN 770 Seminar in Chemical Oceanography (1)**

**OCN 780 Seminar (1)** Oceanographic topics of current interest. Repeatable unlimited times.

**OCN 791 Proposal Development (2)** Introduction to the organization and functioning of oceanography funding agencies, the peer-review process, and the design and development of a research proposal. Repeatable one time. CR/NC only. Pre: two of the following: 621, 626, 627 (or concurrent), or 628 (or concurrent); or consent.

**OCN 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

## Pacific and Asian Studies (PAS)

*School of Pacific and Asian Studies*

**PAS 099 Overseas Study (V)** Registration allows student to maintain enrolled status at UH Mānoa while taking courses abroad. CR/NC only. Pre: consent.

## Pacific Islands Studies (PACS)

*School of Pacific and Asian Studies*

**PACS 108 Pacific Worlds: An Introduction to Pacific Islands Studies (3)** Introduces students to the geography, societies, histories, cultures, contemporary issues, and arts of Oceania, including Hawai'i. Combines lectures and discussion that emphasize Pacific Islander perspectives and experiences. A-F only. **DS**

**PACS 201 Islands of Globalization (3)** Combined lectures, service-learning. Examines the nature and impact of globalization on Pacific Island societies, viewed from the perspective of islanders who engage with global forces and processes, and create strategies to survive. Limit 20 students. A-F only. Pre: either 108 or HWST 107, or consent. **DS**

**PACS 202 Pacific Islands Movement and Migration (3)** Combined lecture and service-learning activities. Examines the diaspora of Pacific Islanders. Includes a service-learning activity examining cultural, political, and economic status of groups of Pacific Islanders living in other Pacific places. Limit of 20 students. A-F only. Pre: either 108 or HWST 107, or consent. **DS**

**PACS 301 Pacific Communities in Hawai'i (3)** Examines Pacific Islander communities' experiences in Hawai'i through service learning, reading, writing, lecture, and discussion. Concerns about housing, employment, education, health, language, and culture are central. A-F only. Pre: 108 or 201 or 202, or consent. **DS**

**PACS 302 Contemporary Issues in Oceania (3)** Combined lecture/discussion. Examination of critical political, social, and economic issues in the Pacific Islands region today. Pre: 108 or 201 or 202, or consent. **DS**

**PACS 371 Literature of the Pacific (3)** Basic concepts and representative texts for the study of the literature of the Pacific, including Pacific voyagers and contemporary writings in English by Pacific Islanders. Pre: one ENG DL course or consent. (Cross-listed as ENG 371) **DL**

**PACS 399 Directed Research (V)** Repeatable up to 12 credits.

**PACS 401 Senior Capstone (3)** Capstone for Pacific Islands Studies students to engage in intensive collaborative research with a Pacific Islander community in Hawai'i, culminating in a research paper and public presentation. PACS majors only. A-F only. Pre: 108 and 201 and 202, and either 301 or 302.

**PACS 462 Drama and Theatre of Oceania (3)** Survey of the contemporary drama and theatre of Oceania that combines island and Western traditions. Includes Papua New Guinea, Hawai'i, Fiji, Samoa, Australia, New Zealand. Pre: ANTH 350 or THEA 101, or consent. (Cross-listed as THEA 462) **DH**

**PACS 492 Topics in Pacific Islands Studies (3)** Repeatable two times. Pre: upper division standing, or consent. **DS**

**PACS 494 Culture and Consumption in Oceania (3)** Lecture on changing patterns of consumption in Oceania, and the historical, political, cultural, artistic, and economic forces shaping such practices. Pre: upper division standing, or consent.

**PACS 495 Encountering Tourism in Asian-Pacific Societies (3)** A critical examination of a wide spectrum of issues relating to the evolution and current impact of tourism on contemporary Asian and Pacific Islands societies. Topics include colonial antecedents, social impacts, cultural and environmental concerns, case studies (including Hawai'i). Pre:

ASAN 201 or ASAN 202, or consent. (Cross-listed as ASAN 495) **DS**

**PACS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**PACS 601 Learning Oceania (3)** Graduate seminar. Introduction to the nature and origins of Pacific Studies as an organized field of study. Epistemological, conceptual, political and ethical issues facing students of the region today. Co-requisite: 602.

**PACS 602 Re/Presenting Oceania: Pacific and American Perspectives (3)** Graduate seminar. Critical analysis of the way physical, social and cultural aspects of Oceania have been represented in scholarly and popular media. Co-requisite: 601.

**PACS 603 Researching Oceania: Creative and Conventional Methods of Inquiry (3)** Graduate seminar. Literacy, theory and method in the creation of a Master's research project. Pre: 601 and 602.

**PACS 640 Women in Oceania (3)** Will look at feminist theory, ethnography, culture, activism and globalization in the context of writing, research and film on or by Women in Oceania. Pre: consent.

**PACS 690 Graduate Seminar: Change in the Pacific (3)** Interrelationship of change in selected Pacific Islands regions, institutions, and processes. Repeatable two times. Pre: consent.

**PACS 695 Master's Portfolio Project (V)** Independent study for students working on MA portfolio projects. A grade of satisfactory (S) is assigned when the project is satisfactorily completed. Repeatable one time. Pre: graduate standing in PACS.

**PACS 699 Directed Reading and Research (V)** Repeatable unlimited times.

**PACS 700 Thesis Research (V)** Repeatable unlimited times.

## Pathology (PATH)

### School of Medicine

**PATH 470 Immunopathology Seminar (1)** Autoimmune diseases and transplantation immunity. Pre: consent.

**PATH 499 Directed Research (V)** Pathology of aging, nutrition, alcoholism, and immunology. Open to selected undergraduate students. Repeatable unlimited times. Pre: consent.

**PATH 512 Unit II Concurrent Elective (1)** Elective course for first-year medical students. CR/NC only. Pre: BIOM 551 and consent.

**PATH 515 Unit V Concurrent Elective (1)** Elective course for second-year medical students. CR/NC only. Pre: BIOM 551 and consent.

**PATH 525 Unit V Block Elective (V)** Required elective for second-year medical students, objectives to be determined by contract. One option is a review of USMLE Part I. CR/NC only. Pre: BIOM 551.

**PATH 541 Pathology Practicum (V)** Required autopsy experience involving dissection and microscopic examination of tissues and detailed evaluation of disease process. CR/NC only. Pre: third- or fourth-year standing.

**PATH 545 (Alpha) Unit VII Electives in Pathology (V)** Individualized instruction in laboratory medicine for the practicing physician, clinical and anatomic pathology: (B) advanced topics in clinical immunology; (C) anatomic pathology; (D) clinical pathology; (E) pathologic aspects of aging, nutrition, and/or alcoholism; (F) extramural elective in pathology. Repeatable four times. CR/NC only. Pre: BIOM 555.

**PATH 595 Introduction to Pathology and Laboratory Medicine (1)** Provides an introduction to the practice of pathology and laboratory medicine and the role pathologists and the laboratory play in the diagnosis and management of disease. MD students only. CR/NC only. Pre: MDDE 554 or consent. (Fall only)

**PATH 599 Electives in Pathology (V)** Individualized instruction in clinical and/or anatomic pathology. Third-year elective. Repeatable unlimited times. Pre: consent.

**PATH 699 Directed Research (V)** In-depth study of pathology of aging, nutrition, alcoholism, and immunology. Open to medical students and selected graduate students. Repeatable unlimited times. Pre: consent.

## Peace Studies (PACE)

### College of Social Sciences

**PACE 247 Survey of Conflict Management (3)** Survey of contemporary conflict management and resolution: negotiation, mediation, conciliation, ombuds, fact-finding, facilitation techniques, arbitration, and litigation. Pre: any social science 100- or 200-level course or consent. **DH**

**PACE 310 Survey Peace and Conflict Studies (3)** Survey of basic concepts, relationships, methods, and debates in modern peace research and conflict resolution studies. Pre: any social science 100- or 200-level course or consent. **DS**

**PACE 315 Personal Peace: Stories of Hope (3)** Interviewing, writing, and publishing stories of those who have overcome great difficulties to find personal peace. Pre: grade of B or better in ENG 100 or consent. **DH**

**PACE 345 Aggression, War, and Peace (3)** Biocultural, evolutionary, and cross-cultural perspectives on the conditions, patterns, and processes of violence, war, nonviolence, and peace. Pre: ANTH 152. (Cross-listed as ANTH 345) **DS**

**PACE 373 Nonviolent Political Alternatives (3)** Exploration of scientific and cultural resources for nonviolent alternatives in politics. Pre: any 100- or 200-level POLS course; or consent. (Cross-listed as POLS 396) **DS**

**PACE 399 Directed Reading (V)** Directed reading in peace and conflict resolution. Repeatable three times. Pre: consent.

**PACE 410 History of Peace Movements (3)** Examination of two centuries of U.S., European, Australian, and Hawaiian peace, thought, and action. Also surveys early Christian and secular attitudes to war. Open to nonmajors. Pre: any DS course, or consent. **DH**

**PACE 412 Gandhi, King, and Nonviolence (3)** Life and thought of Mahatma Gandhi and Martin Luther King, Jr. Pre: any Social Science 100 or 200 level course, or consent. **DH**

**PACE 413 Terrorism (3)** Multidisciplinary approach to the origins, dynamics, and consequences of international terrorism, including the psychological, legal, ethical and operational concerns of counterterrorism. Pre: any 200-level DS course, or consent.

**PACE 420 Introduction to Human Rights: International and Comparative Perspectives (3)** Introduction to international, regional, and domestic human rights law; comparative perspectives on the theoretical origins of human rights and policy debates on the protection of human rights, dispute resolution, and enforcement mechanisms. Pre: any 100 or 200 level social sciences course, or consent.

**PACE 429 Negotiation (3)** Negotiation theory, negotiation skills and application of negotiation in conflict prevention, conflict management and conflict resolution. Pre: any Social Science 100 or 200 level course, or consent. **DH**

**PACE 447 Mediation Skills: UH Basic (3)** Basic mediation skills training course. Completion of course requirements qualifies student to be listed as a mediator for university disputes, as co-mediator or on mediation panel. Pre: either 247, 310, or consent.

**PACE 477 Culture and Conflict Resolution (3)** Conflict resolution techniques for major world culture. Emphasis on cultures of the Pacific Basin,

Pacific Islands, and Asia. Pre: any DS course, or consent. **DS**

**PACE 478 International Law and Disputes (3)** Management, prevention, resolution of international disputes and the role of international law. Pre: any Social Science 100 or 200 level course, or consent. **DS**

**PACE 485 Topics in Peace and Conflict Resolution (3)** Recent issues, practices in peace and conflict resolution. Repeatable one time. Pre: any DS course, or consent. **DS**

**PACE 489 Hiroshima & Peace (3)** 10-day intensive course at Hiroshima City University, Japan, in the 2-weeks before the annual August 6 commemoration of the atomic bombing. Home-stay with Japanese family. Sophomore standing. A-F only. Pre: any 200 level social science course, or consent. **DH**

**PACE 495 Practicum and Internship (3)** The practicum and internship in Peace and Conflict Resolution provides an opportunity for students to apply the skills and concepts learned in earlier courses. Pre: any two other PACE courses or consent.

**PACE 629 Advanced Negotiation (3)** Mastery of advanced negotiation skills for strategic dispute resolution, non-routine problem-solving, creating partnerships and alliances, and crafting optimal agreements. Students participate in simulations and acquire personal and professional skills vital for leadership. Graduate standing only. Pre: one of the following courses: 429, 447, 477, 647, 652, or 668; or PLAN 627; or COMG 455 or SOC 730; or LAW 508; or MGT 660.

**PACE 647 Mediation: Theory and Practice (3)** Combined lecture, discussion, and mediation simulations. Theory of ADR field. Theory of major different models of mediation, both in the U.S. and internationally. Application of mediation process to categories of disputes, family, workplace, and international. A-F only. Pre: graduate standing, or departmental approval. (Once a year)

**PACE 650 Dispute Resolution System Design (3)** Conflict prevention, management and resolution in the workplace. Design and implementation of effective systems integrating ADR and recent advances in dispute resolution methodology to government, health, nonprofit, educational, private sector and other institutions. Pre: 447 or 652 or MGT 660 or PLAN 627, or consent.

**PACE 652 Conflict Management for Educators (3)** Conflict resolution theory and practice for administrators, faculty and staff in educational organizations. K-12, community colleges and universities. Application and theory of negotiation, mediation, facilitation and hybrid ADR processes. Pre: EDEA 601 or EDEA 650, or consent. (Cross-listed as EDEA 652)

**PACE 668 Facilitation: Facilitating Community and Organizational Change (3)** Advanced conflict resolution course. Covers key issues in the prevention, management and resolution of multiparty conflicts. Combined lecture, discussion, and simulations. A-F only. Pre: graduate standing, or departmental approval. (Once a year)

**PACE 690 Topics: Conflict Theory (V)** Recent issues of policy and practice in peace and conflict management theory. Repeatable up to 12 credits. A-F only. Pre: graduate standing or consent.

**PACE 695 Conflict Resolution Practicum (V)** Practice in conflict resolution skills. Open to candidates for Certificate in Conflict Resolution. Repeatable one time or up to three credits. A-F only. Pre: consent.

**PACE 699 Directed Reading and Research (V)** Repeatable up to 9 credits. A-F only. Pre: departmental approval or consent.

**PACE 790 Advanced Topics: Conflict Theory (3)** Advanced seminar covering issues of policy and practice in peace and conflict management theory. Repeatable one time. Graduate standing only. Pre: consent.

## Pediatrics (PED)

### School of Medicine

**PED 531 7-Week Pediatric Clerkship (10)** 7-week basic pediatric clerkship. Repeatable one time. Pre: third-year standing.

**PED 532 Pediatrics Longitudinal Clerkship (5)** Year-long clerkship in ambulatory setting, covering evaluation, diagnosis, and treatment of childhood diseases. Emphasis on primary prevention, normal growth and development of the neonate to adolescent, and arrangement of pediatric care, including outpatient, inpatient, and emergency room experiences. Repeatable two times. Pre: third-year standing and concurrent registration in 532 courses.

**PED 545 (Alpha) Electives in Pediatrics (V)** Fourth-year elective in pediatric sub-specialty areas in which medical students may receive clinical experiences and an in-depth study of selected sub-specialty areas within the field of pediatrics. (B) adolescent medicine; (C) ambulatory pediatric care; (E) clinical genetics; (F) Sub-Internship in neonatology; (G) pediatric cardiology; (H) Sub-Internship in pediatric emergency medicine; (I) Sub-Internship in pediatric hematology/oncology; (J) pediatric infectious diseases; (K) sub-internship in pediatrics—general ward in pediatrics; (M) extramural electives in pediatrics; (N) pediatric rheumatology; (P) developmental behavioral pediatrics; (Q) pediatric international preceptorship; (R) sub-internship in pediatric critical care; (S) pediatric radiology; (T) pediatric ultrasound. CR/NC only. Repeatable two times per alpha, not repeatable for (Q). Pre: 531 or 532.

**PED 599 Directed Reading/Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

## Persian (PERS)

### College of Languages, Linguistics and Literatures

**PERS 101 Beginning Modern Persian I (4)** Listening, reading, writing, speaking skills, language structure, and culture integrated in a variety of communicative and creative activities. **HSL**

**PERS 102 Beginning Modern Persian II (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**PERS 111 Intensive Beginning Modern Persian (6)** Combined content of 101 and 102 covered in one intensive course. **HSL**

**PERS 201 Intermediate Modern Persian I (4)** Continuation of 102. Listening, reading, writing, speaking skills, language structure, and culture integrated in a variety of communicative and creative activities. Pre 102, 111, or consent. **HSL**

**PERS 202 Intermediate Modern Persian II (4)** Continuation of 201. Pre: 201 or consent. **HSL**

## Pharmacology (PHRM)

### School of Medicine

**PHRM 201 Introduction to General Pharmacology (2)** Drugs discussed with emphasis on sites and mechanism of action, toxicity, fate, and uses of major therapeutic agents. Pre: mammalian physiology and dental hygiene major. **DB**

**PHRM 203 General Pharmacology (3)** Similar to 201 but wider in scope of drugs discussed. Intended for undergraduates in the health sciences and related fields. Pre: mammalian physiology. **DB**

**PHRM 499 Directed Reading and Research (V)** Directed reading and research in experimental pharmacology. Repeatable unlimited times. Pre: consent.

**PHRM 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**PHRM 590 Selected Topics in Pharmacology (V)** Elective for medical students in Pharmacology. Repeatable up to 12 credits. CR/NC only. Pre: MDED 551.

**PHRM 595 Principles of Pharmacology (1)** Pharmacology elective course for medical students.

MD students only. CR/NC only. Pre: MDED 554 or consent. (Fall only)

**PHRM 599 Research in Pharmacology (V)** Pharmacology research elective for medical students. MD majors only. CR/NC only. Pre: MDED 551 or consent.

**PHRM 601 General Pharmacology (3)** Pharmacodynamics, receptor theory, modeling, clinical trials and the FDA will be covered. Concepts in ADME/T and clinical research are also considered. Pre: consent.

**PHRM 602 Systemic Pharmacology (9)** Provides instruction at an organ systems/functional level covering major organ and functional systems of the human body. Concepts in pharmacological research at the animal, organ system and whole human level will also be considered. Repeatable one time. Pre: consent.

**PHRM 640 Neuropharmacology (2)** Physiology and pharmacology of central and peripheral nervous systems, focusing on synaptic chemistry and signaling. A-F only. Pre: CMB 606, or consent from the course director. (Cross-listed as CMB 640)

**PHRM 699 Directed Research (V)** Repeatable unlimited times.

**PHRM 700 Thesis Research (V)** Repeatable unlimited times.

**PHRM 800 Dissertation Research (V)** Repeatable unlimited times.

## Philosophy (PHIL)

### College of Arts and Humanities

**PHIL 100 Introduction to Philosophy: Survey of Problems (3)** Introduction to the kinds of problems that concern philosophers and to some of the solutions that have been attempted. **DH**

**PHIL 101 Introduction to Philosophy: Morals and Society (3)** Philosophical attempts to evaluate conduct, character, and social practices. **DH**

**PHIL 102 Asian Traditions (3)** Universal themes and problems from Asian perspective. **DH**

**PHIL 103 Introduction to Philosophy: Environmental Philosophy (3)** A critical examination of environmental issues; analyzing the nature of the human being, the nature of nature, and the relationship of the human being to nature. **DH**

**PHIL 110 Introduction to Deductive Logic (3)** Principles of modern deductive logic. **FS**

**PHIL 111 Introduction to Inductive Logic (3)** Introduction to the theory of arguments based on probabilities and to the theory of decision-making in the context of uncertainty. A-F only. **FS**

**PHIL 211 Ancient Philosophy (3)** An introduction to the history of philosophy based on translations of texts originally written in classical Greek or Latin. **DH**

**PHIL 212 Between Ancient and Modern Philosophy (3)** Introduction to the history of philosophy based on translations of texts originally written in post-classical Latin or Arabic. **DH**

**PHIL 213 Modern Philosophy (3)** Introduction to the history of philosophy based on texts or translations of "modern" works, that is works originally written in a modern European language. **DH**

**PHIL 300 Business Ethics (3)** Case studies and critical analyses of ethical issues in business. Readings from business, philosophy, law, etc. Pre: any course 100 or above in PHIL or BUS or BLAW, or consent. **DH**

**PHIL 301 Ethical Theory (3)** Problems and methods in theory of moral conduct and decision. Pre: any course 101 or above in PHIL or above 100 in POLS or SOC; or consent. **DH**

**PHIL 302 Political Philosophy (3)** Problems and methods in philosophical theories of political legitimacy. Pre: any course 101 or above in PHIL or above 100 in POLS or SOC, or consent. **DH**

**PHIL 303 Social Philosophy (3)** Problems and methods in examination of contemporary life, values, and institutions in light of traditional philosophical problems of freedom, justice, authority, equality. Pre: any course 101 or above in PHIL or above 100 in POLS or SOC, or consent. **DH**

**PHIL 304 Metaphysics (3)** Problems arising from attempts to categorize rationally what is, and what appears to be. Among others, topics may include universals and particulars, personal identity, freedom and determinism, and time. Pre: any course 100 or above in PHIL, or consent. **DH**

**PHIL 305 Philosophy of Religion (3)** Problems and methods. Nature of religious experience, alternatives to theism, existence of god, relation between faith and reason, nature of religious language. Pre: any course 100 or above in PHIL or REL; or consent. **DH**

**PHIL 306 Philosophy of Art (3)** Problems and methods in aesthetic valuation and in appreciation, creation, and criticism of artworks. Pre: any course 100 or above in PHIL or ARCH or ART or MUS or any DL course 100 or above; or consent. **DH**

**PHIL 307 Theory of Knowledge (3)** Problems and methods in epistemology. Nature of knowledge, its varieties, possibilities, and limitations. Pre: any course 100 or above in PHIL, or 200 or above with either DB or DP or DS designation; or consent. **DH**

**PHIL 308 Philosophy of Science (3)** Problems and methods. Domains of inquiry, methods of validation, and attendant moral concerns. Pre: any course 100 or above in PHIL, or 200 or above with either DB or DP designation; or consent. **DH**

**PHIL 310 Ethics in Health Care (3)** Ethical issues in application and organization of biomedical resources; professional responsibility, confidentiality, euthanasia, experimentation on human subjects, etc. Pre: any course 100 or above in PHIL or MED or NURS or with a DB designation; or consent. **DH**

**PHIL 311 Philosophy and Aesthetics of Film (3)** Aesthetics and ontology of film and video, based on readings in the philosophy of film and the viewing of a number of films per semester. Pre: one course in PHIL or THEA, drama or film; or consent. See department for list of approved courses.

**PHIL 312 Ethics in Practice (3)** Team-taught exploration of five contemporary ethical issues using a variety of philosophical approaches and methods. Pre: any 101 course or above in PHIL or above 100 in POLS or SOC; or consent. (Once a year)

**PHIL 313 Philosophy and Evolution (3)** Explores the ethical and epistemological implications of the theory of evolution. Pre: one course in PHIL or BIOL, or consent. (Alt. years)

**PHIL 314 Critical Thinking: Pre-Medicine (3)** Scientific and social perspectives on the nature of disease and their impact on medical practice. Exploration of these topics through reading, writing and critical inquiry. Pre: any course in PHIL, 100 or above; or any two BIOL, CHEM or PHYS courses; or consent.

**PHIL 315 The Role of Models in Global Environmental Science (3)** Introduction to philosophy of science for those with some background in the natural sciences. Special emphasis on issues arising from the construction and use of models. Pre: any course 200 or above in PHIL or any course 200 or above with either DB or DP designation, or consent. (Alt. years: spring) (Cross-listed as OCN 315)

**PHIL 316 Science, Technology, and Society (3)** Investigation of some of the complex interconnections between science, technology, and society. Pre: any course 100 or above in PHIL or in a course with either DB or DP or DS designation, or consent. **DH**

**PHIL 317 Critical Thinking: Pre-Law (3)** Introduction to concepts and techniques for evaluating arguments with special emphasis on their application both to questions of law and to issues in jurisprudence. Pre: any course 100 or above in PHIL or POLS or SOC, or consent. **DH**

**PHIL 318 Philosophy of Law (3)** Historical and contemporary issues in law and legal theory. Law and morality; legal responsibility, justice, rights, punishment, judicial reasoning. Pre: any course 101 or above in PHIL or above 100 in BLAW or POLS or SOC, or consent. **DH**

**PHIL 319 Ethical Issues in the Law (3)** Exploration of ethical issues that have come before (mainly U.S.) courts, including but not confined to, medical and criminal justice ethics. Repeatable one time. A-F only. Pre: 101 or a course numbered 200 or above in PHIL or HIST or ENG or with a DS designation; or consent.

**PHIL 320 American Philosophy (3)** Survey of major philosophers and schools in development of American thought up to modern times. Pre: any course 100 or above in PHIL, or consent. **DH**

**PHIL 330 Islamic Philosophy (3)** Survey of major Islamic philosophers and schools. Pre: any course 100 or above in PHIL or ARAB, or consent. **DH**

**PHIL 350 Indian Philosophy (3)** Survey of major orthodox and heterodox systems: Vedas, Upanishads, Bhagavadgita, Vedanta, Jainism, Buddhism. Pre: any course 100 or above in PHIL or PALI or SNSK; or consent. **DH**

**PHIL 360 Buddhist Philosophy (3)** Survey of central thinkers and schools. Pre: any course 100 or above in PHIL, CHN, JPN, PALI, SNSK, or TIB; or consent. (Cross-listed as ASAN 360) **DH**

**PHIL 370 Chinese Philosophy (3)** Survey of important schools and thinkers in classical Chinese traditions: Confucianism, Daoism, Mohism, Legalism. Pre: any course 100 or above in PHIL or CHN; or consent. **DH**

**PHIL 380 Japanese Philosophy (3)** Survey of central thinkers and schools from ancient to modern. Pre: any course 100 or above in PHIL or JPN, or consent. **DH**

**PHIL 399 Directed Research (V)** Repeatable up to a maximum of 6 credits. Pre: consent.

**PHIL 402 Introduction to Phenomenology (3)** Methods of analyzing the structures of experience, as developed by Husserl, Heidegger, Merleau-Ponty, Sartre, etc. Pre: any course 200 or above in PHIL, or consent. **DH**

**PHIL 406 Introduction to Zen (Ch'an) Buddhist Philosophy (3)** Development and philosophical significance of basic precepts, explored through translations of Chinese and Japanese sources. Pre: any course 200 or above in PHIL or CHN or JPN, or consent. **DH**

**PHIL 414 (Alpha) Western Movements and Periods (3)** (B) Greek; (C) late antiquity; (D) medieval; (E) Renaissance; (F) continental rationalism; (G) British empiricism; (H) German idealism; (I) 19th century; (J) 20th century. Repeatable two times in different alphas, not in same alpha. Pre: any course 200 or above in PHIL, or consent. **DH**

**PHIL 417 Philosophy in Literature (3)** Philosophical themes in the literary mode in world literature. Pre: any course 200 or above in PHIL or any DL course 200 or above, or consent. **DL**

**PHIL 418 Feminist Issues in Philosophy (3)** Examination of basic feminist issues in philosophy, and of responses to them. Pre: any course 200 or above in PHIL or WS, or consent. (Cross-listed as WS 419) **DH**

**PHIL 422 Philosophical Psychology (3)** Classical and modern theories of mind, cognition, and action. Pre: any course 200 or above in PHIL or PSY, or consent. **DH**

**PHIL 436 Philosophy of Language (3)** Contemporary theories in semantics and syntax; problems of meaning, reference, speech acts, etc. Pre: any course 200 or above in PHIL or LING, or consent. **DH**

**PHIL 438 Gender and Environmental Philosophy (3)** Interdisciplinary approach to women's perspectives and roles on ecological and environmental issues; critical analysis of eco-feminism as a social and political movement; cross-cultural comparison

of women's roles in human ecology. Pre: any course 200 or above in PHIL or WS or any course 200 or above with a DB or DP designation, or consent. (Cross-listed as WS 438) **DH**

**PHIL 445 Symbolic Logic (3)** Intermediate-level course covering proof techniques for classical, first-order predicate calculus, and an introduction to meta-theory. Pre: 110 or any course 200 or above in ICS or MATH; or consent. **DH**

**PHIL 448 Individual Philosophers/Topics (3)** Examination of work of a major Eastern or Western philosopher, or topic of philosophical concern. Repeatable three times. Pre: 100, 101, 102, 103, 211, 212, 213, or consent.

**PHIL 449 Undergraduate Capstone (3)** Capstone seminar for undergraduate majors. Concentration on a topic of current philosophical concern. Repeatable one time with consent. Pre: declared major in PHIL with at least six courses 200 or above in PHIL, or consent. **DH**

**PHIL 492 Philosophy with Children (3)** Examines the theory and practice of doing philosophy in elementary, middle, and high school classrooms. Pre: any course 200 or above in PHIL or EDUC, or consent.

**PHIL 493 Teaching Philosophy (3)** Supervised work in elementary, middle, and high school classrooms, facilitating philosophical inquiry with students. Repeatable one time. Pre: 492 or consent.

**PHIL 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**PHIL 611 Studies in Ethics (3)** Key issues in contemporary philosophical debates about ethics. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 301.

**PHIL 614 Studies in Metaphysics (3)** Key issues in ontological and cosmological theory. Problems of materialism, idealism, phenomenalism, etc. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 304.

**PHIL 615 Studies in Philosophy of Religion (3)** Key issues in theory of religious experience, language, reasoning. Pre: graduate standing or consent. Recommended: 305.

**PHIL 616 Studies in Aesthetics (3)** Key issues in contemporary aesthetics, against background of traditional Western and Eastern theories. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 306.

**PHIL 617 Studies in Epistemology (3)** Key issues in contemporary philosophical debates about knowledge. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 307.

**PHIL 622 Studies in Hermeneutics (3)** Important debates concerning the methodology of textual interpretation. Pre: graduate standing or consent.

**PHIL 630 History and Theory of Science (3)** Exploration of problems at the intersection of historical studies of science as a process and philosophical analysis of basic concepts of the sciences. Pre: graduate standing or consent. Recommended: 308 or 316.

**PHIL 670 Confucianism (3)** Ethical, social, institutional problems in classical theory. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 370.

**PHIL 671 Neo-Confucianism (3)** Logic, epistemology, metaphysics, and ethics of major Chinese Neo-Confucian philosophers, 11th–16th century. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 370.

**PHIL 672 Daoism (3)** Critical examination and evaluation of major philosophical ideas in Lao Zi, Zhuang Zi, and the Neo-Daoists. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 370.

**PHIL 699 Directed Research (V)** Repeatable up to 30 credits. Pre: graduate standing and consent.

**PHIL 700 Thesis Research (V)** Repeatable up to six credits. Pre: master's Plan A candidate and consent.

**PHIL 720 Seminar on Individual Philosophers (3)** The most significant texts of an important philosopher. Repeatable three times in the MA program; an additional four times in the PhD program. Pre: graduate standing or consent.

**PHIL 725 Seminar in Philosophical Topics (3)** Close study of a topic of important philosophical controversy. Repeatable two times in the MA program; an additional three times in the PhD program. Pre: graduate standing or consent.

**PHIL 730 Seminar in Islamic Philosophy (3)** Major philosophical problems in Islamic thought. Focus either on a specific topic or one author. Repeatable one time. Pre: graduate standing or consent. (Once a year)

**PHIL 735 Seminar on Philosophical Periods (3)** Close study of a period of significant and connected philosophical activity within a philosophic tradition. Repeatable two times with consent. Pre: graduate standing or consent.

**PHIL 740 Seminar in Philosophical Texts (3)** Reading, analysis, and critical discussion of one (or of several closely related) philosophical text in its original language (sometimes in conjunction with established translation). Repeatable two times with consent. Pre: graduate standing or consent.

**PHIL 750 Seminar in Indian Philosophy (3)** Major philosophical problems in the development of Indian thought during its formative period. Repeatable two times with consent of instructor and Graduate Chair. Pre: graduate standing or consent. Recommended: 350.

**PHIL 760 Seminar in Buddhist Philosophy (3)** Major philosophical problems in the development of Buddhist thought during its formative period. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 360.

**PHIL 770 Seminar in Chinese Philosophy (3)** Fundamental issues, problems, movements, and schools of Chinese philosophy, such as classical Confucianism, Daoism, Legalism, Chinese logic, and Neo-Confucianism. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 370.

**PHIL 771 Seminar in Yi Jing (3)** Metaphysical, epistemological, ethical, and axiological views of Yi Jing and its claim as foundational work for classical Confucianism, Daoism, and Neo-Confucianism. Pre: graduate standing or consent.

**PHIL 780 Seminar in Japanese Philosophy (3)** Various periods, movements, and thinkers in Japanese philosophy. Topic changes each semester. Consult department for more information. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 380.

**PHIL 790 Seminar in Comparative Philosophy (3)** Comparison of widely differing philosophical traditions. Specific topic changes each semester. Consult department for more information. Repeatable two times with consent. Pre: graduate standing or consent.

**PHIL 800 Dissertation Research (V)** Repeatable unlimited times.

## Physics (PHYS)

### College of Natural Sciences

*A grade of C (not C-) or better is required in all prerequisite courses. Credit toward the degree is given for either 151/151L or 170/170L and similarly for either 152/152L or 272/272L. However, the courses may come from different sequences.*

**PHYS 100 Survey of Physics (3)** Mechanics, electricity and magnetism, waves, optics, atomic and nuclear physics. Only algebra and geometry used. For non-science majors. **DP**

**PHYS 100L Survey of Physics Lab (1)** (1 3-hr Lab) Hooke's law, falling bodies, collisions, Boyle's law,

electric and magnetic fields, induction, waves, optics. Pre: 100 (or concurrent). **DY**

**PHYS 121 How Things Work: Physics for Everyday Life (3)** Introduction to physics and science in everyday life. It considers objects from our daily environment, and focuses on the principles such as motion, forces, heat, electromagnetism, optics, and modern physics. A-F only. **DP**

**PHYS 151 College Physics I (3)** Non-calculus physics. Mechanics, wave motion, heat. Pre: MATH 140, or 215 or higher; or qualifying score on math assessment exam. **DP**

**PHYS 151L College Physics Lab I (1)** (1 3-hr Lab) Introduction to experimental analysis, physical observation and measurement, experiments on conservation laws, fluid friction, oscillations. Pre: 151 (or concurrent). **DY**

**PHYS 152 College Physics II (3)** Electricity, magnetism, optics, modern physics. Pre: 151. **DP**

**PHYS 152L College Physics Lab II (1)** (1 3-hr Lab) Optics, electric and magnetic fields, DC and AC circuitry. Pre: 151L or 170L, and 152 (or concurrent). **DY**

**PHYS 170 General Physics I (4)** Mechanics of particles and rigid bodies, wave motion, thermodynamics and kinetic theory. Pre: MATH 242 (or concurrent) or MATH 252A (or concurrent). MATH 216 may be substituted with consent. **DP**

**PHYS 170A Honors General Physics I (4)** Special format for topics: mechanics of particles and rigid bodies, wave motion, thermodynamics and kinetic theory. Pre: MATH 242 (or concurrent) or MATH 252A (or concurrent). MATH 216 may be substituted with consent. Co-requisite: 170L. **DP**

**PHYS 170L General Physics I Lab (1)** (1 3-hr Lab) Similar to 151L but at 170 level. Pre: 170 (or concurrent) or 170A (or concurrent). **DY**

**PHYS 272 General Physics II (3)** Electricity and magnetism and geometric optics. Pre: 151 or 170 and MATH 242 or MATH 252A, MATH 216 may be substituted with consent. **DP**

**PHYS 272A Honors General Physics II (3)** Special format for topics: electricity and magnetism and geometric optics. A-F only. Pre: 151 or 170 and MATH 242 or MATH 252A, MATH 216 may be substituted with consent. Co-requisite: 272L.

**PHYS 272L General Physics II Lab (1)** (1 3-hr Lab) Similar to 152L but at 272 level. Pre: 151L or 170L, and 272 (or concurrent) or 272A (or concurrent). **DY**

**PHYS 274 General Physics III (3)** Relativity, introduction to quantum mechanics, atomic and nuclear physics, and physical optics. Pre: 152 or 272 and MATH 243 (or concurrent) or MATH 253A (or concurrent); or consent. **DP**

**PHYS 274L General Physics III Lab (1)** (1 3-hr Lab) Experiments illustrating selected concepts of 274, including diffraction and interference of light, wave nature of matter, photoelectric effect, atomic spectra, and semiconductors. Pre: 152L or 272L, and 274 (or concurrent). **DY**

**PHYS 305 Computational Physics (3)** Analysis of physical systems and problem solving using computers and numerical methods. Pre: 152 or 272 or 272A, and MATH 244 (or concurrent) or MATH 253A (or concurrent); or consent. **DP**

**PHYS 310 Theoretical Mechanics I (3)** Particle dynamics, rigid-body dynamics, planetary motion. Pre: 151 or 170 or 170A, and MATH 244 (or concurrent) or MATH 253A (or concurrent); or consent. **DP**

**PHYS 311 Theoretical Mechanics II (3)** Rigid-body mechanics continued, fluid dynamics, wave motion, theory of relativity. Pre: 310. **DP**

**PHYS 350 Electricity and Magnetism (3)** Electrostatic and magnetostatic fields in vacuum and in matter; induction; Maxwell's equations; AC circuits. Pre: 152 or 272 or 272A; and MATH 244 (or concurrent) or MATH 253A (or concurrent); or consent. **DP**

**PHYS 399 Individual Work in Advanced Physics (V)** Limited to students with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in physics.

**PHYS 400 Applications of Mathematics in Physical Sciences (3)** Mathematical methods, techniques; applications to problems in physical sciences. Pre: MATH 244 or MATH 253A, and MATH 307 or 311; or consent. Recommended: upper division mathematics course. **DP**

**PHYS 430 Thermodynamics and Statistical Mechanics (3)** Laws of thermodynamics, heat transfer, kinetic theory, statistical mechanics. Pre: 274 and MATH 244 or MATH 253A. **DP**

**PHYS 440 Solid-State Physics I (3)** Crystal structure: lattice vibrations; phonon effects; electronic processes in solids (metals, semiconductors, and superconductors). Pre: 274 and 350 (or concurrent). **DP**

**PHYS 441 Solid-State Physics II (3)** Energy-band calculations, optical processes, Josephson effect, theories of dielectrics and magnetism, physics of color centers, order-disorder transformation. Pre: 440. **DP**

**PHYS 450 Electromagnetic Waves (3)** Field equations, plane, spherical and guided waves. Pre: 350. **DP**

**PHYS 460 Physical Optics (3)** Fundamentals of classical physical optics emphasizing linear systems theory, including optical fields in matter, polarization phenomena, temporal coherence, interference and diffraction (Fourier optics). Specialized applications include Gaussian beams, laser resonators, pulse propagation, and nonlinear optics. Pre: 450 (or concurrent with a minimum grade of C) or EE 372 (or concurrent with a minimum grade of C-), or consent. (Cross-listed as EE 470) **DP**

**PHYS 475 Electronics for Physicists (3)** Investigation of Kirchoff's Laws, electromagnetic circuit theory. Fourier analysis and stability theory with circuits. Applications to physical measurements are stressed. Pre: junior standing, and 152L or 272L. **DP**

**PHYS 476 Modern Electronics for Physicists (3)** Introduction to high performance solid state instrumentation by means of practical research electronics: printed circuit board design/fabrication; complex programmable logic design/verification; integrated circuit SPICE simulation. Detector fabrication and test emphasis during final project. Pre: 475 (or equivalent) or consent. (Spring only)

**PHYS 480 Quantum Mechanics I (3)** Wave mechanics, Schrodinger equation, angular momenta, potential problems. Pre: 274, 310, 350, 400 (or concurrent); either MATH 244 or 253A; and either MATH 311 or 307; or consent. **DP**

**PHYS 480L Advanced Physics Lab (2)** Advanced experiments including angular correlations in positronium annihilation, optical polarization phenomena, chaos, measurements of  $c$  and the muon lifetime, crystal diffraction and the Mossbauer effect. Numerical simulations of particular physics experiments are included. Pre: 274L and 480 (or concurrent), or consent. **DY**

**PHYS 481 Quantum Mechanics II (3)** Continuation of 480; atomic physics, scattering, perturbation theory. Pre: 480. **DP**

**PHYS 481L Advanced Physics Lab (2)** Advanced experiments including angular correlations in positronium annihilation, optical polarization phenomena, chaos, measurements of  $c$  and the muon lifetime, crystal diffraction, and the Mossbauer effect. Numerical simulations of particle physics experiments are included. Pre: 274L, 480, and 480L; or consent. **DY**

**PHYS 485 Professional Ethics for Physicists (1)** Student seminar on ethical principles and their application to research in physics and astronomy and closely-related fields. Historical examples will be presented and discussed by the participants. PHYS majors only. A-F only. Pre: 310 or ASTR 300 (or concurrent), or consent.

**PHYS 490 Modern Physics (3)** Introduction to nuclear and elementary-particle physics. Pre: 480 (or concurrent). **DP**

**PHYS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**PHYS 505 Physics Workshop for Teachers (V)** Major concepts of physics taught by means of hands-on conceptual activities for elementary and secondary teachers. Restricted to in-service teachers, or consent. Repeatable one time. (Cross-listed as NSCI 505)

**PHYS 600 Methods of Theoretical Physics (3)** Mathematical tools of theoretical physics. Continuation of 400 but with an independent selection of topics. Pre: 400 or consent. (Alt. years)

**PHYS 610 Analytical Mechanics (3)** Dynamics of particles, particle systems; rigid bodies; Lagrangian and Hamiltonian equations; special relativity. Pre: 600 (or concurrent); or MATH 402.

**PHYS 650 Electrodynamics I (3)** Potential theory, Maxwell's equations, electromagnetic waves, boundary value problems. Pre: 450; and 600 (or concurrent), or MATH 402. (Alt. years)

**PHYS 651 Electrodynamics II (3)** Relativistic electrodynamics, radiation by charged particles. Pre: 650. (Alt. years)

**PHYS 660 Advanced Optics (3)** Contemporary advanced applications in optics including nonlinear optics and optical parametric oscillators, atomic lasers and laser systems, and free-electron lasers. Pre: 460. (Alt. even years)

**PHYS 670 Quantum Mechanics (3)** Physical basis and formulation of quantum theory. Exact solutions of Schrodinger equation and their applications. Approximation methods. Applications to atomic, nuclear, and molecular physics. Pre: 400 or 481 or 600 and MATH 402.

**PHYS 671 Quantum Mechanics (3)** Physical basis and formulation of quantum theory. Exact solutions of Schrodinger equation and their applications. Approximation methods. Applications to atomic, nuclear, and molecular physics. Pre: 670.

**PHYS 690 Seminar (V)** Discussions and reports on physical theory and recent developments. CR/NC only. Pre: graduate standing or consent.

**PHYS 694 Condensed Matter Seminar (1)** Results and discussions of current topics in condensed matter physics. Repeatable six times with consent.

**PHYS 695 Seminar on Atomic and Solid-State Physics (1)** Reports and discussion on recent developments in atomic, surface, and solid-state physics. Repeatable with consent.

**PHYS 696 Seminar on Elementary Particle Physics (1)** Reports and discussion on recent developments in elementary particle physics. Repeatable four times. Pre: consent.

**PHYS 699 Directed Research (V)** Repeatable unlimited times. Pre: consent.

**PHYS 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**PHYS 711 Topics in Particles and Fields (3)** Topics in current theoretical research; e.g., unified field theories, general relativity, gravitation, and cosmology. Repeatable four times. Pre: consent.

**PHYS 712 Special Topics: Experimental Physics (3)** Topics in current experimental research in low-energy physics, high-energy physics, cross-disciplinary physics. Repeatable in different topics. Pre: consent.

**PHYS 730 Statistical Physics I (3)** Equilibrium thermodynamics; Gibbs ensembles; quantum statistics; ideal and non-ideal Fermi; Bose and Boltzmann gases; phase transitions; and critical phenomena. Pre: 670. (Alt. years)

**PHYS 731 Statistical Physics II (3)** Nonequilibrium thermodynamics, transport theory, fluctuation dissipation theorem, many-body Green's function methods, normal Fermi and Bose liquids, superfluidity, superconductivity. Pre: 670 and 730. (Alt. years)

**PHYS 772 Quantum Field Theory I (3)** Relativistic wave equations and their solutions. Dirac's theory of the electron, propagator techniques. Applications to quantum electrodynamics. Pre: 671. (Alt. years)

**PHYS 773 Quantum Field Theory II (3)** Local gauge invariance, Yang-Mills theory: quantum chromodynamics, spontaneous symmetry breaking and Goldstone bosons; the standard electroweak theory; grand unified theories. Pre: 772. (Alt. years)

**PHYS 777 Nuclear and Particle Physics (3)** Nuclear physics; electrostatics; hadron structure and partons. Techniques of particle physics. Pre: 481 and 671. (Alt. years)

**PHYS 778 Nuclear and Particle Physics II (3)** Quantum chromodynamics; electroweak interactions; the standard model. Techniques of particle physics. Pre: 777 or consent. (Alt. years)

**PHYS 785 Solid-State Theory (3)** Crystal symmetry, electronic excitations in solids, transport theory, optical properties, cohesive energy, lattice vibrations, electron-phonon interaction, electron-electron interaction, magnetism, superconductivity. Pre: 670. (Alt. years)

**PHYS 786 Solid-State Theory (3)** Crystal symmetry, electronic excitations in solids, transport theory, optical properties, cohesive energy, lattice vibrations, electron-phonon interaction, magnetism, superconductivity. Pre: 785. (Alt. years)

**PHYS 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

## Physiology (PHYL)

### School of Medicine

*The minimum grade required for undergraduate prerequisites is a D or better, and graduate prerequisites is a C (not C-) or better.*

**PHYL 103 Human Physiology and Anatomy (5)** Introduction to human physiology and anatomy designed to serve the needs of dental hygiene students and others interested in pursuing health-related careers. **DB**

**PHYL 103L Physiology and Anatomy Lab (1)** Laboratory to complement 103. Co-requisite: 103. **DY**

**PHYL 141 Human Anatomy and Physiology (3)** Anatomy, histology, physiology, biochemistry, genetics of human organ systems presented in integrated anatomy-physiology format. Priority to students in nursing. Pre: high school chemistry. **DB**

**PHYL 141L Human Anatomy and Physiology Lab (1)** Anatomy, histology, physiology, biochemistry, genetics of human organ systems presented in integrated anatomy-physiology format. Priority to students in nursing. Pre: 141 (or concurrent) or consent. **DY**

**PHYL 142 Human Anatomy and Physiology (3)** Continuation of 141. Pre: should have an understanding of basic physiology concepts as presented in 141 or equivalent. **DB**

**PHYL 142L Human Anatomy and Physiology Lab (1)** Anatomy, histology, physiology, biochemistry, genetics of human organ systems presented in integrated anatomy-physiology format. Priority to students in nursing. Pre: 142 (or concurrent) or consent. **DY**

**PHYL 301 Human Anatomy and Physiology (4)** Integrated presentation of human anatomy and physiology. An optional laboratory (PHYL 301L) is available separately. Pre: BIOL 171 and BIOL 172, or any PHYL course; and CHEM 161 (or higher) or any BIOC course; or consent. **DB**

**PHYL 301L Human Anatomy and Physiology Lab (1)** Laboratory study of human anatomy and physiology by means of models, histology slides, experiments, and demonstrations. Co-requisite: 301 or consent. **DY**

**PHYL 302 Human Anatomy and Physiology (4)** Continuation of 301. Pre: 301/301L or consent. **DB**

**PHYL 302L Human Anatomy and Physiology Lab (1)** Continuation of 301L. Pre: 301/301L, or consent. Co-requisite: 302. **DY**

**PHYL 401 Human Physiology: Organ Systems (4)** Basic function of the major organ systems in man. Covers cardiovascular, respiratory, renal, acid-base, and gastrointestinal physiology. Pre: 302 or equivalent with consent. **DB**

**PHYL 402 Human Physiology: Integrative Systems (4)** Senior-level course in integrative systems (central nervous system and endocrinology). Complements 401. Pre: 401 and either BIOC 341 or CHEM 152, or consent. **DB**

**PHYL 403 Environmental Physiology (3)** Animal (including human) responses to environmental challenges such as heat, cold, altitude, diving, physical work, etc. Human adaptation in a comparative context. Pre: 302, or 401, or ZOOL 430; or consent. **DB**

**PHYL 403L Environmental Physiology Lab (1)** Laboratory experiences in measuring human physiological responses to environmental stress. Complements 403. **DY**

**PHYL 405 Applied Muscle Physiology (3)** Science and technology of strength training. Anatomy, kinesiology, physics, and physiology applied to development of muscular strength and mass. Repeatable one time. Pre: 302; or consent. **DB**

**PHYL 450 Physiological Anthropology (3)** Study of ecological factors in human variation. Human population and its biological and cultural responses to the environment. Pre: ANTH 215 or consent. **DB**

**PHYL 451 Human Biology (4)** Introduces upper division students in the social or non-biological sciences to the basic concepts of physiology, anatomy, and biochemistry. Repeatable two times. Pre: upper division standing. **DB**

**PHYL 499 Directed Research (V)** Repeatable unlimited times. Pre: junior or senior undergraduate status.

**PHYL 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**PHYL 545 Topics in Medical and Applied Physiology (V)** Fourth-year elective for medical students; in-depth study of selected topics in physiological basis of medical practice.

**PHYL 604 Human Physiology (4)** Graduate level lecture overview of major organ system physiology in humans, including (but not limited to) basic cell physiology, cardiovascular, pulmonary, renal, gastrointestinal, endocrine, and neurophysiology. A-F only. Pre: 301 and 302 or consent. (Spring only)

**PHYL 606 Human Neurophysiology (2)** Physiology of human nervous system with emphasis on special senses and control and coordination of movement. Repeatable one time. Pre: 302 or 604, or consent.

**PHYL 609 Cardiovascular Diseases (3)** Selected topics in cardiovascular physiology. Emphasis on dynamic aspects of the heart and circulation. Pre: 604 or consent.

**PHYL 610 Experimental Physiology (2)** Biophysical approach to selected techniques of quantitative experimental physiology. Pre: 604 or consent.

**PHYL 710 Special Topics: Water and Electrolytes (1)**

## Plant and Environmental Protection Sciences (PEPS)

### College of Tropical Agriculture and Human Resources

*A grade of C or better is required in a prerequisite courses.*

**PEPS 210 Introduction to Environmental Science (3)** Analysis of our environment with emphasis on understanding relationships and interactions of physical, biological, technological, and political

components using scientific methods of inquiry. Food supply and safety, water quality, pollution control, biodiversity, environmental policy. Open to nonmajors. (Cross-listed as NREM 210) **DB**

**PEPS 250 The World of Insects (3)** Biology/ecology of insects with emphasis on relationships to plants, animals, and especially people in Hawai'i and the tropics. Open to nonmajors. A-F only. **DB**

**PEPS 310 Environment and Agriculture (3)** Overview of environmental issues and impacts associated with agriculture, specifically pest management issues, and options for environmentally responsible management and amelioration of these impacts. Pre: 210 or consent.

**PEPS 350 Invasive Pest Species (3)** Ecological, economic and sociological impacts of invasive pest species on tropical ecosystems; characteristics of invasive species and nature of vulnerable habitats; management of invasive species or eradication options; impacts on evolution, biological diversity and ecological stability. Open to nonmajors. (Alt. years: spring) **DB**

**PEPS 363 General Entomology (3)** Biology, ecology, habits, structure of Hawai'i's insects/arthropods. Classification to family level. A-F only. Pre: BOT 101 or ZOOL 101 or BIOL 171; or consent. **DB**

**PEPS 363L General Entomology Laboratory (1)** Laboratory in the biology and classification to family level of Hawai'i's insects and arthropods. A-F only. Pre: 363 (or concurrent) or consent. **DY**

**PEPS 371 Genetics: Theory to Application (3)** Fundamentals of genetic theory using biotechnological procedures in insect and plant pathogen control and plant and animal breeding as practical applications. Repeatable one time. A-F only. (Cross-listed as TPSS 371)

**PEPS 400 Plant Pest Diagnosis (3)** The art and science of the accurate diagnosis of important plant health problems for key plants and cultivated crops in various agroecosystems in Hawai'i, the Pacific, and the global tropics. (Spring only)

**PEPS 402 Principles of Biochemistry (4)** Molecular basis of living processes in bacteria, plants, and animals; emphasis on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Pre: BIOL 275/275L, and CHEM 273; or consent. (Cross-listed as BIOL 402 and MBBE 402) **DB**

**PEPS 405 Plant Pathogens and Diseases (4)** (3 Lec, 1 3-hr Lab) Classification, morphology, ecology, and biology of bacteria, fungi, nematodes, and viruses that attack economic crops. Etiology and control of plant diseases. Pre: 210 or BOT 101 or MICR 130, or consent. (Fall only) **DB**

**PEPS 410 Sustainable Soil and Plant Health Management (2)** Provides knowledge and understanding of soils, agroecology, and sustainable approaches for plant health management, and prepares students for applied research in various tropical cropping systems. A-F only. Pre: 210 or TPSS 220 or consent. (Alt. years: spring)

**PEPS 412 Environmental Biochemistry (3)** Biochemical and chemical principles of occurrence, distribution, biotic and abiotic conversion, fate, and impact of synthetic and natural molecules in the environment. Important pollutants will be used as case studies to illustrate the principles. A-F only. Pre: CHEM 152 or CHEM 272, and CHEM 162 or CHEM 171; or consent. (Spring only) (Cross-listed as MBBE 412) **DB**

**PEPS 418 Turfgrass Pest Management (4)** Provides students with knowledge and real world experience on common turfgrass pests and management strategies in Hawai'i, with emphasis on integrated pest management. Common cool-season turfgrass and pest management are also discussed. Repeatable unlimited times but credit earned one time only. A-F only. Pre: 210 or consent. (Fall only) (Cross-listed as TPSS 418)

**PEPS 421 Foundations of Pest Management (4)** (3 Lec, 1 3-hr Lab) Principles and concepts of

insect pest management using biological, ecological, cultural, behavioral, legislative, microbial and chemical methods. A-F only. Pre: one of the following: 250 or 363, BIOL 171, BIOL 172, or BOT 101; or consent. (Spring only) **DB**

**PEPS 422 Biocontrol of Invasive Species (3)** Biological control of arthropods, weeds, plant pathogens, and vertebrates. Pre: 363 or consent. **DB**

**PEPS 430 Plant Disease Management (4)** (3 Lec, 1 3-hr Lab) Diagnosis, epidemiology, and integrated management of important plant diseases and pathogens for key plants and cultivated crops in various agroecosystems in Hawai'i, the Pacific, and the global tropics. Pre: 405. (Spring only)

**PEPS 451 Environmental Law (3)** Exploration of federal laws, regulations, and precedents that govern our interaction with the environment. Analysis of laws regulating air, water, toxins, pests, endangered species, and environmental justice. Pre: junior or senior standing.

**PEPS 463 Urban Pest Management (3)** (2 Lec, 1 3-hr Lab) Biology, ecology, and management of pest organisms associated with people, structures and the urban environment. Pre: 363 or consent. **DB**

**PEPS 481 Weed Science (3)** (2 Lec, 1 3-hr Lab) Weed classification, identification, adaptations for weediness; principles of weed control; properties, uses, and action of herbicides. Lab: pesticide application equipment and techniques, no-till farming, greenhouse and field experiments. Pre: CHEM 152 and TPSS 200, or consent. (Fall only) (Cross-listed as TPSS 481) **DB**

**PEPS 486 Insect-Microbe Interactions (3)** Multidisciplinary treatment of medical entomology, plant vector entomology, insect pathology and symbiosis. Topics are addressed on evolutionary, ecological and molecular levels. Pre: BIOL 172 or MICR 130; or consent.

**PEPS 491 Topics in Plant & Environmental Protection (V)** Study and discussion of significant topics and problems. May be offered by visiting faculty, extension faculty or research faculty. Repeatable two times.

**PEPS 495 PEPs Capstone (4)** Integration and application of academic knowledge and critical skills emphasizing professional development, Directed Research, field studies, employment with cooperating businesses, government or schools are all options. A-F only. Pre: consent.

**PEPS 499 Directed Research (V)** Conduct original research in environmental protection sciences. Limited to qualified undergraduate students. Repeatable two times. CR/NC only.

**PEPS 616 Plant Nematology (3)** (2 Lec, 1 3-hr Lab) Study of nematode biology (taxonomy, genetics, behavior), interactions with plants and animals, and sustainable management practices in an integrated lecture-laboratory setting. Pre: graduate standing or consent.

**PEPS 630 Plant Virology (4)** (2 Lec, 2 3-hr Lab) Isolation, identification, and molecular biology of plant viruses; biological and physical properties. Pre: 402, 405; or consent.

**PEPS 641 Insect Physiology (2)** (2 Lec) Study of the principal physiological and biochemical functions in insects, with emphasis on hormonal interactions. Pre: 402 or consent.

**PEPS 646 Plant-Bacterial Interactions (3)** Diagnosis, molecular biology, genetics, and infection mechanisms of bacterial plant pathogens and symbionts. Pre: one of BIOC 481, MICR 351, MICR 475; or consent. (Cross-listed as MICR 646)

**PEPS 652 Molecular Plant Fungi Interactions (3)** Focuses on the actions of plant pathogens and the responses of compatible and incompatible host plants. Latest research on this topic will be evaluated by discussing publications reporting pathogenesis mechanics. Graduate standing only. Pre: 405 or MBBE 405, or MBBE 480, or MICR 351. (Every 2 years) (Cross-listed as MBBE 652)

**PEPS 660 Seminar in Plant Pathology (1)** Seminar on research and topics in plant pathology. Repeatable unlimited times. A-F only. Pre: graduate standing or consent.

**PEPS 661 Medical and Veterinary Entomology (3)** (2 Lec, 1 3-hr Lab) Vector control; insects and other arthropods in relation to human and animal diseases. Pre: 363 or consent.

**PEPS 662 Systematics and Phylogenetics (3)** (2 Lec, 1 3-hr Lab) Classification and study of diversity among insects and other life forms. Use of morphological and molecular characters to reconstruct evolutionary histories. A-F only. Pre: graduate standing or consent.

**PEPS 671 Insect Ecology (3)** (2 Lec, 1 3-hr Lab) Insects as living units in an environment of physical and biotic factors. Pre: consent of instructor.

**PEPS 675 Biological Control of Pests (3)** (2 Lec, 1 3-hr Lab) Fundamental concepts. Critical study of major biological control projects. Pre: 421 or consent. Recommended: 662; and ZOOL 631 or 632.

**PEPS 681 Pesticide Toxicology (3)** Principles of toxicology; chemical and biochemical mechanisms of pesticide toxicity. A-F only. Pre: 402 or BIOC 441; CHEM 272; or consent. (Fall only)

**PEPS 686 Insect Transmission of Plant Pathogens (3)** (2 Lec, 1 3-hr Lab) A multidisciplinary treatment of insect transmission of plant pathogens. Insect-plant and cellular insect-pathogen interactions and management strategies are emphasized.

**PEPS 690 Seminar in Entomology (1)** Seminars on research and topics in entomology. Repeatable unlimited times. Pre: graduate standing or consent.

**PEPS 691 Special Topics (V)** Study and discussion of significant topics and problems in plant and environmental protection sciences at an advanced level. Offered by visiting or existing faculty as a special course. Repeatable unlimited times. Pre: graduate standing or consent.

**PEPS 695 Plan B Master's Project (3)** Independent study for students working on a Plan B master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. A-F only. Pre: graduate standing in entomology or tropical plant pathology.

**PEPS 699 Directed Research (V)** Directed research, critical reviews in environmental protection sciences, entomology, or plant pathology. Repeatable unlimited times. CR/NC only.

**PEPS 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**PEPS 799 Proposal/Defense Seminar (1)** Thesis/dissertation proposal and defense seminars. Repeatable one time. CR/NC only. Pre: graduate standing or consent.

**PEPS 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

## Political Science (POLS)

### College of Social Sciences

*Either a 100 level or 200 level course is a prerequisite to all 300 level courses except with the consent of the instructor.*

**POLS 110 Introduction to Political Science (3)** Discussion of politics as an activity and of political problems, systems, ideologies, processes. **DS**

**POLS 120 Introduction to World Politics (3)** Power and contemporary world politics since 1945 with emphasis on the U.S. role. **DS**

**POLS 130 Introduction to American Politics (3)** American political processes and institutions, as seen through alternative interpretations. Emphasis on opportunities and limitations for practical political participation. **DS**

**POLS 170 Politics and Public Policy (3)** Perspectives on the role of government in guiding economies and civil societies with particular emphasis on the recent U.S. **DS**

**POLS 171 Introduction to Political Futures (3)** Introduction to political future studies. Using science fact and fiction, shows how past and present images of the future influence people's actions. **DS**

**POLS 190 Media and Politics (3)** Influences and effects of media on politics. Setting public agendas, interpreting events, manipulating the political process, political learning through popular culture. **DS**

**POLS 201 Problems of War and Peace (3)** Introduction to the problems individuals and political communities currently face with respect to war, peace, and international conflict. Includes questions of human nature, economy, morality, nuclear deterrence, arms control and disarmament, and alternatives to war. **DS**

**POLS 241 Political Design and Futuristics (3)** Possible social and political alternatives for the future. Conditions likely if present trends continue, formulation of visions of better futures, means for their achievement. **DS**

**POLS 271 Race and Politics (3)** Racial inequality in the U.S.; mechanisms of institutional racism in employment, education, criminal justice, electoral politics. **DS**

**POLS 301 Hawai'i Politics (3)** Introduction to and critical study of institutions, governments, and political processes in Hawai'i. Attends to race, class, gender, sexuality, indigeneity and nationality. Grounded in Native Hawaiian perspectives, with an emphasis on comparative study and dialogue. Pre: any 100- or 200-level POLS course, or consent. **DS**

**POLS 302 Native Hawaiian Politics (3)** Critical study of issues in contemporary Native Hawaiian politics, with an emphasis on application and active engagement. Pre: any 100- or 200-level POLS course or consent. **DS**

**POLS 303 (Alpha) Topics in Hawai'i Politics (3)** Intensive examination of particular institutions, processes, and issues. (B) the military in Hawai'i; (C) political thought in Hawaiian; Taught in Hawaiian; (D) politics of food. A-F only for (D). Pre: HAW 302 (or concurrent) for (C) only, sophomore standing or higher or consent. ((C) Cross-listed as HAW 428) **DS** for (B), **DH** for (C)

**POLS 304 Indigenous Politics (3)** Conceptualizing politics from the perspective of indigenous epistemologies, philosophies, language, and social and political movement. Pre: sophomore standing or higher, or consent.

**POLS 305 Global Politics/Comparative (3)** Introduction to global politics with emphasis on concepts and theories developed from a comparative politics perspective. Pre: sophomore standing or higher, or consent. **DS**

**POLS 306 Comparative Politics of Developing Countries (3)** Political, economic, and social development in the Third World. Repeatable one time. Pre: sophomore standing or higher, or consent. **DS**

**POLS 307 (Alpha) Topics in Comparative Politics: Country/Regional (3)** Political, social, and economic processes in specific countries/regions. (B) Southeast Asia; (C) Pacific Islands; (F) Middle East; (G) Philippines; (H) Japan; (I) Europe; (J) India; (K) East Asia. Repeatable one time. Pre: sophomore standing or higher, or consent. **DS**

**POLS 308 Chinese Political Economy (3)** Interdisciplinary review and analysis of the social and political issues in contemporary China, the interchange between state and society in national policies, the relationship between cultural tradition and technological modernization in the social transformation process. A-F only. Pre: sophomore standing or higher, or consent. (Cross-listed as ASAN 308). **DS**

**POLS 309 Politics of Indigenous Language Revitalization (3)** Study of the importance and processes of language revitalization for indigenous peoples in Hawai'i, the Pacific, Asia, and North America. Pre: any 100 level POLS course. (Alt. years) **DS**

**POLS 315 Global Politics/International Relations (3)** Introduction to global politics with emphasis on

concepts and theories developed from an international relations perspective. Pre: sophomore standing or higher, or consent. **DS**

**POLS 316 International Relations (3)** Decision-making behavior of international actors; strategies of peacemaking. Pre: sophomore standing or higher, or consent. **DS**

**POLS 317 International Law (3)** Nature and function of international law in international politics. Pre: sophomore standing or higher, or consent. **DS**

**POLS 318 Current Issues in International Law, Organization, and Culture (3)** Principles, norms, cases, and their interaction with culture and organization in international politics. Pre: any 100 level POLS course or consent. **DS**

**POLS 319 International Organization (3)** International relations of governmental and nongovernmental organizations. Pre: sophomore standing or higher, or consent. **DS**

**POLS 321 International Migration (3)** Political-cultural economy of international migration: post-colonial populations, refugees, and immigrants. Pre: sophomore standing or higher, or consent.

**POLS 322 American Foreign Policy (3)** Purposes, methods, strengths, obstacles, prospects; factors affecting American foreign policy; impact abroad and at home. Pre: sophomore standing or higher, or consent. **DS**

**POLS 323 Model United Nations (1)** Simulation of United Nations organizations, especially General Assembly. Repeatable 4 times. Pre: 315 (or concurrent) or 319 (or concurrent), or instructor consent. **DS**

**POLS 324 Global Environmental Politics (3)** Evolution of international politics, law and decision-making on a variety of environmental concerns; from endangered species to pollution to climate change. Interaction of population, development, and environment in global governance. **DS**

**POLS 325 Religion and Law in the U.S. (3)** Surveys church-state jurisprudence since the 1940s, with special attention to difficulty of defining religion, and applies the religion clauses to current issues. A-F only. Pre: sophomore or higher standing, or consent. (Once a year) (Cross-listed as AMST 325) **DH**

**POLS 333 Advanced Topics in Global Politics (3)** Studies of political development in the context of increasingly integrated and globalized political economies. Repeatable one time. Pre: any 100 level POLS course or consent.

**POLS 335 History of Political Thought (3)** Theories, approaches, concepts, and issues developed or raised in history of political philosophy and thought. Pre: any 100- or 200-level POLS course, or consent. **DS**

**POLS 337 American Political Theory (3)** Origins and development of American political thought. Pre: any 100 level POLS course or consent. **DS**

**POLS 338 (Alpha) Topics in Political Theory (3)** Significant works, historical continuities, themes, and issues in political theory. (B) classical political philosophy; (F) revolution and utopia; (G) contemporary political theory; (I) Marxist philosophy. Pre: any 100- or 200- level POLS course; or consent. **DS**

**POLS 339 Feminist Theory (3)** Contemporary debates in feminist theory concerning gender, race, and class; subjectivity and representation; gender and colonialism; bodies, sexualities and "nature." Pre: any 300 level POLS or WS course; or consent. (Cross-listed as WS 439) **DS**

**POLS 340 Korean Politics and Society Through Film (3)** Examines modern Korean politics and society through films. Through movies and documentaries, students will learn major sociopolitical issues including military dictatorship, democratization, and globalization that Korea underwent for the last several decades. Repeatable one time. Sophomore standing or higher. A-F only. **DS**

**POLS 341 The Politics of Media (3)** Study of the political manipulation of aural and verbal images.

Exercises to increase media literacy. Pre: any 100 level POLS course, or consent. **DS**

**POLS 342 Political Design and Futuristics (3)** Alternative future social and political possibilities; design of means of realization of desirable futures. Pre: any 100 level POLS course, or consent. **DS**

**POLS 343 The Politics of Film (3)** Political, philosophical, and artistic dimensions of film; cross-cultural film genres; representational practices in films. Pre: any 100 level POLS course, or consent. **DS**

**POLS 344 Nā Politika ma ka Nūhou Hawai'i - Politics in Hawaiian Language Media (3)** Study of Hawaiian news media with emphasis on political content. Taught in Hawaiian. Pre: HAW 302 (or concurrent) and one of 110, 120, 130, 170, or 171; or consent. (Cross-listed as HAW 445) **DH**

**POLS 366 Advanced Topics in Theory, Media, and Method (3)** Studies in political theory, media, and methods that analyze their interrelations in a globalized world. Pre: sophomore standing or higher, or consent.

**POLS 367 Disability Law and Politics (3)** Introduction to the history and politics of U.S. disability law and activism. An analysis of disability politics as the result of the interaction between disability movement activism and the development of policy and law. A-F only. Pre: sophomore standing or higher, or consent. (Fall only)

**POLS 372 Asian Women (3)** History, culture, and contemporary reality of Asian women in Asia and the U.S. Includes critical analysis of American feminist methodology and theory. Pre: one of 339, AMST 310, AMST 316, AMST 318, AMST 373, AMST 455, WS 360, WS 361, WS 439; or consent. (Cross-listed as AMST 438 and WS 462) **DS**

**POLS 373 American Politics (Elections) (3)** Examination of voters and voting processes (participation, apathy, socialization, symbolic process, media, etc.); ideologies and belief systems. Pre: sophomore standing or higher, or consent. **DS**

**POLS 374 Law, Politics and Society (3)** Relationships between law, politics, and society will be explored. Emphasis is placed on several dimensions of legality: legal "indeterminacy" and some of the many things that law does for us and to us; law's response to violence; the connections between law and social change; access to the law and its sociological dimensions; how/why law fails and what happens when it does. A-F only. Pre: sophomore standing or higher, or consent. (Cross-listed as SOC 374) **DS**

**POLS 375 Constitutional Law I: Institutional Power (3)** Provides students with methods for interpreting U.S. Supreme Court decisions and analyzes the U.S. Supreme Court's jurisprudence on institutional authority, including the Judiciary, Executive, and Legislative branches and their relationships to power. Pre: sophomore standing or higher, or consent. **DS**

**POLS 376 Constitutional Law II: Rights and Liberties (3)** Analyzes the U.S. Supreme Court's jurisprudence on civil rights and liberties. Pre: 375 or consent. **DS**

**POLS 377 Topics in Law and Politics (3)** Current issues; recent research findings; practical research undertaken by student. Pre: sophomore standing or higher, or consent. **DS**

**POLS 378 Topics in American Politics (3)** Specific institutions and processes of the American governmental system. Pre: sophomore standing or higher, or consent. **DS**

**POLS 379 Power in America (3)** Analysis of sources of political, economic, and social power in the U.S. and the institutions through which it is exercised. Pre: sophomore standing or higher, or consent. **DS**

**POLS 381 Administration and Society (3)** Historical emergence of modern bureaucracy; mutual impact of administrative forms on social life; relation of bureaucracy to capitalism and patriarchy; constitu-

tion of the administered individual. Pre: sophomore standing or higher, or consent. **DS**

**POLS 382 Political Leadership (3)** Exploration of concepts and theories of political leadership, partly through biography, as preparation for public service or advanced scholarly inquiry. Pre: sophomore standing or higher, or consent. **DS**

**POLS 383 Politics and Public Policy II (3)** Overview of the policy-making process in various political arenas (families, cities, nations, etc.); emphasis on conceptual and empirical analysis. Pre: any 100 level POLS course or consent. **DS**

**POLS 384 Women and Politics (3)** Women's role in political institutions and processes in the U.S. and other countries. Female and male approaches to power; feminist political goals and actions. Pre: any 100 level POLS course (or concurrent), WS 151 (or concurrent), or WS 362 (or concurrent); or consent. (Cross-listed as WS 384) **DS**

**POLS 385 American Politics (3)** Institutions (parties, interest groups, legislatures, executives, local government); policies (national defense, poverty, energy, etc.); politics (symbolism, inequality, race, and gender). **DS**

**POLS 386 Public Policy-Making (3)** Students develop understanding of theory, practice, and ethical issues of public policy-making. Combines lecture/discussion and fieldtrips. Students develop policy analysis and strategic plans that identify issues, interests, and methods of influence. Repeatable one time. A-F only. Pre: HON 101 or HON 291, or departmental approval. (Cross-listed as HON 301)

**POLS 390 Political Inquiry and Analysis (3)** Introductory survey and analysis of methods used in empirical research, policy analysis, and social criticism. **DS**

**POLS 393 Advanced Topics in Law, Policy, and Society (3)** Studies integrating concerns of public law, public policy, public administration, and social movements. Pre: any 100- or 200-level POLS course, or consent.

**POLS 394 Democracy in Organizations (3)** Theory and practice of democratic organizations: women's and feminist organizations; co-ops, communes, and collectives; indigenous people's organizations; workplace democracy and social change. Pre: any 100- or 200-level POLS course or 390 (or concurrent) or WS 151, or consent. **DS**

**POLS 396 Nonviolent Political Alternatives (3)** Exploration of scientific and cultural resources for nonviolent alternatives in politics. Pre: any 100- or 200-level POLS course, or consent. (Cross-listed as PACE 373) **DS**

**POLS 399 Directed Reading and Research (V)** Pre: consent.

**POLS 401 Teaching Political Science (6)** Practicum for majors who serve as undergraduate teaching assistants. Repeatable one time. Pre: 390 (or concurrent), senior standing; and consent.

**POLS 402 Legislative Internship (V)** Field placement at the Hawai'i Legislature integrated with academic study of political institutions and practices. A-F only. Pre: consent. Recommended: 390. (Spring only) **DS**

**POLS 403 Community Internship (V)** Field placement integrated with academic study of political institutions and community organizations. Repeatable one time. Pre: consent. Recommended: 390. **DS**

**POLS 404 Senior Thesis (6)** Independent research and thesis writing with supervision of senior advisor. Pre: 390 (or concurrent) and consent.

**POLS 405 Executive Internship (V)** Open to students awarded a Mānoa Undergraduate Political Fellowship for placement in the Governor's or Lt. Governor's Office, Prosecuting Attorney's Office, or Public Defender's Office. Field placement, integrated with academic study. A-F only. Recommended: 385, 390.

**POLS 406 Senior Seminar in Political Science (3)** Discussion of issues and questions of concern

to graduating seniors in political science, including substantial research project. Pre: 390 (or concurrent) or senior standing or consent. **DS**

**POLS 408 Mānoa Undergraduate Congressional Fellowship Internship Seminar (6)** Hawai'i Undergraduate Political Internship's Congressional Fellowship. Award includes stipend and internship experience in a Hawai'i congressional office. Students review policy processes, House and Senate procedures and produce a final paper. Restricted to fellowship awardees only. Junior and senior standing only. A-F only. Co-requisite: 386.

**POLS 436 Gender, Justice and Law (3)** Exploration of landmark U.S. Supreme Court cases related to sex and gender. Topics may include sex discrimination, sexual orientation discrimination, privacy, and reproductive freedom. A-F only. Pre: one of WS 151, WS 175, WS 176, WS 202, WS 360, WS 381, or consent. (Cross-listed as AMST 436 and WS 436) **DS**

**POLS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**POLS 600 Scope and Methods of Political Science (3)** Main concepts delineating boundaries of discipline; approaches to knowledge employed by political scientists; empirical and normative theory; problems in theory-building; validity and reliability in research design; philosophy of science applied to political science.

**POLS 601 Political Analysis and Theory Building (3)** Survey of theory-building, approaches and validation techniques.

**POLS 602 Research Techniques and Analytic Methods (3)** Quantitative models and statistical inference techniques.

**POLS 605 Topics in Methodology (3)** Specific methodological techniques and practices introduced in 601 and 602. Pre: graduate standing or consent.

**POLS 610 Political Theory and Analysis (3)** Major contemporary approaches and styles in political theory, philosophy, and analysis.

**POLS 611 Tradition of Political Philosophy (3)** Discussion of texts and themes in the Western political tradition from Plato to Nietzsche. Repeatable one time.

**POLS 612 Hawaiian Political Thought: Theory and Method/Na Mana'o Politika Hawai'i (3)** Study of Hawaiian political thought in writing from ca. 1825 to the present, with emphasis on theory and research methods. Pre: 303, HAW 402 and HAW 428; or consent. (Cross-listed as HAW 612)

**POLS 615 (Alpha) Topics in Political Thought (3)** Specific traditions and individuals, or particular issues and problems. (C) feminist theory. Pre: graduate standing or consent. ((C) Cross-listed as WS 615)

**POLS 620 Introduction to Indigenous Politics (3)** Historical treatment of the contact between state and indigenous peoples and a survey of contemporary indigenous political initiatives: social movements, media, indigenous studies programs, and events. A-F only.

**POLS 621 Politics of Indigenous Representation (3)** Politics of indigenous representations in media, literature, and academic scholarship.

**POLS 630 International Relations (3)** Analysis of theories: actors, decisions, systems, conflict, integration, alternative approaches to validation. Pre: graduate standing or consent.

**POLS 633 International Conflict Resolution (3)** Analysis of international conflict and conflict resolution. Theory and practice of negotiation, mediation, conciliation, facilitation, and other "third-party" methods of peaceful settlement. Pre: graduate standing or consent.

**POLS 635 (Alpha) Topics in International Relations (3)** (B) international relations and war; (E) international organization; (F) modeling international systems. Pre: graduate standing or consent.

**POLS 640 Comparative Politics (3)** Emphasis on Asia, theories of development, and comparative methods. At least one section a semester.

**POLS 642 Indigenous Peoples and Western Imperialism (3)** Historical examination of U.S. and European imperialisms, including national narratives, politics, and impacts upon indigenous peoples in the Americas, Pacific, and Asia. Repeatable one time.

**POLS 645 (Alpha) Politics and Development: Regional (3)** Politics of particular regions; particular development processes. (C) China. ((C) cross-listed as ASAN 608 and PLAN 608)

**POLS 646 (Alpha) Politics and Development: Topical (3)** (F) political ecology and development.

**POLS 647 American Political Institutions in Comparative Perspective (3)** Consideration of American political institutions and development relative to American philosophical foundations and non-American political forms. Federalism as an expansive device will be emphasized, as will American influence and penetration abroad. A-F only. Pre: graduate standing or consent. (Once a year)

**POLS 650 Public Administrative Theory (3)** Focus varies among theoretical, comparative and developmental approaches to study of administration. One section each semester.

**POLS 651 Political Leadership (3)** Exploration of political leadership as a focus for research, teaching, and applied political science.

**POLS 660 Public Law and Judicial Systems (3)** Law, courts, and rights as a political resource; analyses of public law (including court decisions), other forms of dispute management, and judicial behavior and policy-making. Pre: 110.

**POLS 665 (Alpha) Topics in Public Law and Judicial System (3)** Recent issues and practices in public law; particular judicial systems. Pre: graduate standing or consent.

**POLS 670 Introduction to Public Policy (3)** Perspectives on policy analysis; basic approaches to the study of public policy, political economy, and policy evaluation. (Cross-listed as PLAN 607)

**POLS 672 Politics of the Future (3)** Introduction to political futures studies; images of future, theories of social change, methods of social forecasting and designing preferred futures. Pre: graduate standing.

**POLS 673 The Future of Political Systems (3)** Normative and descriptive forecasts of political institutions, systems, subsystems, and behaviors. Design of preferred systems.

**POLS 675 Topics in Public Policy (3)** Particular political processes, specific political institutions, or particular policy area. Pre: graduate standing or consent.

**POLS 680 Asian and/or Pacific Politics (3)** Political development, international relations, decision-making processes, and systems of political thought in all or part of Asia and/or the Pacific. Repeatable three times.

**POLS 684 Contemporary Native Hawaiian Politics (3)** Study of political and social movements, political status, national and cultural identities, and issues of representation of Native Hawaiians.

**POLS 685 (Alpha) Topics in Asian and/or Pacific Politics (3)** (C) Korean politics. Pre: graduate standing or consent.

**POLS 686 Politics of Hawai'i (3)** Examinations from several perspectives of the political, economic, and cultural forces that historically formed Hawai'i and contemporary political themes, issues, and processes. Pre: graduate standing.

**POLS 695 Colloquium (3)** Specialized subjects in political science.

**POLS 696 Graduate Intern Seminar (3)** Seminar for those seeking internship experience. Repeatable one time. A-F only. Pre: 672 and 673 or consent for the alternative futures option; 620 or consent for the

indigenous politics option; consent of advisor for all other options.

**POLS 699 Directed Reading and Research (V)** Repeatable unlimited times. Pre: consent.

**POLS 700 Thesis Research (V)** Repeatable unlimited times.

**POLS 702 Seminar: Research Methods (3)** Conceptual strategies, data collection approaches, and data analysis techniques appropriate to political inquiries. Repeatable.

**POLS 703 Writing Politics (3)** Seminar on the politics of writing, grammar, translation, argument, genre, and style with significant content on indigenous issues of oral traditions, alternative modes of writing and argument, and language continuance.

**POLS 710 Seminar: Political Thought (3)** Pre-announced topics. Repeatable. At least one section a year.

**POLS 720 Seminar: Indigenous Theory (3)** Pre-announced topics may include gender and sexuality studies, postcolonial theory, colonial discourse analysis, globalization, historiography; emphasis on indigenous epistemologies and the work of native scholars. Repeatable one time.

**POLS 730 Seminar: International Relations (3)** Pre-announced problems of both international organization and politics. Repeatable. At least one section a semester.

**POLS 740 Seminar: Comparative Government and Politics (3)** Pre-announced topics. Repeatable. At least one section a semester.

**POLS 770 Seminar: Public Policy (3)** Pre-announced topics. Repeatable three times. Pre: consent of instructor. At least one section a year.

**POLS 776 Indigenous Nations and the Problems of Sovereignty (3)** Examines intersections of sovereignty and indigeneity from comparative and critical perspectives. Engages indigenous studies of sovereignty and of alternative political frameworks. Repeatable one time. (Alt. years)

**POLS 777 Decolonial Futures (3)** Topic engages probable and preferable futures of indigenous struggles and resistances. Emphasis placed on the ethics and responsibilities used to move towards those futures.

**POLS 780 Seminar: Politics of Regions (3)** Analysis of political development, international relations, decision-making processes, and systems of political thought in regions and subregions of the world. Repeatable.

**POLS 800 Dissertation Research (V)** Repeatable unlimited times.

## Portuguese (PORT)

*College of Languages, Linguistics and Literature*

*Students choosing Portuguese for the language requirement should realize it may not be offered if demand is limited. A grade of C or better in the prerequisite courses is required for continuation.*

**PORT 101 Elementary Portuguese (3)** Conversation, grammar and reading. **HSL**

**PORT 102 Elementary Portuguese (3)** Conversation, grammar and reading. Continuation of 101. Pre: 101. **HSL**

**PORT 201 Intermediate Portuguese (3)** Reading, conversation, writing, laboratory drill. Pre: 102. **HSL**

**PORT 202 Intermediate Portuguese (3)** Continuation of 201. Pre: 201. **HSL**

**PORT 303 Conversation (3)** Intensive practice in spoken Portuguese, focusing on the preparation and completion of oral tasks and presentations. 40% or more of the grade is based on 3-4 oral communication presentations. Pre: 202.

**PORT 360 Third-Level Portuguese Abroad (V)** Intensive, formal instruction at the third-year level in Portuguese language: reading, writing, pronunciation, grammar, or conversation in a Portuguese-speaking country. Repeatable one time. Pre: 202.

**PORT 460 Fourth-Level Portuguese Abroad (V)** Intensive formal instruction at the fourth-year level in Portuguese language, linguistics, culture, civilization, film, or literature in a Portuguese-speaking country. Repeatable one time. Pre: 360.

## Psychiatry (PSTY)

*School of Medicine*

### PSTY 499 Directed Reading/Research (V)

Individualized directed readings and/or research in mental health and psychiatry under the supervision of an instructor. Open to non-majors. Repeatable up to four times. A-F only. Pre: consent.

### PSTY 531 7-Week Psychiatry Clerkship (10)

7-week basic psychiatry clerkship. Pre: third-year standing.

### PSTY 532 Psychiatry Longitudinal Clerkship (5)

Year-long clerkship in ambulatory setting, including knowledge, skills, attitudes for assessment, diagnosis, and management of psychiatric problems in medical practice, inpatient, and emergency room settings. Emphasis on development and application of psychosocial cultural formulations in all areas of psychiatric and medical practice. Repeatable two times. Pre: third-year standing and concurrent registration in 532 courses.

### PSTY 545 (Alpha) Electives in Psychiatry (V)

Senior medical student elective providing advanced instruction on the theory and methods of mental health research as well as supervised participation in an assigned research project in the Department of Psychiatry. (B) adult inpatient PSTY; (C) child PSTY; (D) forensic PSTY; (E) journal editing; (F) community mental health; (G) PSTY aspects of OBGYN, PED, MED, SURG; (H) sub-internship in adult PSTY; (I) substance abuse; (J) PSTY aspects of rehab medicine; (K) PSTY aspects of SURG; (M) PSTY consult liaison; (N) post-traumatic stress disorder; (O) extramural elective in PSTY; (Q) geriatric PSTY; (R) rural child PSTY; (S) public and rural PSTY; (T) mental health research. CR/NC only. Pre: 531 or 532, and fourth-year standing.

### PSTY 595 Philosophy & Human Suffering (1)

To see how various philosophies and religions have tackled the question, "why is there suffering in the world?" Read short excerpts from "classic" texts and discuss in a welcoming atmosphere and draw own conclusions. Medical students only. CR/NC only. (Fall only)

**PSTY 599 Directed Reading/Research (V)** Pre: consent.

## Psychology (PSY)

*College of Social Sciences*

*PSY 100 is a prerequisite for all undergraduate courses except 170. Unless otherwise noted, 700-level seminars are explorations of current issues in their respective areas.*

### GENERAL PSYCHOLOGY (X0X)

**PSY 100 Survey of Psychology (3)** An overview of the field: psychophysiology, perception, learning, cognition, stress, personality, social psychology. **DS**  
**PSY 201 Unit Mastery Instruction (3)** Principles, techniques, issues, and philosophy. Laboratory provides working experience with this instruction technique. Pre: 100 and written consent.

**PSY 202 Psychology of Gender (3)** Survey of topics in psychology relevant to gender and its impact on the lives of women and men: socialization of gender, mental health, racial identity, majority-minority status, sexual orientation, life-span issues and violence. A-F only. Pre: 100 or WS 151. (Cross-listed as WS 202) **DS**

**PSY 402 History of Psychology (3)** Origin and development of contemporary points of view. Pre: 100. Recommended: 9 credit hours in psychology. **DS**

**PSY 403 Seminar on the Psychology of Knowledge (3)** Selected topics in the psychology of knowledge and mind from Western and/or non-Western

perspectives. Repeatable in different topics up to 9 credit hours. Pre: 100 and written consent. **DS**

**PSY 407 Practicum in Psychology (V)** Supervised psychological experience in school, clinic, hospital, industry, social welfare, government, etc. Pre: 100 and consent.

**PSY 408 Teaching General Psychology (V)** Supervised experience. Pre: 100, at least 12 additional credit hours in psychology, and written consent. Repeatable one time.

**PSY 409 General Psychology: Advanced Topics (3)** In-depth coverage of some area of theory and research. Repeatable to 6 credit hours. Pre: 100. **DS**

**PSY 600 Methodologic Foundations of Psychology (3)** Methods used in psychological research; observational, correlational, and experimental types of design.

**PSY 700 Thesis Research (V)** Research for master's thesis. Maximum of 6 credit hours. Not repeatable for credit toward master's degree.

**PSY 701 Seminar in General Psychology (3)**

**PSY 702 Seminar in History and Theory of Psychology (3)**

**PSY 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

### PSYCHOMETRICS (X1X)

**PSY 212 Survey of Research Methods (4)** (3 Lec, 1 2-hr Lab) Survey of standard methods and related conceptual issues employed in psychological research. Both experimental and non-experimental methods will be reviewed. Pre: 100. **DS**

**PSY 419 Psychometrics: Advanced Topics (3)** In-depth coverage of some area of theory, research, or methodology relevant to individual differences, measurement, or aspects of psychometrics. Repeatable to six credit hours. Pre: 100. **DS**

**PSY 610 Introduction to Quantitative Methods (3)** Introduction to quantitative methods in behavioral sciences. Introduction to general linear model as principle of data analysis. Course requires basic statistics. (Meets PhD common inquiry methods requirement or elective.)

**PSY 611 Design and Analysis of Psychological Experiments (3)** Analysis of variance and other models of assessing results of experiments. Relation of analysis to design. (Cross-listed as EDEP 603)

**PSY 612 Applied Regression and Analysis of Variance (3)** Introduction to linear statistical models as principle of data analysis. Topics include multiple regression models with continuous and categorical predictors. ANOVA with multiple factors, ANOVA with repeated measures, and ANCOVA. Pre: 610 or EDEP 601 or PSY 610, (with a grade of B+), or consent. (Cross-listed as EDEP 604)

**PSY 613 Structural Equation Modeling (3)** Theories and applications to test models with manifest and latent variables. Topics include path analysis, factor analysis, and latent variable analysis. Pre: 612, EDEP 604, or consent. (Cross-listed as EDEP 605)

**PSY 614 Multivariate Methods (3)** Multivariate forms of multiple linear regression, analysis of variance, and analysis of co-variance. Multiple discriminant analysis, canonical correlation, and principal components analysis are discussed. (Cross-listed as EDEP 606)

**PSY 616 Measurement in Education and Social Sciences (3)** Test theories and applications in education and social sciences. Topics include the true score model; reliability; generalizability theory; validity; item response theory; and applications in research. Class requires knowledge in ANOVA and regression. (Cross-listed as EDEP 616)

**PSY 617 Advanced Psychometrics (3)** Theories and applications of modern psychometrics. Topics include unidimensional and multidimensional models of item response theory, detecting biased items, measurement invariance, scaling methods, and current issues in psychometrics. Pre: 616, EDEP 616, or consent. (Cross-listed as EDEP 626)

**PSY 618 Categorical Data Analysis (3)** Theories and methods for data analysis with categorical and discrete variables. Topics include contingency tables; logistic regression; log-linear models; and introduction to generalized linear models. (Cross-listed as EDEP 618)

**PSY 619 Multilevel Modeling for Cross-Sectional and Longitudinal Data (3)** Theories and applications of multilevel model to analyze cross-sectional and longitudinal data in education and social sciences. Pre: 612 or EDEP 604 (with a minimum grade of B or higher), or consent. (Cross-listed as EDEP 612)

**PSY 719 Research in Psychometrics (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times. Pre: consent.

### EXPERIMENTAL PSYCHOLOGY (X2X)

**PSY 220 Introduction to Behavioral Psychology (3)** Outline of basic learning principles. A general, unified approach to study of human personality and behavior. Based upon a learning conception; various areas of psychology and the other social sciences are treated. Pre: 100. **DS**

**PSY 225 Statistical Techniques (3)** Frequency distributions; graphic methods; central tendency; variability; correlation; reliability; tests of significance. Pre: 100. **DS**

**PSY 322 Learning and Motivation (3)** Theoretical interpretations; survey of major theorists and contemporary controversial issues; major influences in classical and instrumental conditioning. Pre: 100. Recommended: 220. **DS**

**PSY 324 Psychology of Emotion (3)** Survey of traditional views and leading theories, and research in related topics. Pre: 100. Recommended: 220 or 322. **DS**

**PSY 325 Cognitive Psychology (3)** Mental processes of humans and other organisms. Survey of major theories and findings in cognitive psychology. Pre: 100 or consent. **DS**

**PSY 429 Experimental Psychology: Advanced Topics (3)** Coverage in-depth of some area of theory and research. Repeatable to six credit hours. Pre: 100. **DS**

**PSY 422 Animal Learning (3)** Principal findings and major theories in animal learning. Detailed consideration of the contemporary literature.

**PSY 625 Knowledge and Wisdom (3)** Topics in the psychology of mind from Western and/or Asian perspectives. Repeatable in different topics. Pre: consent.

**PSY 626 Cognitive Psychology (3)** In-depth survey of the computational and representational structures and processes of cognition. Special attention devoted to consideration of the relationship between brain, mind, and computation. Pre: 325 or consent.

**PSY 627 Thinking (3)** Provides an introduction to higher cognition (thinking and reasoning) and its foundations, particularly as they relate to the larger field of cognitive science. A-F only. (Alt. years)

**PSY 721 Seminar in Experimental Psychology (3)** Repeatable unlimited times.

**PSY 722 Seminar in Learning (3)**

**PSY 729 Research in Experimental Psychology (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times.

### PSYCHOBIOLOGY (X3X)

**PSY 230 Introduction to Psychobiology (3)** Survey of study of behavior from a natural sciences viewpoint. Evolution, ethological analysis of behavior genetics, neural mechanisms, drugs and behavior, biological development. Pre: 100. **DB**

**PSY 331 Behavioral Neuroscience (3)** Coverage of the neural, developmental and mechanistic bases of learning, memory and cognition, motivated and regulatory behavior and mental disorders. A-F only. Pre: 230 or consent. **DB**

**PSY 333 Psychopharmacology (3)** Coverage of the basic principles of pharmacology as they apply to the brain and specific brain disorders such as anxiety, depression, psychosis, memory, and drug abuse. A-F only. Pre: 230 or consent. (Once a year) **DB**

**PSY 439 Psychobiology: Advanced Topics (3)** Coverage in-depth of some area of theory and research in psychobiology, physiological psychology, or sensory processes. Repeatable to six credit hours. Pre: 100. **DB**

**PSY 631 Comparative Psychology (3)** Comparative study of natural behavior, learned behavior, sensory processes, social behavior in animals.

**PSY 632 Selected Topics in Comparative Psychology (3)** Intensive review of comparative, communicative, sensory, or learning mechanisms in animals. Pre: 631.

**PSY 633 Psychopharmacology (3)** Basic principles of pharmacology as they apply to the brain and specific psychological disorders such as anxiety, depression, post-traumatic stress disorders, schizophrenia, psychosis, memory, and drug use. A-F only. Pre: consent. (Once a year)

**PSY 634 Physiological Psychology (3)** Relation of central and peripheral nervous systems to behavior.

**PSY 731 Seminar in Physiological Psychology (3)** Repeatable unlimited times.

**PSY 732 Seminar in Comparative Psychology (3)** Repeatable unlimited times.

**PSY 739 Research in Psychology (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times.

#### **DEVELOPMENTAL PSYCHOLOGY (X4X)**

**PSY 240 Developmental Psychology (3)** Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels. Pre: 100. **DS**

**PSY 341 Social Development of Children (3)** Survey of socialization process and acquisition of social behavior. Pre: 240 or FAMR 230. **DS**

**PSY 342 Adult Development and Aging (3)** Overview from a multidisciplinary, life-span perspective. Includes research techniques, personality development, family relationships, occupational attainment, death. Pre: 100. Recommended: 240. **DS**

**PSY 442 The Exceptional Child (3)** Evaluation of physical, emotional, and intellectual deviations; effects on growth and development of children. Pre: 100. Recommended: 240. **DS**

**PSY 449 Development Psychology: Advanced Topics (3)** Coverage in-depth of some area of theory and research. Repeatable to six credit hours. Pre: 240, 341, or consent. **DS**

**PSY 640 Developmental Foundations (3)** Historical, theoretical, and methodological foundations of developmental psychology.

**PSY 642 Cognitive Development (3)** Familiarizes students with current research and theory in cognitive development through readings of original journal articles and monographs. Pre: 640 (or concurrent) or consent.

**PSY 741 Seminar in Developmental Psychology (3)** Repeatable unlimited times.

**PSY 749 Research in Developmental Psychology (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times.

#### **SOCIAL PSYCHOLOGY (X5X)**

**PSY 250 Social Psychology (3)** Cognitive, behavioral, and emotional effects of people: interpersonal relations, attribution, attitudes, group behavior, stereotypes, social roles, aggression, helping, self-concept; applications. Pre: 100. **DS**

**PSY 351 Cross-Cultural Psychology (3)** Psychological theories and cultural systems; understanding of own and other cultures; psychological and cultural perception of social motivation; cultural similarities and differences in interpersonal relations. Pre: 100. **DS**

**PSY 352 Psychology of Human Sexuality (3)** Psychosocial aspects of human sexual relationships. Social psychology of emotional and physiological arousal, interpersonal attraction, and societal regulation of intimate relationships. Pre: 100. **DS**

**PSY 459 Social Psychology: Advanced Topics (3)** Coverage in-depth of some area of theory and research. Repeatable to six credit hours. Pre: 250 or consent. **DS**

**PSY 650 Social Psychology (3)** Theories and research in social cognition and behavior.

**PSY 653 Cross-Cultural Psychology (3)** Application of psychological theories to cross-cultural phenomena; assessment of cross-cultural processes and social motivations; culture and personality; research evaluation and design.

**PSY 654 Psychology and Social Issues (3)** Conflict, dissent, community issues, problems; social change and its relation to mental disorder.

**PSY 655 Applied Social Psychology (3)** Problems in use of social psychology principles in human affairs; multidisciplinary considerations.

**PSY 656 Social Psychology of Love and Sex (3)** Seminar in psychosocial aspects of human sexual relationships. Social psychology of cognitive, emotional and physiological arousal, interpersonal attraction, mate selection, and antecedents and consequences of intimate relationships. Pre: consent. A-F only. (Spring only)

**PSY 751 Seminar in Social Psychology (3)** Repeatable unlimited times.

**PSY 759 Research in Social Psychology (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times.

#### **PERSONALITY/TRANSPERSONAL PSYCHOLOGY (X6X)**

**PSY 260 Psychology of Personality (3)** Scientific study of personality, its meaning, assessment, development, relation to cultural-social determinants. Pre: 100. **DS**

**PSY 361 Transpersonal Psychology (3)** Psychological study of transpersonal human capacities, potentialities, awareness, and growth. Pre: 100. **DS**

**PSY 469 Personality: Advanced Topics (3)** Coverage in-depth of some area of theory and research in personality or transpersonal psychology. Repeatable to six credit hours. Pre: 100. **DS**

**PSY 660 Personality Theory and Research (3)** Methods of measurement, antecedents, structure, dynamics, situational determinants of individual reactions. Evaluation of theories and related research. Pre: 260.

**PSY 763 Seminar in Transpersonal Psychology (3)**

**PSY 764 Seminar in Humanistic Psychology (3)**

**PSY 769 Research in Personality (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times.

#### **ADJUSTMENT/CLINICAL (X7X)**

**PSY 170 Personal Development (3)** The application of psychology to the understanding, management, and enhancement of one's life. **DS**

**PSY 270 Introduction to Clinical Psychology (3)** History, theories, types of psychological problems, methods of assessment, forms of intervention, current developments. Pre: 100. **DS**

**PSY 371 Abnormal Psychology (3)** Nature and causes of psychoses; abnormalities of intelligence; psychotherapy. Pre: 100. Recommended: 270. **DS**

**PSY 476 Health Psychology (3)** Psychological principles for understanding and dealing with wellness and illness. Theories and research on stress-related disorders; prevention of stress through lifestyle and healthy behaviors. Pre: 100 or consent. Recommended: 220 or 322. **DS**

**PSY 477 Communication in Helping Relationships (3)** Theory and application of personal and

interpersonal elements affecting communication of human-service professionals. Supervised practice, video lab. Pre: one of 100 and COMG 151, COMG 251 or COMG 301. (Cross-listed as COMG 490) **DS**

**PSY 478 Teaching Personal Development (6)** Supervised experience in leading a seminar in personal development. Pre: 170 and 12 additional credits in PSY and written consent.

**PSY 479 Advanced Topics in Adjustment/Treatment/Prevention (3)** Coverage in-depth of some area of theory and research. Repeatable to six credit hours. Pre: 270, 371 or consent. **DS**

**PSY 670 Introduction to Clinical Psychology (3)** Preparation for becoming a clinical psychologist with emphasis on scientist-practitioner model, professional ethics, diversity and professional development. Pre: graduate student in psychology or consent of instructor.

**PSY 671 Introduction to Assessment I (3)** Psychometric theory; ethics; diversity issues; principles and methods of cognitive-intellectual, neuropsychological, and personality assessment. Co-requisite: 670 or consent.

**PSY 672 Introduction to Assessment II (3)** Administration and interpretation of cognitive-intellectual and personality assessment devices. Pre: 670 and 671 or consent and enrollment in Clinical Studies Program.

**PSY 673 Introduction to Assessment III: Behavior Assessment (3)** Conceptual and methodological foundations of clinical applications of behavioral assessment. PSY majors only. A-F only. Pre: 671 and 672 and enrollment in Clinical Studies Program, or consent. (Once a year)

**PSY 674 Child Psychopathology (3)** Comprehensive study of psychopathology in youth. Pre: 670 and 671.

**PSY 675 Treatment Research (3)** Idiographic and nomothetic approaches to clinical treatment research methods and findings. Pre: 670 (or concurrent) and 671, or consent.

**PSY 676 Adult Psychopathology (3)** Comprehensive study of the mental disorders of adults. A-F only. (Once a year)

**PSY 677 Child Practicum (3)** Supervised clinical assessment and treatment of children and adolescents. Repeatable ten times. Pre: consent.

**PSY 678 Adult Practicum (3)** Supervised clinical assessment and treatment of adults. Repeatable ten times. Pre: consent.

**PSY 679 Practicum in Clinical Psychology (V)** Repeatable ten times. Pre: consent.

**PSY 771 Child Treatment (3)** Psychological interventions for youth, as well as parent training. Repeatable two times. Pre: 670 or consent.

**PSY 772 Adult Treatment: Cognitive-Behavioral Therapy (3)** Training in cognitive-behavioral strategies for treating adults. Repeatable one time. Enrolled in Clinical Studies Program only. Pre: 670 or consent.

**PSY 773 Seminar in Psychopathology (3)** Repeatable unlimited times.

**PSY 774 Seminar in Clinical Psychology (V)** Repeatable unlimited times.

**PSY 775 Seminar in Psychological Therapies (3)** Repeatable unlimited times.

**PSY 776 Health Psychology: Behavioral and Biological Bases (3)** Psychological and biological bases of health psychology and behavioral medicine. Overview of cognitive, behavioral, and psychophysiological mechanisms; theories and methods of prevention in physical disease. Pre: 670 or consent.

**PSY 778 Internship in Clinical Psychology (1)** Pre: consent of instructor and department chair.

**PSY 779 Research in Clinical Psychology (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable 30 times. Pre: consent.

## COMMUNITY AND CULTURAL PSYCHOLOGY (X8X)

**PSY 280 Introduction to Community Psychology (3)** Examination of human functioning in social and ecological context. Topics include stress, health, intergroup relations, culture, ethnicity, social competence, and community empowerment. Pre: 100. **DS**

**PSY 385 Consumer Behavior (3)** Analysis of consumer behavior and motivation; principles of learning, personality, perception, and group influence, with emphasis upon mass communication effects. Pre: BUS 312 or consent. (Cross-listed as MKT 311) **DS**

**PSY 489 Applied Psychology: Advanced Topics (3)** Coverage in-depth of some areas of theory and research. Repeatable to six credit hours. Pre: 100. **DS**

**PSY 680 Cultural Community Psychology (3)** Graduate seminar on cultural considerations and issues in the history, methods, theories, interventions, and professional roles in community psychology. Small class size (up to 10). Open to graduate students.

**PSY 682 Practicum: Behavioral Change and Community (3)** Supervised experience in educational, mental health, correctional, consulting, or community action agencies. Pre: consent.

**PSY 781 Community Psychology Seminar (3)** Repeatable unlimited times.

**PSY 789 Community Psychology Research (3)** Supervised reading, discussion, research projects in areas of special interest. Repeatable unlimited times.

### RESEARCH (X9X)

**PSY 499 Directed Reading or Research (V)** Repeatable. Pre: 100 and consent of instructor and department chair.

**PSY 699 Directed Reading or Research (V)** Repeatable unlimited times. Pre: consent.

## Public Administration (PUBA)

### College of Social Sciences

**PUBA 399 Directed Reading and Research in Public Administration (V)** Independent research and reading on topics in public administration, public service, and community development. Repeatable one time. Pre: consent.

**PUBA 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**PUBA 600 Political and Economic System Processes (7)** Organized in a series of integrated, cross-disciplinary modules, the course addresses issues people in public service are likely to face. Modules include effective written and oral communication, group processes, political and economic perspectives on public institutions, the use of information resources relevant to public work, critical thinking, legislative process, and the issues of Hawaiian people. A-F only. (Fall only)

**PUBA 601 Policy and Organizational Processes (7)** Organized in a series of integrated modules, the course addresses issues people in public service are likely to face. Modules include frameworks for understanding and improving organizations, administrative law and issues of discretion, budget processes, research and analysis relevant to public work, public service ethics, and concern for future generations. A-F only. Pre: 600. (Spring only)

**PUBA 612 Applied Certificate Seminar (1)** Develop and coordinate learning experience for public administrators using skills and tools acquired in 600 and 601. Graduate certificate students only. Pre: 600 and 601.

**PUBA 620 Reforming Public Organizations (3)** Looks at the challenges and opportunities for changing public organizations so that they may be more successful in meeting their public responsibilities and better places for people to work. Focus is on the creation of positive images of organization and

effective change strategies. A-F only. (Cross-listed as CEE 620)

**PUBA 621 The Political Environment of Public Organizations (3)** Seminar on the role of public managers in shaping public opinion and public policy. Using evidence from theory and practice presents students with tools for understanding management roles within a political context. Pre: graduate standing or consent.

**PUBA 622 Strategies of Change: Leaders and Leadership (3)** Explores the key elements of leadership in public settings by examining what leaders actually do, looking at popular media portrayals of leadership, and talking together with guests about the challenges of leadership, effective followership, and positive change. A-F only.

**PUBA 623 Organizational Communication (3)** Communication theory/research applied to formal organizations; assessments of strengths and weaknesses of organizational communications systems.

**PUBA 624 Intercultural Challenges in the Public Sector (3)** Seminar on the dimensions of cultural variability and how they affect government operations from macro to micro levels, from international policy transfer to major intercultural task interaction processes such as negotiation, planning, and relationship management. Graduate standing only. A-F only.

**PUBA 630 Nonprofit Management (3)** Fundamental aspects of managing a nonprofit organization: overview of the nonprofit sector; mission and scope of nonprofit organizations; organizational structures and functions; resource and volunteer development; major management issues. A-F only Pre: graduate standing or consent.

**PUBA 635 Managing Major Aspects of the Nonprofit Sector (4)** (3 Lec, 1 Seminar) Core for nonprofit management track of the graduate certificate. Covers major aspects of managing nonprofit organizations; intended for those currently working in the nonprofit sector as well as those wishing to enter it. A-F only. (Fall only)

**PUBA 636 Nonprofit Management Practices and Tools (3)** Skills and tools needed by nonprofit managers. Topics may include grantwriting, strategic planning, business practices, program evaluation, and advocacy. A-F only. Pre: 630 or departmental approval.

**PUBA 640 International Perspectives on Public Administration (3)** Key dimensions of public administration systems on a global scale; historic and contemporary forces shaping national systems; the dimensions that distinguish them, the opportunities and constraints for comparison and the transfer of knowledge and experience. A-F only. Pre: graduate standing or departmental approval.

**PUBA 650 Public Budgeting (3)** Institutions and issues related to public-sector budgeting at federal, state, and local levels. Process of developing public budgets and constraints on public policy reflected in budgets. A-F only.

**PUBA 662 Applied Policy Analysis (3)** Explores significant contemporary policy issues relating to public administration practice. Develops analytic techniques and models of public policy-making processes, and looks at how social forces and political and economic pressures influence policy orientations.

**PUBA 663 Law, Economics, and Public Administration (3)** Uses economic thinking to explore U.S. law and the legal system with special application to public institutions. Topics include: underlying rationale of law; elements of property, contract, and tort law; evolution of administrative law, and economic efficiency of the common law system. Explores economic forces that help shape the law, the effects of legal rules on economic behavior, and the implied role of public institutions. A-F only.

**PUBA 665 Collaborative Public Management (3)** Theories, skills and tools needed to effectively manage networks in government and nonprofit organizations; explores how to administer, assess

performance, and evaluate success in these dynamic new partnerships. A-F only.

**PUBA 667 Special Topics (3)** Topics of current interest in the field of public service and public administration, taught by regular and visiting faculty. Repeatable for different topics up to six credit hours. A-F only. Pre: consent.

**PUBA 690 Practicum (3)** Placement in public, private, and nonprofit organizations to observe and analyze organizational functions and processes while undertaking projects of use to the host agency. Repeatable one time. Pre: 601.

**PUBA 691 Certificate Practicum (3)** Placement in public, private, and nonprofit organizations to observe and analyze organization functions and processes while undertaking projects of use to the host agency. PUBA graduate certificate students only. A-F only.

**PUBA 699 Directed Reading (V)** Repeatable unlimited times.

**PUBA 700 Thesis Research (V)** Repeatable unlimited times.

**PUBA 709 Capstone Planning Seminar (1)** Develops topics, methods, objectives, and resources to guide work of capstone seminar. Pre: 601.

**PUBA 710 Capstone Seminar (3)** Culminates public administration core courses by incorporating theoretical, analytical, and practicum observations into examination of public issues of importance to Hawai'i and the region. Pre: 709.

## Public Policy Center (PPC)

### College of Social Sciences

**PPC 301 Governing, Politics, and Public Policy (3)** Analysis of the major processes that translate citizen preferences into public policy. A-F only.

**PPC 330 Survey of Public Policy and Analysis (3)** Students will learn about the policy making process, the results of policy decisions and how public policy is assessed, analyzed, and responded to. Also discusses important policy issues that currently fill the political landscape. Junior standing or higher. A-F only.

**PPC 340 Energy Technologies for Addressing Climate Change, Economic, Policy and Security Issues (3)** Interdisciplinary course designed to describe the inter-relationships and dynamic interactions between energy systems, the environment (climate), policy, security, and economics. Repeatable one time. A-F only.

**PPC 495 Topics in Public Policy (3)** Seminar on current issues in U.S. or international government policy. Topics vary and may include energy, long-term care, sustainability, etc. Repeatable unlimited times. A-F only. Junior standing or higher.

**PPC 499 Directed Readings or Research (V)** Requires the sponsorship of a faculty member. Together they will agree on the study topic and the work to be accomplished. Depending on the scope of the project, credits range from 1-3. Needs instructor consent. Repeatable two times up to six credits. Senior standing or higher. A-F only.

**PPC 601 Public Policy Internship (2)** 160 hour internship in public policy. Open to certificate students who have completed the core courses. PPC certificate majors only. A-F only. Pre: POLS 670.

**PPC 602 Public Policy Seminar (2)** Final seminar for certificate in public policy. Open to certificate students who have completed the core courses and the internship. PPC certificate majors only. A-F only. Pre: 601 (or concurrent) and POLS 670.

**PPC 695 Topics in Public Policy (3)** Seminar on current issues in U.S. or international government policy. Topics vary and may include energy, long-term care, sustainability, etc. Repeatable unlimited times.

**PPC 699 Directed Readings or Research (V)** Requires the sponsorship of a faculty member. Together they will agree on the study topic and the work to be accomplished. Depending on the scope of

the project, credits may range from 1-3. Repeatable up to 9 credits. Instructor consent only. A-F only. Graduate standing only.

## Public Health Sciences (PH)

### School of Medicine

*The courses listed below are offered subject to student interest and faculty availability. Please consult the Registration Guide/UH Mānoa Registration homepage for confirmed offerings each semester. The minimum required grade for prerequisites for undergraduate-level courses is C- or better, unless otherwise specified. All courses 600-level and above require graduate standing; individuals who are not public health students require instructor consent to enroll in graduate-level courses. The minimum required grade for prerequisites for graduate-level courses is B- or better, unless otherwise specified.*

#### PH 201 Introduction to Public Health (3)

Introduces public health concepts with an emphasis on principles and tools for population health, disease prevention, health professions and healthcare systems, and public health professions and systems. A-F only.

**PH 202 Public Health Issues in Hawai'i (3)** Application of general public health concepts and tools with broader public health issues as they relate to the State of Hawai'i. A-F only. Pre: 201.

#### PH 203 Seminar in Global Public Health (3)

Introduction to the basic principles of global PH. Topics include the application of these principles to global PH issues, exploration of links between health, economic, and social status, health disparities and global interventions. A-F only. (Spring only)

#### PH 301 Seminar in Public Health Issues (3)

Seminar will explore current issues and case studies in epidemiology, issues and causes of chronic and infectious diseases, how the environment interacts with health, and how social and behavioral factors affect personal health.

#### PH 305 Native Hawaiian Health Determinants (3)

Seminar to work with faculty in applying evidence-based knowledge on social determinants of health in the formation of research, policy, and program development for improving population health and reducing health disparities for Native Hawaiians. Junior standing or higher. A-F only. Pre: 201 and 202. (Spring only)

#### PH 310 Introduction to Epidemiology (3)

Lecture/discussion on the fundamental principles of epidemiology, exploring patterns of disease, threats to health and EPI methods for prevention, control, and treatment. A-F only. (Spring only)

#### PH 340 Public Health and the Environment (3)

Examines a variety of issues associated with environmental effects on disease incidence, morbidity, and mortality in relation to public health prevention strategies. Sophomore standing and above.

#### PH 341 Public Health Biology and Pathophysiology (3)

Explores the biological basis of human disease and the role public health measures play in reducing both the extent and impact of chronic and acute diseases on individuals and society. A-F only. Junior standing or higher. Pre: completion of at least one class in the natural or biological sciences (with a minimum grade of B-) **DB**

**PH 410 Advanced Epidemiology (3)** Students will gain a deeper understanding of the core concepts used in epidemiologic research and practice. Upon completion, students will have the knowledge and skills necessary to conduct an epidemiologic study. Junior standing or higher. A-F only. Pre: 201 and 310, and one of the following: ECON 321 or EDEP 429 or NREM 310 or SOCS 225 or PSY 225.

#### PH 411 Nutrition and Disease Prevention (3)

Lecture/discussion. Examines a variety of issues associated with the effects of diet on disease incidence, morbidity, and mortality in relation to public health prevention strategies. Junior standing or higher. Pre: 310.

#### PH 420 Health Education and Health Promotion (3)

Focus on the application of social and behavioral theory in health education, and how health promotion programs are constructed for various populations with an emphasis on cultural diversity and social determinants of health. Sophomore standing or higher. A-F only. (Fall only)

#### PH 430 Health Policy and Management (3)

Examines the role that health policy and management plays in population-based public health practice, including the delivery, quality, and costs of health care and the structure, process, and outcomes of health services delivery. Sophomore standing or higher. A-F only. (Spring only)

#### PH 480 Application of Public Health Principles in Research and Practice (3)

Introduction to a diverse range of public health projects and associated methods while working to develop an applied learning project proposal. Junior standing or higher. A-F only. Pre: 201 and 310, and one of the following: 320 or 410 or 420 or 430.

#### PH 485 Public Health Applied Learning Experience (3)

Allows students to execute an independent, mentor-supervised, applied learning project as implementation of skills learned in previous public health coursework. Applied project is a required component of the public health undergraduate degree program. Pre: 480.

#### PH 489 Public Health Undergraduate Capstone Seminar (3)

Integration of public health knowledge, skills, and practice acquired during the public health undergraduate degree. Students will also reflect on, finalize, and present their applied learning experience projects. Senior standing and higher. A-F only. Pre: 480 and 485.

#### PH 492 (Alpha) Current Issues and Topics in Public Health (V)

Current and emerging issues and varying topics related to public health. (B) biostatistics; (E) epidemiology; (H) health policy and management; (S) social and behavioral health sciences; (T) public health. Repeatable up to six credits with different alphas. Open to nonmajors. Sophomore standing and above. A-F only. Pre: 201.

**PH 499 Directed Reading/Research (V)** Repeatable up to six credits. PH majors only. Junior standing or higher.

**PH 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**PH 600 Introduction to Public Health (2)** Focus will provide a broad introduction to the field of public health and orientation to overarching issues in the field. A-F only. (Fall only)

#### PH 602 Introduction to Health Services (3)

Overview of the historical, conceptual, ethical and political context for health care delivery. It explores current trends, practices and issues in the delivery of health care services. Repeatable one time.

#### PH 610 Public Health Biology (3)

Writing-intensive asynchronous computer-based course examines biological processes and challenges relevant to the public health professional. Topics include anatomical, pathophysiological, and molecular bases of public health; genetics, immunology, ethics; disease prevention, control, and management. (Once a year) (Cross-listed as CMB 610)

#### PH 623 Social Science and Public Health (3)

Individual and community health; implications for public health practice, individual and social change processes.

**PH 626 Health Economics (3)** Integrated concepts in health economics and its application towards health policy issues; market failures in health care; factors affecting U.S. health care spending potential impact on equity/efficiency stemming from changes in health care delivery. A-F only. (Once a year)

#### PH 628 Stress and Stress Management in Public Health (3)

Lecture/discussion on theoretical concepts of stress and stress management, management

issues, selected application areas, and prevention and treatment skills relevant to public health. Format includes readings, guest speakers, student paper, and practical exercises. A-F only. (Once a year)

#### PH 630 Cultural Competency in Health Care (3)

Presents both analytical and practical approaches to cultural competency domains, concepts, models, frameworks, patterns and communication that occur in cross-cultural healthcare situations. A-F only.

#### PH 635 Indigenous Health Seminar (2)

Examines public health through an Indigenous lens, integrates competencies across all public health disciplines, and will apply them in context of working for and with Indigenous communities to improve health and wellness. PH majors or consent. Graduate students only. A-F only. (Fall only)

#### PH 641 Introduction to Health Policy (3)

Lecture/discussion on historical and current public health policies; the role of stakeholders in health policy-making and advocacy; using health policy frameworks for conducting policy analysis. Group activities apply the concepts presented in class. A-F only. Pre: 602 or consent. (Once a year)

#### PH 646 Grant Writing in Public Health (1)

Lecture/discussion on grant writing with public health focus. Includes basic components of grant proposals, assessing appropriate funding opportunities, data sources/resources for justifying grants, and the funder's perspective. Student will prepare a brief foundation grant proposal. A-F only. (Once a year)

#### PH 647 Analytic Approaches to MCH (3)

Application of analytic methods to the identification of health problems in children and women of reproductive age. Evidence-based approach in MCH. Repeatable one time.

#### PH 648 Public Health Program Planning (2)

Combined lecture and seminar-style on the theory and practice of public health program planning. Open to non-majors. A-F only. Pre: consent.

**PH 649 Needs Assessment (3)** Knowledge and skills acquisition in conducting needs assessment in public health practice.

#### PH 650 Ecological Epidemiology (2)

Applications of population biology, pathogen/host life history, and population genetics to infectious disease epidemiology, including micro- and macroparasites, and implications to disease control and prevention of strategies. A-F only. Pre: consent. (Alt. years: spring) (Cross-listed as TRMD 650)

#### PH 651 Introduction to Human Population (3)

Comparative analysis of quantitative and qualitative aspects of population; factors affecting size, distribution, and composition; impact of population size and composition on society. (Cross-listed as GHPS 651 and SOC 651)

**PH 652 Interdisciplinary Seminar (1)** Topics such as contemporary issues in global health and population studies, international health programs, demographic methods, global economy and health, human right and humanitarian assistance, social justice, global environmental changes and health. Pre: consent. (Cross-listed as GHPS 652)

**PH 655 Biostatistics I (3)** Introduction to statistical methods for public health sciences. Probability, experimental design, t tests and analysis of variance, 2X2 contingency tables, linear regression, introduction to life tables.

**PH 656 Biostatistics II (3)** Poisson distribution, Fisher's exact test, contrasts in ANOVA, two way ANOVA, multiple linear regression and analysis of covariance, path analysis, logistic regression, method of maximum likelihood, likelihood ratio tests. Pre: 655, completion of one semester of calculus; or consent.

#### PH 658 Computer Applications in Public Health (3)

Applications of computers to problems common to public health. Emphasis on data analysis and processing using existing computer programs.

#### PH 659 Methods of Demographic Analysis (3)

Statistical evaluation and analysis of population

data; data sources; population growth; composition; standardization of rates; mortality and the life table; natality and fertility; distribution, migration, and urbanization; projections and stable population theory. (Cross-listed as GHPS 659 and SOC 659)

**PH 660 Current Topics in Community Health (2)** Critique of published articles in community health as they relate to public health. Skill building in community health development techniques. Emphasis on exchange of ideas and alternative approaches. Stresses group approaches to solve community health problems. A-F only.

**PH 663 Principles of Epidemiology I (3)** Introduction to epidemiologic principles and methods. Topics covered include: outbreak investigation, measures of morbidity and mortality, measurements of risk, biological variability, screening, measurements of error, sampling, statistical significance, study design, and association and causation.

**PH 664 Principles of Epidemiology II (3)** Lecture/discussion on: design and interpretation of experimental and observational studies; causation and casual inference; biases in study design; random error and statistics role in epidemiology; and epidemiological data analysis. Pre: 655 and 663, or consent.

**PH 665 Concepts in Immunology and Immunopathogenesis (2)** Immunological concepts relating to infectious diseases and host pathogen interactions. Repeatable one time. A-F only. Pre: MICR 461 (or equivalent) or consent. (Cross-listed as TRMD 604)

**PH 666 Seminar in Infectious Disease Control (3)** Strategies for controlling important infectious diseases in the Pacific area. Emphasis on epidemiology, ecology, and public health principles. Pre: 663 (or concurrent) and one semester in microbiology, or consent.

**PH 667 Infectious Disease Micro II (3)** Will cover different families of animal viruses of importance to human diseases. The genome, structure, replication, as well as host immune responses, epidemiology, clinical features, and animal models will be presented. Repeatable one time. A-F only. Pre: TRMD 604 and MICR 351, or consent. (Cross-listed as TRMD 605)

**PH 669 Epidemiological Study Design Critique (2)** Critique of study design using published public health literature. Emphasis on exchange of ideas, alternative approaches; stresses epidemiology as science of public health. Repeatable. A-F only. Pre: 663 or consent.

**PH 671 Community and Public Health Practice (2)** Community organization and development applicable to the delivery of health services. Understanding community dynamics, mobilizing community groups for effective health care practice and delivery. Pre: 647 or 737, or consent. (Cross-listed as SW 674)

**PH 672 Leading and Managing Health Programs (3)** Assess how to organize community partnerships to create and communicate a shared vision for a changing future; discuss solutions to organizational and community challenges; maximize motivation to reach public health goals. A-F only. Pre: 600 or consent.

**PH 673 Health Ethics, Law and Politics (3)** Review theories and case studies concerning health care ethics, law and politics. Topics include health care quality, key health care policymakers, and the intersecting issues of policy and law with medicine, public health and ethics. A-F only. (Once a year)

**PH 674 Advanced Native Hawaiian Health Determinants (3)** Applications of evidence-based knowledge about the social determinants of health in the formation of research, policy, and program development for improving population health and reducing health disparities for Native Hawaiians. A-F only.

**PH 675 Community Engaged Research and Practice (2)** Explores collaborative and engaged approaches with communities in public health research and practice. With a focus on Indigenous

Peoples' health, we delve into Indigenous knowledge and empowerment in evaluation, needs assessment, intervention, and health promotion. PH majors or consent. Graduate students only. Pre: 655 and 673. (Fall only)

**PH 677 Global Health Management (3)** Provides theories, knowledge and skills required to improve executive capacity in managing people and projects in an ethical and cultural context, and organizational capacity in performance, design, strategic planning, and change management. PH majors only. A-F only. (Cross-listed as GHPS 677)

**PH 680 Health Emergencies in Large Populations (3)** Health Emergencies in Large Populations is run by the Center for Excellence in Disaster Management and Humanitarian Assistance and the Red Cross. It provides knowledge, practical skills, and networking for global health practitioners. A-F only.

**PH 681 Environmental Determinants of Health (3)** Environmental factors in personal and community health; implications for public health practice. Consideration of major issues from local, U.S., and international perspectives.

**PH 683 Global Nutrition (2)** Examination of global food and nutrition problems, programs, issues, policies, and strategies for improvement. Pre: statistics and consent. (Alt. years: fall) (Cross-listed as FSHN 683)

**PH 684 Supplemental and Nutritional Approaches in Disease Prevention and Treatment (2)** Examines a variety of issues associated with nutritional and supplemental approaches to reduce disease incidence, morbidity, and mortality in relation to public health prevention strategies. PH majors only.

**PH 688 Indigenous Peoples' Food Systems, Environment and Health (3)** Explores Indigenous Peoples' food systems as local food resources Indigenous People acquire through specific cultural knowledge of traditional territories. Global forces transforming these food systems and their impact on population health and nutrition are explored. PH majors or consent. Graduate students only. (Fall only)

**PH 689 Nutritional Epidemiology (3)** Dietary, biochemical, anthropometric and clinical methods used for evaluating nutrition and diet in the etiology and epidemiology of disease. Pre: 663 and FSHN 685, or consent. (Cross-listed as FSHN 689)

**PH 690 Global Health Challenges (3)** Addresses critical, contemporary, and transnational issues best addressed by cooperative international action. Health issues are examined in the context of intersecting effects of limited resources, socioeconomic, politics, and environmental change. A-F only. (Once a year) (Cross-listed as GHPS 690)

**PH 691 Fundamentals of Environmental Epidemiology (2)** Examines the complex relationship between environmental contaminants and human health. Emphasis on environmental epidemiology study design, environmental exposure monitoring and risk assessment, disease and environmental exposure mapping, and spatial data analysis and modeling with GIS. A-F only. (Once a year)

**PH 692 Clinical Epidemiology (3)** Combined lecture-discussion on health measurement and use of epidemiologic principles to questions applicable at both individual and population levels on diagnosis, screening, prognosis, and the safety and efficacy of therapeutic and preventive interventions. Pre: 664 or consent. (Fall only)

**PH 696 Continuing Education in Public Health (1)** Seminar designed to provide practical, community-focused, continuing education for the practicing public health professional. The application of public health principles to address practical public health problems is stressed. Weekly discussions and reports will cover a variety of relevant public health topics. Repeatable unlimited times. A-F only.

**PH 699 Directed Reading/Research (V)** Repeatable unlimited times. Pre: consent.

**PH 700 Thesis Research (V)** Repeatable unlimited times. Pre: consent.

**PH 701 Health Communication (3)** Skills-oriented course introduces the basic structure of health communication strategies in different settings, selected elements of communication theory, the development of health communication material, and a practical training in motivational counseling skills. Pre: 623 or consent.

**PH 702 Health Promotion Research (3)** Focus on research methods commonly used in health promotion. Topics will include randomized trials, quasi-experimental design, sampling, measurement, and correlational studies. Labwork will focus on the use of SPSS to analyze data for applied research problems. A-F only. Pre: 623 and 655, or consent.

**PH 704 Community-Based Participatory Research (3)** Explores ways academic and lay communities collaborate on research, key theoretical perspectives in the development of CBPR, and the challenges in implementing CBPR approaches. Format includes lectures, discussions, readings, writing assignments, and a fieldwork project. DrPH majors only. A-F only.

**PH 728 Indigenous Applied Research Methods (3)** (2 hr Lec, 1 hr Computer Lab) Health disparities research methodologies and current topics in Indigenous health research. Special focus on statistical techniques for small data sets using quantitative and qualitative methods. PH majors only. A-F only. Pre: 655 and 663.

**PH 737 Policies/Programs in MCH Services (3)** Development and organization of health services for mothers and children—review and analysis of policies and events, legislation and programs; current issues. Pre: consent.

**PH 745 Maternal and Child Health and Disabilities I (V)** Designed to teach leadership development for health professionals in an interdisciplinary seminar format. Inquiry-based learning approaches are applied with a series of families and children with neurodevelopmental and related disabilities to explore clinical, cultural, policy, and program implications for services and supports for individuals with disabilities and family members. Program evaluation and research analysis are also conducted with relevance to best practice with the MCH or CSHN population.

**PH 746 Maternal and Child Health and Disabilities II (V)** Designed to apply leadership development for health professionals in an interdisciplinary seminar format. Inquiry-based learning approaches are applied with a series of families and children with neurodevelopmental and related disabilities to explore clinical, cultural, policy, and program implications for services and supports for individuals with disabilities and family members. Program evaluation and research analysis are also conducted with relevance to best practice with the MCH/CSHN population.

**PH 747 Statistical Methods in Epidemiological Research (3)** Multiple variable statistical methods currently used in chronic disease epidemiology. Logistic regression, conditional logistic regression, proportional hazards regression modelling, generalized estimating equation-based methods, delta method approximations, exact tests. Pre: 656, 663, completion of one semester of calculus; or consent.

**PH 748 Chronic Disease Epidemiology (3)** Will cover selected topics in chronic diseases with critical analysis of the current epidemiological literature. Methodologic issues, contemporary findings and recommendations for future research will be discussed. A-F only. Pre: 663 or consent.

**PH 749 Epidemiology of Diabetes and Obesity (2)** Provides an overview of the epidemiology of neurological and neurodegenerative diseases and their risk factors, and methodological considerations for the study of these diseases. A-F only. Pre: 663 or consent.

**PH 750 Health Behavior Change (3)** Provide an understanding of the relationship between health behaviors and outcomes including psychological, physiological, and quality of life aspects. It will also focus on the major theories of behavior and behavior change. Emphasis will be placed on understanding concepts, principles, explanations, and how these are translated into practical interventions for adoption and maintaining behavior change. A-F only. Pre: 623 or consent.

**PH 751 Social Epidemiology (3)** Examine the epidemiologic study of the social distribution and social determinants of states of health, including the identification of social-environmental exposures and their relation to physical and mental health outcomes. Repeatable one time. A-F only.

**PH 753 Survival Analysis (3)** Construction and interpretation of various types of life tables, treatment of censored data, proportional hazards, relative risk regression models, and parametric survival analysis. Pre: 655 or consent.

**PH 754 Neuroepidemiology (3)** Lecture/discussion providing an overview of the epidemiology of neurological and neurodegenerative diseases and their risk factors, and methodological considerations for the study of these diseases. Pre: 663 or consent. (Fall only)

**PH 755 Seminar in Tropical Medicine and Public Health (1)** Weekly discussion and reports on current advances in tropical medicine and public health. Repeatable unlimited times. (Cross-listed as TRMD 690)

**PH 756 Special Topics in Tropical Medicine (V)** Advanced instruction in frontiers of tropical medicine and public health. Repeatable unlimited times. (Cross-listed as TRMD 705)

**PH 765 Program Evaluation (3)** Presented are principles of and frameworks for program evaluation. Students develop logic models and evaluation plans for a community program, and collect and analyze evaluation data. A-F only. (Spring only)

**PH 770 (Alpha) Doctoral Seminar in Translational Research (2)** Required for students in the DrPH program. (B) domestic and global health disparities; (C) research methods in health disparities; (D) evidence-based programs in global health and health disparities; (E) topics in health disparities and policy. Repeatable up to 8 credits. Each alpha can only be taken one time. A-F only. Pre: 602 and 623 and 655 and 663 and 681, or departmental approval.

**PH 771 Teaching Practicum (V)** Provide doctoral students with theoretical and practical teaching and course development experiences under the guidance of a faculty mentor. Students will have a portfolio documenting their accomplishments. Graduate standing in PH only. A-F only. Pre: 602 and 623 and 655 and 663 and 681 and 770(Alpha), or departmental approval.

**PH 772 Research Practicum (V)** Hands-on research experience with a faculty mentor. Meet in small groups to discuss issues related to research in public health. Final project will be submission of a publishable quality paper. Graduate standing in PH only. A-F only. Pre: 602 and 623 and 655 and 663 and 681 and 770(Alpha), or departmental approval.

**PH 773 Leading Health Organizations (3)** Reviews theories, knowledge, and practical skills that improve capacity to provide effective leadership in health organizations, organize community partnerships, communicate a shared vision, manage quality and address organizational challenges to reach public health goals. DrPH majors only. Graduate standing only. A-F only. Pre: 602 and 623 and 655 and 663 and 681. (Alt. years)

**PH 774 Managing Health Organizations (3)** Reviews theories, knowledge, and skills that build managerial capacity. Explores health executive roles in planning, organizing, implementing, and evaluating along with organizational design, strategic planning, change processes, quality improvement, and minimizing risk. DrPH majors only. Graduate

standing only. A-F only. Pre: 602 and 623 and 655 and 663 and 681. (Alt. years)

**PH 781 Environmental Health Lab Methods (2)** Hands-on training for laboratory methods used in monitoring and detecting environmental health risk factors; learning and application of immunological-, animal cell culture- and molecular biology-based techniques for studying environmental pathogens and toxic pollutants. A-F only. (Once a year)

**PH 788 Seminar in Public Health Sciences (V)** Topics related to recent developments in major areas; student and faculty research activities. Sections: (1) biostatistics; (2) environmental health; (3) epidemiology; (4) public health nutrition. Repeatable unlimited times.

**PH 789 Integrative Seminar (2)** Integrative seminar in public health required as part of the student capstone experience to bring together key aspects of their courses, competencies, and practicum. A-F only. Pre: completed PH field practicum and consent.

**PH 791 Advanced Public Health Practice (3)** Observation, study, and supervised practical work in student's area of specialization. Pre: public health degree candidate and consent.

**PH 792 (Alpha) Current Issues and Topics in Public Health (V)** Current and emerging issues and topics related to public health. (B) biostatistics; (D) environmental health; (E) epidemiology; (H) health policy and management; (I) Native Hawaiian and Indigenous Health; (S) social and behavioral health sciences; (U) public health. Repeatable unlimited times. PH majors only for (D) and (I).

**PH 793 Special Practicum/Project (V)** Supervised practical training beyond the required practicum in an area of particular interest. Provides additional opportunity to synthesize, integrate, and apply practical skills and knowledge in a public health work environment. Repeatable one time. Pre: 791 and a minimum of 6 credit hours of PH core courses, or consent.

**PH 794 (Alpha) Exploration in Public Health (V)** Investigation of emergent fields of inquiry in public health. (B) biostatistics; (D) environmental health; (E) epidemiology; (H) health policy and management; (I) Native Hawaiian and Indigenous Health; (S) social and behavioral health sciences; (U) public health. Repeatable unlimited times. PH majors only.

**PH 800 Dissertation Research (V)** Pre: consent.

## Real Estate (RE)

*Shidler College of Business*

**RE 300 Principles of Real Estate (3)** Principles affecting the allocation and utilization of real estate resources, including legal, physical, economic elements; valuation; market analysis; finance; investments, and public and private externalities affecting the allocation and utilization of real estate resources.

**RE 310 Real Estate and Environmental Law (3)** Property rights, land tenure, agency, contracts and negotiation theory, title conveyancing and escrow, mortgage instruments, fair housing, state and federal environmental policy.

**RE 320 Real Estate Finance and Investment (3)** Financial and investment techniques used to evaluate real property and real estate security investments.

**RE 330 Real Estate Appraisal/Analysis (3)** Analysis of real property, including feasibility analysis, market analysis, income property capitalization, and general real estate valuation techniques.

**RE 351 Tourism Destination Development (3)** Examination of the interrelationships of social, economic, and physical aspects of total resort development, with emphasis on physical development of tourist centers and resort areas. Pre: TIM 101.

**RE 390 Current Topics in Real Estate Analysis (3)** Consideration of various special concepts and problems in real estate. Repeatable unlimited times.

**RE 399 Directed Reading and Research (V)** Reading and research in a special area within the major field under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty advisor. Repeatable unlimited times.

**RE 674 Real Estate Investment Analysis (3)** Development of strategic business plans for the optimization of a firm's real property assets. Includes facilities utilization audits, contingency planning, and the impact of new techniques.

## Religion (REL)

*College of Arts and Humanities*

**REL 150 Introduction to the World's Major Religions (3)** Buddhism, Christianity, Confucianism, Hinduism, Islam, Judaism, Shinto, Taoism and indigenous traditions of Hawai'i and/or Oceania. FGC

**REL 151 Religion and the Meaning of Existence (3)** Basic ideas and issues in contemporary religious thought about the meaning of existence. DH

**REL 200 Understanding the Old Testament (Hebrew Bible) (3)** Examines the Old Testament (Hebrew Bible) as an expression of the religious life, history, and thought of ancient Israel and as a sacred text within later Judaism and Christianity. DH

**REL 201 Understanding the New Testament (3)** Origin and development of early Christian message as set forth in the New Testament; special attention to Jesus and Paul. DH

**REL 202 Understanding Indian Religions (3)** Historical survey of the teachings and practices of major religious traditions of India. DH

**REL 203 Understanding Chinese Religions (3)** Taoist, Confucian, Buddhist and folk beliefs and practices in their social and historical context. Repeatable one time. DH

**REL 204 Understanding Japanese Religions (3)** Broad survey, with primary focus on Shinto, Buddhist, and modern sectarian movements, analyzed in relation to social and cultural themes of major historical periods. DH

**REL 205 Understanding Hawaiian Religion (3)** Major teachings and practices from ancient times to present, their cultural influence; analysis of religious texts; relation to other traditions of Oceania and to Christianity. DH

**REL 207 Understanding Buddhism (3)** Survey of major forms and practices. DH

**REL 208 Understanding Judaism (3)** Survey from origin to modern times; emphasis on Jewish thought in Talmudic and medieval periods. DH

**REL 209 Understanding Islam (3)** Historical survey of the beliefs and practices of Islam as a world religion, including the prophet Muhammad, scriptures, philosophy and science, theology, law, major sectarian movements, relations with other religious traditions, and fundamentalism. (Alt. years) DH

**REL 210 Understanding Christianity (3)** History of ideas concentrating on events, persons, and issues with the greatest impact on the evolution of Christianity. DH

**REL 300 The Study of Religion (3)** Definitions and functions of religion; methodologies by which it is studied; relationship to other areas of human culture. Pre: 150 or consent. DH

**REL 301 Biblical Hebrew I (3)** Orthography and structure of Biblical Hebrew, history and development of Hebrew as the sacred language of Judaism, overview of religious and historical development of the Hebrew Bible. Pre: sophomore standing or consent. (Fall only) (Cross-listed as LLEA 301)

**REL 302 Biblical Hebrew II (3)** Reading of selected prose passages from the Hebrew Bible; analysis of literacy forms, paying special attention to stories which have played an important role in the

development of the Abrahamic religions. Minimum C- grade required for prerequisites. Pre: 301/LLEA 301. (Spring only) (Cross-listed as LLEA 302)

**REL 303 Creation and Evolution (3)** An exploration of interactions between science and religion with a focus on cosmogonies. Pre: 150 or consent. **DH**

**REL 308 Zen (Ch'an) Buddhist Masters (3)** Study of lives, teachings, practices of Zen masters in China, Japan, Korea, and the West. Pre: one of 150, 203, 204, 207; or consent. **DH**

**REL 310 Global Christianity (3)** Christianity as a transcultural religion, through the study of Christian art, literature, ritual, and theology in diverse cultures; including the Near East, Africa, Latin America, and the Pacific. Pre: 150, 201, or 210; or consent. (Once a year) **DH**

**REL 333 Cults and New Religions (3)** Study of cults and new religious movements in America, the Pacific, and East Asia; examining types, causes, and functions of these movements. Pre: 150 or consent. **DH**

**REL 348 Religion, Politics, and Society (3)** Exploration of the diverse approaches and perspectives that American religious groups embrace with respect to some of the more controversial and diverse elements of contemporary American life. Pre: 150 or 151, or consent. **DH**

**REL 351 Christian Ethics in Modern Life (3)** The meaning of Christian faith for the moral life with reference to contemporary moral issues. Pre: 150 or 151, or consent. **DH**

**REL 352 Sufism: Mystical Traditions of Islam (3)** Introduction to the history, literature, and worldview of Sufism. Students will encounter the following topics in relation to Islamic mysticism: asceticism, monotheism, philosophy, love, union, sainthood, ecstatic experience, and spiritual uses of art. Pre: 209 or 383 or PHIL 330 or HIST 354, or consent. (Once a year) **DH**

**REL 353 Witches and Witchcraft (3)** Persecution of witches, witchcraft in Europe, 1300–1700, examined as crisis of church and theology; origins, effects on church and society. Pre: one of 201, HIST 151, HIST 152, PSY 100, or consent. **DH**

**REL 354 Islam in History (3)** Examination of the historical connections between Islam and other civilizations will focus on the role of Islam in world history. Pre: 150 or 209 or consent. **DH**

**REL 356 Women and Religion (3)** Examining roles of, and attitudes toward, women in major religious traditions through autobiographies, films, and primary texts. Pre: 150 or ANTH 152 or WS 151. (Cross-listed as WS 356) **DH**

**REL 361 Love, Sex, and Religion (3)** Love and sex as themes in religions of Asia and the West. Pre: 150 or consent. **DH**

**REL 363 Religion and Art (3)** The uses of art in religion are studied with historical examples. Pre: 150 or consent. **DH**

**REL 371 Prophecies of the Last Days (3)** In-depth look at ancient Judeo-Christian apocalyptic texts and the communities in which they originated, followed by a survey of the medieval and modern day heirs of apocalyptic traditions. Pre: 150 or consent. **DH**

**REL 383 Mysticism East and West (3)** Mystic traditions of the West from desert monasticism to Renaissance mystics compared with those of South and East Asia. Pre: one of 150, 202, 203, 204; or consent. **DH**

**REL 390 Hawaiian Gods: Pele, Kamapua'a (3)** The traditions and practices related to two major indigenous gods will be studied by the interpretation and analysis of primary texts. Pre: 205 or consent. **DH**

**REL 394 On Death and Dying (3)** Aspects of death and dying; relation to our culture and society, to understanding of each other and of ourselves. Pre: 150 or 151 or consent. **DH**

**REL 399 Directed Reading (3)** Pre: one 200-level REL course and consent.

**REL 409 Life and Teachings of Jesus (3)** Critical study of synoptic gospels and of extra-Biblical sources. Pre: 201 or 210, or consent. **DH**

**REL 422 Anthropology of Religion (3)** Cults, legends, millennial movements, myths, possession, rituals, sacred healing, shamanism, sorcery, spirits, symbolism, witchcraft, and other forms of religious and symbolic expression and experience, from small scale to highly urban societies. Pre: ANTH 152. (Cross-listed as ANTH 422) **DH**

**REL 431 Health/Medicine in Religion (3)** Issues of health and disease in the light of religious beliefs and practices. Pre: 150 or consent. **DH**

**REL 443 Anthropology of Buddhism (3)** Selected aspects of national, regional and local manifestations of Buddhism are explored through the perspective of anthropology with an emphasis on the daily lives of monks, nuns and lay persons in their socio-cultural contexts. Pre: 207, 422, 475, or consent. (Alt. years) (Cross-listed as ANTH 443)

**REL 444 Spiritual Ecology (3)** Lectures and seminars provide a cross-cultural survey of the relationships between religions, environment and environmentalism. Pre: junior standing or consent. (Alt. years) (Cross-listed as ANTH 444) **DS**

**REL 445 Sacred Places (3)** Lectures and seminars provide a cross-cultural survey of sites which societies recognize as sacred and their cultural, ecological and conservation aspects. Pre: junior standing or consent. (Alt. years) (Cross-listed as ANTH 445) **DS**

**REL 452 Sociology of Religion (3)** Seminar on research in sociological aspects of religious sectarianism, historical and current; special reference to Hawai'i. Pre: SOC 300 or consent. (Cross-listed as SOC 455) **DS**

**REL 475 Seminar on Buddhism (3)** Selected historical, thematic, and textual research topics in Buddhism; topics and geographical focus to be announced each semester. Pre: one of 202, 203, 204, 207, 308; or consent. **DH**

**REL 476 Daoism: Philosophy and Religion (3)** Seminar on religious Taoism, its historical development and its role in the present-day context. Pre: consent. **DH**

**REL 478 New World Rituals and Ideologies (3)** Study of cross-cultural patterns in ritual behaviors and creolization of African, indigenous, and Iberian ideological frameworks in the Americas. Topics may include syncretic religions (voodoo, candomble), Andean Christianity, spiritual conquest, conceptions of death, etc. Sophomore standing or higher. Minimum C- required grade for prerequisites. Pre: LAIS 360, or consent. (Fall only) (Cross-listed as ANTH 478 and LAIS 478) **DH**

**REL 480 Field Methods in Religion (3)** Introduction to theoretical and methodological approaches to doing fieldwork in the study of religion. Application of these in studying Hawai'i's diverse religious environment. Pre: 300 or consent.

**REL 490 Buddhism in Japan (3)** Major features and trends in thought, institutions, and practices in the context of Japanese history and culture, 6th–20th century. Pre: 204 or 207, or consent. **DH**

**REL 492 Polynesian Religions (3)** Introduction to field, comparison of several traditions; beliefs and practices from analysis of texts. Historical interactions with Christianity. Pre: 150, 205; or consent. **DH**

**REL 495 Seminar in Religion (3)** Topics pre-announced each semester. Pre: upper division standing or consent. Repeatable one time. **DH**

**REL 499 Directed Reading or Research (V)** Repeatable up to six credits. Pre: consent of instructor and department chair.

*In addition to those specified for individual courses, prerequisites for all courses 500 and above are graduate standing and consent.*

**REL 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B candidate with consent.

**REL 600 History and Theory of the Study of Religion (3)** Survey of development of history of religions; application of methodologies from anthropology, history, philosophy, political science, psychology, and sociology.

**REL 625 Applied Methods in the Study of Religion (3)** Practicum in methods of research, argument, and discourse in scholarly writing about selected topics in religious studies. Repeatable one time. A-F only. Pre: 600 and restricted to graduate students in Religion only; or consent.

**REL 630 Practicum in Field Research in Religion (3)** Independent field study of an Asian or Polynesian religion at an appropriate academic or religious institution abroad or in Hawai'i. Repeatable one time. Pre: 600, 6 credits of area studies, and consent of graduate chair and instructor.

**REL 650 Seminar on Western Religions (3)** Historical, theoretical and methodological issues in the study of Western religious traditions. Repeatable two times. A-F only. Pre: 600 or consent.

**REL 661 (Alpha) Seminar on East Asian Religions (3)** Selected historical, thematic, and textual research topics in East Asian religions and traditions: (B) Chinese religions; (C) Japanese religions; (D) East Asian Buddhism. Repeatable up to six credits for (D), up to nine credits for (B) and (C). Pre: 661B or 661C for (D).

**REL 662 (Alpha) Seminar on South Asian Religions (3)** Selected historical, thematic, and textual research topics in Indian religious traditions: (B) Indian religions; (D) Indian Buddhism. Repeatable up to nine credits.

**REL 663 (Alpha) Seminar in Polynesian Religions (3)** Selected historical, thematic, and textual research topics in Polynesian and Hawaiian religious traditions: (B) Polynesian religions; (C) Hawaiian religion. Repeatable up to nine credits for (B) and (C).

**REL 664 Seminar in Global Christianities (3)** Examines topics in global Christianities, the conjunctures leading to Christianity as a worldwide religion, instantiations of Christianities throughout the centuries, and the trans-historical, theological, and socio-political connections existing between adherents and communities. Repeatable two times. Graduate standing only. A-F only. Pre: 600 (with a minimum grade of B) or consent.

**REL 680 (Alpha) Pedagogy in Religion (3)** Theory, preparation, and practice in the teaching of religious studies at the community college level: (B) teaching religion; (C) teaching religion practicum. Pre: 650 for (B); 600, 650 and (B) for (C).

**REL 688 Plan B Research (3)** Research for master's degree Plan B. Restricted to students in the Religion Masters Program in Plan B. Enrollment must be approved by student's project committee. A-F only. Pre: consent of committee.

**REL 695 Topics in Religious Studies (3)** Topics in the study of religion with special emphasis on theoretical approaches and concerns. Specific topics to be preannounced. Repeatable one time. Pre: 600 or consent. (Alt. years)

**REL 699 Directed Reading and Research (V)** Repeatable unlimited times.

**REL 700 Thesis Research (V)** Repeatable unlimited times. Pre: consent of thesis chair.

## Reproductive Biology (REPR)

*School of Medicine*

*The minimum grade required for undergraduate prerequisites is a D or better, and graduate prerequisites is a C (not C-) or better.*

**REPR 499 Directed Reading/Research (V)** Repeatable unlimited times.

**REPR 611 Seminar in Biomedical Sciences (1)** Presentation and discussion of current research topics

in biomedical sciences. Repeatable nine times. Pre: consent. (Cross-listed as CMB 611)

**REPR 633 Issues in Sex and Reproduction (V)** Explores issues in sex and reproduction. Topics include defining male and female, nature/nurture influences on different sexual characteristics, controversies in reproduction and ethics associated with matters like pornography and age of consent. Repeatable unlimited times. CR/NC only. Pre: PHYL 604 or consent.

**REPR 699 Directed Research (V)** Repeatable unlimited times.

**REPR 700 Thesis Research (V)** Repeatable unlimited times. Pre: admission to candidacy (master's program).

**REPR 705 Special Topics in Reproductive Biology (V)** In-depth discussion of selected areas of reproductive biology, with special emphasis on recent research results and methodologies. May be retaken for credit. Pre: consent.

**REPR 800 Dissertation Research (V)** Repeatable unlimited times. Pre: admission to candidacy (PhD program).

## Russian (RUS)

*College of Languages, Linguistics and Literature*

*All courses are conducted in Russian. A grade of C- or better in the prerequisite courses is required for continuation.*

**RUS 101 Elementary Russian (3)** Conversation, reading, writing, grammar. **HSL**

**RUS 102 Elementary Russian (3)** Continuation of 101. Pre: 101 or consent. **HSL**

**RUS 201 Intermediate Russian (3)** Reading, conversation, grammar, composition. Pre: 102 or consent. **HSL**

**RUS 202 Intermediate Russian (4)** Continuation of 201. Pre: 201 or consent. **HSL**

**RUS 209 Russian Phonetics (3)** Basic theory of Russian sound system; practice in pronunciation, intonation, and fluency. Pre: 102 or 201 (or concurrent).

**RUS 260 Intensive Intermediate Russian Abroad (V)** Intensive course of formal instruction on the second-year level in Russian language and culture in Russia. Pre: 102. **HSL**

**RUS 303 Advanced Russian (3)** Systematic practice for control of spoken and written Russian, vocabulary building, fluency in various subjects, accuracy in sentence structure, phrasing stylistic appropriateness. Pre: 202.

**RUS 304 Advanced Russian (3)** Continuation of 303.

**RUS 306 Russian Structure (3)** Advanced grammar; complexities of standard contemporary Russian; word formation and verb system. Pre: 202 or consent.

**RUS 311 Readings in Russian Civilization and Literature (3)** Mid-level readings in Russian civilization and literature of edited and adapted texts. Pre: 202. **DL**

**RUS 312 Readings in Russian Civilization and Literature (3)** Continuation of 311. Pre: 311. **DL**

**RUS 360 Intensive Third-Level Russian Abroad (V)** Intensive course of formal instruction on the third-year level in Russian language and culture in Russia. Pre: 202 or 260.

**RUS 399 Directed Reading (V)** Independent study of approved reading with faculty supervision. Repeatable two times or up to six credits. A-F only. Pre: 202 and consent and departmental approval.

**RUS 403 Advanced Conversation and Composition (3)** Systematic practice on selected topics; vocabulary building and development of fluency; writing short reports, narratives. Pre: 304 or consent.

**RUS 404 Advanced Conversation and Composition (3)** Continuation of 403. Pre: 403.

**RUS 418 Advanced Reading and Translation: Modern Prose (3)** Readings in various fields, emphasizing idiomatic usage. Pre: 312 or consent.

**RUS 419 Advanced Reading of Russian Press (3)** Materials from Soviet/Russian newspapers and magazines. Pre: 311 or consent.

**RUS 431 Russian Folklore (3)** Selected Russian folk narratives, bylinas, songs, and proverbs. Influence of folklore on major Russian authors. Pre: 312 or consent. **DL**

**RUS 441 Russian Short Story (3)** Origin and development (19th and 20th century); the major writers. Pre: three years of Russian or consent. **DL**

**RUS 442 Russian Novel (3)** Origin and development from 18th century to present. Pre: three years of Russian language or consent. **DL**

**RUS 451 Topics in 19th- and 20th-Century Russian Literature (3)** Focus upon the selected writings of one major Russian writer of the 19th century (e.g., Pushkin, Gogol, Lermontov, Dostoevsky, or Tolstoy) or 20th century (e.g., Bely, Blok, Bulgakov, Chekhov, Pasternak, Sholokhov, or Solzhenitsyn). Repeatable unlimited times with consent. Pre: 312, LLEA 351; or consent. **DL**

**RUS 452 Topics in 19th- and 20th-Century Russian Literature (3)** Continuation of 451. Pre: 312, LLEA 352, or consent. **DL**

**RUS 460 Intensive Fourth-Level Russian Abroad (V)** Intensive advanced courses of formal instruction on the fourth-year level in Russian language and culture in Russia. Pre: 360 or equivalent.

**RUS 495 Seminar (3)** Literary or linguistic topics, movements, genres, or their representatives. Repeatable unlimited times with consent. Pre: consent of chair.

**RUS 499 Directed Reading/Research (V)** Independent study of approved reading with faculty supervision. Repeatable up to six credits. A-F only. Pre: 303 (or equivalent), consent or departmental approval.

## Samoan (SAM)

*College of Languages, Linguistics and Literature*

**SAM 101 Elementary Samoan (4)** Listening, speaking, reading, writing skills. Structural points introduced inductively. History and culture. Meets four hours weekly. **HSL**

**SAM 102 Elementary Samoan (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**SAM 201 Intermediate Samoan (4)** Continuation of 102. Meets four hours weekly, three of four hours devoted to drill and practice. Pre: 102. **HSL**

**SAM 202 Intermediate Samoan (4)** Continuation of 201. Pre: 201 or consent. **HSL**

**SAM 227 Overview of Samoan Literature in English (3)** Survey of major writers of Samoan literature in English; lectures, discussions, short paper. **DL**

**SAM 301 Third-Level Samoan: Traditional Culture (3)** Continuation of 202. Advanced reading and composition with development of language structure integrated in a variety of communicative and creative activities based on selected traditional cultural topics. Meets three times weekly; additional lab work. Pre: 202 or consent.

**SAM 302 Third-Level Samoan: Contemporary Culture (3)** Continuation of 202. Advanced reading and composition with development of language structure integrated in a variety of communicative and creative activities based on selected contemporary cultural topics. Pre: 202 or consent.

**SAM 321 Samoan Conversation: Traditional Contexts (3)** Systematic practice on various topics for control of spoken Samoan in traditional contexts. Pre: 202 or equivalent; or consent.

**SAM 322 Samoan Conversation: Contemporary Contexts (3)** Systematic practice on various topics for control of spoken Samoan in modern contexts. Pre: 202 or equivalent; or consent.

**SAM 421 Samoan Ceremonial Speech (3)** Development of oratory skills in Samoan ceremonial speech. Emphasis on institutionalized applications such as the kava ceremony and formal speechmaking. Pre: 302 or 322, or consent.

**SAM 422 Samoan Ceremonial Speech (3)** Continuation of 421. Pre: 421 or consent.

**SAM 431 Samoan Oral Traditions (3)** Historical survey and analysis of the oral traditions and genealogies of Samoa with special emphasis on the relationship of these traditions with Samoan ceremonial speech. Pre: 302. **DL**

**SAM 432 Samoan Oral Traditions II (3)** Continuation of 431. Pre: 431 or consent. **DL**

**SAM 452 Structure of Samoan (3)** Study of modern Samoan grammar including some sociolinguistic background. Pre: 202 or LING 102, or consent.

**SAM 461 Traditional Samoan Literature (3)** A survey of the major genres of traditional Samoan literature. Taught in the Samoan language. Pre: 302 or consent. **DL**

## Sanskrit (SNSK)

*College of Languages, Linguistics and Literature*

**SNSK 181 Introduction to Sanskrit (4)** Introduction to basic Sanskrit grammar; reading and analysis of progressively difficult classical texts. **HSL**

**SNSK 182 Introduction to Sanskrit (4)** Continuation of 181. **HSL**

**SNSK 281 Intermediate Sanskrit (4)** Continuation of 182. Reading and analysis of classical texts with review of grammar. Pre: 182. **HSL**

**SNSK 282 Intermediate Sanskrit (4)** Continuation of 281. **HSL**

**SNSK 381 Third-Level Sanskrit (3)** Continuation of 282. Reading and analysis of various classical texts. Pre: 282.

**SNSK 382 Third-Level Sanskrit (3)** Continuation of 381. Introduction to Veda.

**SNSK 481 Fourth-Level Sanskrit (3)** Continuation of 382. Reading, analysis, and interpretation of various Vedic or Sanskrit texts selected according to students' interests. Pre: 382.

**SNSK 482 Fourth-Level Sanskrit (3)** Continuation of 481.

## Second Language Studies (SLS)

*College of Languages, Linguistics and Literature*

*Courses below 380 are not applicable toward the MA in Second Language Studies.*

*The minimum grade required for undergraduate prerequisites is C (not C-), and the minimum for graduate prerequisites is B (not B-).*

**SLS 150 Learning Languages and Communicative in a Globalized World (3)** Lecture/discussion on strategies for enhancing second language learning in the context of a pluricultural-multilingual globalized world; addresses personal identity as influenced by languages; studies language-related employment, international mobility, and cross-cultural relationships. **DS**

**SLS 280 Bilingualism: Cognition and Culture (3)** Introduction to bi-/multilingualism as a phenomenon at the level of society and as a characteristic of individual speakers; discussion of recent media reports and popular myths about bilingualism in relation to research-based evidence. **DS**

**SLS 302 Second Language Learning (3)** Theoretical foundations for the learning and teaching of second/foreign languages. Includes an emphasis on instruction in writing. Pre: upper division standing.

**SLS 303 Second Language Teaching (3)** Survey of methodology; basic concepts and practices. Pre: 302 (or concurrent).

**SLS 312 Techniques in Second Language Teaching: Reading and Writing (3)** Methods and materials. Issues in teaching; survey of available

materials and practice in their adaptation. Pre: 302 (or concurrent).

**SLS 313 Techniques in Second Language Teaching: Listening and Speaking (3)** Methods and materials. Issues in teaching; survey of available materials and practice in their adaptation. Includes an emphasis on instruction and feedback in oral communication. Pre: 302 (or concurrent).

**SLS 380 Bilingual Education (3)** Survey and analysis of current thinking and practices in bilingual/bicultural education; special emphasis on ESL/EFL. Includes an emphasis on instruction in writing. Pre: 302 (or concurrent) or 600 (or concurrent); or consent. **DS**

**SLS 418 Instructional Media (3)** Theoretical foundation and practical applications of using electronic and audiovisual media in second language teaching. Pre: 303 (with minimum grade of C), or 600 (with minimum grade of B or concurrent); or consent.

**SLS 430 Pidgin and Creole English in Hawai'i (3)** Major historical descriptive, pedagogical aspects; pidgin and creole languages, linguistic change, language variation. Work with actual language data. Laboratory work required. Pre: 302 (or concurrent), or LING 102, or 600 (or concurrent); or consent. **DS**

**SLS 441 Language Concepts for Second Language Learning and Teaching (3)** Language analysis—phonology, syntax, semantics, discourse for teaching second languages. Pre: one of 302 (or concurrent), LING 102, LING 320, or 600 (or concurrent); or consent.

**SLS 460 English Phonology (3)** Basic course in English phonetics and phonology; emphasis on areas of interest to language teachers. Pre: 302 (or concurrent). **DH**

**SLS 480 (Alpha) Topics in Second Language Studies (3)** Variable topics in special areas of second language studies: (E) second language learning; (N) second language analysis; (P) second language pedagogy; (R) second language research; (U) second language use. Repeatable two times in different topics. Pre: 302 (or concurrent) for (E), (N), (R), (U); 303 (or concurrent) for (P). Not applicable toward graduate degrees offered within SLS except by departmental consent.

**SLS 485 Professionalism in SLS (3)** Capstone for SLS majors. Reflection on experiences via the major, articulation of professional values, exploration of diverse approaches to professionalism in SLS, and formal compilation of a professional portfolio. SLS majors only. Senior standing or higher. A-F only. Pre: 302 and 303.

**SLS 490 Second Language Testing (3)** Measurement and evaluation of achievement and proficiency in second language learning. Pre: 302 (or concurrent), 441, LING 102, or 600 (or concurrent).

**SLS 499 Directed Reading/Research (V)** For interdisciplinary studies majors. Pre: a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in major, or consent of department chair.

**SLS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**SLS 600 Introduction to Second Language Studies (3)** Introduction to basic professional and research issues in second language studies; integration of theory, research, and practice for prospective second or foreign language teachers and researchers. Pre: graduate standing or consent.

**SLS 610 Introduction to Teaching Second Languages (3)** Survey and analysis of second language teaching traditions and perspectives. Pre: graduate standing or consent.

**SLS 612 Alternative Approaches to Second Language Teaching (3)** Examination, comparison with conventional approaches; interpersonal relationships in language teaching. Pre: consent.

**SLS 613 Second Language Listening and Speaking (3)** Key issues; overview and critique of pub-

lished materials; practice in developing syllabi and other materials. Pre: consent.

**SLS 614 Second Language Writing (3)** Problems in teaching second language composition. Survey materials; use, modification, and development. Error analysis. Pre: consent.

**SLS 618 Language and Learning Technologies (3)** A wide range of emerging technologies for language learning and research will be explored. Online/face-to-face discussions and hands-on experiential learning are integrated with learner's goals, best practices, and theoretical foundations. Pre: consent. (Once a year)

**SLS 620 Second Language Reading (3)** Survey of research in reading process; teaching methodology; psycholinguistic investigations; comparison of reading in first and second languages. Pre: consent.

**SLS 630 Second Language Program Development (3)** Designing, implementing, and evaluating language programs; systems-based approach to program and curriculum development. Pre: consent.

**SLS 640 English Grammar (3)** Descriptive English grammar in relation to second language learning and teaching.

**SLS 642 Comparative Grammar and Second Language Acquisition (3)** Comparative study of structures of two or more languages; native speaking informants used. Consideration of language transfer in second language learning, role of typological features. Pre: 441, 460, or ENG 403.

**SLS 650 Second Language Acquisition (3)** Survey of theories and research on second language learning by children and adults, learning naturalistically and in formal settings. Relationships are explored between SLA research and language teaching. Pre: 441 or consent.

**SLS 660 Sociolinguistics and Second Languages (3)** Theoretical and applied aspects of language, culture, and society, and research methods in sociolinguistics, as they relate to second and foreign language issues. Pre: consent.

**SLS 670 Second Language Quantitative Research (3)** Quantitative research methods; design of research studies; techniques in collecting data; statistical inference; and analysis and interpretation of data. Pre: 490 and graduate standing; or consent.

**SLS 671 Research in Language Testing (3)** Advanced issues in language testing research including recent developments in the following areas: language testing hypotheses, item analysis, reliability, dependability, and validity. Pre: 490 or consent.

**SLS 672 Second Language Classroom Research (3)** Survey of research on second language classrooms and analysis of methodological issues. Pre: consent.

**SLS 673 Applied Psycholinguistics and Second Language Acquisition (3)** Theory and research in psycholinguistics as related to second language perception, production, acquisition, and instruction. Pre: 441 or LING 422, or consent.

**SLS 674 Survey Research Methods in Second Language Studies (3)** Hands-on experience in language survey research including planning and creating survey instruments (both interviews and questionnaires), administering, compiling and analyzing survey data (quantitatively and qualitatively), and reporting the results. Pre: consent. (Once a year)

**SLS 675 Second Language Qualitative Research (3)** Philosophical and theoretical approaches, methodology, and ethics in second language qualitative research. Pre: 660 (or concurrent) or consent.

**SLS 676 Interpretive Qualitative Inquiry (3)** Explores a range of qualitative inquiry methods and theories. Through a project-based approach, students will develop and carry out inquiry relevant to their own interests, immediate learning/teaching needs, and long term professional goals. Pre: 660 (or concurrent) or consent.

**SLS 678 Discourse Analysis in Second Language Research (3)** Survey of approaches to discourse;

microanalytic qualitative research; theory and methodology. Pre: 660 or consent.

**SLS 680 (Alpha) Topics in Second Language Studies (3)** Variable topics in special areas of second language studies: (E) second language learning; (N) second language analysis; (P) second language pedagogy; (R) second language research methodology; (U) second language use. Repeatable one time for different alphas. Pre: 650 for (E); consent for (N) and (P); 670 or 675 or 678, or consent for (R); 660 for (U).

**SLS 690 ESL Teaching Practicum (3)** Student teaching in ESL classroom. Pre: advancement to candidacy and consent.

**SLS 699 Directed Reading/Research (V)** Individual reading in various fields of ESL. CR/NC only. Repeatable unlimited times. Pre: consent of graduate chair and instructor.

**SLS 700 Thesis Research (V)** Individual reading in various fields of ESL. Repeatable unlimited times. CR/NC only. Pre: consent of graduate chair and instructor.

**SLS 730 Seminar in Second Language Education (3)** Current issues and problems. Repeatable unlimited times. Pre: advancement to candidacy or consent.

**SLS 750 Seminar in Second Language Acquisition (3)** Issues in theory and research in second language acquisition of child and adult. Repeatable unlimited times. Pre: consent.

**SLS 760 Seminar in Second Language Use (3)** Second language/dialect use in multilingual communities. Repeatable unlimited times. Pre: 660 or consent.

**SLS 775 Seminar in Second Language Qualitative Research (3)** Qualitative research in second language and multilingual contexts. Repeatable unlimited times. Pre: consent.

**SLS 799 Apprenticeship in Teaching (V)** An experienced-based introduction to college-level teaching; graduate students serve as student teachers to professors; responsibilities include supervised teaching, and participation in planning and evaluation. Repeatable unlimited times. CR/NC only. Pre: graduate standing and consent.

**SLS 800 Dissertation Research (V)** Repeatable eight times. Satisfactory only.

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## Social Sciences (SOCS)

### *College of Social Sciences*

*Two kinds of courses are available directly from the College of Social Sciences: interdisciplinary courses and courses on tools, techniques, theories, and methods shared by the social science disciplines. The broader perspective and opportunity for cross-disciplinary interaction make these courses attractive.*

**SOCS 150 Street Science: Evaluating and Applying Evidence in Daily Life (3)** Develops necessary tools for effective reasoning and problem-solving through use and application of analytic techniques, including question formation, understanding/interpreting data presented in the public sphere, and evaluating the validity of sources. A-F only.

**SOCS 180 Introduction to International and Global Studies (3)** Introduces undergraduate students to the major political, social, economic, cultural, technological, and historical dimensions of globalization. Special attention will be paid to globalization process that have impacted Hawai'i and the Asia-Pacific region. A-F only. **FGB**

**SOCS 220 Computer Applications in Social Sciences (3)** Word processing, spreadsheets, database management, introductory statistics; other social sciences applications. Lab required.

**SOCS 225 Statistical Analysis for Social Sciences (3)** Statistical reasoning in the analysis of social science data, including descriptive statistics, exploratory data analysis, inference measures of association, decomposition of variance, and regression analysis.

Lab required. Pre: any 100 level social science course or consent. **DS**

**SOCS 250 Social Science Enquiry (3)** Survey of enquiry methods in social sciences with an emphasis on the development of skills of enquiry, including critical thinking, evidence gathering and evaluation, reasoning, and argumentation. Pre: any 100-level social science course or consent. **DS**

**SOCS 385 Service Learning (1)** Intended for students undertaking the service learning option in another course in the College of Social Sciences. Discussions on student's experiences, types of learning occurring, and issues encountered in service learning activities in the community. Repeatable two times. CR/NC only.

**SOCS 496 Social Studies for Teachers (3)** Integrates social sciences and history into a coherent framework for teaching middle and secondary school social studies courses on Hawai'i, the U.S., and the world. Repeatable one time. Pre: HIST 151 and HIST 152, or consent. **DS**

**SOCS 601 Topics in Teaching Innovations (3)** Examination and critical analysis of contemporary curriculum and instruction issues in social sciences. Concepts, theories, principles underlying active learning, critical thinking, values inquiry, assessment, and multidisciplinary approaches to integration of knowledge.

**SOCS 735 Ocean Policy Seminar (2)** Interdisciplinary approach to problems relating to humans and their interactions with the world's oceans and coasts. Theme changes each semester. Repeatable eight times. (Cross-listed as OEST 735)

## Social Work (SW)

### *School of Social Work*

**SW 200 The Field of Social Work (3)** Orientation to the profession of social work; historical development, values and philosophy, scope and aims.

**SW 302 General Social Work Practice I (3)** Orientation to practice principles, concepts, values, knowledge base, and their application. Pre: 200 (complete with C or better) and majors only.

**SW 303 General Social Work Practice II (3)** Introduction to practice skills with individuals, families, groups, and communities. Pre: 302 (complete with C or better) and majors only. Co-requisite: 391.

**SW 325 History of Social Welfare (3)** Historical developments and implications of social welfare activities, institutions, and policies and European backgrounds; introduce social welfare developments in selected non-European countries. Recommended: 200.

**SW 326 Social Welfare as a Social Institution (3)** Study of U.S. social welfare institutions and policies as an expression of societal response to human needs; interrelationship of American value system to goals, objectives, and policies of social security programs; focus on examination of Hawai'i's social service programs. Pre: 325. **DS**

**SW 360 Human Development and Behavior for Social Work Practice (3)** Examination of social and cultural variables such as human development and behavior; use of knowledge in these areas by social work practitioners. Recommended: 200. **DS**

**SW 361 Sociocultural Content for Social Work Practice (3)** Examination of ethnicity, class, and sex statuses as these affect human development and behavior for social work practice. Pre: 360 with a grade of C or better. Recommended: 200. **DS**

**SW 380 Topics in Social Welfare (V)** An examination of current trends in the field of social welfare. **DS**

**SW 391 Junior Practicum (3)** Introduction to field instruction; application of social work knowledge, skills, and values to field experience. CR/NC only. Pre: 302, 325, 326 (or concurrent), 360, and 361 (or concurrent) complete with C or better; and majors only. Co-requisite: 303.

**SW 402 General Social Work Practice III (3)** Use of problem-solving process in practice with individuals, families, groups, and communities. Pre: 303, 326, and 361 complete with C or better; and majors only. Co-requisite: 440 and 490.

**SW 403 General Social Work Practice IV (3)** Examination of practice methods and intervention models; identification and analysis of issues related to practice. A significant portion of class time is dedicated to writing instruction congruent with professional expectations. Pre: 402 (C or better) and majors only. Co-requisite: 491.

**SW 440 Research Development in Social Welfare (3)** Introduction to and application of language of research, theoretical concepts underlying advancement of knowledge, practical steps in research. Pre: completion of required junior-level SW courses (i.e., 302, 303, 325, 326, 360, 361, and 391) with C or better. Co-requisite: 402 and 490. **DS**

**SW 475 Social Services with Children (3)** Study of current social services for children in the U.S. with focus on familiarization of child welfare programs and services in Hawai'i. Pre: senior standing or consent.

**SW 480 Topics in Social Welfare (V)** An examination of current trends and issues in social work.

**SW 490 Senior Practicum (4)** Field instruction, application, and integration of classroom knowledge with field experiences. Pre: 391 complete with C or better, and majors only. Co-requisite: 402 and 440.

**SW 491 Senior Practicum (4)** Field instruction, application, and integration of classroom knowledge with field experiences. Pre: 490 complete with C or better, and majors only. Co-requisite: 403.

**SW 499 Directed Reading and Research (V)** Planned individualized study or research in special area related to social work practice interest. Up to 3 credit hours. Pre: majors only, senior standing, and consent of program chair and faculty advisor.

**SW 500 Master's Plan B/C Studies (1)**

**SW 606 Social Work Practice with Individuals (3)** Beginning practice course introduces students to the basic processes of social work and the roles and skills needed for generalist practice. Relevant theories of social work practice with individuals are explored for the efficacy with various problems and for their applicability to practice with various ethnocultures, social classes, and oppressed populations. Interviewing and interpersonal skill development are incorporated. A-F only. Pre: admission to MSW program. (Fall only)

**SW 607 Social Work Practice with Families and Groups (3)** Practice course builds upon the generalist framework and foundation content presented in 606. Special emphasis is given on models for assessment, intervention, and evaluation of practice with families and groups. Relevant theories of groups and the principles of group dynamics and group work methods are examined in regard to task, therapeutic, psychoeducational, and social development groups. Family content includes structural, behavioral, communication/experiential, and culturally-specific theories of intervention. Pre: 606.

**SW 630 Social Welfare Policy and Services (3)** Examines in a historical and comparative framework the economic, social, political, organizational, and administrative factors influencing the development, formulation, and implementation of social welfare policies in the U.S. Provides opportunity for the application of various models of social policy analysis in major areas of social welfare programming and service delivery. A-F only. Pre: graduate standing. (Fall only)

**SW 631 Social Work Practice in Communities and Organizations (3)** Community conceptualization; organized roles of developer, enabler, broker, mediator, and advocate; diagnostic and problem-solving technology; the special characteristics of the social worker as community organizer; matrix of structural objectives; sources and use of power; how

to build an organization; and interorganizational negotiation. A-F only. Pre: 606, graduate standing, and consent. (Spring only)

**SW 636 Policies, Programs and Services on Aging (3)** Explores policies, programs, and services for older adults. Students learn about the aging network, assess older adults' needs, link older adults to appropriate services in the community, and track legislative bills that address older adults' quality of life. Pre: graduate standing or consent.

**SW 639 Social and Cultural Aspects of Aging (3)** Overview of aging from the biopsychosocial, socioeconomic and cultural perspectives. Explores common theories of aging. Emphasis on bridging the gap between the realm of concepts and theories, and the world of practice in gerontology. Pre: graduate standing or consent.

**SW 640 Introduction to Scientific Methods and Principles in Social Work (3)** Understanding and interpreting results of nomothetic and idiographic research; design principles and statistical analyses and their relationship to practices; use of published research. A-F only. Pre: graduate standing. (Fall only)

**SW 650 Research Designs and Data Analyses for the Evaluation of Practice Effectiveness (3)** Extending the study of scientific methods introduced in 640. Covers the range of empirical research methods and data analytic procedures suitable for knowledge building and practice evaluation at all levels of intervention from case to program. A-F only. Pre: 640. (Spring only)

**SW 651 Quantitative Methods I (3)** Introduction to quantitative methods in behavioral sciences. Introduction to general linear model as principle of data analysis. Course requires basic statistics. (Meets PhD common inquiry methods requirement or elective.)

**SW 654 Applied Regression and Analysis of Variance (3)** Introduction to linear statistical models as principle of data analysis. Topics include multiple regression models with continuous and categorical predictors. ANOVA with multiple factors, ANOVA with repeated measures, and ANCOVA. Pre: 601 or consent.

**SW 656 Multivariate Methods (3)** Multivariate forms of multiple linear regression, analysis of variance, and analysis of co-variance. Multiple discriminant analysis, canonical correlation, and principal components analysis are discussed.

**SW 659 Human Behavior in the Social Environment I (3)** An overview of social work's person-in-environment focus as it applies to human behavior in the context of families, groups, communities, and organizations. Using an ecological perspective, theories and evidence about human behavior are introduced and examined. A-F only. Pre: graduate standing. (Fall only)

**SW 660 Human Behavior in the Social Environment II (3)** Uses social work's person-in-environment focus to organize knowledge development about biological, psychological, social, and cultural systems as they are affected by human behavior. It is designed to provide students with an overview of human behavior and healthy and unhealthy development over the life span. A-F only. Pre: 659. (Spring only)

**SW 663 Treatment of Chemical Dependency (3)** Introduction to treatment of alcoholism and other chemical dependencies. Application of social work strategies in work with individuals and families in the disease and recovery process. Repeatable one time. Pre: graduate standing.

**SW 672 Child Welfare as a Field of Social Work (3)** Emphasis on the developments in child welfare; issues, concerns with regard to needs and rights, and the application of social work services to problems associated with needs for protection. Review of historical, theoretical, empirical, and legal findings for skill development in intervening in dysfunctional parent/child interaction. Pre: graduate standing.

**SW 674 Community and Public Health Practice (2)** Community organization and develop-

ment applicable to the delivery of health services. Understanding community dynamics, mobilizing community groups for effective health care practice and delivery. Pre: PH 647 or PH 737 or consent. (Cross-listed as PH 671)

**SW 680 Topics in Social Welfare (V)** Current trends in field of social welfare. Recent courses have focused on forensic social work, immigrants and refugees, and leadership in human services. Meets seminar requirement. Repeatable one time in different topics. Pre: graduate standing.

**SW 690 Practicum (3)** Field units are maintained by the school in public and voluntary welfare agencies, as well as in governmental programs. Students receive instruction related to their school experience with social problem situations and an opportunity to see the applicability and to experience the use of concepts and principles in actual practice. Pre: admission to MSW program.

**SW 691 Practicum (3)** Field units are maintained by the school in public and voluntary welfare agencies, as well as in governmental programs. Students receive instruction related to their school experience with social problem situations and an opportunity to see the applicability and to experience the use of concepts and principles in actual practice. Pre: admission to MSW program.

**SW 696 Health and Aging (3)** Biological and physiological changes associated with aging. Social and psychological factors associated with health maintenance. Major threats to health, changing patterns of morbidity and mortality of the aged. Pre: graduate standing.

**SW 699 Directed Reading and Research (V)** Students, on the basis of special interest, select a faculty member to work with on a problem for which planned individualized study or research is deemed advisable. Repeatable unlimited times. Pre: consent.

**SW 700 Thesis Research (V)** Independent research under supervision of a thesis committee. Includes formal proposal and defense of finished research. Repeatable unlimited times.

**SW 707 Methods of Group Psychotherapy (3)** Designed specifically to train students in the theory and practice of leading psychotherapy groups; it includes historical developments, research, theories, and application of group psychotherapy, group techniques and exercises. Pre: 607 or consent.

**SW 715 Therapeutic Strategies with the Older Adult (3)** Focuses on interdisciplinary strategies with older adults: individual, family, and group therapy; eclectic mental health approaches; case management; and environmental intervention. Emphasis placed on the use of these strategies as preventive, as well as supportive, measures for the well, transition, and frail elderly. Meets seminar requirement. Pre: graduate standing.

**SW 717 Social Work Practice with Children and Families (3)** Advanced practice course for students specializing in social work with children and families. Designed to provide students with an in-depth understanding of both theoretical formulations and therapeutic techniques for practice in the field of family and child welfare. Emphasis placed on the development of specialized knowledge and skills for assessment, intervention, and evaluation of a variety of common child and family practice situations. Pre: completion of foundation courses.

**SW 718 Seminar in Social Work Practice with Children and Families (3)** Designed for students in the child and family concentration and builds upon past knowledge and skill development in practice classes and in the practicum. Students integrate, demonstrate, and extend earlier learning, acquire new knowledge, and learn and practice new skills. Organized around student case presentations in a consultation format. Meets seminar requirement. Pre: 717.

**SW 722 Social Work Practice in Health Care (3)** Didactic and experiential learning activity focuses on the major role functions of the social worker in

the health field including assessment, contracting, counseling, advocacy, case management, discharge planning, family group work, community and team building. Covers health care policy, research directions in practice and social work management issues. Pre: completion of foundation courses.

**SW 723 Seminar in Social Work Practice in Health Care (3)** Through the use of case studies developed by the students, social work practice is examined in three areas of health care: primary care provided in health departments and medical groups, hospital-based services, and long-term care. Meets seminar requirement. Pre: 722.

**SW 724 Seminar in Social Work Practice in Mental Health (3)** Prepares students for social work practice in mental health settings. As the first course in the concentration, it focuses primarily on minor or short-term mental dysfunctioning (e.g., reactive depression, anxiety). Built on conceptual foundations including cultural implications of mental health, human ecology, life cycle/events, strengths assessments, and research. Includes a seminar component which involves student case presentations and consultations. Pre: completion of foundation courses.

**SW 725 Social Work Practice in Mental Health (3)** Prepares students to work with persons who are experiencing major mental disorders and to improve the systems of care that have been developed to serve this population. It reviews the history of the community mental health movement, discusses relevant policies and laws, and describes the current mental health system in the U.S. and Hawai'i. Pre: 724.

**SW 726 Social Work Practice with the Aged (3)** Designed for social work students specializing in social work practice with the aged and their families. Examines normative and pathological aging and its impact on physical processes, intellectual functions, and personality. Emphasis is placed on the development of specialized knowledge and skills for assessment, intervention, and evaluation of a variety of issues and needs common in later life. Discussions on the applicability of certain interventions with the older adult and the family, along with ethnocultural and gender considerations. Pre: completion of foundation courses.

**SW 727 Seminar in Social Work with the Aged (3)** Designed for social work students in the aged concentration, builds upon past knowledge and skill development from courses and practicum. Students examine micro and macro interventions used for a wide range of issues and problems encountered by older adults and their families through the use of both case presentation and case consultations assignments. Meets seminar requirement. Pre: 726.

**SW 731 Social Policy Analysis (3)** Students pursue in-depth a specific topic in the areas of social planning, social policy analysis, evaluation of social programs, administration, supervision, and consultation. Selectively a comparative perspective is introduced and case studies used to illustrate concepts, principles, and techniques, with implications for practice. Meets seminar requirement. Pre: 630 or consent.

**SW 737 Social Work and the Law (3)** Knowledge of judicial systems and law relevant to social work practice in corrections, child-family welfare, health, and mental health. Skills for effective participation in the legal process are acquired in moot court and in practice for testifying. Pre: graduate standing.

**SW 741 Review of Research in Social Work (3)** In-depth study of research in a substantive area. Each seminar will be devoted to a particular topic: e.g., foster care of children, effectiveness of social work intervention, etc. Pre: 650.

**SW 743 Individual or Group Research Project—Plan B (V)** Independent research (group of two to seven students or by an individual student) undertaken under the sponsorship of a faculty advisor. Elements are selection of a topic related to the practice of social work or knowledge relevant to that practice, utilization of empirical research methodol-

ogy in collecting and analyzing original data, and preparation of a scholarly paper. Pre: 650.

**SW 744 Individual or Group Research Project—Plan B (V)** Same as 743. Pre: 743.

**SW 746 Individual or Group Research Project—Plan B (V)** Same as 743.

**SW 750 Analysis and Development of Knowledge for Social Work (3)** Focuses on developing an understanding of philosophy of science, theory development, social work epistemology, and the analysis and development of knowledge for social work practice. Pre: PhD candidate in social welfare or consent.

**SW 751 Quantitative Methods II (3)** Empirical research methodology with emphasis on design principles and measurement theory; design and measurement issues and problems in cross-cultural research. Pre: PhD candidate in social welfare or consent.

**SW 752 Qualitative Research: Philosophical, Methodological and Analytic Approaches (3)** Theories and methods of qualitative research; problem formulation, informant selection, study design, data collection and analysis utilizing qualitative approaches. Repeatable three times. A-F only. Pre: 640 or 651 or equivalent; departmental approval.

**SW 755 Dissertation Seminar (3)** Culminating experience in social welfare doctoral specialization; integration of PhD core and specialization course work. Pre: classified student in PhD in social welfare program or consent.

**SW 774 Cultural Factors in Work with Hawaiians (3)** Hawaiian culture, past and present. Explores and examines possible approaches to working with Hawaiians and part-Hawaiians. Special emphasis on supports in the Hawaiian system that may promote maximal functioning for those Hawaiians experiencing problems in today's society. Meets seminar requirement. A-F only. Pre: graduate standing.

**SW 776 Seminar on Women and Health (3)** Women's health and the role of women health professionals. Current literature and research regarding attitudes, roles, rights, and health care. Pre: graduate standing or consent. (Cross-listed as NURS 744)

**SW 790 Second-Year Practicum (V)** Instruction in the field is continued. The practicum of the second year provides an opportunity for the student to test out concepts, principles, theories, and alternate approaches in actual practice settings. Pre: 691.

**SW 791 Second-Year Practicum (V)** Same as 790.

**SW 797 Advanced Social Welfare Policy Analysis and Change (3)** Builds on 630 and emphasizes a more thorough and comprehensive examination of major policies, programs, and populations central to a concentration (Health, Mental Health, Gerontology, Child and Family). Students learn a more focused and applied analysis of the relationship between social policy, research, and social work practice. SW majors only. A-F only. Pre: 606 and 607; 630 and 631; 640 and 650; 659 and 660; 690 and 691.

**SW 800 Dissertation Research (V)** Repeatable one time.

## Sociology (SOC)

### College of Social Sciences

*In addition to the prerequisites specified below, all 300-level courses have as a prerequisite SOC 100 or a 200-level sociology course, or consent. In addition to the prerequisites specified below, all 400-level courses require SOC 300 or consent. All prerequisite courses require a minimum grade of C (not C-).*

**SOC 100 Introduction to Sociology (3)** Basic social relationships, social structures, and processes. **DS**

**SOC 214 Introduction to Race and Ethnic Relations (3)** Race and ethnic relations in world perspective; social, economic, and political problems associated with perception, existence, and accommodation of these groups within the wider society. (Cross-listed as ES 214) **DS**

**SOC 218 Introduction to Social Problems (3)** Theoretical and substantive survey of the nature and

causes of social problems; selected types: poverty, inequality, deviance, etc. **DS**

**SOC 231 Introduction to Juvenile Delinquency (3)** Forms of juvenile deviance; conditions and processes that result in alienation and deviance of youth. Juvenile corrections as institutionalized societal responses. **DS**

**SOC 251 Introduction to Sociology of the Family (3)** Family patterns, mate selection, parent-child interaction, socialization of roles, legal sanctions, trends in organization, functions. **DS**

**SOC 300 Principles of Sociological Inquiry (4)** (3 Lec, 2 50-min Lab) Basic methods of sociology for production and analysis of data. Foundations for understanding research and for advanced courses in methods and statistics. **DS**

**SOC 300A Principles of Sociological Inquiry (4)** (3 Lec, 2 50-min Lab) Basic methods of sociology for production and analysis of data. Foundations for understanding research and for advanced courses in methods and statistics. Restricted to students in the honors program and required for students taking the honors track in sociology. A-F only. **DS**

**SOC 301 Survey of Urban Sociology (3)** The city in historical and comparative perspectives. Interplay of demographic, economic, and cultural factors in urban growth. Urban process, development, and interdependence. **DS**

**SOC 305 Women and Health (3)** Explores current issues in the conceptualization and delivery of health care for women. Pre: one of POLS 110, SOC 100, WS 151, or 202. (Cross-listed as WS 305) **DS**

**SOC 311 Survey of Social Inequality and Stratification (3)** Introduction to social stratification theory and research; definition and measurement of socioeconomic status; racial, ethnic and gender inequality; differences in lifestyles and life chances; social mobility. **DS**

**SOC 313 Survey of Sociology of Work (3)** Work from viewpoint of individuals; meaningfulness versus productivity; how work, economics, and the industrial system affect individual goals. **DS**

**SOC 316 Survey of Social Change (3)** Causes, processes, and effects of social change, using single- and multi-cause models in simple and complex industrialized societies. **DS**

**SOC 318 Women and Social Policy (3)** Social and economic policies affecting women in families, education, social services, government, health care, the economy; public policy implementation and development; policy impact on women. Pre: 100 or any 200-level SOC course, or WS 151 or any 200- or 300-level WS course; or consent. (Cross-listed as WS 318) **DS**

**SOC 321 Survey of Sociological Theory (3)** Major theorists and their influences, from Comte to today. **DS**

**SOC 332 Survey of Sociology Law (3)** Law as a political enforcement of the social order; how it is organized and operates; determinants of effectiveness; ways it adapts to and facilitates changing social conditions. **DS**

**SOC 333 Survey of Criminology (3)** Concepts used in crime, law enforcement, criminal justice, and corrections. Types of criminal behavior; costs and effects of control. **DS**

**SOC 335 Survey of Drugs and Society (3)** Use of mood- and mind-altering drugs in America among adults, youth, and cross-culturally. Illicit drug culture, psychedelics, and perception; social norms and deviant behavior. **DS**

**SOC 336 Deviant Behavior and Social Control (3)** Interrelations of deviance, criminology, juvenile delinquency, corrections, social control, sociology of law. Key concepts, theories. **DS**

**SOC 341 Survey of Social Psychology (3)** Major principles; social attitudes, theories of conformity and change, person perception and attribution theory, social role, role conflict and role behavior, group structure, and behavior. **DS**

**SOC 352 Survey of Sociology of Education (3)** Formal education as one aspect of socialization. Emphasis on American system; business, military, and religious institutions. **DS**

**SOC 353 Survey of Sociology of Aging (3)** Aging as a social phenomenon, including social impacts of growing elderly population and emerging social patterns among the elderly. Important theoretical perspectives and cross-national research. **DS**

**SOC 354 Survey of Medical Sociology (3)** Social factors in disease and treatment; illness behavior, roles of patients and healers; nature of healing professions; use of medical services; alternative systems of medical organization. **DS**

**SOC 356 Sociology of China (3)** Social institutions, family, community, education, stratification, government, economy; impact of modernization and revolution on their contemporary transformation. A-F only. **DS**

**SOC 357 Sociology of Japan (3)** Persistence and change in economy, policy, religion, education, family, and other institutions of modern Japan. **DS**

**SOC 358 Sociology of Korea (3)** Social institutions, family, education, religion, cultural values, social classes, economic development, social movements, gender relations, North-South relations, and unification issues. A-F only. Pre: 100 or any 200-level SOC course, or consent. **DS**

**SOC 362 Sociology of Gender (3)** Effect of sex and gender roles (both traditional and nontraditional) on attitudes and behavior within the family and educational, economic, and governmental systems. Recommended: at least one WS course. Pre: 100 or any 200-level SOC course, WS 151 or any 200- or 300-level WS course; or consent. (Cross-listed as WS 362) **DS**

**SOC 374 Law, Politics and Society (3)** Relationships between law, politics, and society will be explored. Emphasis is placed on several dimensions of legality: legal "indeterminacy" and some of the many things that law does for us and to us; law's response to violence; the connections between law and social change; access to the law and its sociological dimensions; how/why law fails and what happens when it does. A-F only. Pre: 100 or any 200 level SOC course, or a 100 level or 200 level POLS course, or consent. (Cross-listed as POLS 374) **DS**

**SOC 401 Analysis in Urban Sociology (3)** Urbanization in developed and developing countries, the rural-urban continuum, structure and process of metropolitan regions, theories of urban location and growth, housing and urban renewal. **DS**

**SOC 411 Analysis in Social Stratification (3)** Approaches to research in social inequality: community studies; historical and cross-cultural analyses of poverty, working class, middle class, power structure, social mobility, etc. **DS**

**SOC 412 Analysis in Population and Society (3)** Global and U.S. patterns of population growth; composition and distribution, elementary demographic techniques; development issues and population policy. Pre: 300 or consent. (Cross-listed as GHPS 412) **DS**

**SOC 413 Analysis in Economy and Society (3)** Study of the dominant trend of economic change and its impact on society; globalization of economic activities and transformation of industrial society to postindustrial one; corporate restructuring and downsizing and their impact on employment and income distribution; gender relations in workplaces; the impact of globalization on the newly industrializing countries. Pre: 300 or consent. **DS**

**SOC 415 Technology and Society (3)** Nature of technology, social forces that affect its adoption; impact on society; innovation. **DS**

**SOC 418 Women and Work (3)** Gender and racial division of labor nationally and internationally; racial and gender differentials in wages, training, working conditions and unemployment; historical trends and

future directions. Pre: 300, or one 300-level WS or ES course; or consent. (Cross-listed as ES 418 and WS 418) **DS**

**SOC 419 Analysis in Formal Organizations (3)** Schools, hospitals, industries, prisons, and government agencies analyzed in terms of self-actualization, alienation, human relations, communication, leadership, organizational conflicts. **DS**

**SOC 431 Analysis in Criminology/Juvenile Delinquency (3)** Research in systematic social deviation. Scaling and measurement of delinquents/criminals, official data, gangs, identification and measurement of delinquent/criminal value orientations, etc. **DS**

**SOC 432 Analysis in Corrections (3)** Behavioral assumptions of various correctional practices and modes of organization; current "in-community" approaches. **DS**

**SOC 433 Analysis in Law and Social Change (3)** Interrelationships between legal orders and other social institutions; use of "law" to change major status relationships, e.g., boss-worker, woman-man, child-adult. **DS**

**SOC 435 Women and Crime (3)** Women's relations with the criminal justice system; types of women's offenses; responses to women's crime; women as victims; women as workers in the criminal justice system. Recommended: at least one WS course. Pre: 300, or WS 151 or any 200- or 300-level WS course; or consent. ((Cross-listed as WS 435) **DS**

**SOC 441 Social Structure and the Individual (3)** Effects of social institutions on individuals. Role of socioeconomic status, cultural background, family structure, peer group, schools, and occupational roles in socialization. **DS**

**SOC 445 Analysis in Gender Violence (3)** Historical and structural theories of gender-based violence, including domestic and sexual abuse, prostitution, trafficking, cross-cultural perspectives, social policy and practices. Junior standing or graduate standing only. Pre: 300 or consent. (Once a year) **DS**

**SOC 446 Gender Violence Over the Lifecycle (3)** Examines the problem of violence, particularly sexual violence, over the life cycle. Offers gendered perspective in activities aimed at prevention and treatment of violence, and cross cultural perspectives. Pre: 300, WS 151 or any 200- or 300-level WS course; or consent. (Cross-listed as WS 446) **DS**

**SOC 451 Analysis in Marriage and the Family (3)** Theory and methods of studying social interaction in marriage and the family; examination of marriage, mating, love, and choice. Empirical research emphasizing Hawai'i. **DS**

**SOC 452 Marriage and Family: A Feminist Perspective (3)** Sex-role socialization, motherhood, work-family conflicts. Alternative family structures in U.S. and other countries. Recommended: at least one WS course. Pre: 300, or WS 151 or any 200- or 300-level WS course; or consent. (Cross-listed as WS 452) **DS**

**SOC 453 Analysis in Sociology of Aging (3)** Social and research issues significant to delivery of long-term care services to the elderly; cost, quality, availability of services, evaluation of programs, role of family, formal and informal care services. **DS**

**SOC 454 Analysis in Medical Sociology (3)** Application of sociological theories and concepts to medical social situations and behavior; problems of obtaining data for research. **DS**

**SOC 455 Sociology of Religion (3)** Seminar in research on sociological aspects of religious sectarianism; attention to Hawai'i. Pre: 300 or consent. (Cross-listed as REL 452) **DS**

**SOC 456 Racism and Ethnicity in Hawai'i (3)** The historical and contemporary social processes involved in inter-ethnic relations in Hawai'i. Pre: 300 or one ES 300 level course, or consent. (Cross-listed as ES 456) **DS**

**SOC 457 Sociology of the Arts (3)** Relation of art to society; role of artist, audience, critic, patron, mu-

seum; Western and other societies; attitudes toward new styles. **DS**

**SOC 458 Analysis in Sports and Society (3)** Critical perspectives on sports and society. Topics include power and inequality; mobility, status, and economics; youth development; globalization; gender; and violence in sports and the wider society. Pre: 300 and 321. (Spring only) **DS**

**SOC 459 Popular Culture (3)** Popular culture as manifested in film, sports, TV, comics, magazines, etc.; relation to sociological theories and studies. **DS**

**SOC 475 Analysis in Survey Research (3)** Survey research design and analysis, including theory selection instrument construction, sampling techniques, data collection, computerized data analysis, and writing up research reports of the findings. **DS**

**SOC 476 Social Statistics (3)** Common statistical procedures emphasizing univariate and bivariate description; some attention to multivariate techniques and statistical inference, within context of research procedures. Pre: 300 or consent. Co-requisite: 476L. **DS**

**SOC 476L Social Statistics Laboratory (1)** Required lab for computer applications for analysis of sociological data. CR/NC only. Co-requisite: 476.

**SOC 478 Analysis in Field Research Methods (3)** Techniques for collecting and analyzing qualitative data. Participant observation; small groups in natural settings; community studies. Grounded theory; theories of everyday life; reality construction. **DS**

**SOC 491 Discussion Group Leader—Freshman Seminar (6)** Students lead a freshman seminar section of sociology and meet weekly with instructor for substantive background. **DS**

**SOC 492 Politics of Multiculturalism (3)** The development of ethnic relations and political approaches to multiculturalism in two multiethnic nations: Canada and the U.S. A-F only. Pre: 300 or one 300 level ES course, or consent. (Cross-listed as ES 492) **DS**

**SOC 495 Topics in Sociology (3)** Topics course that explore current issues and try new ideas. Repeatable two times. Pre: 300 or consent.

**SOC 496 Topics in Sociology: Student Projects (V)** Students create their own study group and solicit an advisor from faculty. Consult department for assistance. **DS**

**SOC 499 Directed Reading or Research (V)** Repeatable unlimited times. Pre: 300 and consent of instructor.

*All graduate courses in the department require classified graduate standing in sociology or consent. Additional prerequisites are specified below.*

**SOC 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**SOC 605 Statistics for Regression Analysis (3)** Dealing with the multiple linear regression and logistic regression models, focusing on modeling, i.e., specification of the explanatory variables to answer different research questions. Emphasis on applications using statistical package programs. SOC 605L is required.

**SOC 605L Regression Analysis Laboratory (1)** Lab for computer analysis skills is required for students taking 605. CR/NC only. Co-requisite: 605.

**SOC 606 Research Methods and Design (3)** Emphasis on theory selection, theory construction, and choice of research strategies.

**SOC 607 Seminar in Methods of Content Analysis (3)** Content analysis combines quantitative and qualitative methods to analyze text systematically. Covers sampling and case selection; manual and computer-assisted methods of coding and analyzing textual data; writing reports using content analysis data. Repeatable one time. (Once a year)

**SOC 608 Survey Research Design and Analysis (3)** Survey study designs, survey sampling, questionnaire construction, interviewing, pre-tests, pilot

studies, logic of measurement and association, table construction, and elaboration models. Pre: consent. (Cross-listed as EDEA 608)

**SOC 609 Seminar Qualitative Research (3)** Advanced seminar on conducting fieldwork in natural social settings with emphasis on qualitative techniques, political and ethical considerations, data management and assessment, interpretation and reflexive writing. Repeatable one time.

**SOC 611 Classical Sociological Theory (3)** Seminar offers a critical overview of major perspectives and representative works in sociological theory from 19th-century to the 1960s, including intellectual contexts and historical development. A-F only. Pre: graduate standing. (Fall only)

**SOC 612 Contemporary Sociological Theory (3)** Seminar offers a critical overview of major perspectives and representative works in sociology theory from the 1960s to the present, including intellectual contexts and historical development. A-F only. Pre: graduate standing. (Spring only)

**SOC 613 Organizational Analysis (3)** Theoretical approaches to organizations; organizational structure and process; organizational pathologies and effectiveness; the organization and its environment.

**SOC 615 Sociology of Health and Health Services (3)** Covers the major paradigms in medical sociology for analyzing social epidemiology, the political economy of health systems, health service organizations, health and wellness behaviors illness perception and help-seeking, doctor-patient interaction, and adaptations to illness. Pre: graduate standing or consent.

**SOC 616 Seminar in Stress and Health (3)** Analysis of current theory and empirical research on relationship of stress and health; sociological, psychological, and community psychiatry models and current issues.

**SOC 631 Seminar in Criminology (3)** Major current theories, history of their development, elaborations of typologies, implications for treatment modalities.

**SOC 632 Criminal Justice System (3)** Examination of the criminal justice system; the exercise of discretion and limits placed upon it. Pre: consent.

**SOC 638 American Punishment (3)** Examines the history of American criminal punishment, from the birth of the penitentiary to the rise of the prison-industrial complex. A-F only. Pre: graduate standing. (Cross-listed as AMST 638)

**SOC 651 Introduction to Human Population (3)** Comparative analysis of quantitative and qualitative aspects of population; factors affecting size, distribution, and composition; impact of population size and composition on society. (Cross-listed as GHPS 651 and PH 651)

**SOC 659 Methods of Demographic Analysis (3)** Statistical evaluation and analysis of population data; data sources; population growth; composition; standardization of rates; mortality and the life table; nuptiality and fertility; distribution, migration, urbanization; projections and stable population theory. (Cross-listed as GHPS 659 and PH 659)

**SOC 660 Teaching Seminar (3)** Examines research on teaching, learning, and ethics, as well as practical skills for teaching at the university level. Syllabi and teaching philosophies are developed, which are useful for the academic job market. Graduate standing only.

**SOC 699 Directed Reading/Research (V)** Repeatable unlimited times.

**SOC 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**SOC 701 Seminar in Evaluation Research (3)** Research design, data collection, field problems and analysis in the evaluation of social programs. Examples from criminal justice, corrections, drug treatment, mental health, and public health.

**SOC 705 Advanced Statistics (3)** Dealing with advanced statistical methods beyond multiple linear

regression, such as logit, event history analysis, and multi-level analysis. Emphasis is on applications of the techniques to social science research. Repeatable one time only.

**SOC 706 Cultural Analysis (3)** Contemporary issues in cultural sociology, covering key theoretical perspectives, analytic methods and substantive areas for empirical research. A-F only.

**SOC 711 Seminar in Sociology of Knowledge (3)** Sociological theory applied to bases of knowledge in everyday life, professional communities, and the sciences. Research and theory-building activities of sociologists; ethnomethodology; construction of social structure, culture, and consciousness. Repeatable one time only.

**SOC 715 Seminar in Current Issues in Sociology (3)** Substantive areas that are of current interest and the focus of research, but not addressed in other courses. Repeatable two times.

**SOC 716 Seminar in Medical Sociology (3)** Application of theoretical paradigms and methodologies to the examination of selected research topics in the field of medical sociology. Repeatable one time. Pre: 615 or consent.

**SOC 719 Comparative Family and Gender (3)** Discusses the major perspectives on family and gender relations and examines related empirical research. Emphasis is on the cross-cultural comparisons across the U.S. and Asia in the context of globalizing economies and cultures. A-F only. (Alt. years) (Cross-listed as GHPS 719)

**SOC 720 Comparative Study of East Asia (3)** Comparative analysis of social organization, social processes, and change of both capitalist and communist countries of East Asia, with each other and other areas of the world. Pre: 611 or consent.

**SOC 721 Social Change—Pacific Islands (3)** Analysis of social change; transformation from subsistence societies to commodified, wage-labor societies with participation in world economy.

**SOC 722 Modern Japanese Society (3)** Social and behavioral studies of Japanese values, social organization, and personality development. Problems of value conflict, political protest, world role, tradition, and social change. Repeatable one time only.

**SOC 723 Seminar in Modern Chinese Society (3)** Developmental policies, social change, and impact on modern Chinese social institutions. Includes China, Hong Kong, and Taiwan. May include social and demographic change, population, social stratification, gender, and family problems. Repeatable one time.

**SOC 725 Seminar in Race Relations (3)** Comparative view of how "races" and "ethnic" groups develop and function. Sociological theories of race relations, assimilation, acculturation, and pluralism.

**SOC 730 Conflict Analysis/Resolution (3)** Seminar on the analysis of conflict resolution. Faculty from law, planning, political science and guest practitioners will present multidisciplinary analysis and intervention strategies on contemporary conflicts. A-F only. Pre: graduate standing or consent.

**SOC 741 Seminar in Social Structure and the Individual (3)** Intensive study and individual research projects in a selected topic. Theoretical and methodological issues in relating social and individual levels of analysis. Recommended: 612.

**SOC 750 Seminar in Social Movements (3)** Study of sociology of social movements, plus independent student research. Repeatable one time.

**SOC 751 Development in Asia (3)** Theories and available research methods examined for applicability to developing areas; specific examples from Asia. A-F only. Repeatable one time. Pre: graduate standing or consent.

**SOC 753 Urban Sociology (3)** Demographic trends in urban growth: nature and dimensions of urbanization and urbanism; ancient, American, and Third World cities; ecological theories of urban growth; lifestyles.

**SOC 754 Seminar in Social Stratification (3)**

Classical theories of social class, contemporary developments; crucial research issues, appropriate methodologies. Repeatable one time only. Pre: classified graduate standing or consent.

**SOC 800 Dissertation Research (V)** Research for doctoral dissertation. Repeatable unlimited times.

**Spanish (SPAN)**

*College of Languages, Linguistics and Literature*

All courses are conducted in Spanish. A grade of C or better in the prerequisite courses is required for continuation.

**SPAN 101 Elementary Spanish (3)** Conversation, grammar, reading. HSL

**SPAN 102 Elementary Spanish (3)** Conversation, grammar, reading. Pre: 101. HSL

**SPAN 103 Intensive Elementary Spanish (6)** Course content of SPAN 101 and 102 covered in one semester. Three two-hour sessions per week. HSL

**SPAN 201 Intermediate Spanish (3)** Continuation of oral practice and grammar study; increasing emphasis on reading and written composition. Pre: 102. HSL

**SPAN 202 Intermediate Spanish (3)** Continuation of 201. Pre: 201. HSL

**SPAN 203 Intensive Second-Year Spanish (6)** Course content of SPAN 201 and 202 covered in one semester. Three two-hour sessions per week. Pre: 102 or 103. HSL

**SPAN 258 Intermediate Spanish Abroad (3)** Intensive course of full-time formal instruction on the second-year level in Spanish language and culture in a Spanish-speaking country. Pre: 102. HSL

**SPAN 259 Intermediate Spanish Abroad (3)** Continuation of 258. HSL

**SPAN 300 Reading in Spanish (3)** Development of language skills through reading of literary and cultural texts. Pre: 202 or placement exam or consent.

**SPAN 301 Grammar and Composition (3)** Selected grammar review and intensive practice in effective use of the written language. Pre: 202 or 203 or 259, or consent.

**SPAN 302 Grammar and Composition (3)** Selected grammar review and intensive practice in effective use of the written language. Pre: 301 or 310, or consent.

**SPAN 303 Conversation I (3)** Intensive practice in spoken Spanish, focusing on the preparation and completion of oral tasks and presentations. Pre: 301 (or concurrent), or consent.

**SPAN 304 Conversation II (3)** Continuation of 303. Pre: 303 or consent.

**SPAN 305 Introduction to Spanish-English Translation (3)** Practical introduction to Spanish-English translation with translations of texts from Spanish to English and the reverse. Pre: 302.

**SPAN 306 (Alpha) Spanish for Professionals (3)** Language as used in specific professions. (B) commercial Spanish; (C) medical Spanish. Sophomore standing or higher. Pre: 301 or 310, or consent.

**SPAN 308 Introduction to Spanish-English Interpreting (3)** Students will begin to develop the listening and memory skills for direct and inverse interpretation. Sophomore standing or higher. Pre: 305 (or concurrent) or consent.

**SPAN 310 Spanish for Heritage Speakers (3)** Focuses on standard and academic varieties of Spanish for English-dominant heritage speakers in order to improve their literacy skills. Pre: placement exam. (Fall only)

**SPAN 330 Phonetics and Pronunciation Practice (3)** Analysis of the Spanish phonological system, in contrast with English. Practice in pronunciation. Pre: 301 or 310, or consent.

**SPAN 351 Spanish Cultural Perspectives (3)** Survey of the history and cultures of Spain. Pre: 301 or 310, or consent. DH

**SPAN 352 (Alpha) Latin American Cultural Perspectives (3)** Survey of the history and cultures of Latin America. (B) Pre-Columbian and Colonial periods; (C) Independence, nationhood and current issues. Repeatable one time for other topics, but not for the same topic. Pre: 301 or 310, or consent. DH

**SPAN 358 Third-Level Spanish Abroad (3)** Intensive formal instruction at the third-year level in Spanish language skills: reading, writing, grammar, or conversation in a Spanish-speaking country. Pre: 202 or 259 or equivalent.

**SPAN 359 Third-Level Spanish Abroad (3)** Continuation of 358.

**SPAN 360 Intensive Third-Level Spanish Abroad (V)** Intensive formal instruction at the third-year level in Spanish language skills: reading, writing, grammar, or conversation in a Spanish-speaking country. Pre: 202 or equivalent.

**SPAN 361 Masterworks of Spanish Literature (3)** Reading and discussion of representative works of Spanish literature: origins to 18th century. Pre: 301 or 310, or consent. DL

**SPAN 362 Masterworks of Spanish Literature (3)** Reading and discussion of representative works of Spanish literature: 18th century to present. Pre: 301 or 310, or consent. DL

**SPAN 371 Spanish-American Literature (3)** Reading and discussion of representative works of Spanish-American literature: Colonial period through Romanticism. Pre: 301 or 310, or consent. DL

**SPAN 372 Spanish-American Literature (3)** Reading and discussion of representative works of Spanish-American literature: Modernism to the present. Pre: 301 or 310, or consent. DL

**SPAN 399 Directed Reading (V)** Independent study of approved reading with faculty supervision. Repeatable two times. A-F only. Pre: 301 (or concurrent), consent and departmental approval.

**SPAN 400 Spanish Language in Society (3)** Explores issues in Spanish language in society (media, communication, advertising, government, technology). Introduces and examines current sociolinguistic and sociopragmatic issues. Pre: 330 or consent.

**SPAN 403 Advanced Composition and Conversation (3)** Advanced practice; emphasis on building active vocabulary. Pre: 302 or consent.

**SPAN 405 Spanish-English Translation (3)** Factors in the art of translation. Practice in translating material from Spanish to English and the reverse. Pre: 305 or consent.

**SPAN 451 Historical Spanish Linguistics (3)** Evolution of Spanish from Latin; modern social and geographical dialects. Pre: 302 or 330, or consent.

**SPAN 452 Introduction to Spanish Linguistics (3)** Analysis of morphology, syntax, and semantics. Pre: 302 or 330, or consent.

**SPAN 458 Fourth-Level Spanish Abroad (3)** Intensive course of full-time formal instruction on the fourth-year level in Spanish linguistics, civilization, culture, and literature in a Spanish-speaking country. Pre: 302, 303, 358, 359, or 360.

**SPAN 459 Fourth-Level Spanish Abroad (3)** Continuation of 458.

**SPAN 460 Intensive Fourth-Level Spanish Abroad (V)** Intensive course of formal instruction on the fourth-year level in Spanish language and culture in a Spanish-speaking country. For semester programs only. Pre: 360 or equivalent.

**SPAN 461 Spanish Neoclassicism/Romanticism (3)** Representative works from Spanish Neoclassicism (18th century) and Romanticism (19th century). Genres: theater, poetry, essay, novel. Pre: 361 or 362, or consent. DL

**SPAN 477 U.S. Latino Literature (3)** Study of the literature of U.S. Hispanics written in Spanish or bilingually. Pre: 371 or 372, or consent. DL

**SPAN 478 Hispanic Women's Literature (3)** The feminine experience in Western literary and cultural traditions as seen by women in Spain and Latin America. Pre: one of 361, 362, 371 or 372; or consent. DL

**SPAN 480 Hispanic Theater (3)** Study of representative authors and plays from Spain and Latin America. Repeatable one time. Pre: one of 361, 362, 371, or 372; or consent. DL

**SPAN 495 (Alpha) Topics in Hispanic Scholarship (3)** Hispanic authors, periods, or themes. (B) literature and society, DL; (C) Hispanic poetry, DL; (D) literature and film, DH. Repeatable for other topics, but not for the same topic. Pre: one of 361, 362, 371, or 372; or consent.

**SPAN 496 Studies in Latin American and Iberian Film (3)** Intensive study of selected topics in Latin American and/or Iberian cinemas; e.g. national or regional cinemas, periods, movements or issues, major filmmakers, film theory and criticism. Repeatable two times. Pre: one of 361, 362, 371 or 372; or consent. DH

**SPAN 499 Directed Reading and Research (V)** Independent study of approved readings and research with faculty supervision. A-F only. Repeatable two times. Pre: consent of instructor and departmental approval.

**SPAN 658 Seminar in Spanish Applied Linguistics (3)** Repeatable unlimited times with consent. Pre: graduate standing or consent.

**SPAN 660 Medieval Spanish Literature (3)** Representative readings in prose and poetry, from origins through 15th century. Pre: graduate standing or consent.

**SPAN 665 (Alpha) Golden Age Literature (3)** Spanish literature from the 16th and 17th centuries. (B) theater; (C) prose; (D) poetry; (E) Cervantes. Pre: graduate standing.

**SPAN 669 19th-Century Spanish Realism (3)** Nineteenth-century Spanish realism in the novel. Authors include Galdós, Clarín, Alarcón, Pardo Bazán, Blasco-Ibáñez, Valera. Pre: graduate standing or consent.

**SPAN 670 (Alpha) 20th-Century Spanish Literature (3)** Representative works from 20th-century literature. Genres: poetry, theater, essay, novel. (B) generation of 1898; (C) pre-Civil War; (D) post-Civil War. Pre: graduate standing or consent.

**SPAN 680 Spanish-American Novel (3)** Critical analysis of major Spanish-American novels. Pre: graduate standing or consent.

**SPAN 681 Colonial Spanish-American Literature (3)** Spanish-American literature from period of discovery to independence. Representative authors such as Sor Juana, Bernal Díaz del Castillo. Pre: graduate standing or consent.

**SPAN 682 Spanish-American Poetry (3)** Study of representative poets from all periods: Martí, Darío, Mistral, Guillén, Neruda, Paz, etc. Pre: graduate standing or consent.

**SPAN 683 Spanish-American Short Story and Essay (3)** Study of representative writers from various periods: Sor Juana, Palma, Quiroga, Reyes, Borges, etc. Pre: graduate standing or consent.

**SPAN 695 Seminar in Hispanic Literature (3)** A period, author, genre, or region. Repeatable unlimited times with consent. Pre: graduate standing or consent.

**SPAN 699 Directed Research (V)** Repeatable unlimited times. Pre: consent of department chair.

**Special Education (SPED)**

*College of Education*

SPED 304 is a prerequisite course to the Post-Baccalaureate Special Education (PB-SPED) in mild/moderate disabilities program; SPED 412 is a prerequisite course

to the PB-SPED in severe/autism program. A minimum grade of B- is required for all prerequisite courses prior to beginning program courses. All field course work requires candidates to obtain current TB clearance, background check, and liability insurance.

**SPED 201 Disability and Diversity (3)** Explores the changing disability experience (from “stereotype” to “normalization”) as depicted in film, literature and dialogue with persons with disabilities in the Pacific region. Students will employ “technologies for voice” to share stories. A-F only. **DS**

**SPED 304 Foundations of Inclusive Schooling (3)** Foundations of “special education” exploring philosophies, diverse and historical viewpoints, laws, and service delivery. Students reflect upon texts, films and interviews with persons with disabilities, their families and professionals to understand the culture of disability. A-F only. **DS**

**SPED 315 Field Training – Blended ECE (4)** Students spend 15 hours per week in settings appropriate to concurrently enrolled classes; supervision provided by participating teacher and college supervisor. Repeatable two times. A-F only. Pre: 304 and ITE 415 (with a minimum grade of B-), or consent. (Cross-listed as ITE 315)

**SPED 332 Young Children with Communication Needs (3)** Communication development of infants and young children, ages birth through age 8, with and without disabilities. Assessment and intervention to support the development of communication skills in inclusive community and school environments. A-F only. Pre: FAMR 331 (with a minimum grade of B-) or consent.

**SPED 390 (Alpha) Student Teaching in Special Education (V)** Full-time supervised experience in school. (B) elementary/special education; (C) early childhood education/special education; (D) unclassified. Repeatable one time per alpha. A-F only. Pre: 400 (with a minimum grade of B) and requirements for registration listed under “student teaching.” Co-requisite: 391B for (B); 391C for (C); 391D for (D).

**SPED 391 (Alpha) Seminar for Student Teachers in Special Education (V)** Seminar relating current educational theories with experiences. (B) elementary/special education; (C) early childhood education/special education; (D) unclassified. Repeatable one time per alpha. A-F only. Pre: requirements for registration listed under “student teaching.” Co-requisite: 390B for (B); 390C for (C); 390D for (D).

**SPED 392 Student Teaching in Special Education Modified (V)** Modified student teaching for students from another institution completing student teaching at UH or for students who have prior extensive teaching experience. A-F only. Pre: requirements for registration listed under “Student Teaching,” approval of review committee and consent.

**SPED 400 Field Training in Special Education (V)** Students participate in classroom settings appropriate to concurrently enrolled courses; supervision provided by participating teacher and college supervisor. Repeatable up to 10 credits. A-F only. Pre: 304 (or concurrent) or consent. Co-requisite: one of 461, 462, or 485; or consent.

**SPED 412 Individuals with Severe Disabilities/Autism (3)** Etiology, characteristics, and development of individuals with severe disabilities and autism; historical, theoretical, and legal issues affecting individuals with severe disabilities and autism; multicultural, family, and consumer issues; professional and ethical issues in providing services. A-F only.

**SPED 414 Education of Gifted Students (3)** Characteristics and educational provisions for gifted children and youth with particular attention to psychological aspects of creativity.

**SPED 415 Education Program for the Gifted/Talented (3)** Utilization and evaluation of teaching/learning models for gifted/talented students, including consideration of roles, expectancies for learning, and organizational procedures. Pre: 414 or consent.

**SPED 421 (Alpha) Strategies for Reading Difficulties (V)** Overview of methods, programs, and

strategies for reading instruction designed to improve the performance of elementary students, grades K-6, who experience difficulties in reading acquisition, fluency, and comprehension. (B) elementary/special education; (C) early childhood education/special education; (D) unclassified. Repeatable one time per alpha. A-F only.

**SPED 425 (Alpha) Partnerships with Families and Professionals (V)** Knowledge and skills for relating effectively with families and professionals on behalf of the children and youth with and without disabilities. Coverage of the context in which family members and school personnel interact. (B) elementary/special education; (C) early childhood education/special education; (D) unclassified. Repeatable one time per alpha. A-F only.

**SPED 443 Disability and Diversity in Physical Activity (4)** (3 Lec, 1 1-hr. Lab) Participants will explore issues of socio-cultural, sexual orientation, religion, and individuals with exceptionalities, and how these affect a student’s learning and behavior in the physical education setting. Required field experience. Repeatable one time. A-F only. (Cross-listed as KRS 443)

**SPED 444 Educating Exceptional Students in Regular Classrooms–Elementary (3)** Teaching elementary students with disabilities and those who are gifted/talented. Meeting academic/social needs, classroom management, motivation, peer interaction, collaboration between special and regular educators. Includes an emphasis on instruction in writing. (Cross-listed as ITE 444)

**SPED 445 Educating Exceptional Students in Regular Classrooms–Secondary (3)** Teaching secondary students with disabilities and those who are gifted/talented. Meeting academic/social needs, classroom management, motivation, peer interaction. Collaboration between special and regular educators. Includes an emphasis on instruction in writing. (Cross-listed as ITE 445)

**SPED 446 Seminar in Special Education (3)** Study of issues, trends, and research into special education programming and service delivery. Repeatable two times. Pre: consent.

**SPED 451 Programs for Infants/Toddlers (3)** Examination of current theory, research, issues, and models in programs for infants and toddlers including criteria for evaluation and planning. Pre: FAMR 230 (or concurrent) and FAMR 331 (or concurrent), or consent. (Cross-listed as EDCS 451)

**SPED 452 Preschool Children–Special Needs (3)** Examination of application of current research and practices for serving preschool children with special needs. Pre: FAMR 230 (or concurrent), or consent.

**SPED 461 (Alpha) Assessment, Planning, and Instruction for Students with Mild/Moderate Disabilities (3)** Techniques in the assessment, planning, and instructional process appropriate for students with mild/moderate disabilities. Stress on program development to facilitate inclusion of students with disabilities into general education environment. (B) elementary/special education; (C) early childhood elementary/special education; (D) unclassified. A-F only. Pre: 304 (with a minimum grade of B).

**SPED 462 (Alpha) Assessment, Planning, and Instruction for Students with Severe Disabilities/Autism (3)** Techniques in the assessment, planning, and instructional process appropriate for students with severe disabilities. Focus on program development to facilitate the inclusion of students with disabilities into general education settings. (B) elementary/special education; (C) early childhood/special education; (D) unclassified. A-F only. Pre: 304 (with a minimum grade of B).

**SPED 480 (Alpha) Technology for Children with Disabilities (V)** Overview of technologies for children with disabilities, highlighting battery operated toys, low and high tech augmentative communication systems, software, computers and alternative input devices (keyboards, switches, trackballs, touch

windows), and multimedia technologies to promote discovery and independence for children with disabilities and their families. (B) elementary/special education; (C) early childhood education/special education; (D) unclassified. Repeatable one time per alpha. A-F only.

**SPED 485 (Alpha) Classroom Organization and Management (3)** Knowledge and skills related to basic organizational management of an inclusive classroom, including scheduling, grouping, and stress and time management; techniques of applied behavior management, emphasizing behavior change and practical implementation of learning principles. (B) elementary/special education; (C) early childhood education/special education; (D) unclassified. A-F only. Pre: 304 (with a minimum grade of B).

**SPED 486 Theoretical Basis for Teaching Special-Needs Students (3)** Survey of biophysical, behavioral, social/ecological, psychodynamic/psycho-educational, cognitive/developmental, counter-theoretical approaches to teaching exceptional students. Opportunity for the development and/or strengthening of one’s own theoretical frame of reference.

**SPED 487 Characteristics/Strategies for Teaching At-Risk Students (3)** Survey of educational, behavioral, and emotional characteristics of students who are at-risk for school failure and strategies to work with such students.

**SPED 499 Directed Reading/Research (V)** Individual reading, research, and/or projects under direct supervision of instructors. Repeatable nine times. Pre: consent of instructor or department chair.

**SPED 500 Master’s Plan B/C Studies (1)** Enrollment for degree completion. Pre: master’s Plan B candidate and consent.

**SPED 526 Field Experience in Special Education–Post Baccalaureate (2)** Students spend a minimum of 100 hours over a minimum of 11 weeks in settings appropriate to SPED-PCert program emphasis (mild/moderate or severe/autism); supervision provided by participating teacher and/or college supervisor. Repeatable two times. Post-Baccalaureate in Special Education only. A-F only. Pre: 304 or 412.

**SPED 527 Student Teaching in Special Education–Post Baccalaureate Programs (6)** Supervised student teaching with a master teacher in PreK-12 educational settings appropriate to SPED-PCert emphasis (mild-moderate, severe/autism); minimum 280 hours in minimum 11 weeks. Supervision by master teacher and university supervisor.

**SPED 528 Internship in Special Education–Post Baccalaureate Programs (3)** Supervised teaching experience in full-time on-the-job PreK-12 educational settings appropriate to SPED-PCert program emphasis (mild/moderate or severe/autism); supervision provided by university supervisor. Must enroll for two consecutive semesters. Repeatable three times.

**SPED 581 (Alpha) Practicum in Special Education (1)** For in-service school/community personnel to present new ideas, approaches, instructional methods, materials for teaching exceptional individuals. (B–E) general SPED; (F–G) secondary programming/SPED; (H–I) bilingual/multicultural/special needs; (J–K) severe disabilities; (M–N) early childhood/special needs; (O–P) career/vocational/special needs; (Q–R) computer/special needs; (S–T) arts/special needs; (U–W) computer training/special needs; (X–Y) consultant skills/special needs; (Z) Ho’okoho. Repeatable nine times. CR/NC only. Pre: teaching or related work experience.

**SPED 582 (Alpha) Practicum in Special Education (2)** For in-service school/community personnel to present new ideas, approaches, instructional methods, materials for teaching exceptional individuals. (B–E) general SPED; (F–G) secondary programming/SPED; (H–I) bilingual/multicultural/special needs; (J–K) needs; (Q–R) computer/special needs; (S–T) arts/special needs; (U–W) computer training/special needs; (X–Y) consultant skills/special needs; (Z) Ho’okoho. Repeatable nine times. CR/NC only. Pre: teaching or related work experience.

**SPED 583 (Alpha) Practicum in Special Education (3)** For in-service school/community personnel to present new ideas, approaches, instructional methods, materials for teaching exceptional individuals. (B–E) general SPED; (F–G) secondary programming/SPED; (H–I) bilingual/multicultural/special needs; (J–K) severe disabilities; (M–N) early childhood/special needs; (O–P) career/vocational/special needs; (Q–R) computer/special needs; (S–T) arts/special needs; (U–W) computer training/special needs; (X–Y) consultant skills/special needs; (Z) Ho'okoho. Repeatable eight times. CR/NC only. Pre: teaching or related work experience.

**SPED 590 Internship, Special Education (6)** Supervised field activities involving the programming and instruction of special-needs students within training programs in Hawai'i and the Pacific Basin. Pre: consent.

**SPED 600 Foundations of Exceptionality (3)** Theoretical, legal and multicultural foundations for assessing, teaching and developing individual service plans across the lifespan for persons with disabilities. Pre: consent.

**SPED 601 Technology for Diverse Learners: Access, Accommodations, and Universal Design (3)** Strategies for using assistive technologies, multimedia technology, and telecommunications to design engaging learning environments that promote inclusion and give voice to diverse learners. Emerging technologies for access, accommodations, and universal design are explored. Pre: one of 480, ETEC 414, or ETEC 442.

**SPED 602 Special Education Law and Compliance (3)** Examination of the federal, state, and local government roles in special education with special emphasis on case and regulatory law. Focus on understanding special education law necessary in providing services to students with disabilities in a variety of placements. Appropriate for special/general education teachers, administrators, or related service providers. Pre: consent.

**SPED 603 Principles of Behavior (3)** Principles and laws governing behavior and methods that can be used to accomplish educationally relevant changes in student performance. Emphasis on the conceptual basis for changing behavior and use of technologies for changing behavior in school and community settings. Pre: consent.

**SPED 605 Collaboration in School and Community Settings (3)** Collaboration skills necessary to function as team members and to ensure the success of students with disabilities in inclusive school and community settings. Pre: consent.

**SPED 606 Language Development for Deaf Children (3)** General theories of first and second language development applied to development of ASL and English in deaf children. Relationship of theory to educational practice. Taught in ASL and English. Repeatable one time. A-F only. Pre: admission into Deaf Education program or consent. (Alt. years)

**SPED 607 Audiology and Spoken English for Deaf Students (3)** Developmental principles of audiology and speech (i.e., spoken English) will be used to examine assessment procedures and intervention strategies appropriate to deaf students in a variety of educational placements. Classroom applications will be presented. Taught in ASL and English. Repeatable one time. A-F only. Pre: admission into Deaf Education program or consent. (Alt. years)

**SPED 608 Literacy Development for Deaf Students (6)** Basic concepts related to language, language development and recognition of language-related learning problems of deaf students; strategies for teaching reading and writing to deaf students. Repeatable one time. A-F only. Pre: 461 and 606, or consent. (Alt. years)

**SPED 609 Seminar in Bilingual Deaf Education (3)** Study of issues, trends and methods in ASL/English bilingual education for deaf students. Taught in ASL and English. Repeatable one time. A-F only. Pre: 606, 607 and 608; or consent. (Alt. years)

**SPED 610 Advanced Assessment and Curriculum Development—Deaf (3)** Assessment methods and techniques used with deaf students that emphasize the bond between curriculum-based assessment and curriculum-based programming through planning and providing cyclical instruction across content areas based on ongoing diagnostic assessment. Taught in ASL and English. Repeatable one time. A-F only. Pre: 609 or consent. (Alt. years)

**SPED 611 Methods and Strategies for Students with Mild/Moderate Disabilities (3)** Techniques for providing effective instruction including: best instructional practice, lesson planning, teacher-directed and student-mediated instructional strategies, and curricular approaches for working with students with mild/moderate disabilities. A-F only. Pre: 304 or consent.

**SPED 613 Advanced Assessment and Curriculum Development (3)** Assessment methods and techniques that emphasize the bond between curriculum-based assessment and curriculum-based programming. Planning and cyclical instruction across content areas based on ongoing diagnostic assessment. Pre: 461 or consent.

**SPED 614 Assessment and Instruction—Severe Disabilities and Autism (3)** Basic principles of assessment, instruction, and curriculum development; application of formal and informal assessment procedures for goal selection, formulating instructional plans, and adapting instructional materials to accommodate learning needs of students with severe disabilities and autism. Pre: consent.

**SPED 615 Family-Centered Approaches in Deaf Education (1)** Prepare teachers to deliver family-centered home-based services to families of deaf children using the SKI-HI model. Course will be taught in ASL and English. Repeatable one time. A-F only. Pre: 606, 607 and 608; or consent. (Alt. years)

**SPED 616 Collaboration—Working with Deaf Students in Inclusive Settings (3)** Collaboration skills for working with general education teachers, specialists, paraprofessionals, families and community members to support the success of deaf students in inclusive settings. Taught in ASL and English. Repeatable one time. A-F only. Pre: 606, 607 and 608; or consent. (Alt. years)

**SPED 617 Transition Strategies for Deaf Students (1)** Collaborative model for facilitating the transition of deaf and hard-of-hearing students to develop appropriate transition plans and effective plans of study. Taught in ASL and English. Repeatable one time. A-F only. Pre: 606, 607 and 608; or consent. (Alt. years)

**SPED 618 Adaptations and Special Procedures—Students/Severe Disabilities/Autism (3)** Adaptations and special intervention procedures to support the participation of individuals with severe motor, communication, and/or adaptive behavior disabilities in inclusive school and community settings. Includes lab work. Pre: consent.

**SPED 620 Strategies Across Content Area (3)** Strategies for teaching math, science, and social sciences to students of all ages with mild/moderate disabilities; selection of appropriate materials, teaching techniques, curriculum development. Pre: 611 or consent.

**SPED 621 Language Arts Strategies: Students with Mild/Moderate Disabilities (3)** Basic concepts related to language, language development, and recognition of language-related learning problems of students with mild/moderate disabilities; strategies for teaching language arts curricula (listening, speaking, reading, writing) to students of all ages with learning problems. Pre: 304 or consent.

**SPED 622 Children's Literature for Deaf Students (3)** Introduction to English literature translated into American Sign Language (ASL) including discussion of ASL literature genres, the importance of translation, selection of literature; story reading, book reading, and retelling. Taught in ASL. Repeat-

able one time. A-F only. Pre: 609 or consent. (Alt. years)

**SPED 625 Teaching Skills for Social Competence (3)** Issues in social development, self-determination, and social skills competence training for children and youth with disabilities; experience in group social skills training and development of individualized programs. Pre: either 485 or 630, and either 611 or 614; or consent.

**SPED 626 Field Experiences in Special Education (3)** Students spend a minimum of nine hours per week in settings appropriate to concurrently enrolled courses; supervision provided by participating teacher and college supervisor. Repeatable three times. Pre: consent.

**SPED 627 Advanced Practicum (6)** Supervised education/community experiences; minimum of 20 hours weekly with special-needs population (MR, LD, SED, SMH); pre-school through postsecondary settings (public/private). Related seminar or equivalent and completion of SPED core required. Repeatable one time. Pre: consent.

**SPED 628 Internship (3)** Supervised education/community experiences with special needs populations (MR, LD, SED, SMH), preschool through postsecondary settings. Completion of SPED core required; must enroll for two consecutive semesters. A-F only. Repeatable two times. Pre: 626 and consent.

**SPED 629 Clinical Practice Special Projects (V)** Development and implementation of a field-based research professional development project under the direction of the student's advisor; limited to students enrolled in the interdisciplinary program. Repeatable up to 12 credits. A-F only. Pre: advisor's approval.

**SPED 630 Positive Behavioral Support—Severe Disabilities and Autism (3)** Principles and laws governing human behavior and positive methods for eliminating significant behavior problems for students with severe disabilities and autism. Emphasis on the functions of behavior, experimental techniques for documenting behavior change, and the use of technologies for improving behavior in school and community settings. Pre: consent.

**SPED 631 Early Intervention for Special Populations (3)** Issues important to early childhood special education. Early screening and assessment, working with families, curriculum options/models, program evaluation. Pre: consent.

**SPED 632 Language/Communication Intervention—Communication Disorders/Autism (3)** Current research in normal language learning, assessment, planning, implementation, evaluation of language delayed/disordered children, including children with autism. Procedures for attaining language/functional communication objectives using ongoing routines/activities. Pre: consent.

**SPED 633 Motor Development/Intervention for Students with Severe Disabilities (3)** Normal/abnormal motor development; description/etiology of physically disabling conditions influencing motor development; analysis/application of assessment/intervention strategies to promote motor development; positioning and handling skills. Pre: 614 (or concurrent) or consent.

**SPED 634 Inclusive Physical Activity (3)** Advanced knowledge on issues of socio-cultural, learning styles, diversity, and exceptionalities, and how these influence instruction, engagement, and behavior in physical activity settings across the lifespan. A-F only. Pre: consent. (Cross-listed as KRS 634)

**SPED 635 Procedures for Early Childhood Special Education (3)** Assessment and intervention strategies to promote behavior change with young children with disabilities. Promoting child skill gains and integrated programming options. A-F only. Pre: consent.

**SPED 640 Seminar on Mild/Moderate Disabilities (3)** Study of issues, research, program development in the area of mild/moderate disabilities. Repeatable two times. Pre: consent.

**SPED 641 Seminar in Issues in Special Education (3)** Seminar on issues, trends, research, and program development in the field of special education. Seminar may be repeated for credit as topics vary. Repeatable five times. A-F only. Pre: departmental approval. (Once a year)

**SPED 642 Seminar on Applied Research/Special Education (3)** Study and development of applied research topics in special education. Repeatable two times. Pre: consent.

**SPED 652 Transition/Supported Employment (3)** Transition planning for youth with disabilities in preparation for employment as adults in private and public sector businesses. A-F only. Pre: consent.

**SPED 688 Research Practicum in Special Education (3)** Directed research experience to demonstrate mastery of research skills and techniques through developing and writing research proposals. Repeatable one time. A-F only. Pre: 642 or consent, or departmental approval. (Once a year)

**SPED 695 Plan B Master's Project (3)** Independent study for students working on a Plan B master's project. Repeatable one time. A-F only. Pre: graduate standing in Special Education.

**SPED 699 Directed Reading/Research (V)** Individual reading/research. Repeatable unlimited times. Pre: consent of instructor and department chair.

**SPED 700 Thesis Research (V)** Research for master's thesis. Repeatable unlimited times.

**SPED 705 Seminar in Exceptionalities (3)** Current and historical topics, issues, and trends in the field of exceptionalities. Repeatable with different content. Pre: consent.

**SPED 706 Doctoral Internship (6)** Supervised internship (minimum 18 hours per week) in program development and administration or research in the student's area of emphasis. Pre: consent.

**SPED 740 Single-Case Experimental Design (3)** Advanced single-case experimental design; examines the logic of internal and external validity of small "N" design and its functionalist foundations. Pre: consent.

**SPED 745 Special Topics in Exceptionalities (3)** Critical examination and discussion of historical or current topic in early intervention, special education, and/or developmental disabilities. Repeatable two times. A-F only. (Once a year)

**SPED 760 Grant Development/Procurement (3)** Overview of grant development and procurement processes related to special education personnel preparation and research and demonstration programs. Students design a grant proposal related to a particular problem or need within their employment settings. Pre: consent.

## Surgery (SURG)

### *School of Medicine*

**SURG 531 Surgery Clerkship (10)** A clinically based, introductory course in general surgery and selected subspecialties. Repeatable one time. Pre: third-year standing.

**SURG 532 Surgery Longitudinal Clerkship (5)** A clinically based, year-long, introductory in general surgery and selected subspecialties. Outpatient-conducted one day per week for six months in a community-based, ambulatory care facility. Inpatient-conducted for four weeks in an acute-care hospital facility. Repeatable one time.

**SURG 541 Emergency Medical Care (6)** Clinical experiences in management of medical, surgical, and psychiatric problems requiring urgent care. Pre: 531 and fourth-year standing.

**SURG 545 (Alpha) Electives in Surgery (V)** Advanced clinical experience in: (B) urology; (C) ophthalmology; (D) otolaryngology; (E) plastic surgery; (F) neurosurgery; (G) orthopaedics; (H) anesthesia; (I) surgical intensive care; (J) Sub-I-general surgery; (K) Sub-I-pediatric surgery; (M) diagnostic radiology; (N) radiation oncology; (O) EM Sub-I;

(P) extramural elec in surg; (Q) Sub-I-cardiovascular; (R) surgical research; (S) surgical anatomy; (T) preceptorship in Asia; (U) biomedical technology design; (X) transplant surgery. Repeatable one time for all except (U); repeatable two times for (U) and (X). Medical students only for (U) and (X). CR/NC only. Pre: 531 or 532 for all except (M) and (U); and consent for (R) and (S); admission into JABSOM for (U).

## Tahitian (TAHT)

### *College of Languages, Linguistics and Literature*

**TAHT 103 First Year Tahitian I (3)** Basic core skills of listening, speaking and grammar of spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. **HSL**

**TAHT 104 First Year Tahitian II (3)** Basic core skills of listening, speaking and grammar of spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. Pre: 103 or consent. **HSL**

**TAHT 203 Second Year Tahitian I (3)** Intermediate core skills of listening, speaking and knowledge of grammar for spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. Pre: 104. **HSL**

**TAHT 204 Second Year Tahitian II (3)** Intermediate core skills of listening, speaking and knowledge of grammar for spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. Pre: 203 or consent. **HSL**

**TAHT 301 Third-Level Tahitian (3)** Continuation of 202. Conversation, advanced reading, composition. Pre: 204 or consent.

**TAHT 302 Third-Level Tahitian (3)** Continuation of 301. Pre: 301 or consent.

**TAHT 358 Third-Level Tahitian Abroad (3)** Full-time formal instruction at the University of French Polynesia in Tahiti. Third-year level in Tahitian language and culture. Pre: 204 and consent.

**TAHT 359 Third-Level Tahitian Abroad (3)** Continuation of 358. Pre: 301 or 358; and consent.

**TAHT 401 Fourth-Level Tahitian (3)** Continuation of 302. Advanced conversation, reading, and writing with focus on modern formal and colloquial Tahitian styles. The language in the realms of storytelling, radio, folklore, traditional and modern writing. Survey of modern and classical language. Pre: 302 or consent.

**TAHT 402 Fourth-Level Tahitian (3)** Continuation of 401. Pre: 401 or consent.

**TAHT 458 Fourth-Level Tahitian Abroad (3)** Full-time formal instruction at the University of French Polynesia in Tahiti. Fourth-year level in Tahitian language and culture. Pre: 302 and consent.

**TAHT 459 Fourth-Level Tahitian Abroad (3)** Continuation of 458. Pre: 401 or 458, and consent.

## Thai (THAI)

### *College of Languages, Linguistics and Literature*

**THAI 101 First-Level Thai I (4)** Listening, speaking, reading, writing. Structural points introduced inductively. Meets one hour daily, Monday-Friday; four out of five hours devoted to directed drill and practice; regular on-line lab work and review of audiovisual materials. **HSL**

**THAI 102 First-Level Thai II (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**THAI 107 Reading and Writing Thai Script (3)** Focus on Thai script reading and writing skills. For students with some aural and spoken skills in Standard Thai equivalent to those completing THAI 102 or higher, but cannot read or write in Thai script. Lab work. Pre: consent. **HSL**

**THAI 112 Intensive Elementary Thai (10) HSL**

**THAI 201 Second-Level Thai I (4)** Continuation of 102. Integrated development of skills in listening, speaking, reading, and writing in Thai script. Meets

5 hours a week, regular on-line lab work and review of on-line audio visual materials. Pre: 102 or consent. **HSL**

**THAI 202 Second-Level Thai II (4)** Continuation of 201. Pre: 201 or consent. **HSL**

**THAI 212 Intensive Intermediate Thai (10) HSL**

**THAI 301 Third-Level Thai I (3)** Continuation of 202. Advanced conversation and reading, emphasis on modern written texts. Regular on-line lab work. Pre: 202 or equivalent or consent.

**THAI 302 Third-Level Thai II (3)** Continuation of 301. Pre: 301 or equivalent.

**THAI 303 Accelerated Third-Level Thai (6)** Continuation of 202. Meets six hours a week. Advanced conversation and reading; emphasis on modern written texts. Lab work. Pre: 202 or equivalent.

**THAI 401 Fourth-Level Thai I (3)** Continuation of 302/303. Advanced conversation and reading of specialized, scholarly texts. Pre: 302 or 303 or equivalent.

**THAI 402 Fourth-Level Thai II (3)** Continuation of 401. Pre: 401.

**THAI 404 Accelerated Fourth-Level Thai (6)** Continuation of 303. Meets six hours a week. Advanced conversation and reading of specialized, scholarly texts. Pre: 303.

**THAI 415 Thai Language in the Media (3)** Development of reading and aural comprehension of authentic Thai language used in print and broadcast media through reading Thai newspapers, viewing and listening to Thai television and radio programs. Oral and written reports. Repeatable one time. Pre: 402, 404 (or equivalent), or consent.

**THAI 451 Structure of Thai (3)** Introduction to information structure of Thai as a basis for developing reading skills. Analysis of rhetorical, sentence, and word structure from different types of written texts. Pre: 402 or consent. **DH**

**THAI 452 Structure of Thai (3)** Continuation of 451. Pre: 451 or consent. **DH**

**THAI 461 (Alpha) Readings in Thai Contemporary Prose Literature: the Short Story (3)** Selected readings in Thai short stories from early 1930s to present. Oral and written reviews (B) 1930-1969; (C) 1970-present. Repeatable one time with consent. Pre: 402 or consent. **DL**

**THAI 462 (Alpha) Readings in Thai Contemporary Prose Literature: the Novel (3)** Selected readings in Thai novels from early 1930s to present. Oral and written reviews. (B) 1930-1969; (C) 1970-present. Repeatable one time with consent. Pre: 402, 461(B) or 461(C), or consent. **DL**

## Theater (THEA)

### *College of Arts and Humanities*

**THEA 101 Introduction to World Drama and Theatre (3)** (2 Lec, 1 1-hr Lab) Performance traditions of Africa, Asia, Australia, Europe, North America, and the Pacific Islands from the 5th century B.C. to the present. Analysis of political, religious, and technological conditions of theatre. Includes practical theatre workshop. **DA**

**THEA 200 (Alpha) Beginning Theater Practicum (1)** Beginning workshop experience in the practical application of theater skills. (B) acting; (C) stagecraft; (D) costume; (E) theater management. Repeatable up to four credits in each alpha. Pre: for 200B, audition and performance of role in a Department of Theatre and Dance production; for 200E theatre majors only or consent.

**THEA 201 Introduction to the Art of the Film (3)** Introduction to the aesthetics of silent and sound movies. Technical subjects analyzed only as they relate to theme and style. **DH**

**THEA 214 Development of the Sound Film (3)** Growth and changes in aesthetics of the sound film from 1929 to present; films by Renoir, Welles, Eisenstein, etc. Pre: 201. (Alt. years) **DH**

**THEA 220 Beginning Voice and Movement (3)**

Introduction to vocal and movement techniques to increase self-awareness and potential for self-expression. Repeatable one time. Pre: consent. **DA**

**THEA 221 Acting I: Introduction to Performance (3)**

Concentration on voice, relaxation, body awareness, and freedom from self-consciousness through theater games, improvisations, monologues, and exercises. Emphasis on ensemble work. Repeatable one time with consent. **DA**

**THEA 222 Acting II: Basic Scene Study (3)** Basic character study and understanding of creation of roles through working on scenes from major modern and contemporary plays. Repeatable one time with consent. Pre: 221. **DA**

**THEA 224 Pidgin/HCE Drama (3)** Introduction to Hawaiian Creole English (HCE) multicultural comedy and drama in Hawai'i. Emphasis on acting exercises, local dialects, and the performance of Pidgin/HCE plays. Repeatable one time with consent. (Alt. years) **DA**

**THEA 240 Introduction to Theater Production (3)**

(3 Lec, 1 3-hr Lab) Survey class introducing basic tools, materials and skills of Technical Theatre: production, rigging, lighting, costume, make-up and painting. **DA**

**THEA 240L Theatre Production Lab (1)** Lab observations and projects illustrating basic principles of theatre production. A-F only. Co-requisite: 240.

**THEA 241 Film/TV Production Process (3)** Entry-level course details three phases of the production process for film and video projects: pre-production, production, and post-production. A-F only. Pre: consent. **DA**

**THEA 245 Design Principles for Performance (3)**

Introduction to general design principles as applied to theatre. Will introduce the language and tools of visual literacy and visual communications via individual projects and collaboration. Repeatable two times. (Cross-listed as DNCE 245) **DA**

**THEA 311 World Theater I: Script Analysis (3)**

Script analysis methods for world drama. Required of all majors. Pre: 101 or 221 or 240 or consent. **DL**

**THEA 312 World Theater II: Myth to Drama (3)**

Myth and ritual into drama, 1000 BCE–1700 CE. Development of secular drama from sacred and ritual beginnings. Required of all majors. Pre: 311 and consent. (Alt. years) **DL**

**THEA 318 Playwriting (3)**

One-act plays; practice in writing in dramatic form. Repeatable one time. Pre: grade of B or better in composition or consent. **DA**

**THEA 319 Screenplay Writing (3)**

Characterization, structure, theme, image, and other components of writing for film. Pre: 201 and grade of B or better in composition, or consent. (Alt. years) **DA**

**THEA 321 Acting III: Monologue/Audition Techniques (3)**

Focus on the individual student: preparation of material from all genres and styles with emphasis on line reading and responsiveness to direction. Repeatable one time with consent. Pre: 222 and consent. **DA**

**THEA 322 Acting IV: Method Acting (3)**

Further exploration of character development through exercises and scene study. Class presentation of scenes for criticism and review. Repeatable one time with consent. Pre: 222 and consent. **DA**

**THEA 323 Film/TV Acting (3)**

Acting techniques for film and TV production. Students appear in scenes from TV and film scripts. Repeatable one time. Pre: 101 or 221 or COM 201 or consent. **DA**

**THEA 324 Advanced Film/TV Acting (3)**

Advanced acting techniques for film and TV production. Taping/filming of scenes and full-length scripts. Repeatable one time. Pre: 323 and consent. **DA**

**THEA 325 Introduction to Asian Acting Styles (3)**

Principles of acting based on traditional Asian models. Voice, movement exercises. Pre: 222. **DA**

**THEA 334 Taiji (T'ai Chi) for Actors I (3)**

Basic Taijiquan (T'ai Chi Ch'uan) movement training. Repeatable two times. Pre: sophomore standing or higher, or consent. (Cross-listed as DNCE 334) **DA**

**THEA 335 Taiji Round Form for Actors (3)**

Introduction to basic Asian movement skills through learning the Wu-style taijiquan round form, a faster and more fluid version of the full 108 taiji sequence of forms. Open to non-majors. Repeatable two times. Pre: sophomore standing or higher, or consent. **DA**

**THEA 343 (Alpha) Topics in Theatre Production (3)**

Workshop in principles, techniques, and application of contemporary theatre production practices. (B) entertainment electrics: lighting, sound, special effects, projections, and related areas; (C) technical production: technical direction, technical design, construction, rigging, and related areas; (D) scenic and prop production: drafting, model-making, scenic art, painting, craftwork, and related areas. Repeatable one time for different alphas, each alpha can be taken one time. Pre: any course in THEA or DNCE, or production experience; or consent. (Alt. years) **DA**

**THEA 345 Lighting I: Beginning Lighting Design (3)**

Basic principles of lighting design and associated technologies. Includes functions and properties of light, lighting and control equipment, working procedures, and drafting and paperwork techniques. Pre: 240 or DNCE 250, or consent. (Once a year) **DA**

**THEA 353 Scenic I: Beginning Scenic Design (3)**

Workshop introducing the basic principles and approaches of scenic design for theatre and dance, with emphasis on the creative process. Pre: a course in THEA or DNCE, production experience, or consent. (Consent required for production experience option) (Cross-listed as DNCE 353) **DA**

**THEA 354 Introduction to Costume Construction (4)**

Workshop on basic principles of costume construction for theatre and dance. Professional practices, materials, and methods. (Cross-listed as DNCE 354) **DA**

**THEA 356 Costumes I: Beginning Costume Design (3)**

Basic principles and approaches to costume design for theatre and dance. Visual communication methods, creative process, historical research, and organizational practices. Repeatable one time. Pre: 240, DNCE 250, or consent. (Cross-listed as DNCE 356) **DA**

**THEA 357 Stage Makeup Workshop (3)**

Theory and practice; corrective and three-dimensional makeup, modeling with paint; beards, mustaches. Repeatable one time. Pre: 240 or consent. **DA**

**THEA 380 Beginning Directing (3)**

Basic practical course in how to direct a play. Students will direct scenes. Pre: upper division theater majors or consent. **DA**

**THEA 400 (Alpha) Advanced Theater Practicum (1)**

Advanced workshop experience in the practical application of theater skills. (B) acting; (C) stagecraft; (D) costume; (E) theater management. Repeatable up to four credits per alpha. Pre: audition and performance of role in a Department of Theatre and Dance production for (B); consent for (C) and (D); theatre majors only or consent for (E).

**THEA 411 World Theater III: Elite and Popular (3)**

Ethical issues in drama and production, interplay between elite and popular forms and the impact of colonialism, 1500-1900. Required of all majors. Pre: 312 and consent. (Alt. years) **DL**

**THEA 412 World Theater IV: Modern (3)**

Pluralism in modern theater, 1918–present. Reactions to realism and current Western and Asian alternative theater forms. Required of all majors. Pre: 411 or consent. (Alt. years) **DL**

**THEA 413 (Alpha) Approaches to Dramatic Texts (3)**

Intensive analysis and discussion of dramatic texts from a variety of authors. Understanding trends and variations in dramatic form and content. (B) contemporary British and American drama; (C) political drama in the West. Pre: one of 311, 312, 411, 412, or consent. **DL**

**THEA 414 Women in Drama and Theater (3)**

The role of women and their presentation in theater from ancient Greece to the present; focus on socio-political status of women. Pre: 311. (Cross-listed as WS 414) **DH**

**THEA 418 Advanced Playwriting (3)** Workshop in experimental writing in dramatic form; full-length plays. Repeatable one time. Pre: 318. **DA**

**THEA 420 (Alpha) Intermediate Voice for the Actor (3)**

Training in proper and dynamic use of the voice for the actor. (B) Western traditions; (C) Asian traditions. Repeatable two times. Pre: 220 or consent. **DA**

**THEA 421 Acting V: Musical Comedy (3)**

Training in skills required to perform in musicals. Students present scenes from musical comedies for criticism and review. Repeatable two times with consent. Pre: one of 321, 322, MUS 231B, or consent; and/or audition. (Cross-listed as MUS 421) **DA**

**THEA 422 Acting VI: Period Styles (3)**

Presentational acting in comedy and tragedy; emphasis on performance styles in Elizabethan, Restoration, and 18th-century drama. Repeatable one time with consent. Pre: 321 and 322, or consent. **DA**

**THEA 424 Hawaiian Acting Workshop (3)**

Training in skills and techniques for selected traditional Hawaiian performance forms and Hawaiian medium theatre. Emphasis on movement and vocal technique. Repeatable one time. Pre: 222 or consent. (Alt. years) **DA**

**THEA 426 South/Southeast Asian Acting Workshop (3)**

Training in skills and techniques for selected traditional south and southeast Asian theater forms. Emphasis on movement and vocal techniques. Repeatable one time. A-F only. Pre: 222 or consent. (Alt. years) **DA**

**THEA 427 Chinese Acting Workshop (V)**

Training in skills and techniques for selected traditional Chinese theater forms. Emphasis on movement and vocal technique. Repeatable to six credits. Pre: 222 or consent. (Alt. years) **DA**

**THEA 428 Japanese Acting Workshop (V)**

Training in skills and techniques for selected traditional Japanese theater forms. Emphasis on movement and vocal technique. Repeatable to six credits. Pre: 222 or consent. (Alt. years) **DA**

**THEA 429 Contemporary Performance Practices (3)**

Focus on individual training in the skills and techniques of contemporary experimental theater including acting, directing, and self-scripting. Repeatable two times. Pre: one of 222, 318, 380, or consent. **DA**

**THEA 433 Movement Workshop (V)**

Special workshops in movement relating to specific departmental theatrical productions beyond the scope of movement taught in 437 and 438. Repeatable one time. Pre: one of 435, DNCE 435, or consent. (Alt. years) (Cross-listed as DNCE 433) **DA**

**THEA 434 Taiji (T'ai Chi) for Actors II (3)**

Intermediate-level Taijiquan (T'ai Chi Ch'uan) movement training. Repeatable two times. Pre: 334 or consent. (Cross-listed as DNCE 434) **DA**

**THEA 435 Movement for Actors (3)**

Training actors to discover experientially the sources of movement; to teach skills for analyzing movement for its mechanical, anatomical, spatial, and dynamic content; and then to apply these skills in a role. Pre: 222 or consent. (Cross-listed as DNCE 435) **DA**

**THEA 436 Advanced Movement for Actors (3)**

Detailed development of material presented in 435. Focus on Bartenieff fundamentals and movement analysis as it applies to the physical interpretation of theatrical roles. Pre: one of 435, DNCE 435, or consent. (Alt. years) (Cross-listed as DNCE 436) **DA**

**THEA 437 Period Movement Styles, 1450–1650 (3)**

Movement styles and social department of European societies in the Renaissance and early Baroque periods. Pre: one of 435 or DNCE 435, or one semester of a 100-level dance technique class. (Alt. years) (Cross-listed as DNCE 437) **DA**

**THEA 438 Period Movement Styles, 1650–1800 (3)** Movement styles and social department of the Baroque and pre-Romantic periods in Europe and the American Colonies. Pre: one of 435, DNCE 435, one semester of a 100-level dance technique class, or consent. (Alt. years) (Cross-listed as DNCE 438) **DA**

**THEA 439 Musical Theater Dance Forms (3)** Theatrical dance forms used in 20th-century musical theater. Pre: 100 level or above dance technique class, 421, or consent. (Alt. years) (Cross-listed as DNCE 439) **DA**

**THEA 445 Lighting II: Intermediate Lighting Design (3)** Workshop in intermediate techniques and skills of lighting design; storytelling, analysis, research, investigation, questioning, problem solving and the execution of successful design projects. Pre: 345. **DA**

**THEA 446 Topics in Costume Construction (3)** Costume production techniques, both Western and Asian, for theatre and dance. Topic rotation includes: understructures and armatures, patterning, tailoring, dyeing, fabric modification, millinery and crafts, within the context of current industry practice. Repeatable two times. Pre: 354, 356, or consent. (Cross-listed as DNCE 446) **DA**

**THEA 447 Stage Management (3)** Business, organization and management for theater and dance productions. Pre: junior standing or consent.

**THEA 448 Introduction to Computer-Aided Design for the Theatre (3)** Basic concepts and techniques of 2D computer-aided design. Lecture/workshop covers language and commands common to most CAD packages with a focus on drafting specific to theatre. A laptop with Vectorworks installed is required. Pre: 343 or consent. (Once a year)

**THEA 453 SceniScenic Design (3)** Workshop in advanced techniques and skills of scenic design; model making, rendering, and drafting. Pre: 353 or consent. **DA**

**THEA 456 Costumes II: Intermediate Costume Design (3)** Advanced costume design for theatre and dance. Introduction to collaborative process in costume. Intensive work on rendering skills, applied to various design problems. Cost analysis and organizational techniques. Pre: 356 or consent. (Cross-listed as DNCE 456) **DA**

**THEA 462 Drama and Theater of Oceania (3)** Survey of the contemporary drama and theater of Oceania that combines island and Western traditions. Includes Papua New Guinea, Hawai'i, Fiji, Samoa, Australia, New Zealand. Pre: 101 or ANTH 350, or consent. (Cross-listed as PACS 462) **DH**

**THEA 464 Drama and Theater of Southeast Asia and India (3)** Court, folk, popular traditions, and the manner of their production. Pre: consent. **DH**

**THEA 465 Drama and Theater of China (3)** Yuan, southern, spoken drama; Beijing opera and the manner of their production. Pre: consent.

**THEA 466 Drama and Theater of Japan (3)** No, Kyogen, Bunraku, Kabuki, modern drama, and the manner of their production. Pre: junior standing. **DH**

**THEA 468 Drama and Theatre of Hawai'i (3)** Survey of indigenous theatre forms of Hawai'i, Native Hawaiian, and other ethnic playwrights, and contemporary multicultural landscape of drama and theatre in Hawai'i. Junior standing or higher. Pre: 101 (with a minimum grade of B), or consent. (Alt. years: fall) **DH**

**THEA 470 Creative Drama (3)** Dramatic activities for young people. For teachers, group workers, recreation majors, and others dealing with children. Supervised field activities. Pre: junior standing or consent. **DA**

**THEA 474 Theater for Young Audiences (3)** Theories and principles of formal theater for young audiences. Study of and practice in the selection, direction, and production of plays. Pre: junior standing or higher, or consent. **DA**

**THEA 475 Puppetry for Young Children (3)** Methods of constructing puppets and stages with and for children 3 to 8 years of age. Use of puppets in the creative arts. Fieldwork. Pre: junior standing or consent. **DA**

**THEA 476 Puppetry (3)** History and scope of puppetry. Construction and presentation of puppets for adult and child audiences. Repeatable one time. Pre: junior standing or above, or consent. **DA**

**THEA 477 Masks and Giant Puppets (3)** History, construction, and performance techniques for masks and large puppets. For teachers, recreation directors, and others working with students aged 10 to 18 and adults. Pre: junior standing or above, or consent. **DA**

**THEA 480 Intermediate Directing (3)** Workshop; students direct one-act plays. Repeatable one time with consent. Pre: 380 and consent. (Alt. years) **DA**

**THEA 490 Experimental Theater Studio (3)** Working collectively, students research, write, design, develop, and perform a full-length production. Repeatable two times. Pre: 6 credits above the 200 level in acting, directing, playwriting, dancing; or consent. **DA**

**THEA 492 (Alpha) Topics in Drama and Theater (3)** (B) Qigong (Ch'i Kung) for actors; (C) Shakespeare in performance. Skills and techniques for performing in Shakespearean productions; (D) topics in European theatre. Repeatable one time per topic, repeatable two times for (B). Pre: 434 or consent for (B), 222 or consent for (C), junior standing or consent for (D).

**THEA 499 Directed Work (V)** Individual projects; tutorial. Repeatable two times. Pre: consent.

**THEA 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**THEA 600 Seminar in Theater Research (3)** Bibliography and research methods; preparation for thesis and dissertation writing. Required of all graduate theater majors.

**THEA 611 Seminar in Major Dramatic Theory (3)** Major theories of Western drama from Aristotle to Roland Barthes. Repeatable one time with consent. Pre: 412 or consent. (Alt. years)

**THEA 612 History of Western Theater I (3)** Theater as a cultural and social institution in the West, from ancient Greece to Restoration England. Pre: one of 311, 312, 411, 412, or consent. (Alt. years)

**THEA 613 History of Western Theater II (3)** Theater as a cultural and social institution in the West, from the 18th century to the present. Pre: one of 311, 312, 411, 412, or consent. (Alt. years)

**THEA 614 (Alpha) Topics in Dramaturgy (3)** (B) the role of dramaturg; covers the history, theory, and practice; (C) dramaturgy workshop; accompanies specific Kennedy Theatre productions. Repeatable one time per alpha. Pre: consent. (Alt. years)

**THEA 615 Performance Theory (3)** Introduction to key texts and concepts of performance studies. Pre: consent.

**THEA 616 Script Analysis (3)** Study of dramatic texts in a seminar format; analysis of Western and Asian classical to post-modern plays. Pre: 312 or consent.

**THEA 617 Seminar in Performance Studies (3)** Special topics. Repeatable up to two times when topics change. Pre: 615 or consent. (Cross-listed as DNCE 617)

**THEA 618 Digital Multimedia Tools for Performance Research (3)** Dance, Theatre, Music Majors only. A-F only. Repeatable one time. Pre: consent.

**THEA 620 Advanced Voice for the Actor (3)** Training at advanced level in speaking and vocal skills and techniques in preparation for a solo performance. Repeatable one time. A-F only. Pre: 420 or consent. (Alt. years)

**THEA 619 Advanced Topics: Playwriting and Dramatic Theory (3)** Readings, research, writing, and seminar discussions. Pre: 418, 611, and consent.

**THEA 621 Acting VII: Great Roles (3)** Great roles from the Western theater repertory; focus on the individual actor and performance styles. Repeatable one time with consent. Pre: 422 and consent.

**THEA 625 Experimental Asian Acting (3)** Integration of movement, vocal technique, and concepts of traditional Asian genres into the actor's repertory. Exploration of application to contemporary Asian and non-Asian texts. Workshop format. Repeatable one time. Pre: consent.

**THEA 634 Taiji Weapons for Actors (3)** Advanced level Taijiquan (T'ai Chi Ch'uan) weapons training. Repeatable two times. Pre: 334 or 434, or consent.

**THEA 640 Problems in Design and Theatre (3)** Workshop dealing with special topics in lighting design, sound design, technical design, production stage management, and special effects. Repeatable three times with consent. Pre: 343 or 445 or consent.

**THEA 645 Lighting III: Advanced Lighting Design (3)** Workshop dealing with special topics in theatrical lighting design and related skills. Repeatable two times. THEA or DNCE majors only. Pre: 445.

**THEA 650 Professional Advancement in Entertainment Design (1)** Directed study designed to help MFA candidates in Design acquire the tools helpful in obtaining future employment. Portfolios, resumes, and related application tools will be developed along with other necessary skills. Must be current MFA candidate in theatre. Repeatable six times. THEA majors only. Graduate students only.

**THEA 653 Scenic III: Advanced Scenic Design (3)** Workshop dealing with special topics in scenic design, related skills, and portfolio preparation. Repeatable two times with consent. Pre: 453 or consent. (Alt. years)

**THEA 656 Costumes III: Advanced Costume Design (3)** Workshop dealing with special topics in costume design and related skills. Repeatable one time with consent. Pre: 456 or consent.

**THEA 657 Seminar in Design (3)** Research, design, and discussion exploring collaborative design problems and solutions. Pre: 445, 453, 456; or consent.

**THEA 660 Asian Theater Field Research (3)** Goals and methods. Interview, questionnaire, observation, and performance study as research techniques. Practical application by designing a research project. Pre: 600.

**THEA 663 (Alpha) Topics in Asian Theater (3)** Comparative and cross-cultural examination. (B) origins; (C) theories and systems; (D) modern Asian drama. Repeatable one time. Pre: consent.

**THEA 678 (Alpha) Topics in Theatre for Young Audiences (3)** Creative movement/drama, puppetry, and theater/dance; (B) production concepts. Repeatable when topics change. Pre: one of 470, 474, 475, 476, 477, DNCE 490; or consent.

**THEA 680 Directing Asian Theater (3)** Directing traditional Asian theater pieces and Western plays performed with Asian techniques; development of new performance styles based on Asian examples; directing of scenes and one-act plays. Repeatable one time with consent. Pre: graduate theatre major and one Asian theatre course, or consent.

**THEA 682 Graduate Workshop in Directing (3)** Direction of scenes and major one-act plays. Pre-thesis production. Repeatable one time with consent. Pre: 600 or consent.

**THEA 683 Workshop in Directing Process (3)** Methods class in theater production for the director. Covers organization and techniques such as rehearsal planning, scheduling, and execution. Repeatable one time.

**THEA 684 Theatre Governance (3)** Covers the economic and managerial skills for starting a professional and/or non-profit theatre company or performing arts organization: artistic directorship, board development, non-profit legalities, season planning, fundraising, budgeting, publicity, international activities, etc. Pre: 600 or consent.

**THEA 685 Directing Western Styles (3)** Students direct scenes in classic or non-realistic western theatre styles or genres. Repeatable one time with consent. THEA majors only. A-F only. Pre: graduate student in theatre program, or consent. (Alt. years)

**THEA 690 Graduate Theater Workshop (V)** Practical and supervisory theater work pertinent to professional degree objectives on productions being done in Kennedy Theatre or in other venues, by approval. Repeatable up to 6 credit hours. Pre: consent.

**THEA 691 Seminar in Teaching Dance/Theater (3)** Pedagogy and classroom experience in teaching technique and theory. (Alt. years) (Cross-listed as DNCE 691)

**THEA 693 Internship: Youth Theater/Dance (V)** Supervised leadership experiences in theater/dance program with children. Students spend nine hours per week in supervised setting and three hours in weekly class meeting. Pre: one of 470, 476, or DNCE 490; or consent. (Cross-listed as DNCE 693)

**THEA 695 Creative Projects (V)** MFA play or dance productions, design projects, original full-length plays.

**THEA 699 Directed Research (V)** Reading or research in theater theory or history; reading and practice in particular areas of dramatic production. Repeatable unlimited times. Pre: consent.

**THEA 700 Thesis Research (V)** Repeatable unlimited times.

**THEA 705 Seminar in Western Drama and Theater (3)** Special topics. Repeatable when topics change. Pre: consent.

**THEA 763 (Alpha) Seminar in Asian Theater (3)** (B) Southeast Asia and India; (C) China; (D) Japan. Repeatable two times. Pre: one of 464, 465, 466, or consent.

**THEA 779 Seminar in Theatre for Young Audiences (3)** Theories and methods applied in theatrical experiences with and for young audiences: creative movement/drama, puppetry, and theater/dance. Pre: one of 470, 474, 475, 476, 477, or DNCE 490.

**THEA 800 Dissertation Research (V)** Repeatable unlimited times.

## Tongan (TONG)

*College of Languages, Linguistics and Literature*

*Students choosing Tongan for the language requirement should realize it may not be offered if demand is limited.*

**TONG 101 Beginning Tongan (4)** Listening, speaking, reading, and writing skills. Structural points introduced inductively. History and culture. Meets four (4) hours weekly. **HSL**

**TONG 102 Beginning Tongan (4)** Continuation of 101. Pre: 101 or consent. **HSL**

**TONG 201 Intermediate Tongan (4)** Listening, speaking, reading, and writing skills. History and culture. Meets four (4) hours weekly. Pre: 102 or consent. **HSL**

**TONG 202 Intermediate Tongan (4)** Continuation of 201. Pre: 201 or consent. **HSL**

## Translation and Interpretation (TI)

*College of Languages, Linguistics and Literature*

*Some courses require a language exam before being allowed to enroll. Please check the website at [cits.hawaii.edu](http://cits.hawaii.edu) for current courses offered and further details.*

**TI 401 Principles of Translation (3)** Student awareness of the translation process and the criteria for evaluating translations. Includes readings and discussions of the translation process, terminology research as well as intensive practice in precise writing, paraphrasing, and summarizing. Pre: at least 300-level proficiency in a second language.

**TI 402 Professional Orientation (1)** Survey course. Translation as a profession. Professional history. Professional organizations. Deontological principles underlying working conditions. Contracts. Profes-

sional certification and licensing. Repeatable one time. Pre: 401.

**TI 403 Introduction to Interpretation (3)** Develop an awareness of the principles and the current issues involved in interpretation. Theoretical principles, ethics, and underlying techniques will be discussed in reference to conference, court, community, etc., interpreting. Pre: at least 300-level proficiency in a second language.

**TI 405 Court Interpreting I (3)** Introduction to the legal system, as well as theoretical principles, ethics, practical techniques, and current issues surrounding the practice and profession of court and other legal interpreting. Repeatable one time.

**TI 406 Community Interpreting (3)** Basic principles, ethics and skills involved in community interpreting; practical information about the community interpreter's role and profession; practice of various community interpreting situations and techniques. Repeatable one time.

**TI 407 Court Interpreting II (3)** Combined lecture/discussion/practice. Continuation of 405 Court Interpreting, diving deeper into the practical side of oral interpreting for various proceedings, including arraignments, trials, witness testimonies, etc. Must be bilingual. Real courtroom observations required. Repeatable one time. Pre: 405 or consent. (Spring only)

**TI 408 Medical Interpreting (3)** Healthcare interpreting requires students to understand basic biosystems, common illnesses and treatments, as well as interpreting skills. Students must have 402 or above equivalency of second language skills (or instructor approval). Repeatable one time. Pre: 406 or consent.

**TI 411 (Alpha) Technical Translation (English) (3)** Language specific course. Basic techniques and procedures used in bilingual translation of nonfiction texts. Emphasis on the stylistic, syntactic, cultural, lexical, and terminological problems. Translation into English only. (G) general skills; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: senior or graduate standing and pass CITS screening exam. Co-requisite: 401, 413 and 421.

**TI 412 (Alpha) Technical Translation (English) (3)** Translation of nonfiction texts into English. Forms and formats. Emphasis on editing target version and producing camera-ready copy. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: 411, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 414, and 421.

**TI 413 (Alpha) Translation Skills (Second Language) (3)** Language specific course. Basic techniques and procedures used in bilingual translation of nonfiction texts. Emphasis on the stylistic, syntactic, cultural, lexical, and terminological problems. Translation from English into student's working languages. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite: 401, 411, 421.

**TI 414 (Alpha) Technical Translation (into Second Language) (3)** Translation of nonfiction texts into a Second Language. Training process, methodology, and techniques. Web-based. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: a previous translation course, or consent.

**TI 421 Research Tools and Technological Aids for Translation (3)** Word processing, graphics, spreadsheet, database management, and communication programs for professional practice. Reference and bibliographic searches. Traditional and nontraditional resources. Repeatable one time. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite: 401 and 411.

**TI 422 Computer-Assisted Translation (3)** (1 Lec, 1 1.5-hr Lab) The use of computers as aids in the translation process. Basic desktop publishing and technical writing. Computer aids for terminology

studies and glossary building. Repeatable one time. Pre: 421, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 412, 452.

**TI 425 Japanese Translation (3)** Training in techniques of translating Japanese into English. Pre: consent. (Cross-listed as JPN 425)

**TI 432 (Alpha) Consecutive Interpretation (3)** Extensive note-taking and note-reading in a bilingual context. Focuses on the translation of numbers, acronyms, initials, and economic and financial information. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: 431, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 422, and 452.

**TI 442 (Alpha) Simultaneous Interpretation (3)** Simultaneous interpretation of speeches. Focus on the study of formulaic and frozen language characteristically used in international meetings. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: 441, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 432, and 452.

**TI 452 (Alpha) Sight Translation (3)** Basic course. Focus on the ability to translate orally information from a written text. Emphasis on improving linguistic (discourse analysis) and communicative (public speaking) skills. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable one time. Pre: 451 or senior or graduate standing and pass CITS screening exam. Co-requisite for translation students: 402, 412, 414, and 422. Co-requisite for interpretation students: 402, 432, and 442.

**TI 499 Directed Reading/Studies (V)** Basic course. Focus on the ability to orally translate information from a written text. Emphasis on improving linguistic (discourse analysis) and communicative (public speaking) skills. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) Other. Repeatable one time.

## Travel Industry Management (TIM)

*School of Travel Industry Management*

*Students should check with the department for grade requirements for prerequisites.*

**TIM 099 International Exchange Programs (V)** UH Mānoa School of Travel Industry Management majors participating in approved international exchange programs. CR/NC only.

**TIM 100 Internship I (2)** Introduction to travel industry. Discussion of job search strategies, TIM internship requirements, career and academic planning. CR/NC only.

**TIM 101 Introduction to Travel Industry Management (3)** Overview of travel industry and related major business components. Analysis of links between hotel, food, transportation, recreation, and other industries comprising tourism.

**TIM 102 Food and World Cultures (3)** An integrated cross-cultural approach to the study of foods and cultures. Examine history, concepts, principles of cultures and cuisines, the background of food tradition including habitat, social status, religious beliefs, gender, and other environmental considerations. A-F only. **FGB**

**TIM 200 Internship II (2)** A minimum of four hundred hours of travel industry experience. Comprehensive report by student and performance evaluation from employer required. CR/NC only. Pre: TIM major, 100, and 101.

**TIM 300 Internship III (2)** A minimum of four hundred hours of travel industry experience. Position must be different from TIM 200 position and of a more responsible nature or in a different organization. Comprehensive report by student and performance evaluation from employer required. CR/NC only. Pre: TIM major and 200.

**TIM 301 Legal Environment of the Travel Industry (3)** Origin, development, and principles of common, statutory, constitutional, international, and

maritime law relating to hospitality industry. A-F only. Pre: 101. Recommended: BLAW 200.

**TIM 302 Information Systems Technology (3)** Computer applications in the travel industry; operation and evaluation of specific travel industry systems and applied business systems. Pre: 101 and ICS 101.

**TIM 303 Management of Service Enterprises (3)** Principles and philosophies of management with special emphasis on those principles and theories that are most relevant to management in service-based industries. Students may not earn credit for 303 and BUS 315. Pre: 101 or consent.

**TIM 304 Principles of Travel Industry Marketing (3)** Concepts, problems, processes of marketing within the travel industry; development of marketing strategies including product, place, promotion, and price for travel institutions. Students may not earn credit for 304 and BUS 312. Pre: 101.

**TIM 305 Financial Management for the Travel Industry (3)** Cash flow determination and management strategies for financing hospitality ventures and expansion. Determining the financial viability of proposed and existing operations through traditional and state-of-the-art techniques. Pre: 101 and ACC 202; and NREM 203, MATH 203, MATH 215, MATH 241, or BUS 250.

**TIM 306 Human Resource Management: Travel Industry (3)** Principles of human resource management applied to contemporary theories and practices in the travel industry; employee productivity, recruitment, and retention. Pre: 101 and (COMG 151 or COMG 251).

**TIM 310 Institutional Purchasing (3)** Procurement responsibilities in hospitality management. Emphasis on institutions supplying hospitality operations and legislation which controls standards of industrial supplies and goods. Pre: 101.

**TIM 311 Club Management (3)** Introduction to club and institutional management, including operations, services, and facilities. A-F only. Pre: 101.

**TIM 313 Foodservice Management (3)** Critical and essential aspects of managing foodservice operations including principles of food safety and sanitation, procedural knowledge in front and back of the house and guest relations. A-F only. Pre: 101 and 303.

**TIM 314 Hotel Management (3)** Comprehensive understanding of hotel management and functional departments including front office, accounting, housekeeping, food and beverage, marketing, security and safety. Simulation of management trainee programs by hotel chains. Synthesis of concepts, tools and theories of decision-making relevant to hotel operations. A-F only. Pre: 101, 302, and 303 (with a minimum grade of C- in 302 and 303).

**TIM 315 Quality Food Management (3)** Explore various aspects of the quality in foodservice operations and develop strategies to measure and improve the quality. A-F only. Pre: 101 and departmental approval.

**TIM 316 Events Planning and Marketing (3)** Introduction to special event planning processes and techniques. Emphasis on designing, planning, marketing, management, staging events, legal compliances, risk management, financial control, and successful event evaluation. A-F only. Pre: 313 and junior standing.

**TIM 319 Quantity Foods and Institutional Purchasing (4)** (3 Lec, 1 3-hr Lab) Quantity food and beverage operations, menu development and costing, dietary menu claims, purchasing procedures, inventory control, procurement, transportation, legislation. Institutional foodservice sanitation, Hazard Analysis Critical Control Point and National Restaurant Association Certification. Pre: FSHN 181 and FSHN 181L, 315 or consent. (Cross-listed as FSHN 312)

**TIM 320 Introduction to Tourism Economics (3)** Examines tourism from an economic perspective. Topics include: the determinants of consumer

demand for leisure travel, structure of competition among suppliers of tourism services, benefits and costs of tourism development to the host community, government's role in the taxation, subsidy, regulation and protection of the tourism industry, tourism's impact on the environment, and sustainable tourism development. A-F only. Pre: ECON 120 or 130 or 131; or consent. (Cross-listed as ECON 320) **DS**

**TIM 321 Sociocultural Issues in Tourism (3)** Positive and negative impacts of tourism on society, social change, culture, residents, developing countries, and environment. Role of social planning. Pre: 101. **DS**

**TIM 324 Geography of Global Tourism (3)** Tourist landscape in relation to resources, spatial patterns of supply and demand, impacts of tourism development, and models of tourist space. Flows between major world regions. Pre: sophomore standing or higher, or consent. (Cross-listed as GEOG 324) **DS**

**TIM 327 Travel Distribution Management (3)** History, development, operations, and management of travel distribution organizations including: travel agents, tour operators and wholesalers, specialty channelers, meeting planners, incentive houses, travel associations, and other destination management organizations. Evolution and economics of the distribution of travel products through destination databases and electronic commerce. Pre: 302.

**TIM 333 Hotel/Resort Facilities and Design (3)** Comprehensive understanding of facilities management and design including maintenance systems, sustainable development options and design and environmental management. A-F only. Pre: 313 and 314.

**TIM 334 Hotel and Convention Sales (3)** Functions, methods, and problems of hotel, convention, and restaurant sales. Needs of different classifications of properties; market segmentation and the sale of services vs. products. A-F only. Pre: 101. Recommended: 304.

**TIM 350 Introduction to Tourism Transportation (3)** Introduction to managerial and operational issues related to all modes of transportation used by tourists into or within a tourist destination. Passenger behavior; transport infrastructure; transport networks; regulation; sustainable transport. Pre: 101.

**TIM 351 Principles of Logistics (3)** Management of logistics systems: inventory control, warehousing, materials management, physical distribution, transportation. Emphasis on Hawai'i's location and unique problems. Pre: 101.

**TIM 353 Air Transportation Management (3)** Marketing, management and strategies used by airlines, airports, catering, and aircraft manufacturers. Pre: 101.

**TIM 354 Surface Tourism Transportation Management (3)** Management of surface tourism transportation such as car rental, bus and coach operators, drive tourism, intercity rail, taxi, etc. Includes marketing, ownership and financing, operations, regulation and promotion, human resources. Pre: 101.

**TIM 365 Economics in Travel Industry (3)** Microeconomic theory of consumer behavior and demand production cost analysis, market structure and pricing in travel companies. Economic impact of tourism. Students may not earn credit for 365 and BUS 313. Pre: either ECON 120 or ECON 130.

**TIM 368 TIM Study Abroad (V)** Study abroad instructional experience emphasizing international travel, tourism and hospitality-related topics at equivalent, accredited programs. Content varies depending on locus of instruction and instructor. Course qualifies as either a TIM or general elective with pre-approval or department. Repeatable unlimited times. Pre: consent.

**TIM 369 (Alpha) Current Topics in Travel Industry Management (V)** (B) resort development; (C) assets management; (D) transportation and

public policy; (E) management by cultural values; (F) travel industry management; (G) hospitality management; (H) hotel management; (I) restaurant entrepreneurship; (J) tourism management; (K) recreation management; (M) leisure management; (N) transportation management; (O) travel industry management education; (P) travel industry management technology; (Q) meetings, incentives, conventions, and exhibition management. Repeatable five times with consent.

**TIM 399 Directed Reading and Research (V)** Reading and research into problems in hotel, restaurant, transportation or tourism sectors of the travel industry. Pre: junior standing or above, a minimum cumulative GPA of 2.5 and consent of dean's office and instructor based upon student's written proposal of content and objectives of course program.

**TIM 400 (Alpha) Internship IV (2)** Requires a minimum of 150 hours of internship, a business presentation, and an analytical report synthesizing experience and related theories. A significant portion of class time is dedicated to writing instruction, which will enhance and improve students' writing skills. (B) executive internship; (C) community service internship. Restricted to majors. CR/NC only. Pre: 200 and consent.

**TIM 401 Resort Development and Management (3)** Principles of resort development and management. Essential aspects of developing, financing, marketing and managing resorts. A-F only. Pre: 314. Recommended: 305.

**TIM 402 Resort Mixed Use Development (3)** Critical and essential aspects of developing and managing resort mixed use facilities. Includes multidimensional and dynamic interrelationships of site development and facilities, business mix, management structures and systems, and industry practices. A-F only. Pre: 313 or 369; and 314. Recommended: 333 and 401. (Fall only)

**TIM 403 Revenue Management in Travel Industry (3)** Application of revenue management theory, principles, concepts, tools, techniques, and analysis to travel industry management. Focus will be on cost controls, pricing, inventory control, forecasting, financial analysis, and economic analysis. Pre: 101, ACC 202, and ECON 130.

**TIM 415 Nature-Based Tourism Management (3)** Principles of nature-based tourism, including a survey of impacts, objectives, planning, and management systems. Junior standing or higher. Pre: 101 or 324/GEOG 324. (Cross-listed as GEOG 415) **DS**

**TIM 420 Sustainable Tourism Policies and Practices (3)** Seminar examining the social, environmental, economic factors of sustainable tourism development. Emphasis on methods and processes and the role of stakeholders (government, industry, host community, tourists). Group projects. A-F only. Pre: 101 and departmental approval.

**TIM 425 Destination Development and Marketing (3)** Tourism development in Hawai'i and other Asia Pacific destinations. Analysis of key factors essential to stages of development, travel trends, and structural changes. Pre: 101.

**TIM 431 Strategic Management for the Travel/Hospitality Industry (3)** Strategic management in the travel/hospitality industry. Case study analysis, discussion and written reports, covering strategies, management problems and industry issues. Emphasis on writing instruction. A-F only. Pre: 301, 302, 303, 304, 305 and graduating senior.

**TIM 442 Advanced Topics in Air Transportation (3)** Advanced level of discussion in terms of air transportation, including management, economics, strategy, regulation, operating performance, fleet management, and network management. Pre: 353 (undergraduate) or consent (graduate).

**TIM 469 (Alpha) Advanced Topics in Travel Industry Management (V)** (B) tourism planning; (C) advanced travel industry management; (D) advanced hospitality management; (E) advanced hotel management; (F) advanced restaurant management;

(G) advanced tourism management; (H) advanced recreation management; (I) advanced leisure management; (J) advanced transportation management; (K) advanced travel industry management education; (M) advanced travel industry management technology; (N) advanced meetings, incentives, conventions, and exhibition management; (O) advanced food and beverage management; (P) leadership and advanced human resources; (Q) advanced assets management. Repeatable five times with consent for (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (M), (N); repeatable six times for (O), (P), and (Q). A-F only for (O), (P), and (Q).

**TIM 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate with consent.

**TIM 601 Research Applications in Travel Industry Management (3)** Analysis of methodologies appropriate for research in travel industry management. Survey of the literature of applied techniques and approaches including exploratory approaches. Familiarization with research design and implementation of development of research proposals. Pre: graduate standing or consent.

**TIM 602 Strategic Travel Marketing (3)** In-depth study of marketing principles and problems related to travel industry organizations. Emphasis on strategic marketing. Research applications, international and domestic marketing of travel industry services. Pre: graduate standing or consent.

**TIM 603 Information Technology, E-Commerce, and Travel Industry (3)** Planning, implementation, management, evaluation, and impact of information and electronic communication technologies, including e-commerce applications in the travel industry. Analysis of new information technology use as an area of research and strategic application. Pre: graduate standing or consent.

**TIM 604 Managerial Accounting for Travel Industry (3)** Advanced study of management accounting within travel industry: responsibility accounting, pricing decisions, concepts and application of central systems, financial planning, price level impacts, performance evaluation. Pre: graduate standing or consent.

**TIM 605 Hospitality Management (3)** Advanced human relations and operating issues; use of accounting, behavioral, financial, marketing, and informational systems in managing hospitality organizations. Pre: graduate standing or consent.

**TIM 415 Nature-Based Tourism Management (3)** Principles of nature-based tourism, including a survey of impacts, objectives, planning, and management systems. Junior standing or higher. Pre: 101 or 324/GEOG 324. (Cross-listed as GEOG 415) **DS**

**TIM 606 Tourism Transportation Management (3)** Advanced study analysis of the management of passenger transportation systems serving the travel industry. Emphasis on topics such as government policy, marketing and management, and the relationships between transportation systems and tourism development. Pre: graduate standing or consent.

**TIM 607 Global Tourism Analysis (3)** International trade theory and regional analysis methodologies applied to tourism and the service industry, including travel balance account, inter-regional transactions flow, economic impacts, environmental economics, demand theory and forecasting. Pre: graduate standing or consent.

**TIM 640 Financial Management for the Travel Industry (3)** Applications of financial analysis to both the domestic and international travel industry. Pre: graduate standing or consent.

**TIM 645 Tourism Field Studies (3)** Integration of concepts and application of knowledge and skills from other courses to a selected field study project. Pre: any two 600-level TIM courses completed and a third concurrent; or consent.

**TIM 694 Professional Paper (3)** Independent project or paper under faculty supervision in lieu of Plan A, TIM 700 thesis. Requires proposal approved

by supervisor and graduate chair prior to registration. A-F only. Pre: three 600-level TIM courses completed or consent.

**TIM 695 Seminar: Travel Industry Management Policy (3)** Integration of learning through analysis of policy issues, trends, and problems in the travel industry. A-F only. Pre: three 600-level TIM courses completed or consent.

**TIM 699 Directed Reading (V)** Independent study of approved, advanced reading with faculty supervision. Requires proposal prepared by student and approved by supervisor and graduate chair before registration. Repeatable one time.

**TIM 700 Thesis Research (V)** Independent supervised research. Formal and oral written presentation of research findings. Repeatable up to six credits.

## Tropical Agriculture and Human Resources (TAHR)

*College of Tropical Agriculture and Human Resources*

**TAHR 099 International Exchange Study/Research (V)** Study overseas in an approved international or similar exchange program. CR/NC only. Pre: consent of academic advisor.

## Tropical Medicine and Medical Microbiology (TRMD)

*School of Medicine*

**TRMD 431 Principles of Medical Parasitology (2)** Epidemiology, pathogenesis, immunobiology and diagnostic aspects of human parasitic infections; principles of host-pathogen interactions; public health aspects of parasitic infections. Repeatable one time. A-F only. Pre: MICR 351 with a grade of B or higher or equivalent. (Spring only)

**TRMD 499 Reading and Research (V)** Directed reading and research in laboratory; diagnostic aspects of bacterial, parasitic, and viral infections. Repeatable unlimited times. Pre: consent.

**TRMD 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Repeatable unlimited times. Pre: master's Plan B or C candidate and consent.

**TRMD 545 Topics in Tropical Medicine (V)** Elective for fourth-year medical students for advanced study of selected topics within the field of tropical medicine and medical microbiology. Pre: fourth-year standing or MD degree.

**TRMD 590 Selected Topics in Tropical Medicine and Infectious Diseases (V)** Elective for medical students in Tropical Medicine and Infectious Diseases. Repeatable up to 12 credits. Medical students only. CR/NC only. Pre: consent.

**TRMD 595 (Alpha) Selected Topics in Infectious Diseases (1)** Elective for medical students; (B) infectious diseases; (C) parasitology; (D) epidemiology; (E) immunology. MD majors only. CR/NC only. Pre: MDED 554 or consent. (Fall only)

**TRMD 599 (Alpha) Selected Research Topics in Infectious Diseases (1)** Research elective for medical students; (B) infectious diseases; (C) parasitology; (D) epidemiology; (E) immunology. MD majors only. CR/NC only. Pre: MDED 554 or consent. (Fall only)

**TRMD 601 Tropical Medicine Journal Club (1)** Students gain experience in the presentation and discussion of topics of current interest in the fields of tropical medicine and infectious diseases. Repeatable unlimited times. Graduate students only.

**TRMD 602 Laboratory Methods in Tropical Medicine (2)** Microbiologic methods and techniques for identification of pathogenic viruses, bacterial, and parasitic organisms including specimen handling, culturing, and laboratory safety. Repeatable one time. Graduate standing only. A-F only. (Fall only)

**TRMD 603 Infectious Disease Microbiology I: Medical Parasitology (3)** Epidemiology, pathogen-

esis, immunobiology and diagnostic aspects of human parasitic infections; principles of host-pathogen interactions; public health aspects of parasitic infections. Repeatable one time. A-F only. Pre: MICR 351 or equivalent. (Fall only)

**TRMD 604 Concepts in Immunology and Immunopathogenesis (2)** Immunological concepts relating to infectious diseases and host pathogen interactions. Repeatable one time. A-F only. Pre: MICR 461 (or equivalent) or consent. (Cross-listed as PH 665)

**TRMD 605 Infectious Disease Micro II (3)** Will cover different families of animal viruses of importance to human diseases. The genome, structure, replication, as well as host immune responses, epidemiology, clinical features, and animal models will be presented. Repeatable one time. A-F only. Pre: 604 and MICR 351, or consent. (Cross-listed as PH 667)

**TRMD 606 Tropical Medicine Laboratory Rotations (V)** Practical experience in use of equipment and procedures in infectious disease and immunology research; introduction to research in tropical medicine. Repeatable unlimited times. Pre: 604 (or concurrent), or consent.

**TRMD 607 Neurovirology (1)** Seminar on neuro-invasive viruses giving basics of viruses causing nervous system diseases and discussing recent advances in the research field of neurovirology. Pre: MICR 351 or equivalent; or consent. (Fall only)

**TRMD 608 Infectious Disease Microbiology III (3)** Basic structure, physiology, epidemiology, and genetics of pathogenic bacteria as well as the host response to these organisms. Correlation of these characteristics to disease pathogenesis in humans and animal models. A-F only. Pre: 604 or consent. (Spring only)

**TRMD 609 Advances In Medical Immunology (3)** Presentations/discussions of current literature concerning recent advances in immunology relevant to disease and to disease processes. Pre: consent. (Alt. years: spring)

**TRMD 610 Infection and Immunity (3)** Combined lecture/discussion of interactions of pathogens with the innate and acquired immune systems. Topics will include the role of novel receptors in pathogen detection, inflammation in disease pathogenesis, pathogen immune evasion, and neuroimmunology. Repeatable two times. A-F only. Pre: 604, MICR 461, or consent. (Alt. years: fall)

**TRMD 650 Ecological Epidemiology (2)** Applications of population biology, pathogen/host life history, and population genetics to infectious disease epidemiology, including micro- and macroparasites, and implications to disease control and prevention of strategies. A-F only. Pre: consent. (Alt. years: spring) (Cross-listed as PH 650)

**TRMD 652 Advanced Genetics and Evolution of Infectious Diseases (2)** An evolutionary perspective to examine the interactive responses between infectious agents and the immune system. Topics will include natural selection, life history evolution, population genetics of pathogens and hosts, and anti-microbial resistance. A-F only. Pre: 604 (or concurrent) and 605 (or concurrent), or consent. (Alt. years: spring)

**TRMD 653 Bioinformatics and Molecular Evolution (2)** Combined lecture/computer lab on bioinformatic tools used in genomics, including sequence assembly, search algorithms, alignment, phylogenetics, and molecular evolution/epidemiology. Focus will be on infectious disease examples. Open to nonmajors. A-F only. Pre: 604 (or concurrent) and 605 (or concurrent) or consent. (Fall only)

**TRMD 654 Advances in HIV/AIDS (2)** History of HIV, basic biology and virology, epidemiology, HIV pathogenesis and immunology, clinical features, and co-morbidities. Treatment and prevention of HIV/AIDS, including research methods, statistics, cultural competence, genetics, pathophysiology, drug and vaccine development. Repeatable unlimited times. A-F only. Pre: 604 and 605, or consent. (Fall only)

**TRMD 655 Principles of Biostatistics (3)** Lecture/lab on basic probability and statistical concepts for students in the biomedical sciences. Methodologies to include t-test, correlation, linear regression, analysis of variance, contingency table analysis, logistic regression, survival analysis, and non-parametrics. A-F only. Pre: algebra and one semester of calculus or consent. (Fall semester)

**TRMD 671 Advanced Medical Parasitology (2)** Consideration of ultrastructure, physiology, biochemistry, in-vitro cultivation and host-parasite relationship of parasites of medical importance. A-F only. Pre: consent. (Alt. years: fall)

**TRMD 672 Advanced Medical Virology (2)** In-depth study of the major groups of viruses pathogenic for human; virus replication, host range, pathogenesis, immunology, and epidemiology. Pre: 605 or equivalent, or consent. (Alt. years: fall)

**TRMD 673 Advanced Medical Bacteriology (2)** Role of bacteria in infectious diseases, with emphasis on clinical aspects and identification of etiological agents. Pre: 605 or equivalent, or consent.

**TRMD 675 Epidemiology of Tropical Infectious Diseases (3)** Epidemiology of infectious diseases as it relates to tropical medicine. Lecture/seminar format. A-F only. Pre: TRMD graduate standing or consent. (Spring only)

**TRMD 690 Seminar in Tropical Medicine and Public Health (1)** Weekly discussion and reports on current advances in tropical medicine and public health. Repeatable unlimited times. (Cross-listed as PH 755)

**TRMD 695 Plan B Master's Project (3)** Independent study for students working on a Plan B master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. Pre: graduate standing in TRMD.

**TRMD 699 Directed Research (V)** Directed research in medical microbiology (bacteriology, parasitology, virology). Repeatable unlimited times. Pre: consent.

**TRMD 700 Thesis Research (V)** Research for master's thesis. Approval of department faculty required. Repeatable unlimited times.

**TRMD 705 Special Topics in Tropical Medicine (V)** Advanced instruction in frontiers of tropical medicine and public health. Repeatable unlimited times. (Cross-listed as PH 756)

**TRMD 800 Dissertation Research (V)** Research for doctoral thesis. Approval of department faculty is required. Repeatable unlimited times.

## Tropical Plant and Soil Sciences (TPSS)

*College of Tropical Agriculture and Human Resources*

**TPSS 120 (Alpha) Plants for People (1)** The origins: social, cultural, and ceremonial traditions; culture; food and nutritional properties. Processing of a variety of tropical horticultural plants are presented, with tasting sessions and optional field trips. Topics will rotate among (B) beverage crops (e.g., coffee, tea, chocolate, kava, fruit juices); (C) herbs, spices, and flavoring (selection of examples to be determined); (D) tropical fruits (assortment offered depends on availability during semester); (E) ornamental plants (flowers, houseplants, popular landscape plans, bonsai, ethnic ornamentals). Does not count towards TPSS major. Pre: consent. **DB**

**TPSS 200 Tropical Crop Science (3)** Relation of plants, nutrients, and environment, cultural practices to tropical crop production. **DB**

**TPSS 220 Organic Food Crop Production (2)** Combined lecture/lab on the theory and practice of certified organic food production. Field visits to organic farms/markets included. Open to nonmajors. (Fall only) **DY**

**TPSS 300 Tropical Production Systems (4)** (3 Lec, 1 3-hr Lab) Comparisons and contrasts of crop management systems, techniques, and technologies

in protected and open field production of tropical crops. Pre: 200 or consent. **DB**

**TPSS 304 Fundamentals of Soil Science (4)** (3 Lec, 1 3-hr Lab) Origin, development, properties, management of tropical soils; classification of Hawaiian soils. A-F only. Minimum prerequisite grade of C or consent. Pre: CHEM 161 and 161L, or consent. (Fall only) (Cross-listed as NREM 304) **DP DY**

**TPSS 311 Current Topics in Plant Science (1)** Undergraduate seminar that provides the presentation and discussion of topics of current relevance to students preparing for careers in applied plant sciences. Oral focus designation. A-F only. Pre: 200 or NREM 210, or consent. (Cross-listed as NREM 311)

**TPSS 322 Marketing Perishable Products (3)** Problems, agencies, functions, costs, prices, regulations affecting marketing; proposed improvements. Pre: ECON 130, NREM 220; or consent. (Alt. years) **DS**

**TPSS 336 Renewable Energy and Society (3)** Combined lecture/discussion regarding the ability of renewable energy technologies to meet local, national, and global energy demands and their potential impacts on the environment and society. Pre: consent.

**TPSS 341 Accounting and Financial Analysis (3)** Principles and methods of agricultural accounting. Preparing and interpreting financial statements. Sources and costs of credit, capital budgeting, tax management, estate planning. Repeatable one time. A-F only. Pre: ECON 130 or NREM 220, or consent. (Cross-listed as NREM 341) **DS**

**TPSS 350 Tropical Landscape Practices (3)** (2 Lec, 1 3-hr Lab) Concepts and techniques of landscape installation and management in the tropics. Pre: 200 and 369; or consent. **DB**

**TPSS 351 Enterprise Management (3)** Introduction of practical concepts and methods used in business management. Introduce broad range of business strategies. Understand the critical role each strategy plays. Facilitate student's practice of analytical and critical thinking through case studies. (Cross-listed as NREM 351)

**TPSS 352 Landscape Architecture History, Theory, and Practice (3)** Surveying the development of landscape architecture as an art form from Mesopotamia to present. Exploring the theory, profession and art of landscape architecture in the world by physical, social, economic, political, and cultural environmental factors. (Alt. years) (Cross-listed as ARCH 352) **DH**

**TPSS 353 Landscape Graphics Studio (3)** Basic skills of landscape graphic communication through a creative process model. Learning free hand and technical drafting techniques to create effective landscape graphics. Pre: consent. (Alt. years) (Cross-listed as ARCH 353) **DA**

**TPSS 354 Tropical Landscape Planting Design Studio (3)** Students will develop basic skills of residential landscape graphic and design processes in order to clearly articulate the ability to think, analyze, and extend a physical solution in the proper scale. Repeatable one time. A-F only. (Alt. years) (Cross-listed as ARCH 354) **DA**

**TPSS 364 Horticultural Practices (2)** (1 Lec, 1 3-hr Lab) Techniques of culture and management of horticulture crops. Pre: 200 (or concurrent). **DB**

**TPSS 369 Ornamental Plant Materials (3)** (2 Lec, 1 3-hr Lab) Identification, origin, use, and cultural requirement of trees, shrubs, vines, and groundcovers used in Hawaiian landscapes. Pre: 200 or consent. **DB**

**TPSS 371 Genetics: Theory to Application (3)** Fundamentals of genetic theory using biotechnological procedures in insect and plant pathogen control and plant and animal breeding as practical applications. Repeatable one time. A-F only. (Cross-listed as PEPS 371)

**TPSS 401 Vegetable Crop Production (3)** (2 Lec, 1 3-hr Lab) Crop biology, requirements, and production techniques for commercial vegetable production in Hawai'i will be stressed. Pre: 300 or consent. **DB**

**TPSS 402 Flower and Foliage Crop Production (4)** Biology and production of cut flowers, blooming potted plants, foliage plants under field and protected cultivation in Hawai'i and globally. Pre: 300 or consent. **DB**

**TPSS 403 Tropical Fruit Production (3)** (2 Lec, 1 3-hr Lab) Botanical aspects and horticultural management practices of selected tropical and subtropical fruit crops, with emphasis on small scale commercial production in Hawai'i. Pre: 300 or consent. **DB**

**TPSS 405 Turfgrass Management (4)** (3 Lec, 1 3-hr Lab) Adaptability and selection, establishment, and cultural practices of grasses for various types of turf. Pre: 200 or consent. **DB**

**TPSS 409 Cultural Biogeography (3)** Co-evolution of human societies and plants over the last 10,000 years. Foraging, farming and urban societies economies; spread and modification of selected plants; issues of preservation of genetic resources and traditional plant knowledge. The form and function of gardens. Pre: junior standing or higher, or consent. (Cross-listed as GEOG 409) **DS**

**TPSS 416 Introduction to Social, Ethical and Political Issues Associated with Biotechnology (3)** Introduces concepts of biotechnology, fundamental issues associated with use of this technology, with special emphasis on agricultural biotechnology. A-F only. Pre: 200 or BIOL 171 or NREM 210, or consent. (Alt. years)

**TPSS 418 Turfgrass Pest Management (4)** Provides students with knowledge and real world experience on common turfgrass pests and management strategies in Hawai'i, with emphasis on integrated pest management. Common cool-season turfgrass and pest management are also discussed. Repeatable unlimited times but credit earned one time only. A-F only. Pre: PEPS 210 or consent. (Fall only) (Cross-listed as PEPS 418)

**TPSS 420 Plant Propagation (3)** (2 Lec, 1 3-hr Lab) Theoretical and applied aspects of seed and vegetative propagation technology involving fruits, flowers, vegetables, and landscape plants. Pre: 200 or consent. **DB**

**TPSS 421 Tropical Seed Science (3)** (2 Lec, 1 3-hr Lab) Principles of seed science, seed physiology, seed production, and genetic modification. Hawai'i's seed industry and biotechnology. A-F only. Pre: 200 or consent. **DB**

**TPSS 429 Spreadsheet Modeling for Business and Economic Analysis (3)** Introduction to quantitative decision-making methods for effective agribusiness management in resource allocation, scheduling, logistics, risk analysis, inventory, and forecasting. Emphasis on problem identification, model formulation and solution, and interpretation and presentation of results. Pre: ECON 130 or NREM 220, and ECON 321 or NREM 310; or consent. (Once a year) (Cross-listed as ECON 429 and NREM 429) **DS**

**TPSS 430 Nursery Management (3)** (2 Lec, 1 3-hr Lab) Management practices in production and operations of commercial nurseries in Hawai'i. Pre: 200 and 364; or consent. **DB**

**TPSS 435 Environmental Soil Chemistry (3)** Study of soil chemical processes such as weathering, adsorption, precipitation, and ion exchange; causes of soil acidity, alkalinity, and salinity; reactions between soils and fertilizers, pesticides, or heavy metals. Management strategies to minimize environmental contamination by nitrate, phosphate, and trace elements such as As, Pb, and Se. A-F only. Pre: 304 or consent. (Fall only) **DB**

**TPSS 440 Tissue Culture/Transformation (3)** (2 Lec, 1 3-hr Lab) Application of plant tissue culture for plant scientists; study of the growth and development of plant tissues in culture as influenced by chemical and environmental factors, and the regeneration of plants following plant transformation by

biolistics and other molecular approaches. Pre: 420 or consent. Recommended: BOT 410. **DB**

**TPSS 450 Nutrient Management of Soils and Plants (4)** (3 Lec, 1 3-hr Lab) Principles and mechanisms governing the availability of plant nutrients in soil and nutrient management for enhanced plant productivity and maintenance for environmental and soil quality. Pre: 304 and CHEM 161, or consent. **DB**

**TPSS 453 Plant Breeding and Genetics (3)** (2 Lec, 1 3-hr Lab) Unique aspects of plant genetics and applications to crop improvement, with emphasis on breeding plants in Hawai'i. Pre: BIOL 375 (or concurrent) or consent. **DB**

**TPSS 460 Soil Plant Environment (3)** (2 Lec, 1 3-hr Lab) Bio-physical processes in the soil-plant-atmosphere continuum that influence crop growth and development. Methods to estimate the impact of soil and climate on crop performance. Use of crop models to simulate effects of planting date, plant spacing and density, fertilizer rate, rainfall or irrigation, and daily weather on crop yield and farm income. Pre: 304 and either PHYS 151 or PHYS 170, or consent. **DB**

**TPSS 463 Irrigation and Water Management (3)** Basic soil-water-plant relationships, irrigation water requirements, irrigation efficiencies, different methods of irrigation, planning, design and management of an irrigation system, fertigation and impact of irrigation on soil and water quality. Pre: NREM 203 (or equivalent) and NREM/TPSS 304 (or equivalent), or consent. (Alt. years) (Cross-listed as NREM 463)

**TPSS 470 Plant Physiology (3)** Integration of form and function from cellular to whole plant levels in processes from seed germination, through photosynthesis, growth, and morphogenesis, to flowering and senescence. A-F only. Pre: BIOL 171 or consent. **DB**

**TPSS 470L Principles of Plant Physiology Lab (1)** (1 3-hr Lab) Principles of experimentation in plant physiology, includes individual investigations. A-F only. Pre: consent. **DY**

**TPSS 473 Post-Harvest Physiology (3)** Comparative physiological and biochemical processes during growth, maturation, ripening, and senescence in fruits, vegetables, and flowers related to changes in quality and storage life. Tropical commodities emphasized. A-F only. Pre: 200, BIOL 171, or BOT 201; CHEM 152; or consent. **DB**

**TPSS 475 Plant Nutrient Diagnosis in the Tropics (3)** Designed for students to identify essential nutrients required by plants; diagnose nutrient disorders in plants; and propose environmentally sound solutions to correct disorders. Pre: 304/NREM 304 (or concurrent) and BIOL 172. (Cross-listed as NREM 475)

**TPSS 481 Weed Science (3)** (2 Lec, 1 3-hr Lab) Weed classification, identification, adaptations for weediness; principles of weed control; properties, uses, and action of herbicides. Lab: pesticide application equipment and techniques, no-till farming, greenhouse and field experiments. A-F only. Pre: 200 and CHEM 152, or consent. (Fall only) (Cross-listed as PEPS 481) **DB**

**TPSS 491 Experimental Topics (V)** Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable. Pre: consent.

**TPSS 492 Internship (4)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: consent.

**TPSS 492L Internship Experience (3)** Internship field experience for TPSS majors. TPSS majors only. A-F only. Pre: 200 (or concurrent) or consent.

**TPSS 499 Directed Studies (V)** Supervised individual instruction in field laboratory and library. Repeatable up to six credits. CR/NC only. Pre: 364 or consent.

**TPSS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate or consent.

**TPSS 601 Crop Modeling (3)** (2 Lec, 1 3-hr Lab) Principles of modeling crop growth and development, model types, techniques, simulation. Modeling influence of climate/environment on phenology, growth, development of horticultural crops. Pre: BOT 470 and NREM 310, or consent.

**TPSS 603 Experimental Design (4)** (3 Lec, 1 3-hr Lab) Design of experiments and variance analyses in biological and agricultural research. Pre: graduate standing or consent. Recommended: ZOO 632. (Cross-listed as ANSC 603)

**TPSS 604 Advanced Soil Microbiology (4)** (3 Lec, 1 3-hr Lab) Study of biochemical and biogeochemical transformations mediated by soil microorganisms, emphasis on processes important to plant growth productivity and environmental quality. Pre: 304 and MICR 351, or consent.

**TPSS 610 Nutrition of Tropical Crops (3)** (1 2-hr Lec, 1 3-hr Lab) Mineral nutrition of plants in relation to plant metabolism, mechanisms of ion uptake, long-distance transport of solutes, and interactions at the root-soil interface. Special emphasis on problems associated with tropical crops. Pre: 450 and 470, or consent. (Alt. years)

**TPSS 614 Molecular Genetics of Crops (3)** (2 Lec, 1 3-hr Lab) Applications of molecular genetics to crop improvement. Pre: 453 and MBBE 402; or consent.

**TPSS 615 Quantitative Genetics (3)** Applications of quantitative genetics to crop and animal improvement. Pre: 453 and 603, or consent.

**TPSS 640 Advanced Soil Chemistry (3)** (2 Lec, 1 3-hr Lab) Physio-chemical processes in soils and soil solutions, with emphasis on ionic equilibria, mineral stability, organic complexation, and surface sorption of major plant nutrients and heavy metals. A-F only. Pre: 435 and CHEM 351, or consent.

**TPSS 650 Soil Plant Nutrient Relations (4)** (2 Lec, 2 3-hr Lab) Soil-plant interactions, emphasis on characteristics of tropical soils and plants influencing nutrient uptake by plants. Diagnostic methods to identify nutrient deficiencies and element toxicity. Pre: 450 or consent.

**TPSS 652 Information Research Skills (1)** Examines the use of libraries and information technology for scholarly investigation in support of scientific research; provides experience utilizing and critically evaluating a variety of print and electronic sources in basic and applied sciences. Pre: consent. (Cross-listed as ANSC 652, FSHN 652, and NREM 652)

**TPSS 654 Communications in the Sciences (1)** (3-hr Lec/Lab combination) Laboratory-type course for improving communication abilities in the sciences and engineering. Presentations to lay audiences are emphasized. Hands-on experience in techniques and methods is provided.

**TPSS 657 Grant Writing for Graduate Students (1)** Combined lecture/discussion on grants and grant writing. Designed to introduce graduate students to grants and grant proposal writing through lectures, class discussion, writing assignments, and peer review. Open to CTAHR graduate students only; others with consent. (Cross-listed as ANSC 657 and FSHN 657)

**TPSS 664 Orchidology (3)** (2 Lec, 1 3-hr Lab) Classification, culture, cytogenetics, breeding of orchids. Pre: consent. Recommended: 200 and 402.

**TPSS 667 Graduate Seminar (1)** Presentation of research reports; reviews of current literature in plant and soil sciences. Pre: graduate standing or consent.

**TPSS 670 Agrarian Systems Analysis (3)** Comparative analysis of philosophy and process of interdisciplinary and participatory approaches to sustainable development and rural resource management including farming systems research and extension (FSRandE), agroecosystem analysis (AEA), partici-

patory action research (PAR), and rapid rural appraisal (RRA). Repeatable one time. Pre: consent.

**TPSS 674 Plant Growth and Development (3)** Contemporary literature is used as the basis for understanding the physiology for whole plant growth and development. Aspects covered include vegetative and reproductive development, seed dormancy, senescence, abscission, and relevant biochemical and molecular processes. Pre: 470 and MBBE 402, or consent.

**TPSS 680 Geospatial Analysis of Natural Resource Data (3)** The application of geostatistics to estimate spatial dependence to improve soil and regional sampling; provide insight into underlying soil, geographic, and geologic process, and to provide quantitative scaling up of point measurements to fields, regions, and watersheds. State-space modeling also will be included. A-F only. Pre: GEOG 388 or ZOO 631; or consent. (Cross-listed as GEOG 680)

**TPSS 695 Plan B Master's Project (3)** Independent study for students working on a Plan B master's project. A grade of Satisfactory (S) is assigned when the project is satisfactorily completed. A-F only. Pre: graduate standing in TPSS program.

**TPSS 699 Directed Research (V)** In-depth study of specialized problems. Repeatable unlimited times. CR/NC only. Pre: consent.

**TPSS 700 Thesis Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

**TPSS 711 Special Topics (V)** Specialized topics from various areas of plant and soil research such as experimental techniques, growth regulation, morphogenesis, genetics and breeding, culture and nutrition of tropical crops. A-F only. Pre: consent.

**TPSS 800 Dissertation Research (V)** Repeatable unlimited times. CR/NC only. Pre: consent.

## Urban and Regional Planning (PLAN)

### *College of Social Sciences*

**PLAN 101 Sustainable Cities (3)** How do we plan and design cities to meet our long-term economic and environmental needs? Students will learn how sustainability applies to key urban issues like energy, transportation, land, and food. A-F only.

**PLAN 310 Introduction to Planning (3)** Perspectives on planning; planning tools and methods; specific Hawai'i planning-research problems from a multidisciplinary approach. Pre: junior standing or consent. (Cross-listed as GEOG 310) **DS**

**PLAN 399 Directed Reading in Planning (V)** Independent research on topics in urban and regional planning. Pre: 310.

**PLAN 414 Building Community Resilience (3)** Intended to give you a good understanding of the natural forces behind the most common natural disasters, and the human actions that reduce or increase vulnerability to natural disasters. A-F only. Junior standing or higher. (Spring only) (Cross-listed as GEOG 414)

**PLAN 421 Urban Geography (3)** Origins, functions, and internal structure of cities. Problems of urban settlement, growth, decay, adaptation, and planning in different cultural and historical settings. Dynamics of urban land use and role of policies and perceptions in shaping towns and cities. Pre: GEOG 102 or 151 or 330, or consent. (Cross-listed as GEOG 421) **DS**

**PLAN 473 GIS for Community Planning (3)** Exploration of geographic information systems (GIS) area analysis techniques for spatial information management in community planning. Students will learn the basic concepts and principles, and practical skills of GIS through lectures, discussions, and labs. Repeatable one time. Junior standing or higher. (Fall only)

**PLAN 495 Housing, Land, and Community (3)** Analyzes availability for housing, particularly affordable housing, and its relationship to use of land and

building of community. Examines public policies impacting housing, land use, and community development and ways they can be improved. Pre: 310 or consent. **DS**

**PLAN 500 Master's Plan B/C Studies (1)**

**PLAN 600 Public Policy and Planning Theory (3)** Designed to a) impart a historic and comparative perspective on the evolution of urban and regional planning in public policy; b) explore the spatial and built environment dimensions of society, planning and policy; c) assess the justifications for planning and differing processes of planning in the U.S. and Asia-Pacific with a focus on the role of the planner in policy formulation and implementation. A-F only. Repeatable two times.

**PLAN 601 Planning Methods (3)** Basic methods in planning including problem definition, research design, survey research, statistics and computer applications. Repeatable one time. Pre: one of ECON 321, GEOG 380, or SOC 476.

**PLAN 602 Advanced Planning Theory (3)** Advanced planning theory for PhD students (others by petition) to prepare for careers in planning education and/or high level professional practice. Covers key contemporary planning policy issues and themes from the perspective of values, explanations of the real world, policy alternatives and implementation. Students must have passed 600 or equivalent (by petition) with a B or better. Repeatable one time. Pre: 600 or consent.

**PLAN 603 Economic Analysis for Urban Planning and Policy (3)** Reviews and builds skills in applying basic theories and principles of urban and regional economics in contemporary U.S., Hawai'i and Asia-Pacific. Repeatable one time. Pre: consent.

**PLAN 604 Qualitative Methods in Planning (3)** Provides a general introduction to qualitative research methods for planning and planning research. Includes data collection methods (focus groups, interviews, ethnography, participant observation, and participatory action research) and various analytic methods and approaches. Graduate standing only. Pre: 601.

**PLAN 605 Planning Models (3)** Allocation, decision, derivation, and forecasting models used in the analysis of demographic, economic, land use, and transportation phenomena in urban and regional planning. Repeatable one time. Pre: one of ECON 321, GEOG 380, or SOC 476; or consent.

**PLAN 606 Comparative Planning Histories (3)** Provides students with an overview of the history of urban and regional planning in the U.S., Europe, and Asia, and the role that planning has played in shaping contemporary urban settlements. Graduate standing only. A-F only.

**PLAN 607 Introduction to Public Policy (3)** Perspectives on policy analysis; basic approaches to the study of public policy, political economy, and policy evaluation. (Cross-listed as POLS 670)

**PLAN 608 Politics and Development: China (3)** Consists of three parts: key theories for socialist transition as basis for seminar discussion, policy evolution to illustrate the radical changes, and emerging and prominent current development and practice. Pre: one of 600, POLS 308, or POLS 341; or consent. (Cross-listed as ASAN 608 and POLS 645C)

**COMMUNITY PLANNING AND SOCIAL POLICY**

**PLAN 610 Community Planning and Social Policy (3)** Social issues and conditions; consequences of social policies experienced by different groups; community social plans and programs organized by various kinds of agencies and organizations. Repeatable one time. Pre: 600 (or concurrent) or consent.

**PLAN 615 Housing (3)** Housing delivery systems as an aspect of urban and regional planning. Pre: 610 or consent.

**PLAN 616 Community-Based Planning (3)** Planning and programmatic aspects of community-based development projects. East-West and local planning

perspectives on participatory development and intentional communities. Pre: 600 (or concurrent).

**PLAN 618 Community Economic Development (3)** Community-based economic development approaches and methods explored with an emphasis on low income communities. Repeatable one time. Pre: consent. Recommended: 616.

**PLAN 619 Multiculturalism in Planning and Policy (3)** Graduate seminar focuses on issues of governance, policy and planning in diverse multicultural societies. Differences in backgrounds, languages, privilege, preferences and values are often expressed in planning and policy controversies such as affirmative action and land use planning. Will examine these controversies and explore theories of governance in a multicultural setting. Pre: 600 or consent.

**ENVIRONMENTAL PLANNING AND RESOURCE MANAGEMENT**

**PLAN 620 Environmental Planning and Policy (3)** Survey of the political, institutional, economic, and scientific aspects of environmental planning and policies. Repeatable one time. A-F only. Pre: 600 (or concurrent) or consent.

**PLAN 622 Environmental Impact Assessment (3)** Theory and practice of environmental impact assessment. Policy and planning frameworks supporting environmental assessment in the U.S. and abroad. Cumulative environmental effects and strategic environmental assessment. Pre: graduate standing. (Cross-listed as GEOG 622) **DS**

**PLAN 624 Environmental Valuation and Policy (3)** Build valuation skills to assess best use, conservation, and policies relating to environmental amenities. Provides an overview of policy solutions to environmental degradation used by planners. Pre: 600 and 603.

**PLAN 625 Climate Change, Energy and Food Security in the Asia/Pacific Region (3)** Analysis of planning responses to human-induced climate change and related environmental problems. Part of the Asia/Pacific Initiative taught in collaboration with universities throughout the region via video-conferencing. Pre: 620 (or concurrent) or consent.

**PLAN 626 Topics in Resource Management (3)** Issues, analytic techniques and management strategies for different resource systems including land, water, energy, coastal resources, forests and fisheries. Course focus varies from year to year. Repeatable one time. A-F only. Pre: consent.

**PLAN 627 Negotiation and Mediation in Planning (3)** Applicability and limitations of selected approaches; role of planners; impact on planning. Pre: 600 or consent.

**PLAN 628 Urban Environmental Problems (3)** Seminar that examines environmental problems associated with urbanization. Reviews strategic approaches and collaboration among key actors to address such problems. Pre: 600 or consent.

**URBAN AND REGIONAL PLANNING IN ASIA AND THE PACIFIC**

**PLAN 630 Urban and Regional Planning in Asia (3)** Key issues and policies in urban planning, rural-urban relations, rural regional planning, and frontier settlement in Asia and the Pacific. Repeatable one time. Pre: 603 or consent. (Cross-listed as GEOG 630)

**PLAN 632 Planning in Hawai'i and Pacific Islands (3)** Urban and regional planning in island settings. Experiences in Hawai'i, Polynesia, Melanesia, and Micronesia. Pre: graduate standing.

**PLAN 633 Globalization and Urban Policy (3)** Urbanization and urban policies in the Asia and Pacific region with focus on the international dimension of national and local spatial restructuring. Pre: 630 or consent.

**PLAN 634 Shelter and Services in Asia (3)** Examines government and non-government organiza-

tions' responses to urban and rural shelter issues and services in Asia. Pre: 630 (or concurrent) or consent.

**PLAN 636 Culture and Urban Form in Asia (3)** Cultural and historical impact on urban form, contention of tradition and modernity in urban space, spatial expression of state and society, perception and utilization of urban design, evolution of urban form in selected Asian capitals. Pre: 310, 600, or ASAN 312. (Cross-listed as ASAN 636)

**PLAN 637 Environment and Development (3)** Theories and practice of development; how changing development paradigms shape different ideas concerning the environment and the management of natural resources; emerging debates in development and environment in post-modern era. (Cross-listed as GEOG 637)

**PLAN 638 Asian Development and Urbanization (3)** Theories of globalization and sustainability in development, impacts of globalization and sustainability on development planning and policy formation, selected case studies of Asia-Pacific development. Pre: (630 or ASAN 600) with a grade of B or above. (Cross-listed as ASAN 638 and GEOG 638)

**PLAN 639 Community-based Natural Resource Management (3)** Concepts and theories of community, resource access, and governance. Practical challenges to CBNRM in contemporary political economy. Pre: graduate standing. (Cross-listed as GEOG 639)

**LAND USE AND INFRASTRUCTURE PLANNING**

**PLAN 640 Land Use Policies and Programs (3)** Land use public policy planning in urban and regional settings. Growth management and land use guidance systems. A-F only. Pre: 600 and 601, or consent.

**PLAN 641 Neighborhood and Community Land Use Planning (3)** Land use planning for urban neighborhoods and small towns. Theory and practice of neighborhood planning. Neighborhood and community dynamics, reinvestment, and stabilization. Pre: 640 (or concurrent) or consent.

**PLAN 642 Planning Urban Infrastructure (3)** Capital budgeting, project planning, and financing for large-scale urban infrastructure. Pre: 600, 601; and consent.

**PLAN 645 Land Use Planning (3)** Issues and methods of urban land use planning practice and plan making. A-F only. Pre: 640 or consent.

**PLAN 647 Urban and Regional Planning for Sustainability (3)** Focus on ideology, conceptual models, accounting frameworks, appropriate technologies, and indicators of planning for sustainability. Central and local policies, plans, and best practices in various countries and settings will be covered. Repeatable one time. Graduate students only. A-F only. (Alt. years)

**PLAN 648 Urban Transportation Policy and Planning (3)** Theory and practice of urban transportation planning in developed and developing countries with an emphasis on the U.S., Asia, and Pacific region. A-F only. Pre: 600 and 601, or consent.

**PLAN 649 Asian Cities: Historical Evolution of Urban Form (3)** Examination of the impact of economy, society, and history on urban form; case studies of the evolution of Asian urban form. Pre: 310 or ASAN 312. (Once a year) (Cross-listed as ASAN 649)

**RESEARCH AND PLANNING METHODS**

**PLAN 650 Research Design Seminar (3)** Research design and preparation of thesis proposal. Normally taken after admission to candidacy in MURP. Pre: consent.

**PLAN 652 Policy Implementation and Program Evaluation (3)** Implementation and evaluation in public policy analysis; philosophical and methodological issues; impact of policies and plans; use of evaluation research in program implementation. Pre: 601 or consent.

**PLAN 654 Applied Geographic Information Systems: Public Policy and Spatial Analysis (3)** Use of advanced and specialized spatial methods and models in urban and regional planning. Uses GIS software and builds upon 601. Skills are useful applied to planning, economic development, and environmental planning and resource management. Repeatable one time. Pre: graduate standing or consent.

**PLAN 655 Planning Research Methods (3)** Advanced methods and deterministic and stochastic models used in urban and regional planning. Pre: 601, 605; or consent.

**PLAN 661 Collaboration Between Sectors (3)** Examine theories and practices of multisector collaboration (public, private, nonprofit). The use of collaboration as an alternative way of solving public problems.

**PLAN 670 Interdisciplinary Seminar in Disaster Management and Humanitarian Assistance (3)** Provides a background for understanding the diverse components of this dynamic and expanding field. Pre: graduate standing or consent. (Once a year)

**PLAN 671 Disaster Management: Understanding the Nature of Hazards (3)** Combined lecture/discussion in disaster management focusing on the scientific understanding of the forces and processes underlying natural hazards; and human attempts to respond to these through mitigation and planning activities. Pre: 670 or consent. (Once a year) (Cross-listed as GG 604)

**PLAN 672 Humanitarian Assistance: Principles, Practices and Politics (3)** Combined lecture/discussion aimed at understanding the theoretical basis and working structure of humanitarian assistance programs and international responses to natural and human-induced disasters. Pre: 670 or consent. (Once a year)

**PLAN 673 Information Systems for Disaster Management and Humanitarian Assistance (3)** Combined lecture/laboratory in disaster management focusing on essential methodological and practical issues that are involved in spatial analyses using GIS and other information technologies to inform decision making related to natural hazards, disasters, and human attempts to respond to these through mitigation and planning activities. Pre: 670 or consent. (Once a year)

**PLAN 674 Disaster Recovery: Theory and Practice (3)** How do communities recover from disaster? Provides students with an overview of recovery theory and an understanding of how planners, policy makers, and ordinary citizens rebuild communities, cities, and nations following catastrophic events. A-F only. Graduate standing only.

**PLAN 675 Preservation: Theory and Practice (3)** History and philosophy of historic preservation movement. Analysis of values and assumptions, methodologies and tactics, implications for society and public policy. (Cross-listed as AMST 675 and ARCH 628)

**PLAN 676 Recording Historic and Cultural Resources (3)** Techniques in recording and evaluation of historic buildings and other resources, with an emphasis on field recordings and state and federal registration procedures. Pre: graduate standing or consent. (Cross-listed as AMST 676 and ANTH 676)

**PLAN 677 Historic Preservation Planning (3)** Local-level historic preservation, with an emphasis on historic districts, design guidelines, regulatory controls, and community consensus-building. (Cross-listed as AMST 677)

**PLAN 678 Site Planning (3)** Fundamental principles that guide site planning, including planning and design determinants of the site taking into account its regional context, site-specific characteristics and applicable codes, ordinances, and standards. PLAN majors only. (Fall only)

**PLAN 699 Directed Reading and Research (V)** Repeatable unlimited times. Pre: consent of instructor and department chair.

**PLAN 700 Thesis Research (V)** Limited to MURP students under Plan A. Repeatable unlimited times. Pre: consent.

**PLAN 721 Homeland Security: Terrorism (3)** Combined lecture/discussion in disaster management and humanitarian assistance track focusing on developing a multidisciplinary understanding of international terrorism and anti-terrorism planning and response. Pre: 670 or consent. (Once a year)

#### SEMINARS AND PRACTICE

**PLAN 740 Seminar in Planning Theory (3)** Special topics in theory, history, analysis. Pre: 600 or consent.

**PLAN 741 Seminar in Planning Practice (3)** Project planning, programming, and similar topics. Pre: 600 and 601, or consent.

**PLAN 751 Planning Practicum (6)** Team experience in defining and addressing a current planning problem; identification, substantive review, research design, preparation and presentation of analysis. Topic varies. Limited to 10 students. Pre: 600, 601; and consent.

**PLAN 752 Directed Project (V)** Individual project in analysis, plan preparation and evaluation, and policy/program evaluation. Pre: 600, 601; and consent.

**PLAN 754 Urban Design Studio (6)** Group experience in defining urban and regional design problems and potentials, developing and evaluating alternatives, formulating strategies for implementation. Pre: 640 or consent.

**PLAN 800 Dissertation Research (1)** Research for doctoral dissertation. Repeatable unlimited times. S/U only. PhD student only. Pre: consent.

#### Urdu (URDU)

*College of Languages, Linguistics and Literature*

**URDU 205 Reading and Writing in Urdu (1)** Introduces students to the Nastaliq (Urdu) script, alphabets, their various forms, and combination rules. Reading and writing is emphasized. A-F only. Pre: HNDI 102 or consent. Co-requisite: HNDI 201 or consent. (Fall only)

#### Vietnamese (VIET)

*College of Languages, Linguistics and Literature*

**VIET 101 Elementary Vietnamese (4)** Listening, speaking, reading, writing. Structural points introduced inductively. Meets one hour daily, Monday–Friday; four out of five hours devoted to directed drill and practice. HSL

**VIET 102 Elementary Vietnamese (4)** Continuation of 101. Pre: 101 or consent. HSL

**VIET 201 Intermediate Vietnamese (4)** Continuation of 102. After completion, most students should be able to use all major sentence patterns to produce sounds, combinations of sounds, tones, and intonation and have some understanding of Vietnamese culture. Meets one hour daily, Monday–Friday. Pre: 102 or equivalent. HSL

**VIET 202 Intermediate Vietnamese (4)** Continuation of 201. Pre: 201 or consent. HSL

**VIET 301 Third-Level Vietnamese (3)** Continuation of 202. Emphasis on increased proficiency and cultural understanding through interaction with Vietnamese media, including newspapers, radio, film, etc. Pre: 202 or equivalent.

**VIET 302 Third-Level Vietnamese (3)** Continuation of 301. Pre: 301 or consent.

**VIET 401 Fourth-Level Vietnamese (3)** Continuation of 302. Emphasis on cultural understanding through modern literary Vietnamese. Pre: 302 or equivalent.

**VIET 402 Fourth-Level Vietnamese (3)** Continuation of 401. Pre: 401 or consent.

**VIET 461 Introduction to Vietnamese Literature (3)** Selected readings in major genres; emphasis on analysis. Modern literature. Pre: 402 or consent. DL

**VIET 699 Directed Reading/Research (V)** Repeatable unlimited times. Pre: consent.

#### Women's Studies (WS)

*College of Social Sciences*

**WS 151 Introduction to Women's Studies (3)** Introduction to feminist interdisciplinary analysis from global and critical perspectives; relationships between women and men from Asia-Pacific, Hawaiian, and other cultures, with a focus on gender, race, class, and sexual dynamics; exploration of women's negotiations with institutional dynamics. DS

**WS 151A Introduction to Women's Studies (3)** Introduction to feminist interdisciplinary analysis from global and critical perspectives; relationships between women and men from Asia-Pacific, Hawaiian, and other cultures. Focus on gender, race, class, sexual dynamics, and women's negotiations with institutional dynamics. Honors students only. A-F only. Pre: departmental approval. DS

**WS 175 History of Gender, Sex, and Sexuality in Global Perspectives to 1500 CE (3)** Explores how gender, sex, and sexuality become key elements in human society from prehistory to 1500 CE. Examines ancient world civilizations from multiple perspectives stressing issues and forces still influential today. A-F only. (Fall only) FGA

**WS 176 History of Gender, Sex and Sexuality in Global Perspective, 1500 CE to the Present (3)** Explores how gender, sex, and sexuality become key elements in human society from 1500 CE to present. Examines world cultures from multiple perspectives, stressing issues and forces of continuing influence. A-F only. FGB

**WS 200 Culture, Gender, and Appearance (3)** Social construction of gender within culture and its visual expression through appearance. Analysis of role, identity, conformity, and deviance in human appearance. Open to nonmajors. (Cross-listed as FDM 200) DS

**WS 202 Psychology of Gender (3)** Survey of topics in psychology relevant to women's lives: socialization of gender, mental health, violence against women, achievement motivation, lifespan issues, domestic violence. A-F only. Pre: 151 or PSY 100. (Cross-listed as PSY 202) DS

**WS 230 Gender and Sport (3)** Explores the influence of gender in sport from cultural, psychosocial, and political perspectives. Examines women's and men's role as participants, spectators, and employees of sport and sports organizations. A-F only. Pre: one DS course. DS

**WS 245 Women Writers of World Literature (3)** Major women writers of world literature examined in context of female literary tradition. Pre: one of ENG 100A, 101, or ELI 100; or consent. DL

**WS 257 Sexual Identity in Literature (3)** Selected themes in major works of various types, cultures, periods. Requires a minimum of 3,000 words of writing. Pre: one of ENG 100A, 101, or ELI 100. DL

**WS 304 Women, War, and the Military (3)** The military as it includes and excludes women as soldiers, nurses, wives, prostitutes, and victims. Women and war economics; feminism, war, and peace. Pre: one of 151, 362, 375 or SOC 362; or consent. DS

**WS 305 Women and Health (3)** Explores current issues in the conceptualization and delivery of health care for women. Pre: one of 151, 202, POLS 110, or SOC 100. (Cross-listed as SOC 305) DS

**WS 306 Indigenous Women's Health (3)** Examines issues of indigenous women's health pre and post colonial in Hawai'i, Asia, and the Pacific regions. A-F only. Pre: one of 151, 202, 305; or HWST 107, HWST 270 or HWST 285; or consent. DS

**WS 311 U.S. Women's History (3)** History of U.S. women and gender relations. Topics include

women's work in and outside the household, women's involvement in social movements, changing norms about gender and sexuality, and shared and divergent experiences among women. (Cross-listed as AMST 316 and HIST 361) **DH**

**WS 315 Sex and Gender (3)** Cross-cultural theories and perceptions of sexual difference; linkage between biology and cultural constructions of gender; relationship of gender ideology to women's status. Pre: ANTH 152 (or concurrent). (Cross-listed as ANTH 315) **DS**

**WS 318 Women and Social Policy (3)** Social and economic policies affecting women in families, education, social services, government, health care, the economy; public policy implementation and development; policy impact on women. Pre: 151 or any 200- or 300-level course, or SOC 100 or any 200-level SOC course; or consent. (Cross-listed as SOC 318) **DS**

**WS 339 South Asian Migrants: Culture and Politics (3)** Historical and contemporary experiences of South Asian migrants in North America, Pacific, Caribbean, and/or African diasporas; causes and patterns of migration, inter-ethnic relations policies; role of race, gender, culture in community, identity formation. A-F only. Pre one ES or WS course in the 100, 200 or 300 level; or consent. (Once a year) (Cross-listed as ES 339) **DS**

**WS 345 20th-Century Literature by Women (3)** Twentieth-century women writers and their works; novels, short stories, poems, autobiographies. Inter-relationships of gender and literature. Pre: one of 151, 175, 176, and 245; or consent. **DL**

**WS 346 20th-Century Chinese Women Writers (3)** A survey and critical examination of contemporary Chinese women writers from China, Taiwan, and Hong Kong. Traces a genealogy of women's writing from the early 1920s up until now through novels, poetry, drama, and film. Pre: one DH or DL course, or consent. (Cross-listed as ASAN 364 and EALL 364) **DL**

**WS 350 Sex Differences in the Life Cycle (3)** Human sex differences, their biological basis and significance; genetic, hormonal, and behavioral determinants of sexual differentiation; biology of gender, sexuality, menopause, and aging. Pre: one semester of biological sciences. (Cross-listed as BIOL 350) **DB**

**WS 351 Women, Ideas, and Society (3)** Status of women in American society today in light of the cultural, historical, and philosophical forces that have produced it. Pre: HIST 151 and HIST 152; or consent. **DH**

**WS 356 Women and Religion (3)** Examining roles of, and attitudes toward, women in major religious traditions through autobiographies, films, and primary texts. Pre: 151 or ANTH 152 or REL 150. (Cross-listed as REL 356) **DH**

**WS 360 Pacific/Asian Women in Hawai'i (3)** Adaptive strategies of Hawaiian, Chinese, Japanese, Korean, Filipino, Samoan, and Southeast Asian women in Hawai'i; feminist anthropological and historical analysis. Pre: any ANTH, SOC, or WS course. (Cross-listed as ES 365) **DS**

**WS 361 Seminar: Women and International Development (3)** Topics: Women's role, status, work and treatment in the Third World; economic development, changing work/family roles, agriculture and business, improvement/deterioration in gender equity across the Third World global feminization of poverty. Open to nonmajors. Pre: a 100 level economics course or any women's studies course; or consent. (Cross-listed as ECON 361) **DS**

**WS 362 Sociology of Gender (3)** Effect of sex and gender roles (both traditional and nontraditional) on attitudes and behavior within the family and educational, economic, and governmental systems. Recommended: at least one WS course. Pre: 151 or any 200- or 300-level WS course, or SOC 100 or any 200-level SOC course; or consent. (Cross-listed as SOC 362) **DS**

**WS 375 Women and the Media (3)** Media portrayal of women and men; role of the media in reproducing gender inequality. Women as producers and consumers of media. Feminist alternatives to mainstream media. Pre: one of 151, 362, SOC 362. **DS**

**WS 381 Gender, Sexuality and Literature (3)** Basic concepts and representative texts for the study of literary constructions of gender and sexuality. Pre: one ENG DL course or consent. (Cross-listed as ENG 382) **DL**

**WS 384 Women and Politics (3)** Women's role in political institutions and processes in the U.S. and other countries; female and male approaches to power; feminist political goals and actions. Pre: 151 (or concurrent) or 362 (or concurrent) or any 100 level POLS course (or concurrent); or consent. (Cross-listed as POLS 384) **DS**

**WS 390 Gender and Race in U.S. Society (3)** Historical and sociological studies of race and gender in U.S. society; grassroots feminist and race/ethnic activism in the mainland and Hawai'i. A-F only. Pre: 151, ES 101, or Social Science Cores. (Cross-listed as ES 390) **DS**

**WS 392 Sexualities (3)** Multi-disciplinary course draws from psychology, sociology, biology, history, cultural anthropology, law, Hawaiian, ethnic, feminist, gender, and queer studies to explore human sexualities with emphasis on the U.S., Hawai'i and the Asia-Pacific regions. A-F only. Pre: one of 151, 202, 315 or 350; or consent. **DS**

**WS 399 Directed Reading (V)** Pre: consent.

**WS 400 Food, Body, and Women: Analysis of Biopolitics (3)** Explores how food, body, and other "matter of life" are imbedded in biopolitics from the feminist perspectives. A-F only. Pre: 151 or three credits of upper division WS courses, or consent. (Spring only). **DS**

**WS 410 Gender and Politics in U.S.-Okinawa Relations (3)** Examines gender in Okinawa in relation to historical dynamics in the Asia-Pacific region with attention to issues such as militarism and violence, colonialism and memory, and tourism and commodification of indigenous culture. A-F only. Pre: 151 or consent. (Cross-listed as ASAN 410)

**WS 414 Women in Drama and Theater (3)** The role of women and their representation in the theater from ancient Greece to the present; focus on the sociopolitical status of women. Pre: THEA 311 or consent. (Cross-listed as THEA 414) **DH**

**WS 418 Women and Work (3)** Gender and racial division of labor nationally and internationally; racial and gender differentials in wages, training, working conditions and unemployment; historical trends and future directions. Pre: one 300-level WS or ES course, or SOC 300; or consent. (Cross-listed as ES 418 and SOC 418) **DS**

**WS 419 Feminist Issues in Philosophy (3)** Examination of basic feminist issues in philosophy, and of responses to them. Pre: any course 200 or above in PHIL or WS, or consent. (Cross-listed as PHIL 418) **DH**

**WS 424 Gender, Sexuality, and Cyberspace (3)** Students learn how gender and sexuality are constructed online and produce a website to post their analysis and contribute to knowledge production about gender and sexuality in cyberspace. A-F only. **DH**

**WS 430 Seminar in the Biology of Women (3)** Embryological, anatomical, and physiological development of human female; hormonal, neural, and behavioral determinants of female sexual behavior; psychobiology of pregnancy, ovariectomy, and menopause. Pre: 350 or BIOL 172 or BIOL 350, or consent. **DB**

**WS 434 Women and Madness (3)** Interdisciplinary critical examination of the relationship between gender and mental health. Psychological research, feminist theory, autobiography, literature, and cinema. Pre: one of 202, 245, PSY 202; or consent. **DS**

**WS 435 Women and Crime (3)** Women's relations with the criminal justice system; types of women's offenses; responses to women's crime; women as victims; women as workers in the criminal justice system. Recommended: at least one WS course. Pre: 151 or any 200- or 300-level WS course, or SOC 300; or consent. (Cross-listed as SOC 435) **DS**

**WS 436 Gender, Justice and Law (3)** Exploration of landmark U.S. Supreme Court cases related to sex and gender. Topics may include sex discrimination, sexual orientation discrimination, privacy, and reproductive freedom. A-F only. Pre: one of 151, 175, 176, 202, 360, 381, or consent. (Cross-listed as AMST 436 and POLS 436) **DS**

**WS 437 Gender and Violence (3)** Interdisciplinary course will examine western constructs of gender violence on its correlates with ethnicity, class, sexuality, nation, and empire. Repeatable one time. A-F only. Pre: one of 151, 202, 360, 361, 439, 460, 462, or consent. **DS**

**WS 438 Gender and Environmental Philosophy (3)** Interdisciplinary approach to women's perspectives and roles on ecological and environmental issues; critical analysis of eco-feminism as a social and political movement; cross-cultural comparison of women's roles in human ecology. Pre: any course 200 or above in PHIL or WS or any course 200 or above with a DB or DP designation, or consent. (Cross-listed as PHIL 438) **DH**

**WS 439 Feminist Theory (3)** Contemporary debates in feminist theory concerning gender, race, and class; subjectivity and representation; gender and colonialism; bodies, sexualities and "nature." Pre: any 300 level WS or POLS course, or consent. (Cross-listed as POLS 339) **DS**

**WS 440 Feminist Methods and Research (3)** Overview of feminist issues with dominant theories of knowledge and major methodologies employed in the social sciences; and exploration of role of gender theory and feminist politics in feminist research. Pre: 151 or consent. (Once a year) **DS**

**WS 444 Gender and Consumption in a Global World (3)** Students learn theories of the global economy, histories of consumerism, constructions of gendered public spaces, and how the cultural production of consumers and consumer culture functions in the process of globalization. A-F only. **DH**

**WS 445 U.S. Women's Literature and Culture (3)** Reading of selected works of U.S. women's literature and cultural texts (such as art and film). Emphasis on historical and cultural context and diverse expressions of women's gendered identities. (Cross-listed as AMST 455 and ENG 455) **DL**

**WS 446 Gender Violence Over the Lifecycle (3)** Examines the problem of violence, particularly sexual violence, over the life cycle. Offers gendered perspective in activities aimed at prevention and treatment of violence, and cross cultural perspectives. Pre: 151 or any 200- or 300-level WS course, SOC 300; or consent. (Cross-listed as SOC 446) **DS**

**WS 452 Marriage and Family: Feminist Perspective (3)** Sex-role socialization, motherhood, work-family conflicts. Alternative family structures in U.S. and other countries. Recommended: at least one WS course. Pre: 151 or any 200- or 300-level WS course, or SOC 300; or consent. (Cross-listed as SOC 452) **DS**

**WS 453 Gender Issues in Education (3)** Examination of current and historical issues in education and how they are impacted upon by gender, with particular reference to gender as it intersects with ethnicity and class, locally and globally. Pre: 151 or consent. (Cross-listed as EDCS 453 and EDEF 453) **DS**

**WS 456 Politics of Men and Masculinity in U.S. Culture (3)** Examines American understandings of man, manhood, and masculinity, at the intersection of gender, race, class, and sexuality in the context of American nation and empire building in the 19th and 20th centuries. A-F only. Pre: one of 151, 175, 176, or 202; or consent. **DS**

**WS 460 Feminism, Nation and Empire (3)** Examines U.S. feminist movements in the 19th and 20th century by exploring how U.S. racism, nationalism and imperialism have provided the context from which feminism emerged. A-F only. Pre: 151, 360; or consent. **DS**

**WS 462 Asian Women (3)** History, culture, and contemporary reality of Asian women in Asia and the U.S. Includes critical analysis of American feminist methodology and theory. Pre: 360, 361, or 439 or AMST 310, AMST 316, AMST 318, AMST 373, AMST 455, or POLS 339; or consent. (Cross-listed as AMST 438 and POLS 372) **DS**

**WS 463 Gender Issues in Asian Society (3)** Construction of gender identities in contemporary Asia. How these interface with other aspects of social difference and inequality (e.g. with class, religion, ethnicity). Pre: any WS course or ASAN 201 or ASAN 202, or consent. (Cross-listed as ASAN 463) **DS**

**WS 465 Science, Sex, and Reproduction (3)** Explores anthropology's critical analysis of approaches to reproductive health and procreation, primarily in developing countries. Examines sex and reproduction as sites of intervention from public health, development, and biomedical specialists, while also considering local strategies. A-F only. Junior standing or higher. Pre: 151 or ANTH 152 or ANTH 425. (Alt. years: Fall) (Cross-listed as ANTH 465) **DS**

**WS 481 Women and Film (3)** Exploration of film as a philosophical and artistic form in the context of gender, race, and sexuality. Pre: one of 151, 175, 176, and THEA 201; or consent. **DH**

**WS 483 Studies in Literature and Sexuality and Gender (3)** Intensive study of selected problems and issues in the construction and representation of sexuality and gender in specific genres, social and cultural contexts, thematic or figurative clusters. Repeatable one time. Pre: ENG 320 and one other 300-level ENG course; or consent. (Cross-listed as ENG 482) **DL**

**WS 492 Women and Revolution (3)** Conditions under which women's activism and participation in protest and revolutionary movements developed in the 19th- and 20th-centuries. Cross-cultural comparisons. (Cross-listed as ASAN 492 and HIST 492) **DH**

**WS 495 Selected Topics (3)** Problems and issues for reading and research: feminist theory, criticism, affirmative action, etc. Pre: any WS course in appropriate area. **DS**

**WS 496 Teaching Women's Studies (3)** Strategies for teaching women's studies; addressing complex issues of gender, race, nation, class, sexuality and culture in a contemporary multiethnic campus environment. Emphasis on classroom techniques, teaching pedagogies, and hands-on experience. Repeatable one time. A-F only. Pre: 151 and one or more WS course with a grade of B or better in all relevant courses, instructor recommendation; or consent.

**WS 602 Transnational Feminist Teaching and Research (3)** Introductory graduate seminar designed to develop common vocabulary and explore the core debates in transnational feminist teaching and research to encourage critical reflection about teaching assumptions, approaches, and techniques in the contemporary college or university environment. A-F only. Pre: graduate standing and no waiver.

**WS 610 Faculty Seminar Series (1)** Seminar/discussion to introduce students pursuing the Graduate Certificate to the Woman's Studies faculty and their areas of research, and to initiate student's graduate studies in a woman's studies field. Repeatable one time. Pre: classified graduate status (or status pending) and consent.

**WS 612 Women in American Culture (3)** Historical/contemporary status of women in the U.S.; women's roles as defined by legal, educational, political, economic, and social institutions; implications for social science method. (Cross-listed as AMST 612)

**WS 613 Feminist Research and Methods of Inquiry (3)** Examination of an emergent body of literature about how to shape questions concerning gender, sex, race, class, colonialism, and other vectors of power. Includes methods from social sciences and humanities and debates in the philosophy of science. Repeatable one time. Pre: classified graduate status and consent.

**WS 615 Feminist Theory (3)** Selected ideas from contemporary feminist theory concerning power, knowledge, and self; articulating women's voice; deconstructing gender. (Cross-listed as POLS 615C)

**WS 620 Feminism and Its "Others" (3)** Relationship between feminist and other sites of critical insight and scholarship that have contributed to creating anticolonial, antiracist, antihomophobic theory, method and action. Questions the legacy of feminist coalition practices and engages the ongoing transformations that have begun to produce new alliances and coalitions that disrupt traditional boundaries of identity and power. A-F only. Pre: graduate standing, no waiver.

**WS 623 Topics in Feminist Social Policy Research (3)** Feminist social scientists from a variety of fields have explored issues of gender, social change and social justice. Draws from their work to critically examine strategies for conducting social policy research that is feminist in values and impact. Repeatable one time. A-F only. Pre: graduate standing, no waiver.

**WS 647 Gender and Law (V)** Examines the ways in which international law and domestic legal systems address the rights of women, gender roles, and gender identity. Uses comparative approach with an emphasis on case studies from the Asia-Pacific region. (Cross-listed as LAW 547)

**WS 650 Research in Feminist Studies: Capstone Experience (2)** Provide women's studies graduate certificate students with an opportunity to design, develop and complete a research project culminating in a publishable quality work and a professional quality seminar presentation. A-F only. Pre: classified graduate status and consent.

**WS 699 Directed Reading and Research (V)** Pre: classified graduate standing and consent of chair.

**WS 753 (Alpha) Research Seminar in Chinese Literature (3)** Study of authors, a genre, a period, or a problem. (M) modern; (T) traditional. Repeatable one time for (M). A-F only for (M). Pre: 613, 615, 650, or EALL 611; or consent for (M); CHN 612 or consent for (T). (Cross-listed as CHN 753 (Alpha))

## Zoology (ZOOL)

### College of Natural Sciences

*All courses required for the BS and BA degrees and minor require a minimum grade of C (not C-) or better.*

**ZOOL 101 Principles of Zoology (3)** Structure, development, physiology, reproduction, evolution, behavior, and ecology of animals. **DB**

**ZOOL 101L Principles of Zoology Laboratory (1)** Laboratory to accompany 101. Pre: 101 (or concurrent). **DY**

**ZOOL 200 Marine Biology (2)** Biology and ecology of marine plants and animals; coral reefs, the deep sea, rocky shores, marine mammals, fisheries, aquaculture, pollution, and conservation of marine resources. **DB**

**ZOOL 200L Marine Biology Lab (1)** (1 3-hr Lab) Laboratory, field trips to accompany 200. Pre: 200 (or concurrent). **DY**

**ZOOL 306 Ethology (2)** Introduction to animal and human ethology and sociobiology; emphasis on social and interspecific behavior, its causes and adaptive significance. Lab optional. Pre: 101 and 101L with C grade (non-science majors), or BIOL 265 with C grade (life science majors); or consent. **DB**

**ZOOL 306L Ethology Lab (1)** (1 3-hr Lab) Application of methods in demonstrations, films, and projects. Pre: 306 (or concurrent). **DY**

**ZOOL 320 Vertebrate Zoology (3)** Introduction to the evolution and systematics of vertebrates, with emphasis on comparative morphology, physiology, and ecology. Pre: BIOL 265. Co-requisite: 320L. **DB**

**ZOOL 320L Vertebrate Zoology Lab (2)** (2 3-hr Lab) Laboratory to accompany 320. Pre: BIOL 172 and BIOL 172L. Co-requisite: 320. **DY**

**ZOOL 340 Parasitology (2)** Animal parasites of man, and domestic and wild animals; systematics, comparative morphology, life history, pathology, treatment, control. Pre: BIOL 275. **DB**

**ZOOL 340L Parasitology Lab (2)** (2 3-hr Lab) Laboratory to accompany 340. Pre: 340 (or concurrent) and BIOL 275. **DY**

**ZOOL 399 Directed Study (V)** Pre: written consent.

**ZOOL 410 Corals and Coral Reefs (3)** The biogeography, evolution, ecology, and physiology of corals and coral reefs, and the application of this information to the management of coral reefs. Emphasis will be placed on processes such as dispersal, the evolution and operation of mutualisms, calcification, reproduction, and the maintenance of diversity. Pre: BIOL 265. (Spring only)

**ZOOL 416 Histology (3)** Functional microanatomy of the animal body, emphasizing vertebrates. Oriented toward pre-professional students. Pre: BIOL 275. Recommended: BIOL 407. **DB**

**ZOOL 416L Histology Lab (2)** (2 2-hr Lab) Light microscopic study of animal tissues, especially vertebrates. Primarily for pre-professional students. Pre: BIOL 275. Recommended: BIOL 407. Co-requisite: 416. **DY**

**ZOOL 417 Microtechnique (3)** (2 Lec, 2 3-hr Lab) Preparation of animal tissues and organs for microscopic examination; introduction to cytochemical and histochemical techniques. Pre: BIOL 275 or consent. **DB**

**ZOOL 420 Developmental Biology (3)** Fundamental principles, methods, concepts, and significance of developmental biology, emphasizing experimental methods. Pre: BIOL 275. Recommended: BIOL 407. **DB**

**ZOOL 420L Developmental Biology Lab (2)** (2 3-hr Labs) Analysis of animal development by experimental methods, using local organisms. Pre: 420 (or concurrent) and BIOL 275, or consent. Recommended: BIOL 407. **DY**

**ZOOL 430 Animal Physiology (3)** Introduction to function of organs, tissues, and cells, especially in vertebrates. Nerve and muscle physiology, endocrinology, circulation, respiration, excretion, and temperature regulation. Pre: BIOL 275. Co-requisite: 430L. **DB**

**ZOOL 430L Animal Physiology Lab (2)** Laboratory investigation of function of organs, tissues, and cells, especially in vertebrates. Nerve and muscle physiology, circulation, membrane transport, respiration, excretion. Pre: BIOL 275. Co-requisite: 430. **DY**

**ZOOL 432 Comparative Physiology (3)** Physical-chemical cellular mechanisms underlying function of organ systems; general principles inferable from study of adaptation to diverse environments. Pre: BIOL 171 and 172, and MBBE 402 (or concurrent) or BIOC 441 (or concurrent); or consent. **DB**

**ZOOL 439 Animal Ecology (3)** Principles and theories; examples from current experimental and analytical literature. For students in biological sciences. Pre: BIOL 265 and MATH 205 or MATH 215 or MATH 241; or consent. **DB**

**ZOOL 439L Animal Ecology Lab (2)** (1 4-hr Lab) Introduction to methodology, experience in characterizing populations and communities. Pre: BIOL 265. **DY**

**ZOOL 442 Introduction to Neuroscience (3)** Nerve cells, their signalling capabilities and the developmental organization of nervous systems, both invertebrate and vertebrate, for sensory reception, in-

tegration, behavioral command and learning; insights from on-going research using molecular, genetic, biophysical, and imaging methods. Pre: BIOL 275 or consent. (Spring only)

**ZOOL 450 Natural History of Hawaiian Islands**

(3) (2 Lec, 1 1-hr Lab) Geography, geology, climatology, biotic environment of Pacific Basin and Hawaiian Islands; endemism and evolution in terrestrial and marine biota. Pre: one semester of biological sciences at college level. (Cross-listed as BOT 450) **DB**

**ZOOL 460 Avian Biology** (3) Broad coverage of the morphology, physiology, ecology, behavior, and evolution of birds, emphasizing the relation of birds to general theory in biology. Pre: BIOL 265. **DB**

**ZOOL 465 Systematic Ichthyology** (3) Systematics and evolution of fishes; early fishes, fossil fishes, cartilaginous fishes, relic bony fishes, advanced bony fishes, zoogeography, evolution in extreme environments. Pre: 320, 320L, and BIOL 265. Co-requisite: 465L. **DB**

**ZOOL 465L Systematic Ichthyology Lab** (1) (2 2-hr Lab) Overview of the major orders and families of fishes of the world; introduction to local Hawaiian fishes; coverage of basic fish anatomy; introduction to field and laboratory techniques in fish research. Pre: BIOL 265. Co-requisite: 465. **DY**

**ZOOL 466 Fisheries Science** (3) General characteristics of fisheries; harvesting methods; principles and techniques to derive data and analyze fished populations. Field trips. Pre: one of the following: 410, 465, 470, 608, or 620; or consent. **DB**

**ZOOL 467 Ecology of Fishes** (3) Reproduction, early life history, age and growth, feeding, niche specificity, competitive interactions, communities, and evolutionary mechanisms. Pre: 465 or consent. **DB**

**ZOOL 470 Limnology** (2) Biology, physics, chemistry of lakes, streams, estuaries. Pre: BIOL 172 or consent. Co-requisite: 470L. **DB**

**ZOOL 470L Limnology Lab** (1) (1 3-hr Lab) Experimental and descriptive field projects on the biology, chemistry, hydrology, and physics of lakes, streams, and estuaries. Pre: BIOL 172 or consent. Co-requisite: 470. (Alt. years) **DY**

**ZOOL 475 Biology of the Invertebrates** (3) Body plans, development, cellular construction, physiological integration, natural history, and ecology of invertebrate animals. Emphasis on marine species, especially local ones. Pre: BIOL 172 and CHEM 161, or consent. Co-requisite: 475L. **DB**

**ZOOL 475L Biology of the Invertebrates Lab** (2) (2 3-hr Lab) Pre: BIOL 172 and CHEM 161, or consent. Co-requisite: 475. **DY**

**ZOOL 480 Evolutionary Biology** (3) Process of evolution: genetic basis, natural selection, population genetics, speciation, the fossil record. Pre: BIOL 265. Recommended: a BIOL or ZOOL course at 300 or 400 level. **DB**

**ZOOL 485 Biogeography** (3) Distribution of plants and animals and processes that cause, maintain, and modify them. Approach is synthetic and dynamic. Pre: BIOL 172. **DB**

**ZOOL 490 (Alpha) Seminar in Zoology** (1) Reports on research, reviews of literature, or research experience. Required of students majoring in zoology or entomology. (B) general zoology; (D) animal behavior; (E) ecology; (F) physiology; (G) developmental biology; (H) marine biology. Pre: 306 or equivalent or consent for (D).

**ZOOL 492 Teaching Internship** (1) Teaching internship in zoology. Required of ZOOL BS degree students. ZOOL BS majors only. CR/NC only. Pre: laboratory in an upper division ZOOL course.

**ZOOL 499 Directed Reading or Research** (V) Performance of a laboratory, field or library research project under the direction of a faculty advisor. Preparation of a proposal and written final report required. Limited to zoology majors.

**ZOOL 500 Master's Plan B/C Studies** (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

**ZOOL 606 Principles of Animal Behavior** (2) Critical review of theories of ethology, sociobiology; social and interspecific behavior, communication, and evolutionary theory. Lab optional. Pre: graduate standing.

**ZOOL 606L Principles of Animal Behavior Lab** (1) (1 3-hr Lab) Group or individual research projects depending on interest of students. Pre: 606 (or concurrent).

**ZOOL 608 Fish Behavior and Sensory Biology** (2) Lectures, readings and presentations on sensory systems and behavior of fishes. A-F only. Pre: 306, 430, 465, 606; or consent. Co-requisite: 608L. (Alt. years)

**ZOOL 608L Fish Behavior and Sensory Biology Laboratory** (1) Laboratory study of fish sensory systems and behavior. A-F only. Pre: 306, 430, 465, 606; or consent. Co-requisite: 608. (Alt. years)

**ZOOL 610 Topics in Development and Reproductive Biology** (V) Discussion and survey of literature on specific topics; some field and lab work may be required. Repeatable three times.

**ZOOL 619 Seminar on Science Teaching** (2) Effective teaching methods, organization of courses, lectures, laboratory exercises; development and evaluation of examinations; computers and audio-visual aids. Open to graduate students in various science disciplines. Repeatable one time. (Cross-listed as NSCI 619)

**ZOOL 620 Marine Ecology** (3) Principles of ecology of marine biota and environment. Pre: graduate standing in zoology, oceanography, or botany; or consent.

**ZOOL 623 Quantitative Field Ecology** (3) (1 Lec, 1 2-hr Lab, 1 Discussion) Formal quantitative approach in identifying, designing, performing, analyzing, and interpreting ecological field problems. Pre: 439, 439L, and 631; or consent. (Alt. years)

**ZOOL 631 Biometry** (4) (3 Lec, 1 2-hr Discussion) Basic statistical methods: design of studies; data exploration; probability; distributions; parametric and nonparametric one-sample, two-sample, multi-sample, regression, and correlation analyses; frequency tables. Pre: MATH 215 or 216 or 241 or 251A or NREM 203 (or equivalent), or consent.

**ZOOL 632 Advanced Biometry** (4) (3 Lec, 1 2-hr Discussion) Multivariate statistical methods: multiple regression and correlation; multiway anova; general linear models; repeated measures and multivariate anova; loglinear analysis and logistic regression. Pre: 631 or consent.

**ZOOL 642 Cellular Neurophysiology** (3) Biophysical and membrane mechanisms of conduction, synaptic transmission, and other electrical responses of nerve cells. Pre: consent. (Alt. years: spring)

**ZOOL 652 Population Biology** (3) Theory and applications of population biology; behavior of population models, as revealed by analytical methods and computer simulation; application to population problems such as endangered species; discussion of classical and current literature in population biology. Pre: one of the following: 439, 467, 620, 623, BOT 453, BOT 454, BOT 456, NREM 680, PEPS 671; or consent. (Cross-listed as BOT 652)

**ZOOL 690 Conservation Biology** (3) Theories and concepts of ecology, evolution and genetics for conservation of biological diversity. Topics will include restoration ecology, management planning, laws and policies, biological invasions. Pre: BIOL 375 and either 480 or BOT 462; and either 410, 439, 620, 623, BOT 453, 454, 456, or 492. (Cross-listed as BOT 690 and NREM 690)

**ZOOL 691 (Alpha) Seminar in Zoology** (1) Reports on research or reviews of literature. Graduate students required to take this or one topics course

(710–719) per year. (B) general zoology; (C) zoology literature; (D) animal behavior; (E) ecology; (F) animal physiology; (G) development biology; (H) marine biology. Repeatable five times.

**ZOOL 699 Directed Research** (V) Directed research and reading in various fields of zoology. Repeatable unlimited times.

**ZOOL 700 Thesis Research** (V) Repeatable unlimited times.

**ZOOL 710 Topics in Biometry** (V) Selected advanced topics in experimental design or data analysis for biologists. Repeatable unlimited times. Pre: 631 and 632, or consent.

**ZOOL 712 Topics in Nerve/Muscle Physiology** (V) Advanced treatment of selected topics under current active investigation. Repeatable unlimited times. Pre: a graduate course in physiology, neurology, or related subjects and consent.

**ZOOL 714 Topics in Animal Behavior** (V) Lecture-discussion of selected topics. Repeatable three times. Pre: consent.

**ZOOL 718 Topics in Animal Physiology** (V) Selected problems in environmental physiology, electro-physiology, or neurophysiology. Basic concepts and measurements of function at the organismic or cellular level. Repeatable three times.

**ZOOL 719 Topics in Systematics and Evolution** (V) Selected problems of current or historic interest. Repeatable three times. Pre: consent.

**ZOOL 739 Topics in Ecology** (V) Advanced topics in ecology; discussion of literature and in depth survey of specific areas. Repeatable three times up to nine credits. Pre: graduate standing and consent.

**ZOOL 750 Topics in Conservation Biology** (V) Advanced topics in conservation and environmental biology. Repeatable up to twelve credits. A-F only. Pre: consent. (Cross-listed as BOT 750)

**ZOOL 780 Foundations of Evolution and Ecology I** (4) Graduate level introduction to evolution and ecology emphasizing foundational literature, modern models and inference, and major questions in evolution and ecology. Topics include population ecology, community ecology, the genetics of populations, systematics, and speciation. ZOOL majors only (or approval). (Alt. years: fall)

**ZOOL 781 Foundations of Evolution and Ecology II** (4) Graduate level introduction to evolution and ecology emphasizing foundational literature, modern models and inference, and major questions in evolution and ecology. This is the second semester continuation of 780. ZOOL majors only (or approval). (Alt. years: spring)

**ZOOL 800 Dissertation Research** (V) Repeatable unlimited times.

# Instructional Support, Research, and Service Units



The following facilities are an integral part of UH Mānoa. Some are designed for the purpose of research, some for research and teaching, and others to provide services to UH Mānoa students, faculty, staff, or the surrounding community. Other units under the jurisdiction of a particular college/school are listed in the appropriate college/school section.

## **The Center on Aging (COA)**

BioMed T705B  
1960 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-5001

The Center on Aging (COA) was established by the UH Board of Regents in July 1988 to stimulate and coordinate gerontological activities at UH Mānoa, to establish gerontology as

an academic field at UH Mānoa, and to promote collaboration between UH and other organizations concerned with aging.

The center is involved in a number of research and training projects, including cultural variations in caregiving; help seeking; perceptions of chronic disease such as cancer, dementia, diabetes, and death and dying practices; client and caregiver satisfaction with homecare services; and coordinating specialized training and workshops in gerontology for local and international organizations.

The projects had been conducted in collaboration with a number of UH Mānoa departments including the School of Law, School of Nursing and Dental Hygiene, and the College of Social Sciences, along with community agencies such as the Executive Office on Aging, Hawaiian Islands Hospice Organization, Hawai'i Medical Services Association, and Papa Ola Lokahi among others.

## **Assessment Office**

2500 Campus Road  
Hawaii Hall 107  
Honolulu, HI 96822  
Tel: (808) 956-4283; (808) 956-6669  
Web: [manoa.hawaii.edu/assessment](http://manoa.hawaii.edu/assessment)

The Assessment Office (AO) supports quality student learning and promotes excellence in educational practices. The AO assists in planning and implementing institutional- and program-level outcome assessment. The AO provides consultation services on assessment-related issues to all academic disciplines. As the central academic assessment office on campus, the AO collaborates with the campus community to establish meaningful, manageable, and sustainable assessment.

## **Institute for Astronomy**

2680 Woodlawn Drive  
Honolulu, HI 96822  
Tel: (808) 956-8312  
Fax: (808) 988-2790  
Web: [www.ifa.hawaii.edu](http://www.ifa.hawaii.edu)

The Institute for Astronomy (IFA) has offices and laboratories in Mānoa, on Maui, and on Hawai'i island, and access to all the observatories on the summit of Mauna Kea and most of those on Haleakalā. Its faculty conducts research into galaxies, cosmology, stars, the solar system, and the sun; develops new technologies for ground-based and space-based observatories; trains new astronomers through its graduate program; teaches undergraduates; and educates the public through a variety of outreach projects.

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## Cooperating Institutions

UH Mānoa extends its research capacity and service to the state through cooperative agreements and relationships with various institutions, including Bernice P. Bishop Museum, East-West Center, Hawaiian Agricultural Research Center, Honolulu Academy of Arts, National Marine Fisheries Service, National Park Service, Nature Conservancy of Hawai'i, Pacific International Center for High Technology Research, Tropical Fruit and Vegetable Research Laboratory, U.S. Fish and Wildlife Service, U.S. Geological Survey's Hawaiian Volcano Observatory, several local hospitals, and numerous state agencies.

### East-West Center

1601 East-West Road  
Honolulu, HI 96848-1601  
Tel: (808) 944-7111  
Fax: (808) 944-7376  
Email: ewcinfo@EastWestCenter.org  
Web: www.eastwestcenter.org/

The East-West Center is an education and research organization established by the U.S. Congress in 1960 to strengthen relations and understanding among the peoples and nations of Asia, the Pacific, and the U.S. The center contributes to a peaceful, prosperous, and just Asia Pacific community by serving as a vigorous hub for cooperative research, education, and dialogue on critical issues of common concern to the Asia Pacific region and the U.S. Funding for the center comes from the U.S. government, with additional support provided by private agencies, individuals, foundations, corporations, and the governments of the region.

### Diving Safety Program (SCUBA and Compressed Gas Diving)

Environmental Health and Safety Office  
2040 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-9643  
Fax: (808) 956-6952  
Email: dpence@hawaii.edu  
Web: www.hawaii.edu/ehso/diving

The UH Diving Safety Program (DSP) is vested with system-wide support and oversight authority for occupational diving activities of UH faculty, staff, students, and volunteers ensuring compliance with national standards. UH DSP is an organizational member of the American Academy of Underwater Sciences (AAUS) and adheres to the AAUS Standards for the Certification of Scientific Divers and Operation of Scientific Diving Programs. The governing body is the UH Diving Control Board. The diving safety officer is responsible for day-to-day execution of the program, with unit diving coordinators at HIMB, UH-Hilo, and UH-Maui College.

DSP provides standard scientific diver training courses on a periodic basis for UH personnel who use compressed gas diving for research or education. Advanced training in decompression techniques, mixed gas, and closed-circuit rebreathers is available as needed. A diving equipment inspection program for equipment to be used under UH jurisdiction is provided on the Mānoa and Hilo campuses. The main office at UH Mānoa also operates the Hawai'i Advanced Diving Facility.

## Environmental Health and Safety Office (EHSO)

2040 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-8660  
Fax: (808) 956-3205  
Web: www.hawaii.edu/ehso

The Environmental Health and Safety Office (EHSO) works to promote a healthy and safe campus environment through the development and administration of various health and safety programs. Please visit our website for more detailed information about the programs listed below.

**Diving Safety Program**—supports SCUBA and compressed gas diving operations in research and educational programs and ensures that they are conducted in a safe manner. Provides training courses and offers inspections for diving equipment to be used under UH jurisdiction. Compiles reports on UH scientific diver activity and investigates accidents and complaints related to UH diving.

**Environmental Protection Program**—monitors university operations for compliance with federal and state rules and regulations related to storm water management, water and air pollution.

**Fire Safety Program**—monitors campus facilities and operations for compliance with applicable fire codes. Conducts inspections, provides training and maintains campus fire suppression equipment.

**Hazardous Materials Management Program**—manages the transportation, segregation, consolidation and storage of potentially hazardous chemicals. Manages the disposal of hazardous wastes generated by university operations in accordance with federal and state rules and regulations.

**Occupational Health and Safety Program**—assesses and monitors potential workplace hazards. Conducts inspections of on and off-campus facilities, laboratories, and operations for compliance with federal and state rules and regulations related to workplace safety and health. Responds to complaints and requests for hazard evaluations.

**Radiation Safety Program**—monitors the procurement, use, storage, and disposal of radioactive isotopes and radiation sources in accordance with the university's Nuclear Regulatory Commission license.

## External Affairs and University Relations

2444 Dole Street  
Bachman 109H  
Honolulu, HI 96822  
Tel: (808) 956-8109  
Fax: (808) 956-9701  
Email: ur@hawaii.edu  
Web: www.hawaii.edu/offices/eauro

External Affairs and University Relations (EAUR) works with the UH Mānoa advancement team and other marketing and public relations staff to promote the image of and enhance support for the UH System. Four units report to the Vice President for Student Affairs and University/Community Relations: Creative Services provides editorial, photographic, and design support for print and online publications; Governmental Relations serves as the liaison to state and federal lawmakers; Collegiate Licensing oversees use of the university's names, identities, and marks; Public Relations and Special Events builds support among local, national, and international audi-

ences through news media relations, public affairs, and events. Online resources available from the EAUR home page include Newsroom, *Malamalama* magazine, the university style guide and graphics standards manual, News@UH employee newsletter, and stationery and business card procedures. Also see the UH Events Calendar at [www.hawaii.edu/calendar](http://www.hawaii.edu/calendar).

### **Office of Faculty Development and Academic Support**

Kuykendall 107  
1733 Donaghho Road  
Honolulu, HI 96822  
Tel: (808) 956-8075  
Fax: (808) 956-9535  
Web: [www.ofdas.hawaii.edu](http://www.ofdas.hawaii.edu)

The Office of Faculty Development and Academic Support (OFDAS) provides general academic support in instructional and professional development activities and services for UH Mānoa faculty and academic staff: provides leadership development workshops, seminars, and focus groups for department chairs; TA training; supports faculty evaluation and professional development plans; supports departmental instructional and faculty development projects; coordinates new faculty orientations; assists with honors ceremonies, maintains faculty development resources, and coordinates a faculty mentoring program. In addition, OFDAS provides opportunities for faculty members to participate in an array of instructional and curriculum development activities to improve teaching and learning on the Mānoa campus. All OFDAS activities and services are available to full-time tenure track, full-time non-tenure track, adjunct, and part-time faculty. OFDAS is presently organized into three functional units: the Center for Instructional Support (CIS), the Center for Teaching Excellence (CTE), and the Faculty Mentoring Program (FMP), which are actively engaged in providing support in the areas of teaching, assessment, and instructional technology. While each of the functional units have distinct foci, they work in collaboration within OFDAS to respond to faculty requests and needs.

### **Hawai'i State Center for Nursing**

1960 East-West Road  
Biomedical Building C-105  
Honolulu, HI 96822  
Tel: (808) 956-5211  
Web: [www.hawaiicenterfornursing.org](http://www.hawaiicenterfornursing.org)

The Hawai'i State Center for Nursing (HSCFN) was established by the Hawai'i State Legislature "to address nursing workforce issues" (Act 173) with the goal of assuring that the State of Hawai'i has the nursing resources necessary to meet the health care needs of its people. HSCFN is a dynamic and respected champion for the nursing profession and a source of reliable information on existing and emerging trends in nursing. Through strategic thinking, collaboration, and the pursuit of synergistic solutions, HSCFN has become a recognized leader in workforce planning, nursing research, and professional practice.

The core values of HSCFN focus upon excellence, accessibility, collaboration, innovation, education and cultural diversity. The functions of the center include:

1. Collection and analysis of data; preparation and dissemination of written reports and recommendations regarding the

current and future status and trends of the nursing workforce;

2. Conducting research on best practices and quality outcomes;
3. Developing a plan for implementing strategies to recruit and retain nurses; and
4. Researching, analysis, and reporting of data related to the retention of the nursing workforce.

### **Industrial Relations Center**

Hamilton A254A  
2550 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-8132  
(808) 956-8165  
Fax: (808) 956-3609  
Email: [uhirc@hawaii.edu](mailto:uhirc@hawaii.edu)  
Web: [www.manoa.hawaii.edu/irc](http://www.manoa.hawaii.edu/irc)

The Industrial Relations Center (IRC) seeks to promote understanding of industrial relations and human resources development problems, techniques, and policies. Organized to facilitate UH Mānoa research and instruction in the disciplines and professions related to industrial relations, the IRC also serves labor, management, and the community as the link in a continuing dialogue, reporting on changes in the field. The center maintains a library for information services and current publications; provides reference service; conducts conferences, lectures, and group discussions; and assists in the training of students and practitioners in the field. Research studies in industrial relations problems are conducted and published by the IRC.

### **Information Technology Services**

Help Desk Tel: (808) 956-8883  
Help Desk Email: [help@hawaii.edu](mailto:help@hawaii.edu)  
Web: [www.hawaii.edu/infotech](http://www.hawaii.edu/infotech)

Information Technology Services (ITS) provides support for academic computing, enterprise information systems, networking, telephony, teleconferencing, web hosting, and online and distance learning technologies for UH Mānoa and the UH System. ITS' infrastructure includes central servers and services, Internet-based video and teleconferencing systems to support distance education and global collaboration, and local and statewide networks with connections to the Internet, Internet2, and other national and global research and education networks. All UH students, faculty, and staff can obtain access to the Internet and UH technology resources through their UH username, and short courses and professional development activities are available for faculty and staff. The ITS Help Desk provides a single point of contact for access to ITS services and technical support.

### **Office of International and Exchange Programs**

Queen Lili'uokalani Center for Student Services 206  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-2223  
Email: [loiskk@hawaii.edu](mailto:loiskk@hawaii.edu)  
Web: [manoa.hawaii.edu/international/](http://manoa.hawaii.edu/international/)

The Office of International and Exchange Programs (OIEP), in consultation with faculty, administrators, and the campus community, provides the international vision for the university. It does so by guiding relevant policies and expanding the



university's international presence and reputation through networking with communities at home and around the world. This office advocates, supports, and promotes international opportunities and activities both on campus and overseas. Led by the Assistant Vice Chancellor, the chief international education officer and the principal advisor to the Chancellor and Vice Chancellor on all matters pertaining to international education, OIEP is comprised of the following functional units: Faculty and Scholar Immigration Services, International Student Services, Mānoa International Exchange, National Student Exchange, and the Study Abroad Center. The OIEP serves as a catalyst for the university's international engagement, facilitating and coordinating its global activities and initiatives.

### Study Abroad Center

Moore Hall 115  
1890 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-5143  
Fax: (808) 956-9319  
Email: [uhmsac@hawaii.edu](mailto:uhmsac@hawaii.edu)  
Web: [www.studyabroad.org](http://www.studyabroad.org)

The Study Abroad Center (SAC) collaborates with various UH Mānoa academic departments to provide opportunities for students to study, and faculty members to teach and conduct research in another country. For more details, go to the Programs section in "Undergraduate Education."

### Mānoa International Exchange

Queen Lili'uokalani Center for Student Services 206  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-4728  
Fax: (808) 956-5076  
Email: [uhmix@hawaii.edu](mailto:uhmix@hawaii.edu)  
Web: [manoa.hawaii.edu/international/mix/](http://manoa.hawaii.edu/international/mix/)

UH Mānoa International Exchange (MIX) provides an opportunity for UH Mānoa students to study overseas and students from our overseas partner universities to study at Mānoa. An international exchange may be for one or two semesters; some summer exchange programs are also available.

Participating students are registered as full-time UH Mānoa students while on exchange, and pay only their normal tuition. Upon completing the exchange, students receive transfer credit based on an evaluation of the transcript provided by the host university.

### National Student Exchange

Physical Science Building 205  
2565 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-6772  
Email: [sandyd@hawaii.edu](mailto:sandyd@hawaii.edu)  
Web: [www.nse.org](http://www.nse.org) and [www2.hawaii.edu/~nse](http://www2.hawaii.edu/~nse)

The National Student Exchange provides full-time undergraduates with the opportunity to study for a semester or a year at one of 175 colleges and universities located throughout the Continental U.S., Canada, Puerto Rico, Guam, and the Virgin Islands. Tuition costs for exchange students are reasonable since participants pay either UH Mānoa tuition or resident tuition at the host school. Room, board, and transportation costs are additional. For those who meet the eligibility requirements (including a minimum cumulative GPA of 2.5), exchange is an excellent way to explore different academic, social, and cultural settings.

### International Student Services

Queen Lili'uokalani Center for Student Services 206  
2600 Campus Road  
Honolulu, HI 96822  
Tel: (808) 956-8613  
Fax: (808) 956-5076  
Email: [issmanoa@hawaii.edu](mailto:issmanoa@hawaii.edu)  
Web: [www.hawaii.edu/issmanoa/](http://www.hawaii.edu/issmanoa/)

International Student Services (ISS) provides assistance to international students who come from more than 90 countries to study at UH Mānoa. ISS advises students on regulations affecting their non-immigrant visa status in the U.S., provides opportunities to help students adjust to local and U.S. cultures, advocates for international students, and serves as a resource for the university and local communities. ISS is responsible for meeting international student federal compliance and serves as the liaison between UH Mānoa and federal agencies regarding student immigration matters.

### Faculty and Scholar Immigration Services

Physical Science Building 102-106  
2565 McCarthy Mall  
Honolulu, HI 96822  
Tel: (808) 956-0935  
Fax: (808) 956-5030  
Email: [fsis@hawaii.edu](mailto:fsis@hawaii.edu)  
Web: [www.hawaii.edu/fsis/](http://www.hawaii.edu/fsis/)

The Office of Faculty and Scholar Immigration Services (FSIS) provides UH System-wide immigration and support services for international employees and administers the Exchange Visitor Program for all J-1 categories, except for UH Mānoa students. FSIS serves as a central resource for advising, assisting, and disseminating immigration information to international employees and scholars. It maintains a central immigration database of UH-sponsored international faculty, researchers, professional/technical staff, and scholars, from which it gener-

ates internal and external reports. FSIS reviews and updates UH immigration policies and procedures and serves as a liaison between UH and federal agencies on immigration matters.

### **Institutional Research Office**

2500 Campus Road  
Hawai'i Hall 107  
Honolulu, HI 96822  
Tel: (808) 956-5366  
Fax: (808) 956-7115  
Email: [miro@hawaii.edu](mailto:miro@hawaii.edu)  
Web: [www.manoa.hawaii.edu/ovcaa/mir/](http://www.manoa.hawaii.edu/ovcaa/mir/)

The mission of the Mānoa Institutional Research Office is to enhance institutional effectiveness by: collecting, analyzing, and reporting information for institutional strategic planning, assessment, program review, policy formulation, and decision making for both academic and administrative functions; coordinating responses to inquiries for university-related information; and serving as a comprehensive source for information about the institution.

### **Harold L. Lyon Arboretum**

3860 Mānoa Road  
Honolulu, HI 96822  
Tel: (808) 988-0456  
Fax: (808) 988-0462  
Web: [www.hawaii.edu/lyonarboretum/](http://www.hawaii.edu/lyonarboretum/)

The Harold L. Lyon Arboretum facilitates and conducts research, instruction, and public service in tropical biology and horticulture. Located on a 194-acre site in upper Mānoa valley are greenhouses, laboratories, classrooms, and an herbarium. The arboretum also houses living plant collections, comprising about 15,000 accessions that encompass more than 6,000 species, varieties, and cultivars. It is the only university arboretum in the U.S. located in a tropical rainforest, and it has one of the largest collections of palms of any botanical garden in the world. Other major collections include tropical trees, heliconias, gingers, aroids, and ti. Emphasis is increasingly placed on native Hawaiian plants, including research on propagation and restoration of endangered species, on restoration of Hawaiian ecosystems, and on ethnobotany of the Hawaiian Islands.

### **Spark Matsunaga Institute for Peace and Conflict Resolution**

Saunders Hall 523 and 723  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-6433  
MIPCR Fax: (808) 956-9121  
Email: [uhip@hawaii.edu](mailto:uhip@hawaii.edu)  
Web: [www.peaceinstitute.hawaii.edu](http://www.peaceinstitute.hawaii.edu)

The Institute for Peace was established in 1986 and renamed in 1990, to honor former U.S. Senator Spark Matsunaga, a leader in the movement to promote peace studies. The institute is a multi-disciplinary academic community of scholars, students, practitioners, and visitors who seek through teaching, research, service, and application to: educate and train professionals and future leaders in applied peacemaking and conflict



resolution; develop and apply innovations to the peaceful resolution of conflicts, locally, regionally, and globally; and renew UH Mānoa's commitment to providing a safe sanctuary for civil and respectful exchange of perspectives and ideas.

The institute offers courses in peace studies and conflict resolution and coordinates three academic programs. Undergraduates can obtain an interdisciplinary BA in peace studies and/or conflict resolution, or an undergraduate Certificate in Peace Studies, equivalent to a minor. Graduate students can obtain the Graduate Certificate in Conflict Resolution, which is available to students studying only for the certificate and also to students who are pursuing another graduate degree and wish to obtain an additional qualification in conflict resolution.

The institute also conducts research and organizes public forums and conferences on topics relevant to peace and conflict studies and human rights. Recent forums include: *Is Climate Change a Threat to World Peace?*; *Torture, National Security and Accountability*; *Making Agent Orange History*; *Peacemaking and The Rights of Children*; *Nuclear Weapons: Is Abolition Possible?*; *China's Burgeoning Internet*; and *Hong Kong and China: Successful Autonomy?* (See [www.peaceinstitute.hawaii.edu/events/index.cfm](http://www.peaceinstitute.hawaii.edu/events/index.cfm)) The institute also cooperates with other departments and community groups to organize international conferences, including the annual *International Forum on The Rights of Persons with Disabilities* (organized every spring with UH Mānoa's Center on Disability Studies) and the *First Global Nonkilling Leadership Forum*, which included Nobel Peace Laureate Mairead Corrigan Maguire. The institute also coordinates UH's Alternative Dispute Resolution (UH-ADR) program, which provides facilitation, mediation, and deliberative dialogues and training for clients in the UH System and the broader community. The institute's programs are diverse but united by a common goal: to encourage students, faculty, and the community to strengthen their theoretical understanding and practical skills in the fields of peace studies, human rights, mediation, and collaborative problem solving. Building on Hawai'i's cultural heritage and values, the institute seeks to promote cross-cultural communication and peacemaking leadership.

### **Pacific Biosciences Research Center**

Pacific Biosciences Research Center 215  
1993 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-7401  
Fax: (808) 956-4768  
Web: [www.pbrc.hawaii.edu](http://www.pbrc.hawaii.edu)

The Pacific Biosciences Research Center (PBRC) is an organized research unit that supports interdisciplinary biological/biomedical research and training in basic and applied areas with particular relevance to Hawai'i. Current research is focused on cellular, developmental and molecular biology, Hawaiian evolutionary biology and conservation, and neuro-behavioral biology; the unit has implemented plans for a more cohesive focus on biodiversity. PBRC maintains core research support facilities in molecular biology (supporting genomics and bioinformatics) and in confocal and electron microscopy that serve the entire UH Mānoa campus and the state. PBRC fosters undergraduate and graduate research training through multiple programs funded by the National Science Foundation—Undergraduate Research and Mentoring in the Biological Sciences, ATE Partnership for Advanced Marine and Environmental Science Training for Pacific Islands, International Research Experiences for Students (IRES) and the graduate IGERT Integrative Training in Ecology, Conservation, and Pathogen Biology—and through the Minority Access to Research Careers (MARC U\*STAR) honors undergraduate program funded by the National Institutes of Health. PBRC administers the Békésy Laboratory of Neurobiology and the Center for Conservation and Research Training on the UH Mānoa campus and the Kewalo Marine Laboratory off-campus. PBRC has served as an incubator for developing new research initiatives and units, having supported the development of the 2-year medical school in the 1960s, the Cancer Research Center in the 1980s, and a number of clinical and human-health related programs transferred to the John A. Burns School of Medicine in 2003-2004.

### **Office of Research Compliance**

Biomedical Sciences Building T111  
1960 East-West Road  
Honolulu, HI 96822  
Tel: (808) 956-9004  
Fax: (808) 956-3535  
Web: [manoa.hawaii.edu/ovcr/research](http://manoa.hawaii.edu/ovcr/research)

The Office of Research Compliance at UH Mānoa enhances research excellence for the UH System through four programs:

1. The **Animal and Veterinary Services Program (AVSP)** oversees the health and well-being of all vertebrate animals used in research, testing, and teaching system-wide. The University Veterinarian is the primary clinical care provider for these animals. AVSP operates two vivaria for which they procure, house, and care for research animals on a fee-for-service basis. For more information on AVSP, please visit our website at [www.hawaii.edu/LAS](http://www.hawaii.edu/LAS).
2. The **Animal Welfare and Biosafety Program (AWBP)** advises, educates, and certifies personnel in best practices for biosafety and for the proper care and use of animals in research, testing, and teaching.

AWBP helps protect personnel, the environment, and the public from exposure to biological agents (including select agents and toxins), microorganisms, and recombinant genet-

ic materials. AWBP administers the Institutional Biosafety Committee (IBC), which reviews, approves, and monitors researcher adherence to research and teaching protocols that involve potentially infectious agents.

AWBP administers the Institutional Animal Care and Use Committee (IACUC), which reviews, approves, and monitors laboratory and field research protocols and instructional activities involving vertebrate animals to help ensure they are used ethically and humanely.

3. The **Human Studies Program (HSP)** helps protect the welfare, rights, and dignity of human participants in research. The HSP administers the Institutional Review Boards (IRBs) that evaluate, approve, and monitor new and continuing research protocols involving human research participants, while providing training and counsel for investigators involved in research on humans.
4. The **Research Integrity Program (RIP)**, along with the UH Ethics Committee, addresses allegations of research and scholarly misconduct and whistleblower retaliation, and provides education in the responsible conduct of research.

### **Social Science Research Institute**

Saunders Hall 704  
2424 Maile Way  
Honolulu, HI 96822  
Tel: (808) 956-8930  
Fax: (808) 956-2884  
Email: [ssri@hawaii.edu](mailto:ssri@hawaii.edu)  
Web: [www.ssri.hawaii.edu](http://www.ssri.hawaii.edu)

The Social Science Research Institute (SSRI) serves as the sponsored research division of the College of Social Sciences. SSRI facilitates and supports interdisciplinary, applied research that addresses critical social, behavioral, environmental, and economic issues in Hawai'i and the Asia-Pacific region. This is done through collaboration with faculty and students throughout the UH and with other educational and research institutions, regional and international organizations, the private sector, federal, state, and county agencies. It is supported largely by contracts and grants from public agencies and private organizations.

The institute currently focuses on these areas: crime, drug abuse, youth problems, resources and sustainable development; telecommunication and information policy; culture, language, and social problems; adult mental health services; health services and health policy. SSRI also cooperatively manages the University of Hawai'i Economic Research Organization (UHERO), the Office for Evaluation and Needs Assessment Services, and the Mental Health Transformation-State Incentive Grant project (MHT-SIG).

### **University of Hawai'i Cancer Center**

701 Ilalo Street  
Honolulu, HI 96813  
Tel: (808) 586-3010  
Fax: (808) 586-3009  
Web: [www.uhcancercenter.org](http://www.uhcancercenter.org)

The University of Hawai'i Cancer Center is a free-standing organized research unit of UH Mānoa focusing on cancer research. Its faculty members are comprised of scientists and clinicians from various disciplines reflecting the broad research interests of the center. The UH Cancer Center is a National Cancer Institute (NCI)-designated consortium cancer center,

a prestigious designation granted only to the most eminent and successful cancer centers in the nation after a rigorous peer review. This designation comes with a Cancer Center Support Grant, which provides funding for various research core facilities such as Analytical Biochemistry, Animal Carcinogenesis, Biostatistics and Informatics, Genomics, Metabolomics, Microscopy and Imaging, Nutrition Support, and Pathology. The UH Cancer Center also operates the Hawai'i Tumor Registry and the Clinical and Translational Research Services resource, which provides access to clinical trials for cancer patients in Hawai'i.

UH Cancer Center faculty are engaged in all aspects of cancer research, from epidemiology and prevention to treatment, continuing care, and quality of life, and generate over \$33 million in extramural research support annually. In addition to conducting fundamental research in cancer biology, the UH Cancer Center also provides training opportunities for undergraduates and MS, MD, MPH, and PhD students enrolled in academic disciplines closely aligned with the faculty's research interests.

The UH Cancer Center's research activities are organized into four programs. They are: (1) cancer epidemiology, which is comprised of researchers in the fields of epidemiology, nutrition, molecular genetics, and biostatistics who are studying lifestyle factors and genetic and hormonal causes of cancer; (2) cancer prevention and control, which designs, develops, implements, and evaluates behavioral and community interventions to reduce cancer incidence, morbidity, and mortality, and to improve the quality of life of cancer patients; (3) cancer biology, which is a multi-disciplinary research program that studies cancer mechanisms including novel insights of cancer development, progression, and invasion and more effective preventive, early detection, and therapeutic interventions; and (4) natural products and experimental therapeutics, which investigates anticancer targets and pathways of clinical and therapeutic significance, explores and develops natural products and synthetic small molecule products to treat cancer, and designs, pursues, and analyzes innovative clinical trials.

### **University of Hawai'i Press**

2840 Kolowalu Street  
Honolulu, HI 96822  
Tel: (808) 956-8257  
Fax: (808) 988-6052  
Web: [www.uhpress.hawaii.edu](http://www.uhpress.hawaii.edu)

University of Hawai'i Press (UH Press) publishes and distributes books and journals of high merit that reflect the regional or special interests and responsibilities of UH and other scholarly research organizations. All titles carry the imprint "University of Hawai'i Press." UH Press is a member of the Association of American University Presses, Association of American Publishers, Society for Scholarly Publishing, Hawai'i Book Publishers Association, and the International Association of Scholarly Publishers. UH Press publishes books of regional interest, scholarly monographs, textbooks, and scholarly journals. (UH Press also operates a sales program—East-West Export Books—in Asia and the Pacific on behalf of American scholarly publishers.) Editorial control (final approval of manuscripts) is vested in a board made up of UH faculty members appointed by the Vice Chancellor for Academic Affairs. Faculty members are encour-

aged to submit book-length manuscripts to the executive editor. Journal papers should be submitted to the editor-in-chief of the appropriate journal.

### **University of Hawai'i Translational Health Science Simulation Center (UH THSSC)**

2528 McCarthy Mall  
Webster Hall  
Honolulu, HI 96822  
Tel: (808) 956-7466  
E-mail: [thssc@hawaii.edu](mailto:thssc@hawaii.edu)  
Web: [thssc.nursing.hawaii.edu/](http://thssc.nursing.hawaii.edu/)

The UH Translational Health Science Simulation Center's (UH THSSC) mission is to improve patient outcomes by providing effective programs which promote and enhance safe, quality healthcare through clinical competence, teamwork, trans-disciplinary collaboration, and translational research. The 8,000 square foot center integrates state-of-the-art simulation equipment, electronic patient records, and advanced audio-video systems to support education and research for Hawai'i's health care professionals.

Simulated patient care environments provide controlled instructional settings for professionals to practice clinical skills in a safe learning environment without impacting real patient outcomes. Designated physiological laboratories equipped with technologic resources support interdisciplinary biomedical and behavioral research. UH THSSC provides novice through expert nurses, nurse researchers, and members of the health care team a venue to continually advance skills and innovate new knowledge to provide safe, quality healthcare for the people of Hawai'i.

### **Waikiki Aquarium**

2777 Kalākaua Avenue  
Honolulu, HI 96815  
Tel: (808) 923-9741  
Fax: (808) 923-1771  
Email: [info@waquarium.org](mailto:info@waquarium.org)  
Web: [www.waikikiaquarium.org](http://www.waikikiaquarium.org)

The Waikiki Aquarium is 110 years old and the second oldest aquarium in the U.S. Part of the university since 1919, it is the State Aquarium of Hawai'i and gave rise to the Hawai'i Institute of Marine Biology and the Pacific Biomedical Research Center. Focusing on South Pacific marine life, it houses over 2,500 specimens representing over 400 vertebrate and invertebrate species, including many that can be seen here and at no other aquarium worldwide. It is internationally renowned for the ecological accuracy of its award winning exhibits, and for its coral propagation and education programs: it houses probably the most diverse living coral collection of any aquarium in the northern hemisphere. Research activities include propagation of rare and endangered Hawaiian corals, Hawaiian monk seal biology, green sea turtle growth rates, studies of the threatened inarticulate brachiopod, and various aquaculture and husbandry-related projects, such as giant clam and jellyfish husbandry, and production of planktonic algae, and rotifer and other microcrustacean live feeds. The exhibits feature up-close experiences at the "Edge of the Reef" outdoor exhibit, educational presentations about the Hawaiian monk seal, and other interpretive activities. An audio tour provides additional information about exhibits. The Aquarium also offers a diverse array

of marine education programs, with classes, workshops and schools tours. The Aquarium is open daily to the public from 9:00 am, last entry at 4:30 pm, and closes at 5:00 pm. Please check the website for special hours.

### **Water Resources Research Center**

Holmes 283  
2540 Dole Street  
Honolulu, HI 96822  
Tel: (808) 956-7847  
Fax: (808) 956-5044  
Web: [www.wrrc.hawaii.edu](http://www.wrrc.hawaii.edu)

Water Resources Research Center (WRRC) conducts research on Hawai'i's water resources, assists and promotes instruction in water resources in several academic departments, provides training opportunities for engineers and scientists through research, and communicates research results to users. Interdisciplinary research is broadly based in physical and

biological sciences, technology, ecology, and social sciences. The research encompasses hydrology and hydraulic engineering, geology, geophysics and geochemistry, microbiology, chemistry, zoology, oceanography, sanitary engineering and public health, climatology and soil physics, agricultural engineering and forestry, and socioeconomic and legal issues. WRRC operates laboratories and field research facilities. The Environmental Center, whose mission focuses on ecological relationships, natural resources, and environmental quality, is administered by WRRC.



# Administration

## University of Hawai'i Board of Regents

HOLZMAN, John C. (Chair)  
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ACIDO, Jeffrey T.  
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MIZUNO, Barry T.  
MOORE, Randolph G.  
PORTNOY, Jeffrey  
SHIGEMOTO, Tom H.  
SULLIVAN, Jan Naoe

## Former Presidents

POPE, Willis T., 1907–1908 (Acting) (Deceased); BS 1898, Kansas State; MS 1916, California; DSc 1926, Hawai'i  
GILMORE, John W., 1908–1913 (Deceased); BSA 1898, MSA 1906, Cornell  
DONAGHHO, John S., 1913–1914 (Acting) (Deceased); AB 1889, AM 1897, Marietta  
DEAN, Arthur L., 1914–1927 (Deceased); BA 1900, Harvard; PhD 1902, Yale; LLD 1947, Hawai'i  
CRAWFORD, David L., 1927–1941 (Deceased); BA 1911, LLD 1933, Pomona; MA 1912, Stanford; LLD 1957, Hawai'i  
KELLER, Arthur R., 1941–1942 (Acting) (Deceased); LLB 1907, National University Law School; MS 1916, MIT; ScD 1942, Hawai'i  
SINCLAIR, Gregg M., 1942–1955 (Deceased); BA 1912, LLB 1949, Minnesota; MA 1919, LLD 1954, Columbia; LLD 1951, Ohio State; LLD 1955, UC Berkeley; HHD 1956, Hawai'i; DLit 1960, Keio  
BACHMAN, Paul S., 1955–1957 (Deceased); BS 1922, Ohio State; MA 1925, PhD 1927, Washington  
WILSON, Willard, 1957–1958 (Acting) (Deceased); BA 1929, LLD 1961, Occidental College; MA 1930, Columbia; PhD 1939, Southern California  
SNYDER, Laurence H., 1958–1963 (Deceased); BS 1922, ScD 1947, Rutgers; MS 1924, ScD 1926, Harvard; ScD 1960, Ohio State; HHD 1962, North Carolina  
HAMILTON, Thomas H., 1963–1968 (Deceased); BA 1936, LLD 1961, DePauw; MA 1940, PhD 1947, Chicago; LHD 1960, Alfred; LLD 1961, Rollins College; LLD 1961, Colgate; DH 1967, Oakland U (Michigan); LLD 1967, Southern California

HIATT, Robert W., 1968–1969 (Acting) (Deceased); BA 1936, San Jose State; PhD 1941, UC Berkeley  
TAKASAKI, Richard S., 1969 (Acting) (Deceased); BS 1940, Hawai'i; MA 1949, Columbia; MPA 1960, Harvard  
CLEVELAND, Harlan, 1969–1974 (Deceased); AB 1938, Princeton; LLD 1956, Rollins College; 1960, Franklin and Marshall College; 1962, Middlebury College; 1962, Kent State; 1968, Arizona State; 1972, Korea U; LHD 1958, Alfred; 1966, Kenyon College; DCL 1966, American; LittD 1968, Pittsburgh  
MATSUDA, Fujio, 1974–1984; BS 1949, Rose Polytechnic Institute; ScD 1952, MIT  
SIMONE, Albert J., 1984–92; BA 1957, Tufts; PhD 1962, MIT  
YUEN, Paul C., 1992–93 (Acting); BS 1952, Chicago; MS 1955, PhD 1960, Illinois Institute of Technology  
MORTIMER, Kenneth P., 1993–2001; AB 1960, MBA 1962, Pennsylvania; PhD 1969, UC Berkeley  
DOBELLE, Evan S., 2001–2004; BA 1983, MEd 1970, EdD 1987, Massachusetts-Amherst; MPA 1984, Harvard  
McCLAIN, David, 2004–2009; BA 1968, Kansas; PhD 1974, MIT  
GREENWOOD, M.R.C., 2010–2013; AB 1968, Vassar; PhD 1973, Rockefeller

## University of Hawai'i System Administration

LASSNER, David, Interim President  
THOMPSON, Nainoa, Advisor on Hawaiian Affairs  
\*ITANO, Joanne, Interim Executive Vice President for Academic Affairs/Provost  
TODO, Howard, Vice President for Budget and Finance/Chief Financial Officer  
MORTON, John F., Vice President for Community Colleges  
SMITH, Steven, Interim Vice President for Information Technology and Chief Information Officer  
LENDIO, Darolyn H., Vice President for Legal Affairs and University General Counsel  
SYRMOS, Vassilis, Vice President for Research and Innovation  
WATERS, Lynne T., Associate Vice President for External Affairs and University Relations  
JAVINAR, Jan, Interim Associate Vice President for Student Affairs

## UH Mānoa Administration

\*APPLE, Tom, Chancellor  
\*NICHOLSON, Peter C., Faculty Athletics Representative

## Academic Affairs

\*DASENBROCK, Reed W., Vice Chancellor for Academic Affairs and Professor of English  
\*AUNE, Krystyna S., Dean of Graduate Division and Professor of Communicology  
\*CAMBRA, Ronald E., Assistant Vice Chancellor for Undergraduate Education and Professor of Communicology  
GOODWIN, April N., Program Officer, BA 2002, Hamline U; MIPA 2008, Wisconsin-Madison  
McCREARY, Beverly, Assistant Vice Chancellor for Academic Personnel and Assistant Specialist; BS 1987, USC; MS 1990, PhD 1993, Oregon  
KIMURA, Trisha, Program Officer; BS 1988, UC Berkeley; JD 1991, Boalt Hall School of Law, UC Berkeley  
PEARSON, Wendy L., Program Officer; BA 1993, Michigan State; MA 1996, Hawai'i  
ZHANG, Yang, Director of Institutional Research; BA 2002, Shandong U (China); MS 2005, Wisconsin-Milwaukee; MBA 2011, Edgewood College; PhD 2011, Wisconsin-Madison

## Research

\*TAYLOR, Brian, Interim Vice Chancellor for Research and Dean of Ocean and Earth Science and Technology  
GALLAND, John C., Assistant Vice Chancellor for Research Compliance; BA 1971, Adams State; MS 1985, PhD 1989, UC Davis

## Administration, Finance and Operations

CUTSHAW, Kathleen D., Vice Chancellor for Administration, Finance and Operations; BA 1984, UC San Diego  
\*MEDER, Stephen E., Interim Assistant Vice Chancellor for Physical, Environmental, and Long Range Planning  
FRENCH, Alexandra (Sandy), Director of Finance and Accounting; BA 1980, Reed College; MPA 1987, Lewis & Clark College  
HUEBLER, Deborah T., Director of Campus Services; BS 1996, Arizona State  
KUNIYOSHI, Tammy M., Director of Human Resources; BBA 1989, Hawai'i  
NAGAO, Robert W., Mānoa Budget Director; BA 1968, Chaminade

\* Indicates that dates and institutions of degrees are listed under "Faculty."

## Student Affairs

HERNANDEZ, Francisco J., Vice Chancellor for Students; BA 1970, UC Berkeley; MA 1978, PhD 1982, Stanford

DANG, Hung D., Associate Vice Chancellor for Enrollment Management and Director of Admissions; BA 1990, Washington; MA 2012, Gonzaga

IDETA, Lori M., Assistant Vice Chancellor and Dean of Students; BEd 1990, MEd 1992, EdD 1996, Hawai'i

HAMAKAWA, Shirley S., Administrative Officer; BBA 1972, Hawai'i

## Graduate Education (Graduate Division)

\*AUNE, Krystyna S., Dean of Graduate Division and Professor of Communicology

\*MAEDA, Julienne K., Associate Dean and Associate Professor of Kinesiology and Rehabilitation Science

## Intercollegiate Athletics

JAY, Ben, Athletic Director; BS, MS Ohio State

## Academic Administration

### Architecture

BINGHAM, Thomas R., Interim Dean

### Arts and Sciences

\*ARNADE, Peter, Dean, College of Arts and Humanities

\*BRISLIN, Thomas, Interim Associate Dean, College of Arts and Humanities

\*BLEY-VROMAN, Robert, Dean, College of Languages, Linguistics and Literature

\*KONDO-BROWN, Kimi, Interim Associate Dean, College of Languages, Linguistics and Literature

\*DITTO, William L., Dean, College of Natural Sciences

\*KONAN, Denise E., Dean, College of Social Sciences

\*SUTHERLAND, Ross A., Interim Associate Dean, College of Social Sciences

### Shidler College of Business

\*ROLEY, V. Vance, Dean

\*BUTLER, John, Interim Associate Dean for Academic Affairs

VARLEY, Richard, Director, Internships and Career Development

NAKATA, Unyong, Director, Development Office

### Education

\*YOUNG, Donald B. Jr., Dean

\*PATEMAN, Beth, Interim Associate Dean for Academic Affairs

\*SPENCER, Melvin E. III, Director for Student Academic Services

TASHIMA, Sheryl, Administrative Officer; BBA 1982, Hawai'i

### Engineering

\*CROUCH, Peter E., Dean

\*LIEBERT, Bruce E., Interim Associate Dean for Academic Affairs

CHOI, Song K., Assistant Dean; BS 1986, WPI; MS 1988, CMU; PhD 1995, Hawai'i

## Hawai'i nuiākea School of Hawaiian Knowledge

\*BENHAM, Maenette K. P. Ah Nee, Dean

LATHAM, Katherine U., Personnel Officer

KEOLA, David, Administrative Officer; BBA 1989, Hawai'i

CASHMAN, Edward Makahiapo, Director, Ka Papa Lo'i o Kānewai; BA 1991, Hawai'i

\*ANDREWS, Lilinoe, Assistant Specialist

\*OLIVEIRA, Katrina-Ann Kapā'anaokalaokoala, Director, Center for Hawaiian Language

\*ANDRADE, Ivy, Director, Center for Hawaiian Studies

\*WRIGHT, Erin Kahunawaika'ala, Director, Native Hawaiian Student Services

## Law

\*SOIFER, Aviam, Dean

KAWAKAMI, Ronette M., Interim Associate Dean for Student Services and Lecturer of Law; BA 1982, JD 1985, Hawai'i

\*ANTOLINI, Denise, Associate Dean for Academic Affairs

CHOCK, Hansford, Director of Financial Aid; BS 1983, Hawai'i

HELGESON, Grant, Registrar; BA 1997, Hawai'i

HUTCHISON, Elisabeth Steele, Director of Special Projects and Director of Admissions; BA 1996, Carleton; JD 2003, Yale

KAU, Wesley, Administrative Officer; BBA 1986, Hawai'i

\*KIMURA, Spencer A., Associate Director of International Programs, Director of Summer School

LEE, Dale W., Chief Operating Officer/Senior Advisor; AB 1970, Brown; JD 1974, Southern Methodist U

NONZEE, Piyada, Director of Professional Development; Associate Director of Admissions; BA, Illinois-Urbana-Champaign

SKILLING, Liam, Director of the Part-Time JD Program

SZYMCZAK, Victoria, Director of Law Library; BA 1979, SUNY Buffalo; JD 1992, LLM 1992, Duke; MLIS 1996, Pratt Institute

## Medicine

\*HEDGES, Jerris R., Dean

NIP ASANO, Ivy, Director of Admissions

KASUYA, Richard, Associate Dean for Medical Education

MAGNUSSON, A. Roy, Associate Dean for Clinical Affairs

\*HARRIGAN, Rosanne, Director of Faculty Development

\*SAKAI, Damon, Director of Medical Education

SMERZ, Richard, Director of Student Affairs

\*BURGESS, Lawrence P. A., Director of Telehealth Research Institute

FOSTER, Nancy K., Chief Financial Officer

SEYMOUR, Corrine M., Director of Fiscal and Administrative Services

## Nursing and Dental Hygiene

\*BOLAND, Mary G., Dean

\*ZIEHM, Scott R., Associate Dean for Academic Affairs

## Ocean and Earth Science and Technology

\*TAYLOR, Brian, Dean

\*FLETCHER, Charles, Associate Dean for Academic Affairs

SHOR, Alexander N., Associate Dean for Research

ANDAYA, Juanita C., Director of Administrative Services; BBA 1993, Washington State; MBA 2004, Hawai'i

OSTRANDER, Christopher, Assistant Dean, Director of Strategic Initiatives and External Relations

GRABOWSKI, Marcie, Outreach Specialist; BA 2001, Missouri; MS 2005, Hawai'i

ANTHONY, Leona M., Director of Student Services; BA 1986, Hawai'i

## Outreach College

\*CHISMAR, William G., Interim Dean

\*ABE, Harriet, Interim Associate Dean

## Pacific and Asian Studies

\*SUTTON, R. Anderson, Dean

\*WESLEY-SMITH, Terence, Director and Chair, Pacific Islands Studies

\*AUNG-THWIN, Michael, Chair, Asian Studies

## Social Work

\*MOKUAU, Noreen, Dean

## Travel Industry Management

FITZGERALD, Deborah, Director of Internship and Career Development

RAQUENO, Cathryn S. I., Director of Student Services

SOMA, Rachel, Director of Professional Development Program

## Tropical Agriculture and Human Resources

\*GALLO, Maria, Dean and Director

\*KINOSHITA, Charles M., Associate Dean of Academic and Student Affairs

\*GRACE, J. Kenneth, Interim Associate Dean and Associate Director of Research

\*EVENSEN, Carl I., Interim Associate Dean and Associate Director for Cooperative Extension

HAKODA, Miles M., Director of Communication Services; BFA 1979, Hawai'i

LIM, Thomas, Director of Planning and Management Systems; BA 1978, New York U; MArch 1993, Hawai'i

MORITA, Janis, Director of Administrative Services; BA 1986, Hawai'i; MBA 1990, Chaminade

# Faculty



## Endowed Chairs and Distinguished Professorships

Accuity, LLP Accounting Faculty Fellowship in the Shidler College of Business, funded by Accuity, LLP.

American Lung Association of Hawai'i and Leahi Fund Chair in Respiratory Health in JABSOM, funded by the American Lung Association of Hawai'i and the Leahi Fund through the Hawai'i Community Foundation.

American Lung Association of Hawai'i Endowed Chair in Neonatal Respiratory Health in JABSOM, funded by the American Lung Association of Hawai'i.

Arthur Lynn Andrews Visiting Professor of Asian and Pacific Studies in SPAS, established by the will of Harriet Cousens Andrews.

Victor and Peggy Brandstrom Pavel Endowed Chair

Gladys Kamakakūokalani 'Ainoa Brandt Endowed Chair in SHK, funded by the estate of Gladys 'Ainoa Brandt.

Dr. Edwin C. Cadman Endowed Professorship for the Study of Neurodegenerative Disorders funded by the Cadman endowment fund of the UH Foundation.

Carlsmith Ball Faculty Scholar, funded by Carlsmith Ball LLP of Honolulu.

Barbara Cox Anthony Chair in Aging in the Center on Aging, funded by an anonymous donor.

Dai Ho Chun Chair in the Colleges of Arts and Sciences, funded by the will of Dai Ho Chun.

Dai Ho Chun Distinguished Chair in Educational Leadership in the College of Education, funded by the late Dai Ho Chun.

The Citizens' Chair in English Literature in LLL, funded by the Hawai'i State Legislature.

Coral Industries Professorship in Renewable Energy Resources in HNEI, funded by Coral Petroleum, Inc.

Donald A. Corbin Distinguished Professorship in Accounting in the Shidler College of Business, funded by Donald and Martha Corbin and other individuals, corporations, and foundations.

John and Sue Dean Distinguished Professorship in the Shidler College of Business, funded by John and Sue Dean.

Judith Pyle Dean's Chair in the Hawai'i inuiākea School of Hawaiian Knowledge.

The Endowed Director of the Center for Cardiovascular Research in JABSOM, funded by an anonymous donor.

First Hawaiian Bank Endowment Fund for the Distinguished Professor of Management and Leadership.

First Insurance Company Distinguished Professorship in the Shidler College of Business, funded by First Insurance Company of Hawai'i Charitable Foundation.

Lloyd Fujie and Deloitte Foundation Distinguished Accounting Professorship in the Shidler College of Business, funded by Deloitte & Touche, LLP; the Deloitte Foundation.

Wallace S. Fujiyama Visiting Professorship of Law, funded by Duty Free Shoppers Group, Ltd.

Hawai'i Medical Service Association Chair for Health Care Services Quality Research in JABSOM, funded by the Hawai'i Medical Services Association.

Sidney and Erica Hsiao Endowed Chair in College of Natural Sciences, funded by the Sidney and Erica Hsiao Trust.

Dan and Maggie Inouye Distinguished Chair in Democratic Ideals in Law and College of Arts and Humanities, funded by the Inouye endowment fund of the University of Hawai'i Foundation.

George M. Johnson Visiting Professorship in Law, funded by the will of Evelyn W. Johnson.

William R. Johnson, Jr. Distinguished Professorship in the Shidler College of Business, funded by William R. Johnson, Jr.

W. Ruel Johnson Distinguished Professorship in the Shidler College of Business, funded by William R. Johnson, Jr.

Fred T. Korematsu Professor of Law and Social Justice, funded primarily by Minie Kosasa.

Benjamin A. Kudo Chair of Law in Law, funded by an anonymous donor.

K. J. Luke Chair of International Finance and Banking in the Shidler College of Business, funded by K. J. Luke.

Gordon A. Macdonald Chair in Volcanology in SOEST, funded by the Hawai'i State Legislature.

Michael J. Marks Distinguished Professor in Business Law, funded primarily by The Michael J. Marks Foundation.

Matson Navigation Company Chair of Global Business Education in the Shidler College of Business, funded by Matson Navigation Company.

Frances A. Matsuda Chair in Women's Health in Nursing, funded by Frances A. Matsuda Sano.

Harold and Sandy Noborikawa Chair of Entrepreneurship, Marketing, and Information Technology in the Shidler College of Business, funded by Harold and Sandy Noborikawa.

Yehan Numata Chair in Buddhist Studies in SPAS, funded by Yehan Numata.

Jean E. Rolles Distinguished Professorship in the Shidler College of Business, funded by Jean E. Rolles.

Soshitsu Sen Director of the Center for Japanese Studies in SPAS, funded by Soshitsu Sen XV.

Soshitsu Sen XV Professor of Traditional Japanese Culture and History in College of Arts and Humanities, funded by Soshitsu Sen XV.

Shidler College Distinguished Professors in the Shidler College of Business, funded by Jay Shidler.

The J and M Sullivan Endowed Cancer Chair in UHCC, funded by Joanna and Maurice Sullivan.

Myron "Pinky" Thompson Endowed Chair in JABSOM's Native Hawaiian Center of Excellence, funded by the National Institutes of Health.

## Key to Abbreviations

CCR—Center for Cardiovascular Research  
 CRDG—Curriculum Research & Development Group  
 CTAHR—College of Tropical Agriculture and Human Resources  
 HCAC—Hawai'i Center for Advanced Communications  
 HIGP—Hawai'i Institute of Geophysics and Planetology  
 HIMB—Hawai'i Institute of Marine Biology  
 HNEI—Hawai'i Natural Energy Institute  
 HSFL—Hawai'i Space Flight Laboratory  
 HSGCP—Hawai'i Space Grant College Program  
 HURL—Hawai'i Undersea Research Lab  
 IRC—Industrial Relations Center  
 IFA—Institute for Astronomy  
 IPRC—International Pacific Research Center  
 IRTF—Infrared Telescope Facility  
 JABSOM—John A. Burns School of Medicine  
 JIMAR—Joint Institute for Marine and Atmospheric Research  
 OFDAS—Office of Faculty Development and Academic Support  
 PBRC—Pacific Biosciences Research Center  
 PMP—Pacific Mapping Program  
 SGCP—Sea Grant College Program  
 SHK—Hawai'i inuiākea School of Hawaiian Knowledge  
 SOEST—School of Ocean and Earth Science and Technology  
 SSRI—Social Science Research Institute  
 UHCC—University of Hawai'i Cancer Center  
 WRRC—Water Resources Research Center

Henry A. Walker, Jr., Distinguished Professor of Business Enterprise in the Shidler College of Business, funded by the Amfac Foundation.

Barry and Virginia Weinman Dean's Chair in JABSOM, funded by Barry and Virginia Weinman.

Gerrit Parmile Wilder Chair in Botany in College of Natural Science, established by the will of Lillian Kimball Wilder.

Bob Y. K. Wong Visiting Professor of Civil and Environmental Engineering in Engineering, funded by the late Bob Y. K. Wong.

Dr. Alfred A. Yee Visiting Professorship in Civil and Environmental Engineering in the College of Engineering, funded by an anonymous donor.

## A

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## B

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- BLANCHETTE, Patricia L., Professor of Geriatric Medicine; BA 1974, MPH 1979, MD 1979, Hawai'i; Hung Wo and Elizabeth Lau Ching Foundation Award for Faculty Service to the Community, 2006
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WARD, David, Associate Director for Basic Sciences and Translational Research in UHCC; MSc, British Columbia PhD, Rockefeller

WARD, Monika A., Associate Professor of Anatomy, Biochemistry and Physiology; MS 1994, PhD 2001, Poland

WARD, William S., Professor of Anatomy, Biochemistry and Physiology; BS 1980, MS 1981, American U of Beirut (Lebanon); PhD 1985, Vanderbilt

WARNER, Sam No'eau, Associate Professor of Hawaiian; BA 1978, MA 1984, PhD 1996, Hawai'i; Chancellor's Citation for Meritorious Teaching, 2003

WATLING, Leslie E., Professor of Biology and Zoology; BS 1965, Calgary (Canada); MS 1969, U of the Pacific; PhD 1974, Delaware

WATT, George, Professor of Tropical Medicine, Medical Microbiology and Pharmacology; AB 1971, UCB; MD 1976, Universite Paul Sabatier (France)

WATTERS, Michael R., Professor of Medicine; BA 1972, Tennessee-Knoxville; MD 1975, Tennessee-Memphis

WATTS, Margit M., Professor of CRDG; BA 1970, Certificate 1972, Michigan; MSW 1974, PhD 1989, Hawai'i

WEBB, David T., Assistant Professor of Botany; BA 1967, West Chester State; PhD 1978, Montana

WELIN, Stephanie, Coordinator of Student Union Programs, Student Life and Development; MS 2008, Florida International U

WELLS, Jenny C., Assistant Professor of Special Education; BS 1976, MEd 1993, PhD 2003, Hawai'i

WEN, Aida, Associate Professor of Geriatric Medicine; BS 1989, Barnard; MD 1993, Mount Sinai

WEN, Hsing, Assistant Professor of Travel Industry Management; BA 1999, Fairleigh Dickinson U; MBA 2002, UC San Diego; PhD 2006, UNLV

WENDELL, John P., Professor of Accounting; BA 1980, Upsala College; CPA 1984, U of State of New York; PhD 1989, Union College

WENDEROTH, Valeria, Assistant Specialist in Center for Teaching Excellence; BA 1993, MA 1995, PhD 2004, Hawai'i

WENG, Kevin C., Assistant Specialist in Oceanography; BA, Williams College; MS, Hawai'i; PhD 2006, Stanford

WERTHEIMER, Andrew, Associate Professor of Library and Information Science in ICS; BA 1993, Wisconsin; MLS 1995, Indiana U; PhD 2003, Wisconsin-Madison

WESLEY-SMITH, Terence A., Professor of Pacific Islands Studies; BCA 1977, BCA 1978, Victoria-Wellington (New Zealand); PhD 1988, Hawai'i; Regents' Medal for Excellence in Teaching, 2003

WESSEL, Paul, Professor of Geophysics; BS 1982, MS 1984, Oslo (Norway); MPhil 1987, PhD 1990, Columbia; Regents' Medal for Excellence in Research, 1998

WESSENDORF, Markus W., Professor of Theatre; MA 1991, PhD 1996, Justus-Liebig-U Giessen (Germany)

WESTCOTT, Nancy D., Librarian in Law Library; BA 1978, Aquinas College; MLS 1981, Western Michigan

WESTFALL-SENDA, Mandy, Coordinator of New Student Orientation, Student Life and Development; BA 1998, Scripps College; MA 2007, Hawai'i

WHITE, Geoffrey M., Professor of Anthropology; BA 1971, Princeton; MA 1973, PhD 1978, UC San Diego

WHITE, Karen M., Assistant Professor of Art; BA 1989, Rutgers; MFA 1994, Virginia Commonwealth

WICHMANN-WALCZAK, Elizabeth A., Professor of Theatre; BA 1971, Iowa; MA 1973, PhD 1983, Hawai'i; Fujio Matsuda Fellow, 1987

WIECZORCK, Ania, Associate Specialist in Tropical Plant and Soil Sciences, CTAHR; BS 1994, Drexel; PhD 1999, U of Western Cape (South Africa)

WILKENS, George R., Jr., Professor of Mathematics; BS 1980, MS 1983, PhD 1987, North Carolina-Chapel Hill

WILKENS, Lynne R., Faculty Co-Director of Biostatistics and Informatics Shared Resource and Specialist in UHCC; BS 1981, MS 1983, DrPH 2000, North Carolina-Chapel Hill

WILLCOX, Bradley J., Professor of Geriatric Medicine; BS 1982, MS 1991, Calgary (Canada); MD 1992, Toronto

WILLET, Rufus E. J., Assistant Professor of Mathematics; BA 2005, Oxford (UK); PhD 2009, Pennsylvania State

WILLIAMS, Betty Lou, Associate Professor of Education; BA 1977, UC Davis; Cert of Fine Art 1979, Oxford; PhD 1994, Florida

WILLIAMS, Jonathan, Astronomer in IFA; BA 1988, Cambridge; MA 1990, UC Berkeley; MA 1991, Cambridge; PhD 1995, UC Berkeley

WILLIAMS, Philip G., Associate Professor of Chemistry and Assistant Professor of UHCC; BS 1998, Calgary (Canada); PhD 2003, Hawai'i

WILLIAMS, Rebecca J., Assistant Professor of Public Health; BS 2002, Sonoma State; MPH 2004, DrPH 2011, Hawai'i

WILLIAMSON, Michael R., Professor of and Specialist in Molecular Biosciences and Biosystems Engineering, CTAHR; BS 1967, Texas A&M; MS 1969, PhD 1986, Hawai'i

WILLOME, Jason, Assistant Professor of Art; BFA 2000, Texas; MFA 2003, Colorado

WILLS, James R., Jr., Professor of Marketing; BA 1968, Taylor; MBA 1970, Western Michigan; DBA 1976, Kent State

WILLS, Thomas A., Interim Director of Cancer Prevention and Control Program and Researcher in UHCC; BA 1965, Reed College; MA 1972, PhD 1975, Oregon

WILSON, Leslie C., Professor of Mathematics; BA 1969, Oregon; MS 1970, PhD 1973, Illinois

WILSON, Marly L., Specialist in Special Education; BS 1999, BYU-Provo; MPA 2004, Hawai'i

WILTSHIRE, John C., Director of HURL and Associate Chair in Ocean and Resources Engineering; BS 1976, Carleton U (Canada); PhD 1983, Hawai'i

WINGERT, Everett A., Professor of Geography; BA 1964, Michigan; MA 1967, PhD 1973, Washington

WINTER, Jenifer S., Associate Professor of Communication; AB 1991, Occidental; MLIS 1996, PhD 2003, Hawai'i; Regents' Medal for Excellence in Teaching, 2011

WISCHMAN, Kim, Specialist and Physician in University Health Services; BA 1986, Washington; MD 1996, George Washington School of Medicine

WOMACK, Donald R., Professor of Music; BA 1988, BM 1989, Furman; MM 1990, DMA 1993, Northwestern

WOMERSLEY, Christopher, Professor of Biology and Zoology; BSc 1973, PhD 1977, Newcastle Upon Tyne (UK); Regents' Medal for Excellence in Teaching, 1993

WONG, Annette K., Assistant Professor of Hawaiian; BA 2001, MEd 2003, PhD 2010, Hawai'i

WONG, George J., Associate Professor of Botany; BA 1972, MA 1977, San Francisco State; PhD 1983, UC Davis

WONG, Judith A., Instructor in Financial Economics and Institutions; Intensive Language Study Mandarin Chinese 1993, Chinese Central U; BA 1979, Colorado; MBA 1994, Hawai'i

WONG, Kerry, Associate Professor of Hawaiian; BA 1978, Colorado-Boulder; MA 1993, PhD 2006, Hawai'i; Regents' Medal for Excellence in Teaching, 2008

WONG, Leslie K. L., Assistant Professor of Dental Hygiene; BA 1966, Hawai'i; DDS 1972, Washington

WONG, Linda L., Clinical Professor of Surgery and Researcher in UHCC; BS 1982, Stanford; MD 1986, UC Irvine

WONG, Lisa, Assistant Specialist in Arts and Sciences Student Academic Services; BS 1984, Hawai'i; MBA 1994, CSU Long Beach; MEd 2011, Hawai'i

WONG, Lorrie, Instructor in Nursing; BSN 1979, Hawai'i; MS 1988, Columbia; PhD 2009, Hawai'i; Chancellor's Citation for Meritorious Teaching, 2004

WONG, Matthew Kainoa, Instructor in Hawaiian Language; BA 2004, MA 2012, Hawai'i

WONG, Wesley L., Specialist and Physician in University Health Services; BA 1983, Washington; MD 1987, Internal Medicine 1990, Hawai'i

WOO, Patrick Chi-Kwong, Instructor in Japanese; BA 1988, MA 1990, Hawai'i; Frances Davis Award for Excellence in Undergraduate Teaching, 2007

WOOD, D. William, Professor of Sociology; BA 1968, Saskatchewan (Canada); MPH 1979, MA 1980, PhD 1983, Hawai'i

WOODRUFF, Rosemarie V., Associate Specialist in Learning Assistance Center; BEd 1970, MEd 1974, PhD 2006, Hawai'i

WOOLLEN, Mary C., Instructor in Accounting; BA 1983; MAcc 1997, Hawai'i; CPA 1998

WRIGHT, Erin Kahunawaika'ala, Director of Native Hawaiian Student Services; BA 1995, Hawai'i; MA 1997, PhD 2003, UCLA

WRIGHT, Lesley, Professor of Music; BA 1972, Smith College; MFA 1974, PhD 1981, Princeton

WRIGHT, Mark G., Professor and Specialist in Plant and Environmental Protection Services, CTAHR; BSc 1987, MSc 1990, Stellenbosch (South Africa); PhD 1996, Natal (South Africa)

WRIGHT, Robert, Associate Researcher in HIGP; BA 1994, The U of Sheffield (UK); MS 1995, U College London (UK); PhD 1999, The Open U-Milton Keynes (UK)

WRIGHT, Tricia E., Assistant Professor of Obstetrics and Gynecology; BS 1989, Stanford; MD 1994, Michigan; MS 2009, Hawai'i

WU, Xiaoping, Assistant Researcher in Pacific Mapping Program; BS 1982, Jiangxi School of Metallurgy (China); MS 1984, Seimol. Inst.; PhD 1993, Colorado

WURTZBURG, Susan J., Assistant Professor of Sociology; BS 1983, Trent (Canada); PhD 1991, U of Albany

## X

XIE, Guoxiang, Assistant Specialist in UHCC; MS 2004, East China U of Science and Technology (China); MD 2007, Shanghai Jiao Tong U (China)

XIE, Shang-Ping, Professor of Meteorology and IPRC; BS 1984, Shandong College of Oceanography (China); MS 1988, PhD 1991, Tohoku (Japan)

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## Y

YAMADA, Lawrence M., Associate Professor of Dental Hygiene; DDS 1955, St. Louis; Certificate 1967, Boston; MS 1973, USC

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YAMAKAWA, Roy, Associate Extension Agent in Tropical Plant and Soil Sciences, CTAHR; BEd 1971, MS 1975, Hawai'i

YAMAMOTO, Eric K., Professor of Law; BA 1975, Hawai'i; JD 1978, UC Berkeley; Presidential Citation for Meritorious Teaching, 1990, 1998; Regents' Medal for Excellence in Teaching, 2005

YAMAMOTO, Kathryn K., Assistant Professor of Education; BS 1978, MEd 1998, PhD 2010, Hawai'i

YAMAMOTO, Loren G., Professor of Pediatrics; BS 1978, MD 1983, MPH 1980, MBA 1993, Hawai'i

YAMAUCHI, Kazuhiro, Junior Researcher in Anatomy, Biochemistry and Physiology; BS 1997, MS 1999, PhD 2003, Hiroshima (Japan)

YAMAUCHI, Lois A., Professor of Education; BA 1986, MA 1991, PhD 1993, Hawai'i; Chancellor's Citation for Meritorious Teaching, 2008

YAMAZAKI, Yukiko, Assistant Professor of Anatomy, Biochemistry and Physiology; BA 1983, DVM 1985, PhD 1990, Japan

YAN, Tao, Associate Professor of Civil and Environmental Engineering; BS 1997, Wuhan U of Tech. (China); MS 2000, Tsinghua U (China); PhD 2004, Minnesota

YANAGIDA, John F., Researcher in Natural Resources and Environmental Management, CTAHR; BA 1971, Hawai'i; MA 1975, PhD 1978, Illinois; Presidential Citation for Meritorious Teaching, 1992; Chancellor's Citation for Meritorious Teaching, 2003

YANAGIHARA, Angel A., Assistant Researcher in PBRC; BA 1982, Virginia; PhD 1997, Hawai'i

YANAGIHARA, Richard T., Professor of Pediatrics; BA 1968, Hawai'i; MD 1972, Cincinnati; MPH 1985, Johns Hopkins

YANCURA, Loriga A., Associate Professor of Family Resources in CTAHR; BA 1988, PhD 2004, UC Davis

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YANG, Haining, Associate Professor of UHCC; MD 1997, PhD 2002, Shandong Medical U (China)

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YANG, Jude Y., Librarian II in Library Services; BA 1992, Ewha Womans U (Korea); MLIS 2008, Hawai'i

YANG, Myungji, Assistant Professor of Political Science; BA 2001, MA 2003, Yonsei U (Korea); PhD 2012, Brown

YANO, Christine R., Professor of Anthropology; BA 1973, Stanford; MA 1988, PhD 1995, Hawai'i; Regents' Medal for Excellence in Teaching, 2011

YAO, Kuang-tien C., Librarian V in Library Services; BA 1968, Tamkang (Taiwan); MLS 1992, Simmons; MA 2003, Hawai'i

YAP, Allison K., Study Abroad Advisor and Assistant Specialist in Study Abroad Center; BA 1992, MA 1994, Hawai'i

YARBROUGH, William J., Assistant Professor of Surgery; BS 1964, MD 1968, Medical U of South Carolina

YATES, Alayne, Professor of Psychiatry; BA 1950, Radcliffe; MD 1961, Illinois

YATES, Julian R., III, Specialist in Plant and Environmental Protection Sciences, CTAHR; BS 1965, MS 1968, PhD 1988, Hawai'i

YEE, Barbara W. K., Professor of Family and Consumer Sciences; BA 1974, Hawai'i; MA 1979, PhD 1982, Denver

YEE, James R., Associate Professor of Electrical Engineering; BEE 1972, City College of New York; SM 1974, PhD 1986, MIT

YEE, Thomas, Professor of Music; BM 1995 Memorial U of Newfoundland (Canada); MM 1997, Colorado-Boulder; DMA 2002, U of Rochester-Eastman

YEUNG, Norine, Assistant Researcher in PBRC; BS 2003, PhD 2010, Hawai'i

YIM, Christopher D., Junior Specialist in Education; BA 1997, MEd 1999, Hawai'i

YOKOCHI, Gareth C., Assistant Professor of Obstetrics and Gynecology; BA 1969, Hawai'i; MD 1973, UCLA

YONTZ, Valerie, Specialist in Public Health; BA 1974, Illinois Wesleyan U; MS 1976, BSN 1977, Saint Louis U; MSN 1982, Utah; MA 1994, MPH 1994, PhD 1995, Hawai'i

YOO, T. Jun, Associate Professor of History; BA 1995, UC Riverside; MA 1997, PhD 2002, Chicago

YOON, Yeon-Hee, Instructor in Korean; BS 1986, Ewha Womans U (Korea); MA 2006, PhD 2010, Hawai'i

YOSHIMURA, Mari, Professor of American Studies; BA 1991, Tokyo; MA 1992, PhD 1997, Brown; Distinguished Graduate Mentoring Award, 2007

YOSHIMI, Dina R., Associate Professor of Japanese; BA 1984, Yale; MA 1989, PhD 1993, USC

YOSHIOKA, Jon, Associate Professor of Education; BS 1985, MS 1987, UC Riverside; MBA 1989, CSU-San Bernardino; PhD 2010, Hawai'i

YOST, Russell S., Professor of and Soil Scientist in Tropical Plant and Soil Sciences, CTAHR; BS 1970, Kansas State; MS 1972, Nebraska; PhD 1977, North Carolina State

YOUKHANA, Adel H., Junior Researcher in Natural Resources and Environmental Management, CTAHR; BS 1982, MS 1986, Mosul (Iraq); PhD 2010, Hawai'i

YOUNG, Benjamin B. C., Associate Professor of Native Hawaiian Health; BS 1960, MA 1964, Pepperdine; MD 1970, Howard

YOUNG, Donald B., Jr., Dean and Professor of Education; BS 1968, MS 1969, SUNY; EdD 1986, Hawai'i

YOZA, Brandon A., Assistant Researcher in HNEI; BS 1992 Loyola Marymount; MS 1995, Hawai'i; PhD 2002, Tokyo U of Agriculture and Technology

YU, Herbert, Director of Cancer Epidemiology Program and Associate Director of Cancer Control and Population Sciences and Researcher in UHCC; MD 1983, Shanghai Medical U (China); MSc 1990, PhD 1996, Toronto

YU, Jian, Researcher of HNEI; BEng 1982, MS 1985, Zhejiang (China); PhD 1991, British Columbia

YU, Mihae, Professor of Surgery; BA 1975, Smith College; MD 1979, Hawai'i

YUE, Ming-Bao, Associate Professor of Chinese Literature; MA 1985, PhD 1991, Stanford

YUEN, Sylvia, Professor of Family and Consumer Sciences, CTAHR; BS 1964, Hawai'i; MS 1965, Illinois; PhD 1975, Hawai'i; Robert W. Clopton Award for Distinguished Community Service, 1983; Chancellor's Citation for Meritorious Teaching, 2002

YUN, Zhengqing, Associate Professor of HCAC; BS 1982, Nanjing South East U (China); MS 1991, PhD 1994, Chongqing U (China)

## Z

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ZALUD, Ivica, Professor of Obstetrics and Gynecology; MD 1986, PhD 1992, U of Zagreb (Croatia)

ZEE, Julia, Extension Agent in Human Nutrition, Food, and Animal Sciences, CTAHR; BS 1983, Oregon; MPH 1984, Hawai'i

ZEEBE, Richard E., Professor of Oceanography; MS 1995, PhD 1998, U of Bremen (Germany)

ZENG, Suzanne M., Instructor in Chinese, Translation and Interpretation; BA 1980, Redlands; MA 1989, PhD 1996, Hawai'i

ZENIGAMI, Fay K., Junior Specialist in CRDG; BEd 1974, PD 1975, MEd 1975, Hawai'i

ZHAI, Yunfeng, Junior Researcher in HNEI; BS 2002, Henan (China); PhD 2007, Chinese Academy of Science (China)

ZHANG, Rui, Assistant Professor of Electrical Engineering; BE 2001, ME 2005, Huazhong U of Science and Technology (China); PhD 2013, Arizona State

ZHANG, Shuqiang, Associate Professor of Education; BA 1967, Fudan; MA 1985, PhD 1990, Hawai'i; Regents' Medal for Excellence in Teaching, 1993

ZHANG, Wei, Associate Professor of Sociology; BA 2000, MA 2002, Nanjing U (China); MS 2005, PhD 2007, Texas-Austin

ZHAO, Jingxia, Assistant Researcher in Meteorology; BS 1981, Nanjing Institute of Meteorology (China); MS 1984, Academia Sinica (China); MS 1990, PhD 1993, UCLA

ZHENG, Dongping, Assistant Professor of Second Language Studies; BA 1995, Northeast Normal U (China); MA 1997, Jilin U (China); MA 1998, U of Great Falls; PhD 2006, Connecticut

ZHOU, Kate Xiao, Professor of Political Science; BA 1982, Wuhan College (PR China); MS 1989, Texas A&M; PhD 1994, Princeton

ZHOU, Jian, Associate Professor of Accounting; BS 1992, MS 1995, Peking U (China); PhD 2000, Syracuse

ZHOU, Xiangrong, Assistant Professor of Electrical Engineering; BS 1999, Tsinghua U (China); PhD 2008, Maryland

ZIEGLER, Herbert F., Associate Professor of History; BA 1971, Evansville; MA 1973, Baylor; PhD 1980, Emory

ZIEHM, Scott R., Associate Dean for Academic Affairs and Specialist in Nursing; BS 1983, Baldwin Wallace College; DNP 1987, Case Western Reserve

ZILLIOX, Joseph T., Professor of Education; BA 1971, Xavier; EdD 1990, Georgia; Frances Davis Award for Excellence in Undergraduate Teaching, 1995

ZININ, Pavel, Researcher in HIGP; PhD 1987, Moscow Institute of Physics

ZUERCHER, Deborah, Associate Professor of Education; BA 1983, U of Waterloo (Canada); BA 1996, MA 1997, PhD 2007, Kent State

ZUERN, John, Associate Professor of English; BA 1986, Moorhead State; MA 1991, MA 1993, PhD 1995, Texas-Austin; Chancellor's Citation for Meritorious Teaching, 2005; Regents' Medal for Excellence in Teaching, 2012

ZUO, Yi, Assistant Professor of Mechanical Engineering; BS 1998, MS 2001, U Science and Technology (Beijing); PhD 2006, Toronto



# Faculty Emeriti

## A

ABRAMSON, Norman, Professor Emeritus of Electrical Engineering; BA 1953, Harvard; MA 1955, UCLA; PhD 1958, Stanford

ADACHI, Mitsuo, Professor Emeritus of Educational Administration; BEd 1949, MEd 1964, Hawai'i; EdD 1971, Arizona State

ADAMS, Paul L., Professor Emeritus of Social Work; BA/MA 1964, Oxford University (England); MSW 1970, U of Sussex (England); DSW 1979, UC Berkeley

AKITA, George, Professor Emeritus of History; BA 1951, Hawai'i; MA 1953, PhD 1960, Harvard

ALLEN, Richard D., Professor Emeritus of Microbiology; BA 1957, Greenville College; MS 1960, Illinois; PhD 1964, Iowa State

ALTIZER, Nell G., Professor Emeritus of English; BA 1957, St. Louis; MA 1962, Emory; Presidential Citation for Meritorious Teaching, 1986

ANDERSON, Alexander S., Professor Emeritus of Medicine; BA 1951, MD 1951, MD 1954, Michigan; MEd 1966, Illinois

ANDERSON, C. Webster, Professor Emeritus of Art; BA 1933, UC Berkeley; MA 1953, UCLA

APFFEL, James A., Associate Professor Emeritus of Education; BS 1963, Maryland; MEd 1967, Hawai'i; EdD 1969, George Peabody College for Teachers

AQUINO, Belinda A., Professor Emeritus of Asian Studies; BA 1957, U of Philippines; MA 1965, Hawai'i; PhD 1974, Cornell; Hung Wo and Elizabeth Lau Ching Foundation Award for Faculty Service to the Community, 2008

ARAKI, Charles T., Professor Emeritus of Educational Administration; BEd 1957, Certificate 1962, Hawai'i; MS 1960, EdD 1970, Illinois

ARDOLINO, Frank R., Professor Emeritus of English; BS 1962, St. John's; MA 1964, NYU; PhD 1975, UC Riverside

ARKOFF, Abe, Professor Emeritus of Psychology; BA 1946, MA 1948, PhD 1951, Iowa; Regents' Medal for Excellence in Teaching, 1968

ASHTON, Geoffrey C., Professor Emeritus of Genetics; BS 1945, PhD 1958, DSc 1967, Liverpool

ATEN, Donald G., Professor Emeritus of Educational Technology; BEd 1956, BA 1961, Hawai'i; MA 1957, EdD 1969, Columbia

AYABE, Harold I., Professor Emeritus of Educational Psychology; BA 1957, Fort Wayne Bible College; MEd 1968, PhD 1969, Indiana; Regents' Medal for Excellence in Teaching, 1972

## B

BAIL, Frederick T., Professor Emeritus of Education; AB 1965, Bowdoin; PhD 1970, Cornell; Regents' Medal for Excellence in Teaching, 1992

BAILEY, Joseph K., Professor Emeritus of Management; BA, BS 1934, Salem; MBA 1948, PhD 1955, Texas

BAILEY, Leslie E., Professor Emeritus of Pharmacology; BS 1959, Utah State; PhD 1966, Utah

BAKER, Barry John, Professor Emeritus of Architecture; Diploma in Architecture 1963, New South Wales (Australia)

BALL, Robert J., Professor Emeritus of Classics; BA 1962, Queens College; MA 1963, Tufts; PhD 1971, Columbia; Regents' Medal for Excellence in Teaching, 1979; Fujio Matsuda Scholar, 1985

BANGERT, David C., Professor Emeritus of Management and Industrial Relations; BS 1965, USMA; MBA 1986, Hawai'i; MS 1987, PhD 1989, Harvard; Regents' Medal

for Excellence in Teaching, 1995; Hung Wo and Elizabeth Lau Ching Foundation Award for Faculty Service to the Community, 2002

BARTHOLOMEW, Duane P., Agronomist Emeritus; BS 1961, California Polytechnic; PhD 1965, Iowa State

BARUFFI, Gigliola, Professor Emeritus of Public Health; MD 1957, Milan (Italy); MPH 1970, Johns Hopkins

BAYER, Ann S., Professor Emeritus of Education; BA 1963, Maine; MEd 1970, New Hampshire; PhD 1982, Stanford

BECKER, Theodore L., Professor Emeritus of Political Science; BA 1954, LLB 1956, Rutgers; MA 1960, Maryland; PhD 1964, Northwestern

BEECHERT, Edward D., Jr., Professor Emeritus of History; BA 1947, MA 1949, PhD 1957, UC Berkeley

BENDER, Byron W., Professor Emeritus of Linguistics; BA 1949, Goshen College; MA 1950, PhD 1963, Indiana

BERGER, Leslie R., Professor Emeritus of Microbiology; BS 1950, Cincinnati; MS 1953, Washington; PhD 1957, UC Davis

BERTRAM, Edward A., Professor Emeritus of Mathematics; BA 1962, MA 1964, PhD 1968, UCLA

BERTRAM, John S., Professor Emeritus of Cell and Molecular Biology; BSc 1966, MSc 1968, PhD 1970, Manchester (UK)

BEVENUE, Arthur, Professor Emeritus of Molecular Biosciences and Biosystems Engineering; BS 1946, UC Berkeley

BEZONA, Norman C., Extension Agent Emeritus; BS 1961, Arizona; MA 1968

BHAGAVAN, Nadhipuram V., Professor Emeritus of Biochemistry; BS 1951, Mysore; MS 1955, Bombay; PhD 1960, UC Berkeley; Regents' Medal for Excellence in Teaching, 1974

BICKERTON, Derek, Professor Emeritus of Linguistics; BA 1949, MA 1950, PhD 1976, Cambridge; Regents' Medal for Excellence in Research, 1992

BILMES, Jacob M., Professor Emeritus of Anthropology; BA 1961, Yale; MA 1970, PhD 1974, Stanford; Fujio Matsuda Scholar, 1987

BLAINE, Daniel D., Professor Emeritus of Educational Psychology; BA 1965, Western State College; PhD 1972, Texas-Austin

BLAISDELL, Richard K., Professor Emeritus of Medicine; AB 1945, Redlands; MD 1947, Chicago

BLANCHETTE, Patricia L., Professor Emeritus of Geriatric Medicine; BA 1974, MPH 1979, MD 1979, Hawai'i; Hung Wo and Elizabeth Lau Ching Foundation Award for Faculty Service to the Community, 2006

BLOOM, Alfred, Professor Emeritus of Religion; AB, ThB 1951, East Baptist Theological Seminary; BM, STM 1953, Andover Newton Theology School; PhD 1963, Harvard

BLOOMBAUM, Milton S., Professor Emeritus of Sociology; AB 1952, UC Berkeley; MA 1958, USC; PhD 1961, UCLA

BOESGAARD, Ann M., Professor Emeritus of Astronomy; AB 1961, Mt. Holyoke; PhD 1966, UC Berkeley; DSc (H) 1981, Mt. Holyoke

BOGGS, Stephen T., Professor Emeritus of Anthropology; AB 1947, Harvard; PhD 1954, Washington U

BOWMAN, Addison M., Professor Emeritus of Law; AB 1957, Dartmouth; LLB 1963, Fairleigh Dickinson; LLM 1964, Georgetown

BOYER, William H., Professor Emeritus of Education; BA 1948, Oregon; MEd 1952, Colorado; EdD 1956, Arizona State

BRANDON, James R., Professor Emeritus of Theatre; PhB 1948, MS 1949, PhD 1955, Wisconsin; Regents' Medal for Excellence in Research, 1977; Fujio Matsuda Scholar, 1991;

Uchimura Prize, International Theatre Institute, UNESCO, 1996

BRAUN, Frederick G., Professor Emeritus of Education; BA 1949, MEd 1954, EdD 1962, UCLA

BRENEMAN, Lucille, Professor Emeritus of Speech; BA 1935, Baylor; MA 1949, Hawai'i

BRENNAN, Barry M., Specialist Emeritus in Pesticides; BS 1967, Arizona State; MS 1969, PhD 1975, Hawai'i

BRETSCHNEIDER, Charles L., Professor Emeritus of Ocean and Resources Engineering; BS 1947, Hillsdale College; MS 1950, UC Berkeley; PhD 1959, Texas A&M

BRISLIN, Richard W., Professor Emeritus of Management and Industrial Relations; BS 1966, Guam; MS 1967, PhD 1969, Pennsylvania State; Regents' Medal for Excellence in Teaching, 2004

BROWN, Ronald P., Professor Emeritus of Mathematics; BA 1964, Reed College; MA 1966, PhD 1968, Oregon

BRYANT-GREENWOOD, Gillian D., Professor Emeritus of Cell and Molecular Biology; BS 1965, PhD 1968, Brunel (UK)

BUCHELE, Robert B., Professor Emeritus of Management; AB 1938, Columbia; MBA 1943, Harvard; PhD 1952, Chicago

BULLOCK, Richard M., Horticulturist Emeritus; BS 1940, Kansas State; MS 1942, PhD 1950, Washington State

BURGESS, John C., Professor Emeritus of Mechanical Engineering; ScB 1944, Brown; MS 1949, PhD 1955, Stanford

BUSHNELL, Kenneth W., Professor Emeritus of Art; BA 1956, UCLA; MFA 1961, Hawai'i

BUTLER Lucius A., Professor Emeritus of Education; BA 1952, Bethel; MRE 1954, Northern Baptist Seminary; BD 1955, Bethel Seminary; MA 1955, PhD 1968, Minnesota; MLS 1974, Hawai'i

## C

CADMAN, Edwin C., Professor Emeritus of Medicine; BA 1967, Stanford; MD 1971, Oregon

CAMPBELL, Charles M., Researcher Emeritus in Animal Science; BS 1958, Texas A&M; MS 1960, Idaho; PhD 1964, Oklahoma State

CANNON, Glenn, Professor Emeritus of Theatre; BA 1954, Temple

CARLSON, John G., Professor Emeritus of Psychology; BA 1963, PhD 1967, Minnesota

CARR, Gerald D., Professor Emeritus of Botany; BA 1968, Eastern Washington U; MS 1970, Wisconsin; PhD 1975, UC Davis

CARROLL, William Dennis, Professor Emeritus of Theatre and Dance; BA 1962, MA 1966, Sydney; MFA 1964, Hawai'i; PhD 1969, Northwestern

CENCE, Robert J., Professor Emeritus of Physics; AB 1952, PhD 1959, UC Berkeley; Presidential Citation for Meritorious Teaching, 1991

CHANDLER, David B., Professor Emeritus of Sociology; BA 1960, MA 1964, McMaster; PhD 1970, Cornell; Robert W. Clopton Award for Distinguished Community Service, 1984

CHANG, Jen Hu, Professor Emeritus of Geography and Climatology; BA 1949, Che Kiang; MA 1952, PhD 1954, Clark

CHANG, Sen-Dou, Professor Emeritus of Geography; BA 1949, Chin-nan (China); MA 1955, Wisconsin; PhD 1961, Washington

CHANG, Thomas M. C., Professor Emeritus of Education; BA 1947, Hawai'i; MA 1950, Columbia; PhD 1957, Ohio State

- CHAPMAN, Murray, Professor Emeritus of Geography; BA 1957, MA 1960, Auckland; PhD 1970, Washington
- CHAR, Donald F. B., Specialist Emeritus in Student Health Services; MD 1950, Temple
- CHAR, Walter F., Professor Emeritus of Psychiatry; MD 1945, Temple
- CHARLOT, John P., Professor Emeritus of Religion; BA 1962, Louvain; DTh 1968, Munich
- CHATTERGY, Virgie O., Professor Emeritus of Curriculum Studies; BS 1960, St. Theresa's College (Philippines); MA 1966, EdD 1969, UCLA
- CHEN, Wai-Fah, Researcher Emeritus in Civil and Environmental Engineering; BS 1959, National Cheng-Kung; MS 1963, Lehigh; PhD 1966, Brown
- CHENG, Edmond D. H., Professor Emeritus of Civil and Environmental Engineering; BS 1961, National Taiwan U; PhD 1969, Utah State
- CHENG, Ping, Professor Emeritus of Mechanical Engineering; BS 1958, Oklahoma State; MS 1960, MIT; PhD 1965, Stanford; Fujio Matsuda Scholar, 1989
- CHENG, Robert L., Professor Emeritus of Chinese and Japanese; BA 1960, MA 1963, Taiwan Normal U; PhD 1966, Indiana
- CHESNEY, Lee R., Jr., Professor Emeritus of Art; BFA 1946, Colorado; MFA 1948, Iowa
- CHIA, Chian Leng, Specialist Emeritus in Horticulture; BS 1968, MS 1969, Hawai'i; PhD 1975, Cornell
- CHING, Chauncey T. K., Researcher Emeritus in Natural Resources and Environmental Management, CTAHR; BS 1962, UC Berkeley; MS 1965, PhD 1967, UC Davis
- CHIU, Wan-Cheng, Professor Emeritus of Meteorology; BS 1941, National Central (China); MS 1947, PhD 1951, New York
- CHO, John J., Researcher Emeritus in Plant Pathology; BA 1968, Hawai'i; MS 1972, PhD 1974, UC Berkeley
- CHOE, Yong-ho, Professor Emeritus of History; BA 1961, Arizona; MA 1963, PhD 1971, Chicago
- CHOU, James C. S., Professor Emeritus of Mechanical Engineering; BS 1941, National Institute of Technology (China); MS 1949, Georgia Institute of Technology; PhD 1968, Oklahoma State
- CHOU, Michaelyn P., Librarian Emeritus; BA 1954, MLS 1955, UC Berkeley; MA 1975, PhD 1980, Hawai'i
- CLARKE, Antony D., Researcher Emeritus in Oceanography; BS 1967, Delaware; MS 1978, Portland State; PhD 1983, Washington
- COLBY, Robert R., Professor Emeritus of Mathematics; BS 1960, MA 1963, PhD 1965, Washington
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 LIANG, Tung, Researcher Emeritus in Agricultural Engineering; BS 1956, Taiwan; MS 1963, Michigan State; PhD 1967, North Carolina State  
 LIE, Harry K., Professor Emeritus of Business Economics and Management; BA 1950, Kongju National TC; BEC 1953, Yonsei; BS, BA, MA 1955, Missouri State; PhD 1969, Chuo

LIN, Shu, Professor Emeritus of Electrical Engineering; BS 1959, National Taiwan U; MS 1964, PhD 1965, Rice  
 LIN, Yu-Chong, Professor Emeritus of Physiology; BS 1959, Taiwan Normal U; MS 1964, New Mexico; PhD 1968, Rutgers  
 LINNMAN, James W., Professor Emeritus of Medicine; BS 1945, MD 1947, Illinois  
 LISTER, H. Lawrence, Professor Emeritus of Social Work; BA 1957, Willamette; MSW 1959, Washington; DSW 1971, Columbia  
 LITTLE, Robert D., Professor Emeritus of Mathematics; BS 1965, Stanford; MA 1969, PhD 1972, Cornell  
 LIU, Clark C. K., Professor Emeritus of Civil and Environmental Engineering; BS 1966, National Taiwan U; MS 1969, Mississippi; PhD 1976, Cornell  
 LIU, Robert S. H., Professor Emeritus of Chemistry; BS 1961, Howard Payne; PhD 1965, CIT; Fujio Matsuda Scholar, 1985; Regents' Medal for Excellence in Research, 1986; Regents' Medal for Excellence in Teaching, 1988  
 LO, Chin-Tang, Professor Emeritus of Chinese Literature; BA 1952, MA 1956, National Taiwan U; DLitt 1961, Ministry of Education, Rep. of China and National Normal (Taiwan)  
 LOCKE, Robert R., Professor Emeritus of History; BA 1956, PhD 1965, UCLA  
 LOH, Philip C. S., Professor Emeritus of Microbiology; BS 1950, Morningside; MS 1953, Iowa State; MPH 1954, PhD 1958, Michigan; Regents' Medal for Excellence in Research, 1965  
 LOSEY, George S., Professor Emeritus of Zoology; BS 1964, Miami; PhD 1968, UC San Diego  
 LOWE, Howard D., Professor Emeritus of Accounting; BS 1945, MS 1948, Brigham Young; CPA 1950, Utah; DBA 1957, Indiana  
 LOWRY, Gordon K., Jr., Professor Emeritus of Urban and Regional Planning; BA 1964, Washburn; PhD 1976, Hawai'i; Hung Wo and Elizabeth Lau Ching Foundation Award for Faculty Service to the Community, 2004  
 LUKAS, Roger B., Professor Emeritus of Oceanography; AB 1973, USC; MS 1977, PhD 1981, Hawai'i  
 LUM, Bert K. B., Professor Emeritus of Pharmacology; BS 1951, PhD 1956, Michigan; MD 1960, Kansas  
 LUM, Jean L. J., Professor Emeritus of Nursing; BS 1960, Hawai'i; MS 1961, UC San Francisco; MA 1969, PhD 1972, Washington  
 LUM, Richard S., Professor Emeritus of Music; BEd 1951, Hawai'i; MMusEd 1953, Northwestern  
 LUNDEEN, Gerald W., Professor Emeritus of Library and Information Studies; BS 1959, Wisconsin; PhD 1965, Minnesota; AMLS 1972, Michigan  
 LYDDON, Paul W., Jr., Professor Emeritus of Music; BM 1954, Eastman School of Music; MM 1955, Illinois  
 LYTTLE, Terrence W., Professor Emeritus of Cell and Molecular Biology; BS 1970, PhD 1975, Wisconsin

## M

MA, Yau-Woon, Professor Emeritus of Chinese Literature; BA 1965, Hong Kong; PhD 1971, Yale  
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 MADER, Adolf G., Professor Emeritus of Mathematics; MS 1961, Tübingen (Germany); PhD 1964, New Mexico State  
 MAGAARD, Lorenz, Professor Emeritus of Oceanography; Diploma-Math 1961, Dr rer nat 1963, Kiel (Germany)  
 MAK, James, Professor Emeritus of Economics; BS 1964, Wilmington College; MA 1966, Miami-Ohio; MS 1968, PhD 1970, Purdue; Robert W. Clopton Award for Outstanding Service to the Community, 2000  
 MALAHOFF, Alexander, Professor Emeritus of Oceanography; BS 1960, New Zealand; MS 1962, Victoria; PhD 1965, Hawai'i; DSc (Hon.) 2001, Victoria  
 MALTBY, Joseph, Professor Emeritus of English; BA 1952, MA 1957, Stanford; PhD 1963, Wisconsin  
 MAMIYA, Richard T., Professor Emeritus of Surgery; BS 1950, Hawai'i; MD 1954, St. Louis  
 MANICAS, Peter T., Professor Emeritus of Sociology; BA 1955, Syracuse; MA 1960, Buffalo; PhD 1963, SUNY-Buffalo; Presidential Citation for Excellence in Teaching, 1995  
 MARK, Shelley M., Researcher Emeritus in Agricultural and Resource Economics; BA 1943, Washington; MS 1944, Columbia; PhD 1956, Washington  
 MARSELLA, Anthony, Professor Emeritus of Psychology; BA 1962, Baldwin-Wallace College; MA 1964, Kent State; PhD 1968, Pennsylvania State

- MARSELLA, Joy A., Professor Emeritus of English; BA 1963, Baldwin-Wallace College; MA 1970, Pennsylvania State; PhD 1981, Hawai'i; Regents' Medal for Excellence in Teaching, 1994
- MARTIN, Stephen L., Specialist Emeritus in Co-curricular Activities, Programs, and Services; BA 1964, Denver; MA 1965, Minnesota; PhD 1969, USC
- MARUTANI, Herbert K., Specialist Emeritus in Agricultural Economics; BBA 1953, MA 1958, Illinois; PhD 1970, Hawai'i
- MASON, Richard G., Professor Emeritus of Drama and Theatre; BA 1950, Swarthmore; MFA 1953, Yale
- MATSUDA, Fujio, President Emeritus and Professor Emeritus of Civil Engineering; degrees listed under "Former Presidents"
- MATSUO, Dorothy I., Specialist Emeritus in Student Affairs; BS 1950, MPH 1970, EdD 1982, Hawai'i
- MAU, Ronald F. L., Specialist Emeritus in Entomology; BS 1966, MS 1969, PhD 1975, Hawai'i
- McCARDLE, H. Roy, Specialist Emeritus in Student Development; BS 1941, Columbia; MBA 1962, Hawai'i; EdD 1972, New Mexico
- McCORMICK, Linda P., Professor Emeritus of Special Education; BA 1967, Belmont College; MA 1969, PhD 1973, George Peabody
- McCUTCHEON, Elizabeth N., Professor Emeritus of English; BA 1954, William Smith; MA 1956, PhD 1961, Wisconsin
- McDERMOTT, John F., Jr., Professor Emeritus of Psychiatry; AB 1951, Cornell; MD 1955, NYU Medical College
- MCKAUGHAN, Howard P., Professor Emeritus of Linguistics; BA 1945, UCLA; MTh 1946, Dallas Theological Seminary; MA 1952, PhD 1957, Cornell
- McKAY, R. Neil, Professor Emeritus of Music; BA 1953, Western Ontario; MA 1955, PhD 1956, Eastman School of Music
- MCVAY, Harue O., Professor Emeritus of Art; BA 1950, Hawai'i; MA 1951, Ohio State
- McNAMARA, J. Judson, Professor Emeritus of Surgery; MD 1961, Washington; MPA 1998, Harvard
- MELENDY, H. Brett, Professor Emeritus of History; AB 1946, MA 1948, PhD 1952, Stanford
- MENIKOFF, Barry, Professor Emeritus of English; BA 1960, Brooklyn; MS 1962, PhD 1966, Wisconsin
- MENTON, Linda K., Professor Emeritus of Education; BA 1968, Chaminade; MLS 1972, MA 1978, PhD 1982, Hawai'i
- MEREDITH, Gerald M., Specialist Emeritus in OFDAS; BA 1955, MA 1956, UC Berkeley; PhD 1969, Hawai'i
- MERSINO, Edwin, Extension Agent Emeritus in CTAHR; BS 1970, Clarion State; MS 1980, Hawai'i
- MI, Ming-Pi, Professor Emeritus of Genetics; BS 1954, National Taiwan U; MS 1959, PhD 1963, Wisconsin
- MICHAEL, Jerrold M., Professor Emeritus of Public Health; BCE 1949, George Washington; MSE 1950, Johns Hopkins; MPH 1957, UC Berkeley; DrPH 1983, Mahidol (Thailand); ScD 1984, Tulane
- MIKLIUS, Walter, Professor Emeritus of Economics; BA 1958, Cal State-Los Angeles; MA 1960, PhD 1964, UCLA
- MILLER, Richard S., Professor Emeritus of Law; BS 1951, BA 1951, JD 1956, Boston; LLM 1959, Yale
- MILNER, Neal A., Professor Emeritus of Political Science; BA 1963, MA 1965, PhD 1968, Wisconsin
- MING, Li-Chung, Geophysicist Emeritus in HIGP; BS 1967, National Taiwan U; MS 1971, PhD 1974, Rochester
- MIYAHARA, Allen, Extension Veterinarian and Animal Scientist Emeritus; DVM 1954, MS 1960, Iowa State
- MIYAHARA, James T., Professor Emeritus of Pharmacology; BS 1960, PhD 1966, Utah
- MIYAMURA, Henry, Professor Emeritus of Music; BM 1960, Performer's Certificate 1961, Eastman School of Music; MA 1972, Western Washington
- MOBERLY, Ralph M., Professor Emeritus of Geology; AB 1950, PhD 1956, Princeton
- MONCUR, James E. T., Professor Emeritus of Economics; BA 1964, MA 1965, Wyoming; PhD 1971, Washington State
- MONTES, Matias, Professor Emeritus of Spanish; BA 1948, Havana Institute (Cuba); PhD 1952, Havana
- MONTES, Yara, Professor Emeritus of Spanish; PhD 1955, Havana; PhD 1978, Pittsburg
- MONTGOMERY, Tamara R., Professor Emeritus of Theatre; BA 1966, MA 1967, Arizona State; PhD 1975, USC
- MOORE, Anneliese W., Associate Professor Emeritus of European Languages; BA 1958, Hawai'i; MA 1959, UC Berkeley
- MOORE, Cornelia N., Professor Emeritus of German and Dutch; BA 1966, MA 1966, Colorado; PhD 1971, Indiana
- MORISHIGE, Walter K., Professor Emeritus of Physiology; AB 1964, Missouri; MA 1967, PhD 1971, Rutgers; Presidential Citation for Meritorious Teaching
- MORIWAKI, Takeshi, Associate Professor Emeritus of Education; BA 1951, MA 1952, PhD 1962, Indiana
- MORRIS, James D., Professor Emeritus of Education; BS 1955, Northern State College; MA 1957, EdD 1961, North Dakota
- MORRIS, Nancy Jane, Librarian Emeritus; BA 1954, George Washington; MA 1964, Denver; MA 1975, PhD 1987, Hawai'i
- MORTON, Bruce E., Professor Emeritus of Biochemistry and Biophysics; BA 1960, La Sierra College; BS 1963, PhD 1965, Wisconsin
- MORTON, Newton E., Professor Emeritus of Genetics; BA 1951, Hawai'i; MS 1952, PhD 1955, Wisconsin
- MOSER, Roy E., Specialist Emeritus in Food Technology; BS 1944, MS 1947, Massachusetts
- MOY, James H., Food Technologist Emeritus; BSChE 1957, MSChE 1958, Wisconsin-Madison; PhD 1965, Rutgers
- MUELLER-DOMBOIS, Dieter, Professor Emeritus of Botany; Ag. Engineering 1951, Stuttgart-Hohenheim (Germany); BScF 1955, PhD 1960, British Columbia; Fujio Matsuda Scholar, 1988; Dr. honoris causa 2004, Brandenburg Tech U
- MULLER, Peter, Professor Emeritus of Oceanography; Diploma-Phys 1970, Dr rer nat 1974, Hamburg (Germany)
- MUNCHMEYER, Frederick C., Professor Emeritus of Mechanical Engineering; BS 1942, Coast Guard Academy; MS 1948, MIT; PhD 1978, Michigan
- MURAKAMI, Takio, Professor Emeritus of Meteorology; DSc 1960, Tokyo
- MURDOCH, Charles L., Professor Emeritus of Horticulture; BS 1959, MS 1960, Arkansas; PhD 1966, Illinois
- MURPHY, Suzanne P., Researcher Emeritus in UHCC; BA 1962, Temple U; MS 1973, San Francisco State; PhD 1984, UC Berkeley
- MURTON, Brian J., Professor Emeritus of Geography; BA 1961, MA 1962, Canterbury; PhD 1970, Minnesota

## N

- NAGAO, Mike A., Researcher Emeritus in Tropical Plant and Soil Sciences, CTAHR; BA 1969, MS 1971, Hawai'i; PhD 1975, Massachusetts
- NAGOSHI, Kunio, Specialist Emeritus in CCECS; BA 1953, MA 1954, Hawai'i
- NAJITA, Kazutoshi, Professor Emeritus of Electrical Engineering; BS 1953, Illinois Institute of Technology; MS 1955, Brown; PhD 1969, Hawai'i
- NAKAMURA, Charlotte W., Extension Agent Emeritus; BS 1966, Hawai'i; MS 1968, Purdue
- NAKAMURA, Robert M., Researcher Emeritus in Animal Science; DVM 1959, Washington State; MS 1966, PhD 1967, Wisconsin
- NAKANO, Richard, Extension Agent Emeritus; BS 1962, MS 1964, Hawai'i
- NAKASATO, Masaru, Specialist Emeritus in Extension; BS 1951, Hawai'i; MS 1961, Oregon State
- NAKAYAMA, Roy T., Professor Emeritus of Obstetrics and Gynecology; BA 1970, Lawrence; MD 1974, Colorado
- NAYA, Seiji, Professor Emeritus of Economics; BBA 1958, Hawai'i; MA 1962, PhD 1965, Wisconsin
- NELSON, Marita L., Professor Emeritus of Pathology; BS 1957, MS 1959, UCLA; PhD 1968, UC Berkeley; Regents' Medal for Excellence in Teaching, 1986
- NELSON, Torlef, Professor Emeritus of Education; BS 1942, MS 1947, Oregon; EdD 1952, Washington
- NEUBAUER, Deane, Professor Emeritus of Political Science; BA 1962, UC Riverside; MA 1965, PhD 1996, Yale; Robert W. Clopton Award for Distinguished Community Service, 1997
- NEWBY, I. A., Professor Emeritus of History; BS 1951, Georgia Southern College; MA 1957, South Carolina; PhD 1962, UCLA
- NIP, Wai-Kit, Food Technologist Emeritus; BS 1962, National Chung-Hsing; MS 1965, PhD 1969, Texas A&M
- NISHIDA, Toshiyuki, Entomologist Emeritus; BS 1941, MS 1947, Hawai'i; PhD 1953, UC Berkeley
- NISHIJIMA, Wayne T., Specialist Emeritus in Plant Pathology; BS 1967, Washington; MS 1972, Hawai'i; PhD 1977, Wisconsin; Willard Wilson Award for Distinguished Services to the University, 2006

## O

- O'BRIEN, Ethel M., Professor Emeritus of Health and Physical Education; BA 1937, UC Berkeley; MEd 1950, Hawai'i; EdD 1958, Oregon
- ODA, E. Aiko, Specialist Emeritus in Counselor Education; BeD 1958, MEd 1964, Hawai'i; PhD 1969, Minnesota
- O'DONNELL, Clifford, Professor Emeritus of Psychology; BA 1964, Fairleigh Dickinson; MS 1966, Oklahoma State; PhD 1970, Kentucky
- OKAMURA, Grant, Professor Emeritus of Music; BEd 1971, PD 1972, MMus 1982, Hawai'i
- OLSEN, Stephen L., Professor Emeritus of Physics; BS 1963, CCNY; MS 1965, PhD 1970, Wisconsin; Regents' Medal for Excellence in Research, 2002
- OLSON, Marion E., Professor Emeritus of Nursing; BS 1953, Nebraska; MA 1961, MA 1962, Iowa; PhD 1966, UCLA
- OMPS, James R., Professor Emeritus of Accounting; BS 1951, Brigham Young; MLitt 1957, CPA 1958, West Virginia; PhD 1961, Pittsburgh
- ONOPA, Robert L., Professor Emeritus of English; BA 1964, Illinois; MA 1966, Connecticut; PhD 1974, Northwestern
- OTA, Robert M., County Agent Emeritus, CES; BS 1950, Colorado State; MS 1959, Purdue
- OWEN, Tobias C., Astronomer Emeritus in IFA; BA 1955, BS 1959, MS 1960, Chicago; PhD 1965, Arizona; Regents' Medal for Excellence in Research, 2006
- OXFORD, Wayne H., Professor Emeritus of Speech; BA 1954, MA 1960, PhD 1969, UCLA

## P

- PAGER, David, Professor Emeritus of Information and Computer Sciences; BSc 1956, Capetown; PhD 1967, London
- PAIGE, Glenn D., Professor Emeritus of Political Science; BA 1955, Princeton; MA 1957, Harvard; PhD 1959, Northwestern
- PAKVASA, Sandip, Professor Emeritus of Physics; BS 1954, MS 1957, Baroda (India); PhD 1965, Purdue; Regents' Medal for Excellence in Research, 2009
- PALAFIX, Anastacio L., Poultry Scientist Emeritus; BS 1940, MS 1941, Washington State; PhD 1970, Michigan State
- PARK, Chai Bin, Professor Emeritus of Public Health; MD 1949, Seoul National; MPH 1956, DrPH 1959, UC Berkeley
- PARK, Wesley T., Dean Emeritus of College of Continuing Education; BEd 1959, MEd 1963, Hawai'i
- PARVIN, Philip E., Professor Emeritus of Horticulture; BSA 1950, Florida; MS 1952, Mississippi State; PhD 1965, Michigan State
- PATEMAN, Neil A., Professor Emeritus of Education; BS 1966, MEd 1980, Melbourne; EdD 1985, Georgia
- PATIL, Suresh S., Researcher Emeritus of Plant Pathology; BS 1955, Poona (India); MS 1959, PhD 1962, Oregon State
- PEACOCK, Karen M., Librarian Emeritus; BA 1970, Earlham College; MEd 1973, MA 1978, PhD 1990, Hawai'i
- PETERS, Ann Marie, Professor Emeritus of Linguistics; BA 1959, Bryn Mawr; MA 1961, PhD 1966, Wisconsin; Presidential Citation for Meritorious Teaching, 1992
- PETERSON, Frank L., Professor Emeritus of Geology and Geophysics; BA 1963, Cornell; MA 1965, PhD 1967, Stanford
- PETERSON, Richard E., Professor Emeritus of Financial Economics and Institutions; AB 1954, Stanford; MA 1966, PhD 1972, UC Berkeley
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- PHILIPP, Perry F., Agricultural Economist Emeritus; BS 1940, PhD 1951, UC Berkeley
- PHILLIPS, Kathy J., Professor Emeritus of English; BA 1972, Dickinson College; PhD 1977, Brown; Presidential Citation for Meritorious Teaching, 1990
- PICARD, Anthony J., Professor Emeritus of Education; BS 1960, West Chester State College; MA 1962, Villanova;

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 PITTS, Forrest R., Professor Emeritus of Geography; BA 1948, MA 1949, PhD 1956, Michigan  
 PONCE, Danilo E., Professor Emeritus of Psychiatry; MD 1963, U of Philippines  
 PONG, William, Professor Emeritus of Physics; BS 1951, MS 1952, PhD 1954, Cincinnati  
 PORTA, Eduardo A., Professor Emeritus of Pathology; BS 1943, National College (Argentina); MD 1952, Buenos Aires (Argentina)  
 POWER, John H., Professor Emeritus of Economics; BA 1946, Washington; PhD 1955, Stanford  
 POWLEY, John S., Extension Agent Emeritus in Human Nutrition, Food and Animal Sciences, CTAHR; BS 1975, Cal State Polytechnic; MS 1980, Oregon State  
 PREBLE, Duane, Professor Emeritus of Art; BA 1959, UCLA; MFA 1963, Hawai'i; Regents' Medal for Excellence in Teaching, 1969  
 PUTNAM, Lee, Specialist Emeritus in Student Affairs; BA 1967, Colorado; MA 1971, Chicago; PhD 1983, Maryland

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 RAMAGE, Colin S., Professor Emeritus of Meteorology; BS 1940, Victoria UC (New Zealand); ScD 1961, New Zealand  
 RAMOS, Teresita V., Professor Emeritus of Philippine Languages and Literature; BSE 1952, U of Philippines; MA 1958, Michigan; UCLA 1964; PhD 1972, Hawai'i; Regents' Medal for Excellence in Teaching, 1993  
 RAUCH, Fred D., Specialist Emeritus in Horticulture; BS 1956, MS 1963, Oregon State; PhD 1967, Iowa State  
 READ, George W., Professor Emeritus of Pharmacology; BA 1959, MS 1962, Stanford; PhD 1969, Hawai'i  
 RECHNITZ, Garry A., Professor Emeritus of Chemistry; BS 1958, Michigan; MS 1959, PhD 1961, Illinois; Regents' Medal for Excellence in Research, 1998  
 REED, S. Arthur, Professor Emeritus of Zoology; BS 1951, Kent State; MA 1953, PhD 1962, Michigan State  
 REEDER, Maurice M., Professor Emeritus of Surgery and Radiology; BA 1954, Loyola College; MD 1958, Maryland  
 REESE, Ernst S., Professor Emeritus of Zoology; BA 1953, Princeton; PhD 1960, UCLA  
 REID, Lawrence A., Researcher Emeritus in SSRI; MA 1964, PhD 1966, Hawai'i  
 REITSPERGER, Wolf, Professor Emeritus of Management and Industrial Relations; BA 1976, Sofia U of Tokyo; MBA 1977, Pepperdine; PhD 1982, U of London  
 REMUS, William E., Professor Emeritus of Decision Sciences; BS 1967, Michigan; MBA 1972, PhD 1974, Michigan State; Presidential Citation for Meritorious Teaching, 1990  
 RICHMAN, Eugene, Professor Emeritus of Management and Industrial Relations; BIndE 1942, Rensselaer Polytechnic; MAEd 1949, DEngSc 1951, New York  
 RIDER, Richard L., Professor Emeritus of Communication; AB 1937, Nebraska; MFA 1947, Yale; PhD 1958, Illinois  
 ROBB, David D., Specialist Emeritus in Admission and Records; BA 1969, MA 1976, PhD 1983, Hawai'i  
 RODGERS, Theodore S., Professor Emeritus of CRDG; BA 1956, Amherst; MS 1961, Georgetown; PhD 1968, Stanford  
 ROSE, John C., Professor Emeritus of Geophysics; BS 1948, MS 1950, PhD 1955, Wisconsin  
 ROSEN, Leon, Researcher Emeritus; AB 1945, UC Berkeley; MD 1948, UC San Francisco; MPH 1950, UC Berkeley; DrPH 1953, Johns Hopkins  
 ROSENBERG, Morton M., Senior Professor Emeritus of Poultry Science; BS 1938, Rutgers; MS 1940, Texas A&M; PhD 1948, Wisconsin  
 RUCH, Libby O., Professor Emeritus of Sociology; BA 1964, Vassar; MA 1967, Hawai'i; PhD 1973, Stanford  
 RUMMEL, Rudolph J., Professor Emeritus of Political Science; BA 1959, MA 1961, Hawai'i; PhD 1963, Northwestern  
 RUSSELL, Armand K., Professor Emeritus of Music; BA 1953, MA 1954, Washington; DMA 1958, Eastman School; Presidential Citation for Meritorious Teaching, 1990  
 RYBURN, Rucey J., Professor Emeritus of Nursing; BSN 1968, San Diego State; MPH 1976, MS 1976, DrPH 1987, Hawai'i

## S

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 SAITO, Shiro, Librarian Emeritus; BEd 1951, Certificate 1952, Hawai'i; MA 1956, Minnesota  
 SAKUMA, Mabel Y., Extension Agent Emeritus; BS 1956, MEd 1978, Hawai'i  
 SANDERSON, Richard A., Professor Emeritus of Education; BA 1952, MA 1958, PhD 1961, USC  
 SANG, Jürgen G., Professor Emeritus of German; Dr Phil 1966, Munich  
 SASO, Michael, Professor Emeritus of Religion; BA 1952, Santa Clara; MA 1955, Gonzaga; MA 1964, Yale; PhD 1971, London  
 SATO, Dwight M., Extension Agent Emeritus in Plant and Environmental Protection Sciences, CTAHR; BS 1976, Hawai'i; MS 1978, UC Riverside  
 SATO, Esther M. T., Professor Emeritus of Education; BA 1938, William Jewell College; MA 1939, Columbia; MA 1966, Hawai'i  
 SCHAMBER, Dean T., Professor Emeritus of Surgery; BA 1956, MD 1959, Minnesota; Excellence in Teaching, Legion of Merit  
 SCHATZ, Irwin J., Professor Emeritus of Medicine; FS 1951, MD 1956, U of Manitoba (Canada)  
 SCHMIDT, Richard W., Professor Emeritus of Second Language Studies; AB 1963, Harvard; MA 1971, PhD 1974, Brown  
 SCHMITT, Donald P., Researcher Emeritus in Plant Pathology; BS 1967, MS 1969, PhD 1971, Iowa State  
 SCHROEDER, Thomas A., Associate Professor Emeritus of Meteorology; BS 1969, Indiana Central; MS 1971, PhD 1974, Purdue  
 SCHUTZ, Albert J., Professor Emeritus of Linguistics; BS 1958, Purdue; PhD 1962, Cornell  
 SCHWARTZ, Arnold D., Professor Emeritus of Public Health; AB 1947, UC Berkeley; MD 1950, UC San Francisco; MPH 1956, Harvard  
 SCOTT, Frank S., Jr., Researcher Emeritus in Agricultural and Resource Economics; BS 1944, Oregon; MA 1947, Missouri; PhD 1953, Illinois  
 SEFF, Karl, Professor Emeritus of Chemistry; BS 1959, UC Berkeley; PhD 1964, MIT  
 SEIDL, Ludwig H., Professor Emeritus of Ocean Engineering; BSME 1961, MS 1964, DSc 1970, Vienna U of Technology  
 SEIFERT, Friedrich, Professor Emeritus of Religion; ThD 1959, Pacific School of Religion; Regents' Medal for Excellence in Teaching, 1967  
 SEIFERT, Josef, Researcher Emeritus of CTAHR; MS 1964, PhD 1973, Prague Institute of Chemical Technology (Czech Republic)  
 SEO, Kap-Kyung, Professor Emeritus of Financial Economics and Institutions; BA 1956, South Carolina; MBA 1957, Xavier; PhD 1960, Cincinnati  
 SEYMOUR, Richard K., Professor Emeritus of German; BA 1951, MA 1952, Michigan; PhD 1956, Pennsylvania  
 SHANG, Eugene Y. C., Researcher Emeritus in Agricultural and Resource Economics; BA 1958, Chung Hsing; MS 1962, Southern Illinois; PhD 1969, Hawai'i  
 SHAPIRO, Samuel I., Professor Emeritus of Psychology; BA 1961, Brooklyn College; AM 1962, Michigan; MS 1965, PhD 1966, Pennsylvania State  
 SHARMA, Rama Nath, Professor Emeritus of Indo-Pacific Languages and Literatures; BA 1957, Banaras; MA 1959, Allahabad (India); MA 1962, Agra (India); PhD 1971, Rochester  
 SHARMA, Santosh D., Professor Emeritus of Obstetrics and Gynecology; MBBS 1960, Poona (India)  
 SHELDON, Pauline J., Professor Emeritus of Travel Industry Management; BS 1972, Southampton (UK); MBA 1980, Chaminade; PhD 1984, Hawai'i; Presidential Citation for Meritorious Teaching, 1995  
 SHERMAN, Ruth G., Specialist Emeritus in Student Development; BA 1942, Douglass; MA 1964, Hawai'i; PhD 1981, Human Psychology Institute  
 SHIBATA, Shoji, Professor Emeritus of Pharmacology; MD 1952, Nara Medical College; PhD 1957, Kyoto (Japan)  
 SHIGETA, Daniel T., Extension Agent Emeritus; BS 1950, Hawai'i; MEd 1964, Colorado State  
 SHIGETA, James Y., Specialist Emeritus in Club Work; BS 1951, Maryland; MS 1958, Wisconsin

SHIPWRIGHT, Edward, Professor Emeritus of Music; BS 1959, MS 1961, Juilliard School; EdD 1976, Columbia  
 SHULTZ, Edward J., Professor Emeritus of Asian Studies; AB 1966, Union College; MA 1970, PhD 1976, Hawai'i; Robert W. Clifton Award for Outstanding Community Service, 2004  
 SIBERT, John R., Researcher Emeritus; BA 1962, U of Pacific; PhD 1968, Columbia  
 SILVA, James A., Soil Scientist Emeritus; BS 1951, MS 1959, Hawai'i; PhD 1964, Iowa State  
 SIMPKINS, Alan, Specialist Emeritus in Student Development; BA 1959, Nebraska; MA 1968, Hawai'i; PhD 1976, U.S. International  
 SIMSON, George, Professor Emeritus of English; BA 1952, Whitman; MA 1957, Washington State, PhD 1963, Minnesota  
 SINGLETON, Paul W., Researcher Emeritus in Tropical Plant and Soil Sciences, CTAHR; BS 1975, Colorado; MA 1976, Florida; PhD 1982, Hawai'i  
 SINTON, John M., Professor Emeritus of Geology and Geophysics; AB 1969, UC Santa Barbara; MS 1971, Oregon; PhD 1976, U of Otago (New Zealand); Presidential Citation for Meritorious Teaching, 1991  
 SINTON, William M., Professor Emeritus of Astronomy; AB 1949, PhD 1953, Johns Hopkins  
 SLAUGHTER, Helen B., Professor Emeritus of Education; BSEd 1959, Northern Arizona; MEd 1965, EdD 1974, Arizona  
 SMITH, Barbara B., Professor Emeritus of Music; BA 1942, Pomona; MM 1943, Eastman School of Music  
 SMITH, Clifford W., Professor Emeritus of Botany; BSc (Hons) 1962, U of Wales; MSc 193, PhD 1965, Manchester (UK)  
 SMITH, Dean O., Professor Emeritus of JABSOM; BA 1967, Harvard; AM 1969, PhD 1971, Stanford  
 SMITH, M. Ray, Researcher Emeritus in Biosystems Engineering; BS 1958, Oklahoma State; MS 1959, Illinois; PhD 1965, Iowa State  
 SMITH, Stephen V., Professor Emeritus of Oceanography; BA 1964, Texas; MS 1966, Northwestern; PhD 1970, Hawai'i  
 SNOW, Marcellus S., Professor Emeritus of Economics; BA 1965, Utah; MA 1969, Johns Hopkins; MS 1969, MIT; PhD 1974, Berkeley  
 SOLHEIM, Wilhelm G., II, Professor Emeritus of Anthropology; BA 1947, Wyoming; MA 1949, UC Berkeley; PhD 1959, Arizona  
 SPONSEL, Leslie E., Professor Emeritus of Anthropology; BA 1965, Indiana; MA 1973, PhD 1981, Cornell; Presidential Citation for Meritorious Teaching, 1986  
 SPRAGUE, Ralph H., Professor Emeritus of Information Technology Management; BS 1960, Anderson College; MBA 1962, DBA 1964, Indiana  
 STAATS, Arthur W., Professor Emeritus of Psychology; BA 1949, MA 1953, PhD 1956, UCLA  
 STANDAL, Bluebell R., Nutritionist Emeritus; BS 1942, Calcutta; MS 1948, PhD 1952, UC Berkeley  
 STASACK, Edward A., Professor Emeritus of Art; BFA 1955, MFA 1956, Illinois  
 STEIGER, Walter R., Professor Emeritus of Physics and Astronomy; BS 1948, MIT; MS 1950, Hawai'i; PhD 1953, Cincinnati  
 STEMPEL, Daniel, Professor Emeritus of English; BA 1941, City College of New York; MA 1942, PhD 1949, Harvard  
 STENGER, Victor J., Professor Emeritus of Physics; BS 1956, Newark; MS 1959, PhD 1963, UCLA  
 STEPHAN, John J., Professor Emeritus of History; BA 1963, MA 1964, Harvard; PhD 1969, London  
 STEVENS, Robert D., Professor Emeritus of Library Studies; AB 1942, Syracuse; BS 1947, Columbus; MA 1955, PhD 1965, American  
 STIMSON, John S., Professor Emeritus of Zoology; BA 1963, Occidental College; MA 1965, PhD 1968, UC Santa Barbara  
 STRAEHLEY, Clifford J., Professor Emeritus of Surgery; MD 1946, Harvard  
 STOCKTON, Alan N., Astronomer Emeritus in IFA; BA 1964, UC Berkeley; PhD 1968, Arizona  
 STROVEN, Carl G., Senior Professor Emeritus of English and Librarian; AB 1926, MA 1928, Stanford; PhD 1939, Duke  
 STUEBER, Ralph K., Professor Emeritus of Education; BS 1950, MA 1955, PhD 1964, Wisconsin  
 SUEHIRO, Richard Y., Specialist Emeritus in Public Health; BA 1949, Hawai'i; MA 1951, Indiana; MPH 1962, Michigan

SWIFT, David W., Professor Emeritus of Sociology; AB 1950, MA 1960, PhD 1967, UC Berkeley

SZILARD, Rudolph S., Professor Emeritus of Civil Engineering; Grad CE 1942, Dipl-Ing (MS) 1943, Royal Tech U (Budapest); Dr-Ing 1962, Technical U of Stuttgart

## T

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TAKAHASHI, Patrick K., Director Emeritus of Hawai'i Natural Energy Institute; BS 1962, Stanford; PhD 1971, Louisiana State

TAM, Leslie Q., Professor Emeritus of Tropical Medicine and Medical Microbiology; BS 1971, MS 1974, PhD 1980, Hawai'i; Presidential Citation for Meritorious Teaching, 1993

TAMASHIRO, Minoru, Professor Emeritus of Entomology; BS 1951, MS 1954, Hawai'i; PhD 1960, UC Berkeley

TAMIMI, Yusuf N., Soil Scientist Emeritus; BS 1957, Purdue; MS 1959, New Mexico State; PhD 1964, Hawai'i

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**First Year Programs**

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 BULOSAN-RANDOLPH, Diane M., Student Services Specialist  
 FUJII, Jason H., Director of Graduate Records  
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 HUI, Duncan C. W., IT Manager  
 KAWAMURA, Kimberly N., Student Services Specialist  
 LIANG, Tammy W., Student Services Specialist  
 TAKAMATSU, Reid A., Director of Graduate Admissions  
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 UYEHARA, Jarren K. N., Director of Graduate Student Services  
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**Hawai'i Institute of Geophysics and Planetology**

\*BUTLER, Rhett, Interim Director  
 BALOGH, John, Facilities Planning/Design  
 BOYCE, Joseph, FCP Assistant Researcher  
 \*BRADLEY, John, Researcher  
 \*CHEN, Bin, Assistant Researcher  
 \*DERA, Przemyslaw, Associate Researcher  
 \*DOUSSET, Benedicte, Associate Researcher  
 \*EDWARDS, Margaret H., Researcher  
 \*ENGLERT, Peter, Professor  
 \*ERICKSEN, Todd, Assistant Specialist  
 \*FAGENTS, Sarah, Researcher  
 \*FLYNN, Luke P., Specialist  
 \*FOSTER, James, Assistant Researcher

\*FRYER, Patricia, Planetary Scientist  
 FURUMOTO, Augustine, Emeritus Professor  
 GARBELL, Harold, Facilities Planning and Design  
 \*GARCES, Milton A., Associate Researcher  
 \*GILLIS-DAVIS, Jeffrey, Associate Researcher  
 \*HAWKE, B. Ray, Planetary Scientist  
 \*HERMALYN, Brenden, Assistant Researcher  
 \*HERRERO-BERVERA, Emilio, Geophysicist  
 \*HEY, Richard, Geophysicist  
 \*HORTON, Keith, Assistant Researcher  
 \*HUSS, Gary, Researcher  
 \*ISAACSON, Peter, Assistant Researcher  
 \*ISHII, Hope, Associate Researcher  
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 \*KROT, Alexander, Researcher  
 \*LIENERT, Barry R., Associate Specialist  
 \*LUCEY, Paul G., Planetary Scientist  
 MARTEL, Linda, Academic Support  
 \*MANGHNANI, Murli, Geophysicist  
 \*MARTINEZ, Fernando, Researcher  
 \*MISRA, Anupam, Associate Researcher  
 \*MOUGINIS-MARK, Peter, Researcher  
 \*NAGASHIMA, Kazuhide, Associate Specialist  
 \*NIELSEN, Torben, Specialist  
 PETERSON, Chris, Academic Support  
 \*PORTER, John, Associate Researcher  
 \*POTEMRA, James, Associate Specialist  
 \*ROGNSTAD, Mark, Specialist  
 \*SCOTT, Edward R. D., Planetary Scientist  
 \*SHARMA, Shiv K., Associate Director and Geophysicist  
 SISTOSO, Marcia Rei, Institutional Support  
 \*TAYLOR, G. Jeffrey, Planetary Scientist  
 \*THOMAS, Donald M., Geochemist  
 \*WILKENS, Roy, Researcher Emeritus  
 WILLIAMS, Timothy, Engineering Facility Manager  
 WOOD, Mark, Scientific Instrument Specialist  
 \*WRIGHT, Robert, Associate Researcher  
 \*ZININ, Pavel, Researcher

**Hawai'i Institute of Marine Biology**

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 \*AEBY, Greta S., Assistant Researcher  
 \*AU, Whitlow W. L., Researcher  
 BELCAID, Mahdi, Assistant Researcher  
 \*BIDIGARE, Robert, Researcher, Professor of Oceanography  
 \*BOWEN, Brian W., Researcher  
 COLES, Stephen L., Adjunct Researcher  
 COX, Evelyn, Cooperating Faculty  
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 DeMARTINI, Edward E. Adjunct Researcher  
 \*DRAZEN, Jeff C., Cooperating Faculty  
 \*DONAHUE, Megan J., Associate Researcher  
 EGGERS, Amy, CORE Genetics and Confocal Microscopy Facilities Manager  
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 \*GATES, Ruth D., Researcher  
 \*GRAU, E. Gordon, Director, Sea Grant and Professor of Zoology  
 HAGEDORN, Mary M., Adjunct Researcher  
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 JONES, Jason, Research Support  
 KANNO, Roland T., Research Support  
 \*KARL, Stephen A., Associate Researcher  
 \*KELLEY, Christopher D., Co-operating Faculty  
 \*KINZIE, Robert A. III, Co-operating Faculty

\*KRUPP, David A., Cooperating Faculty  
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 \*LAMMERS, Marc O., Associate Researcher  
 \*LEMUS, Judith D., Associate Researcher and Assistant Director  
 \*LERNER, Darren, Cooperating Faculty  
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 \*LOSEY, George S., Jr., Emeritus Adjunct Researcher  
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 \*THOMAS, Florence I. M., Associate Researcher  
 \*TOONEN, Robert J., Researcher  
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**Hawai'i Natural Energy Institute**

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### **Honors Program**

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### **Industrial Relations Center**

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### **Office of Intercollegiate Athletics**

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### **International Pacific Research Center**

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### **International Student Services**

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### **Joint Institute for Marine and Atmospheric Research**

#### **Fellows**

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FEELY, Richard A., Affiliate Full Professor, U Washington; PhD 1974, Texas A&M

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### **John F. Kennedy Theatre**

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### Language Learning Center

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### Learning Assistance Center

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 V, Administration  
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 AGUNAT, Wayne S., Information Technology Specialist  
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 \*ANDERSON, Kristen L., Librarian V, Sinclair Library  
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 \*DENNISON, Carolyn, Librarian III, Science and  
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 IRWIN, Seth, Educational Specialist  
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 \*SPRINGER, Hisami K., Librarian IV, Cataloging  
 \*SUNG, Jaeyon (Jan), Librarian IV and Head, Access  
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### Mānoa Advising Center

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 MURATA, Vivian N., Student Services Specialist; BA 1993,  
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 NAGAHIRO, Arynn, Personnel Officer; BBA 2006,  
 MHRM 2011, Hawai'i  
 ODO, Christine, Administrative and Fiscal Support  
 Specialist; BS 2005, MBA 2012, Hawai'i Pacific U  
 OSHIRO, Jennifer N., Student Services Specialist; BA 1993,  
 MED 2011, Hawai'i  
 PARK, Chong Wu, Information Technology Specialist; BS  
 2002, Hawai'i  
 SAKUMA, Rodney H., Administrative Officer  
 SENSANO, Andrew, IT Specialist; BA 1990, Hawai'i  
 SO, Lawrence, IT Specialist; BBA 1997, Hawai'i  
 TANJLI, Paula K., Education Specialist; BFA 1978, Art  
 Center College of Design  
 TONG, Lup, IT Specialist; BS 1996, Hawai'i  
 USHIJIMA, Nell A., Education Specialist; BA 1994, MED  
 2002, Hawai'i  
 von DOETINCHEN DE RANDE, Sandra, Research  
 Analyst; MED 2009, U of Duisburg-Essen (Germany)  
 YOKOYAMA, Len, Administrative and Fiscal Support  
 Specialist; BA 1985, Hawai'i

### Credit Programs

\*HUNLEY, Alan J., Assistant Specialist  
 \*MATSUDA, Jon M., Junior Specialist  
 MIZOMI, Eric, Educational and Academic Support  
 Specialist; BA 1997, Hawai'i  
 NAKAMURA, Melissa L. M., Education Specialist; BS 2003,  
 MED 2011, Hawai'i  
 \*NEWHOUSE, Kimberley K., Junior Specialist  
 \*WAKAYAMA, Lei, Junior Specialist

### Non credit Programs

\*FEENEY, Paulette C., Assistant Specialist  
 \*HOROWITZ, Susan, Junior Specialist

RAYNER, Mariel, Administrative and Fiscal Support Specialist; BA 2005, Lewis and Clark College

### Community Services Programs

ARAKAKI, Margaret, Administrative and Fiscal Support Specialist; MEd 2009, Hawai'i

\*SLAUGHTER, Timothy R., Specialist

### International Programs

\*BARBER, Jacob, Junior Specialist

DELOS SANTOS, Pancho, Educational and Academic Support Specialist; BA 1991, Hawai'i

\*DOI, Saori Ishida, Junior Specialist

\*ENSING, Judy, Junior Specialist

FIFITA, Robin, Student Services Specialist; BS 2005, Brigham Young U

\*KAHMANN, Michiko Seki, Junior Specialist

\*MITRI, Suzanne, Junior Specialist

NAKANDAKARI, Lisa M., Student Services Specialist; BA 1982, Hawai'i

NOHARA, Laura Ann, Education and Academic Support Specialist; BBA 2008, BA 2008, Hawai'i

RANNEY, Laura, Educational and Academic Support Specialist; BA 1992, San Diego State

\*RUGGIERO, Edward, Junior Specialist

\*SMITH, Shira, Junior Specialist

### Summer Sessions

HONDA, Debra Y., Educational and Academic Support Specialist; BA 1998, MEd 2005, Hawai'i

KOMATSU, Jenna, Educational Specialist; BSE 1999, U of Pennsylvania

### Pacific Biosciences Research Center

\*LAU, Alan F., Interim Director and Professor of UHCC and Cell and Molecular Biology

\*DUNLAP, Marilyn F., Interim Associate Director and Specialist

\*ALLEN, Richard D., Professor Emeritus of Microbiology

\*CHANG, F. Healani, Associate Specialist, Native Hawaiian Health

\*CROWELL, David H., Professor Emeritus of Psychology

\*JONES, Bradley R., Associate Specialist, Computer Network Support Facility

### Békésy Neurobiology Program

\*HARTLINE, Daniel K., Program Director and Researcher

\*ANDRES, Maria-Louisa, Assistant Researcher

\*BLANCHARD, D. Caroline, Professor and Researcher

\*BLANCHARD, Robert J., Professor of Psychology

\*CASTELFRANCO, Ann, Associate Researcher

\*CHRISTIE, Andrew E., Associate Specialist

\*COOKE, Ian M., Professor Emeritus of Zoology and Pacific Biosciences Research Center

\*COUVILLON, Patricia A., Associate Professor

\*DUNN, Adrian J., Professor of Psychology

\*LENZ, Petra H., Researcher

\*YANAGIHARA, Angel A., Assistant Researcher

### Biotechnology Program

\*PATIL, Suresh S., Researcher Emeritus in Plant Pathology

\*MOCZ, Gabor, Specialist

### Center for Conservation Research and Training

\*KANESHIRO, Kenneth Y., Program Director and Researcher

\*COWIE, Robert H., Researcher

\*HAYES, Kenneth A., Assistant Researcher

\*HOLLAND, Brenden S., Associate Researcher

\*KIDO, Michael H., Research Associate

\*YEUNG, Norine, Assistant Researcher

### Hawai'i Conservation Alliance

NOORI, Lihla, Executive Director

### Kewalo Marine Laboratory

\*RICHMOND, Robert H., Program Director and Researcher

\*ASAHINA, Audrey Y., Assistant Researcher

\*HADFIELD, Michael G., Professor of Zoology

\*NEDVED, Brian T., Junior Researcher

\*SENECA, Francois O., Junior Researcher

### Minority Undergraduate Research Training

\*COUVILLON, Patricia A., Program Director, Minority Access to Research Careers, Undergraduate Student Training in Academic Research (MARC U\*STAR); and Associate Professor

\*LENZ, Petra H., Program Director, Minority Access to Research Careers, Undergraduate Student Training in Academic Research (MARC U\*STAR); and Researcher

\*CHRISTIE, Andrew, Associate Specialist, Minority Access to Research Careers, Undergraduate Student Training in Academic Research (MARC U\*STAR)

\*COWIE, Robert H., Co-Principal Investigator, International Research Experience for Students (IRES); and Researcher

\*HADFIELD, Michael G., Program Director, Undergraduate Research and Mentoring in the Biological Sciences Program (URM); and Professor of Zoology

\*HAYES, Kenneth A., Principal Investigator, International Research Experience for Students (IRES); and Assistant Researcher

\*RICHMOND, Robert H., Program Director, NSF-ATE Partnership for Advanced Marine and Environmental Science Training for Pacific Islanders; and Researcher

### Office of Research Compliance

GALLAND, John C., Assistant Vice Chancellor for Research Compliance; PhD 1989, UC-Davis

HAMMATT, Zoë H., Director, Research Integrity Program; JD 2000, Hawai'i

KONDO, Sylvia Y., Director/Attending Veterinarian; DVM 1980, Washington State

LIN-DESHETLER, Denise, Director, Human Studies Program; MPH 2008, UCLA; MA 2009, Case Western Reserve U

MAGNO, Norman K., Director, Animal Welfare and Biosafety Program; BS 1983, MS 1986, Hawai'i

BACON, Kristin, IRB Coordinator; CIP 1996, BA 1996, Western Washington; CIP 2011

CASE, Stephen, Biological Safety Specialist; MS 1993, Hawai'i

DACE, Tereso, Cage Washer; BS 1975, DVM 1980, Philippines

GOYA-SMITH, Robert, Animal Laboratory Support Assistant III; BA 2005, MA 2012, New York; LAT 2013

HASHIMOTO, Caryn, Compliance Officer; BS 1988, Iowa State

HINGER, Elise, Animal Laboratory Support Assistant III; BS 2008, California; ALAT 2013

HO, Heidiann, IBC Coordinator; BA 2003, Hawai'i

IWATA, Harrison, Fiscal Support; AS 1989, Hawai'i

KOBAYASHI, Donna, Human Studies Program Administrator

KOWALSKI, Jacob, IRB Coordinator; BA 1993, UH-Hilo  
LONG, Noelle, Animal Care Supervisor; BA 2007, Hawai'i; LATG 2013

LOW, Eleanor, Biosafety Officer; BS 1987, Washington; MS 1991, Hawai'i

MORROW, Howard, IT Specialist

NAGOSHI, Lyn, Fiscal Administrative Officer; BA 1979, Hawai'i

NARIYOSHI, Janine, Human Studies Program Administrator; BS 2003, Hawai'i

OKAMURA, Karen, Administrative/Personnel Officer, Manoa; BBA 1985, Hawai'i

OLIPARES, Hubert, Biosafety Officer; BS 1982, MS 1984, Hawai'i

POST, Robert, Cage Wash Technician; BA 1977, Wisconsin

QUITAZOL, Rosendo, Research Associate; AAT 1997, BS 1980, Philippines; LAT 2013

SATO, Lisa, Research Associate Supervisor; BS 2008, Hawai'i; LAT 2012

TAKARA, Lori, Administrative and Fiscal Support Specialist; BBA 1991, Hawai'i

TALERICO, Diana, Operations Manager; BS 2003, LVT 2006, New York, CMAR 2012

TANGONAN, Darryl, Animal Laboratory Support Assistant III; BS 2009, Hawai'i; ALAT 2013

THOMAS-SHARP, Carol, IRB Coordinator; RN 1976, Boston; MS 1995, Hawai'i

THOMPSON, AMY, Cage Washer I; MS 2012, Australia

TOLENTINO, Reginald, Animal Laboratory Support Assistant II

TORRES-FREESE, Alejandra, Animal Laboratory Support Assistant III; BA 2010, Hawai'i; ALAT 2013

VASCONCELLOS, Travis, Animal Laboratory Support Assistant I; BS 2013, Hawai'i

WONG, Michael, Staff Veterinarian; BS 1991, Hawai'i; DVM 2002, Washington State

WOO, Virginia, Institutional Support; MA 1976, Hawai'i

WOOTON, Troy, Animal Laboratory Support Assistant III; BS 2012, Hawai'i; ALAT 2012

YEE, Denise, Compliance Officer; BS 1980, Hawai'i

ZHANG, Ying, Animal Laboratory Support Assistant III; BS 1992, China, ALAT 2011

### Office of the Registrar

LAU, Stuart D., University Registrar; BBA 1987, Hawai'i

ASHIDA, Christina, Student Services Specialist; BA 1999, Hawai'i

CHIN, Lorraine M. S., Assistant Registrar; BS 1973, MEd 1975, Hawai'i

IMAL, Lisa K. K., Course Catalog Specialist; BBA 2000, Hawai'i

LAU, Justin G., Assistant Registrar; BEd 2007, Hawai'i

NAKAMA, Kelli S., Records Specialist; BA 2005, Hawai'i

### Sea Grant College Program

\*GRAU, E. Gordon, Director

\*LERNER, Darren, Associate Director

\*OKIMOTO, Darren K., Extension Leader

\*KONAN, Denise, Director, Center for Sustainable Coastal Tourism

\*MEDER, Stephen, Director, Center for Smart Building and Community Design

\*SERAPHIN, Kanesa, Director, Center for Marine Science Education

\*ALEGADO, Rosanna, Assistant Researcher

\*ANDERSON TAGARINO, Kelley, Junior Extension Agent

\*ASQUITH, Adam, Associate Specialist

\*BERTELMANN, Pelika, Junior Specialist

\*BOHLANDER, Andrew, Assistant Extension Agent

\*CAREY, John J., Associate Specialist

CARRIER, Shawn, Outreach Coordinator

CHING, Kelly, Program Management Specialist

CHUNG, Chantal, Extension Assistant

\*DONOHUE, Mary J., Program Specialist

DUDOCK, Heather, Multimedia Specialist

\*EVERSOLE, Dolan, Associate Extension Agent

\*FRANCIS, Oceana, Assistant Professor

GOLDSTEIN, Ruth, Executive Planning Coordinator

\*GONSER, Matthew, Assistant Extension Agent

HAMAKAWA, Bruce, Fiscal Officer

HEINDL, Lisa, Program Management Specialist

HONGO, Jaime, Administrative Officer

\*HOWERTON, Robert D., Assistant Specialist

\*HWANG, Dennis, Specialist

IWAI, Gavin, Education Assistant

\*KNAPMAN, Lucinda, Communications Leader

LUM, Cassidy, Volunteer Assistant Coordinator

MAMIZUKA, Morgan, Volunteer Program Coordinator

\*MAYNARD, Elizabeth K., Associate Extension Agent

\*MEGURO, Wendy, Assistant Professor

\*NELSON, Craig, Assistant Researcher

\*OWENS, Tara, Assistant Extension Agent

\*PAP, Ruby, Assistant Extension Agent

PEOU, Lyneth, Computer Specialist

\*PEPPARD, Eileen, Assistant Extension Agent

\*ROBERTS, Michael, Associate Professor

\*ROMINE, Bradley, Assistant Extension Agent

ROSA, Anne, Marine Education Specialist

RICHMAN, N. Hal, Information Technology Specialist

SAKAMOTO, Diane, Administrative Officer

\*SPIRANDELLI, Daniele, Assistant Professor

\*TOBIASON, Sierra, Junior Extension Agent  
 \*VAUGHAN, Mehana, Assistant Professor  
 YAMADA, Joan, Administrative Officer

## Service Learning

\*PASCUA, Atina T., Assistant Specialist  
 GARLOCK, Jessica, Education Specialist

## Social Science Research Institute

\*KAMEOKA, Velma A., Director  
 ALLEN, Rose-Anne, Administrative and Fiscal Support Specialist; BA 1997, Hawai'i  
 \*BURNETT, Kimberly, Assistant Specialist in UHERO Project  
 DACQUEL, Glenn, Administrative and Fiscal Support Specialist; BBA 2002, Hawai'i  
 FUJIOKA, Calvin, Administrative Officer; BFA 1980, Hawai'i  
 \*INAZU, Judith K., Associate Director and Specialist  
 KODAMA-NISHIMOTO, Michiko, Research Associate in Center for Oral History; BA 1975, Hawai'i  
 MARKER, Nancy L., Educational Specialist; BA 1974, Missouri  
 MATSUDA, David, Administrative Officer; BA 1998, Hawai'i  
 NISHIMOTO, Warren, Director, Center for Oral History; BA 1972, Illinois; MA 1977, Washington; PhD 2002, Hawai'i  
 NOHARA, Lauraann, Administrative and Fiscal Support Specialist; BBA 2008, BA 2008, Hawai'i  
 \*OKAMURA, Norman, Specialist, Telecommunications Policy  
 OSHIRO, Cynthia, Publication Specialist in Center for Oral History; BA 1972, Hawai'i; MA 1978, Oregon  
 RAGONTON, Jonalyn, Administrative Officer; BBA 2003, Hawai'i  
 \*ROBILLARD, Albert B., Professor Emeritus of Sociology  
 \*UCHIGAKIUCHI, Patrick, Associate Specialist in MHT-SIG Project  
 YAKABU-MURAMOTO, Christine, Administrative and Fiscal Support Specialist; BA 1994, Hawai'i  
 YAMADA, Holly, Research Associate in Center for Oral History; BA 1983, Hawai'i

## Student Affairs

HERNANDEZ, Francisco J., Vice Chancellor for Students; BA 1970, UC Berkeley; MA 1978, PhD 1982, Stanford  
 DANG, Hung, Associate Vice Chancellor for Enrollment Manager and Director of Admissions  
 \*AGBAYANI, Amefil, Director, Student Equity, Excellence and Diversity  
 \*AH SAM, Anna, Associate Specialist, Student Equity, Excellence and Diversity  
 ANCHETA, Cindee, Assignment Specialist, Student Housing Services; BA 2009, Hawai'i  
 \*ARINCORYAN, Naomi, Junior Specialist in Mānoa Career Center  
 AU, Leilani L., Educational Coordinator, Children's Center; MEd 2000, Hawai'i  
 AUYONG, Pua, Education Specialist, Student Equity, Excellence and Diversity; BA 1975, Hawai'i; MNPM 2003, Regis  
 BAEZA, Jessica, Assignment Specialist, Student Housing Services; BA 2007, Whittier  
 BAIN, Aaron P., Operations Coordinator for Student Recreation Services, Student Life and Development; BA 2009, Hawai'i  
 \*BAUTISTA, Clement, Director, Office of Multicultural Student Services; BA 1984, MPP 1997, Chicago  
 \*BAXA, Gari V., Junior Specialist, Student Life and Development  
 \*BILL, Teresa J., Assistant Specialist, Program Coordinator, Bridge to Hope, Women's Center  
 BLAKELEY, Karen, Student Services Specialist, Student Housing Services; BS 1976, BA 1979, MA 1981, Hawai'i  
 \*BROOKS-HARRIS, Jeff E., Associate Specialist, Counseling and Student Development Center  
 BUMBERA, Rumi, Paramedical Assistant, University Health Services  
 BURKE, Becky A., Early Childhood Specialist I, Children's Center; BA 2001, Hawai'i  
 CABATINGAN, Alvin, Information Technology Specialist, Student Housing Services; BS 1994, Hawai'i

CABUSLAY, Brenda L., Information Technology Specialist, VC for Students; BA 2000, Hawai'i  
 CAMPOS, Joseph, Associate Specialist, University Health Services; BA 1992, BA 1993, MA 1993, PhD 2005, Hawai'i  
 CASTILLO, Cheryl, RN, University Health Services  
 CHEN, William, Residence Director, Student Housing Services; MA 2007, Ohio State U  
 \*CHIA, Sarah, Junior Specialist, Student Life and Development  
 CHING, Kevin K. L., Media Specialist, University Health Services; BA 2003, Hawai'i  
 CHING, Sheri Grace, Administrative Assistant, University Health Services; BS 2004, Hawai'i  
 CHONG, Gwen, Auxiliary Aide Specialist, KOKUA Program; BEd 1984, Hawai'i  
 CHOW, Winston, IT Specialist, Student Housing Services; BA 2002, Hawai'i  
 CHOW, Jenny, Instructional and Student Support Specialist, Mānoa Career Center; BA 2006, Hawai'i  
 CUARESMA, Charlene, Institutional Support Specialist, Student Equity, Excellence & Diversity; BA 1975, MPH 1981, Hawai'i  
 CUESTA, Quinten K., Operations Coordinator for Student Life Facilities, Student Life and Development  
 DENIS, Felise, Early Childhood Specialist II, Children's Center; BA 1994, Hawai'i  
 \*DUESTERHAUS, Robert, Assistant Specialist, Student Life and Development  
 ENG, Wen Dee, Early Childhood Specialist II, Children's Center; BS 1992, Hawai'i  
 FALLEJO, Sabrina, Judicial Affairs Operations Coordinator, Office of Judicial Affairs; BA 2012, Hawai'i  
 \*FRANK, Jennifer E., Specialist, Physician, University Health Services, Assistant Clinical Professor, JABSOM  
 FRIZZELL, James E., Student Life Services Associate, Student Life and Development; BA 2011, Hawai'i  
 \*FUJIMOTO-IKUMA, Arleen, Assistant Specialist, Mānoa Career Center  
 \*FUJINAKA, Brent, Junior Specialist in Mānoa Career Center  
 FURUTANI, Carl, Student Services Specialist, Student Life and Development; BEd 1978, MEd 1980, Hawai'i  
 FURUTANI, Laurie H., Student Services Specialist, Student Housing Services; BS 1978, Hawai'i  
 GOMES, Lenore Ku'umeaaloha, Student Services Specialist; BA 1991, MPH 1993, Hawai'i  
 GONGORA, Jennifer, Early Childhood Specialist II, Children's Center; BA 1998, Hawai'i  
 \*GOO, Maile, Assistant Specialist, Student Equity, Excellence & Diversity  
 GUERERO, Adrialina, Student Services Specialist, Office of Multicultural Student Services; BS 1988, Hawai'i  
 HAMAKAWA, Shirley S., Administrative Officer, Student Affairs; BBA 1972, Hawai'i  
 HANNIGAN, Kyle, Information Technology Specialist, Mānoa Career Center; BS 2010, Hawai'i  
 \*HARTWELL, Jay C., Junior Specialist, Student Life and Development  
 \*HAWK, Alan B., Specialist and Psychiatrist, Counseling and Student Development Center  
 \*HENRIE, James R., Associate Specialist, Counseling and Student Development Center  
 HIGASHIYAMA, Lori, Administrative Officer II, Student Housing Services; BEd 1987, Hawai'i  
 HILL, Andrea, Early Childhood Specialist II, Children's Center; BA 1992, Hawai'i  
 HIMEDA, Gwen K., Early Childhood Specialist I, Children's Center; BS 2001, Hawai'i  
 \*HISAKA, Lloyd I., Specialist, Student Life and Development  
 \*HIU, Sharon, Specialist, Physician, University Health Services; BS 1987, DO 1982, WUHS  
 HONG, Leslie-Ann, Personnel Officer, Student Housing Services; BS 2004, Hawai'i  
 IDETA, Lori, M., Assistant Vice Chancellor and Dean of Students; BEd 1990, MEd 1992, EdD 1996, Hawai'i  
 ITO, Vanessa M., Counselor, KOKUA Program; BS 1998, MSW 2001, Hawai'i  
 ITO, Ann, Director, KOKUA Program; BA 1966, MSW 1969, Hawai'i  
 \*JERNIGAN, Kay Gushiken, Junior Specialist in Mānoa Career Center  
 JOHNSON, Andrew P., Student Services Specialist, Student Life and Development; BA 1983, Hawai'i

JONES, Aaron, Residence Director, Student Housing Services; MEd 2013, UC Riverside  
 KADOHIRO, Ava S., Student Services Specialist, Counseling and Student Development Center; BS 1989, Hawai'i  
 KAPTIK, Michael, Director, Student Housing Services; MEd 1998, Texas  
 KAWACHI, Gary, Administrative Officer, Student Equity, Excellence, and Diversity; BBA 1976, Hawai'i  
 KAWANISHI, Ty M., Information Technology Specialist, VC for Students; BBA 2001, MEd 2004, Hawai'i  
 \*KEHL, Lisa, Junior Specialist in University Health Services  
 KICK, Joyce, Early Childhood Specialist, Mānoa Career Center  
 KIKUCHI, Sean T., Administrative Officer, Student Affairs; BA 1996, Hawai'i  
 KINDER, Courtney, Information Technology Specialist, University Health Service  
 KOBAYASHI, Leigh, Educational Specialist, KOKUA Program  
 KONO, Kevin S., Administrative Officer, Children's Center; BS 1977, Hawai'i  
 KRAJEWSKI, Aspen, Student Housing Services; MEd 2013, U of South Florida  
 KUWAHARA, Kristi, Early Childhood Specialist I, Children's Center; BS 2001, Hawai'i  
 KUWAHARA, Rheta H., Early Childhood Specialist III, Children's Center; BEd 1991, Hawai'i  
 KWOK, Wing Chung, Administrative Services Associate, Student Life and Development; BBA 2005, Hawai'i  
 KYONO, Shawn, Student Services Specialist, Student Life and Development; BBA 2004, Hawai'i  
 LAMBERT, Sally J., Early Childhood Specialist I, Children's Center; BS 1994, Hawai'i  
 LeFEVER, Jasmine, Residence Director, Student Housing Services; MA 2011, San Diego  
 LEGASPI, Sheryl, Counselor, KOKUA Program  
 LEE, Lanning C., Learning Resource Specialist, KOKUA Program; BA 1976, Hawai'i; MA 1977, Wisconsin-Madison; PhD 1992, Hawai'i  
 LEE, Stephanie, Judicial Affairs Support Specialist, Office of Judicial Affairs; BA 2006, Hawai'i  
 LEON, V. Ted, Specialist and Physician, University Health Services  
 LOPEZ, Kenny, Residence Director, Student Housing Services; MEd 2008, U of West Florida  
 LUMENG, Amy, Specialist, Physician, University Health Services; BA 1993, BS 1993, MD 1997, UC San Diego  
 MACHADO, Dale, UH Electronics Technician, Student Life and Development; BA 1974, Hawai'i  
 MAESAKA, Gina, Counselor, Student Services Specialist, College Opportunities Program; BA 1987, MEd 1991, Hawai'i  
 \*MAGLAYA, Michael, Assistant Specialist and Director of College Opportunities Program  
 \*MALATE, Agnes R., Junior Specialist, Student Equity, Excellence & Diversity  
 \*MANINI, Bonnyjean, Junior Specialist, Student Life and Development  
 \*MATSUI, Sandra Y., Coordinator of Student Publications, Student Life and Development  
 McCUMBER, James, Building Maintenance Supervisor, Student Housing Services  
 MILLER, Timothy, Medical Technologist, University Health Services; BA 1978, BS 1978, Hawai'i  
 MIURA, Iris H., Student Services Specialist, Student Life and Development; BA 1974, Hawai'i  
 \*MIYAMOTO, Camaron, Junior Specialist, Student Equity, Excellence & Diversity  
 MIZUGUCHI, Sheri, Administrative and Fiscal Support, Student Housing Services; BA 2007, Hawai'i  
 MORELLI, Thomas G., Specialist and Psychiatrist, Counseling and Student Development Center; MD 1959, New York Medical College  
 MYSZKOWSKI, Maja, Student Housing Services; MEd 2012, Clemson  
 NATHAN, Sean, Operations Coordinator, Student Housing Services; BA 2012, Hawai'i  
 NAVARRO, Alyson A., Early Childhood Specialist I, Children's Center; BA 1996, Hawai'i  
 NEELY, David K., Information Technology Specialist, Mānoa Career Center; BA 2006, Hawai'i  
 \*NICHOLS, Andrew W., Interim Director, University Health Services  
 NISHIDA, Susan O., Specialist and Physician, University Health Services

NOYES, Malia, Learning Disabilities Specialist, KOKUA Program

OKIKAWA, Noreen, Student Services Specialist, Mānoa Career Center; BS 1989, Hawai'i

OMURO, Tami, Administrative Officer, KOKUA Program; BBA 1992, Hawai'i

ONG, Sharon Hiu, Specialist and Physician, University Health Services

ORIAS, Joseph-Daniel, Operations Coordinator for Meeting and Events Services, Student Life and Development; BA 2012, Hawai'i

OTSUBO-CHANG, Laurie K., UH Personnel Officer, Student Affairs; BA 1988, Hawai'i

PAJO, Hiram, Registered Architect, Student Housing Services; BS 1979, Hawai'i

PALAKIKO, Thia, Instructional & Student Support Specialist, Student Equity, Excellence & Diversity

PAU, Marnise K., Student Housing Coordinator, Student Housing Services; BS 1993, Hawai'i

PHOMSOUVANH, Bobby, Information Technology Specialist, VC for Students; BBA 2004, Hawai'i

PONCIANO, Tomi, Conference Specialist, Student Housing Services; BFA 2006, Hawai'i

\*PRENTISS, Gale T., Specialist and Physician, University Health Services

\*QUEMUEL, Christine, Junior Specialist, Co-Director, Women's Center; Ohana Award for Outstanding Service to Students, 2002

RASOR, Jeremy, Instructional & Student Support Specialist, Mānoa Career Center; BA 1999, Hawai'i

REGGIO, Robert, Early Childhood Specialist II, Children's Center; BA 1967, New York

REILLY, Robert William, Advertising Sales Manager for Student Publications, Student Life and Development; BA 2008, Iowa State

RITA, Kaprice, Conference Specialist, Student Housing Services; BA 2008, Hawai'i

ROBLES, Edwin, Director of Student Life Business Services, Student Life and Development; BA 2000, Hawai'i

RODRIGUEZ LUPERCIO, Isaac, Student Housing Services; MEd 2012, Loyola

SAGAYAGA, Marvin, Fire Safety Technician, Student Housing Services; AAS 2005, Hawai'i

SAITO, Warren S., Administrative Services Associate, Student Life and Development

\*SCHOLLY, Kristen, Associate Specialist, University Health Services

SEKI, Avis A., Early Childhood Specialist III, Children's Center; BED 1988, Hawai'i

SEYMOUR, Kamana, Residence Director, Student Housing Services; BS 2008, Hawai'i

SHARMA, Sheela, Student Services Specialist, Office of Multicultural Student Services; BA 2001, UCLA

SHIGANO, Jill, Administrative Officer, Student Life and Development; BED 1978, Hawai'i

SHIMABUKURO, Laura, Assistant Director of Student Union for Meeting & Event Services, Student Life and Development; BBA 2004, Hawai'i

\*SOLOMON, Angelique, Junior Specialist, Student Equity, Excellence & Diversity

SOLOMON, Lisa M., Paramedical Assistant, University Health Services

SONODA-PALE, Melinda, Instructional & Student Support Specialist, Student Life and Development

\*SORA, Wendy H. T., Acting Director and Junior Specialist in Mānoa Career Center

\*TAKAHASHI, Melanie, Assistant Specialist, Mānoa Career Center

TAKASHIGE, Cheryl K. S., Early Childhood Specialist III, Children's Center; BED 1976, Hawai'i

\*TANOUYE, Allyson, Director and Specialist, Counseling and Student Development Center; PhD 1990, Missouri-Columbia

TRABA, Ashley A., RN, University Health Services

\*TSUTSUMOTO, Thomas, Junior Specialist, Mānoa Career Center

UKISHIMA, Joan, Psychometrist, Counseling and Student Development Center; BA 1968, MEd 1988, Hawai'i

ULIBAS, Jennifer A. G., Early Childhood Specialist II, Children's Center; BA 1998, Hawai'i

UWONO, Dee, Director of Judicial Affairs, Office of Judicial Affairs; BA 1998, MEd 2004, Hawai'i, EdD 2010, USC

VALDEZ, Audette, Coordinator of Behavior Management, Assessment and Compliance, Student Housing Services; BS 2008, Hawai'i

VALENZUELA, Tasha N., Assistant Retention Coordinator, College Opportunities Program; BBA 2006, Hawai'i

VILLANUEVA, Geraldine, Graphic Artist in Mānoa Career Center; BA 2012, Hawai'i

WATANABE, Randall K., Information Technology Specialist, Student Housing Services; BS 1999, Hawai'i

WATKINS, Wayne C., Director, Children's Center; BA 1976, Florida

\*WELIN, Stephanie, Coordinator of Student Union Programs, Student Life and Development

\*WESTFALL-SENDA, Mandy, Coordinator of New Student Orientation, Student Life and Development

\*WISCHMAN, Kim, Specialist and Physician, University Health Services; BA 1986, MD 1996, GWU

WONG, Patricia C., Pharmacist, University Health Services; BS 1977, San Francisco; PharmD 1981, USC

\*WONG, Wesley L., Specialist and Physician, University Health Services; BS 1983, MD 1987, Hawai'i

YODA, Stephanie, Student Health Insurance Coordinator, University Health Services; BA 1991, Hawai'i

YORITA, Shelley K., Early Childhood Specialist II, Children's Center; BED 1991, MEd 2000, Hawai'i

YOSHIMURA, Dana, Associate Director of Operations, Student Housing Services; BBA 1980, Hawai'i

### **Student Athlete Academic Services**

\*MATSUDA, Jennifer C., Director and Associate Specialist

\*AMBROZICH, Kari, Junior Specialist

\*CLANIN, Garrett, Junior Specialist

\*GILLESPIE-SCANLON, James, Junior Specialist

\*GORMAN, Brandon, Junior Specialist

\*TSUMOTO, Courtney, Junior Specialist

KAWASAKI, Brandy, Fiscal and Administrative Support Specialist; BA 2002, Hawai'i

### **Study Abroad Center**

\*RAI, Sarita, Director

\*CHONG KUNA, Vanessa M., Study Abroad Advisor

\*LEE, Max, Study Abroad Advisor

VILLA, Lentina, Fiscal and Administrative Support Specialist

\*YAP, Allison K., Study Abroad Advisor

### **College of Tropical Agriculture and Human Resources**

\*GALLO, Maria, Dean and Director

\*EVENSEN, Carl I., Interim Associate Dean and Associate Director for Cooperative Extension

GRACE, J. Kenneth, Interim Associate Dean and Director for Research

KINOSHITA, Charles M., Associate Dean for Academic and Student Affairs

CHANG, Annette, Director, Administrative Services

ABE, Juliana, Research Support, Agricultural Diagnostic Service Center

AIHARA-SASAKI, Maria, Research Support

\*AKO, Harry, Researcher, Molecular Biosciences and Bioengineering

\*ALVAREZ, Anne M., Plant Pathologist

AMORE, Teresita D., Assistant Researcher, Tropical Plant and Soil Sciences

\*ARAKAKI, Alton S., Assistant Extension Agent, Tropical Plant and Soil Sciences

\*AZUMA, Javzandulam, Junior Researcher, Natural Resources and Environmental Management

\*BAHNG, Youngjin, Assistant Professor, Family and Consumer Sciences

BAIN, Frederika E., Info, Events and Publications; MA 2006, Hawai'i

\*BANNA, Jinan, Assistant Professor, Human Nutrition, Food and Animal Sciences

BECKER, Pattereya P., Institutional Support; BBA 2009, Hawai'i

\*BHUTADA, Shriram, Junior Specialist, Center on the Family

BINGHAM, Jon-Paul, Assistant Professor, Molecular Biosciences and Bioengineering

BIRD, Colleen R. M., Institutional Support, Human Nutrition, Food and Animal Sciences

\*BITTENBENDER, Harry C., Specialist, Tropical Plant and Soil Sciences

BORTH, Wayne, Assistant Researcher

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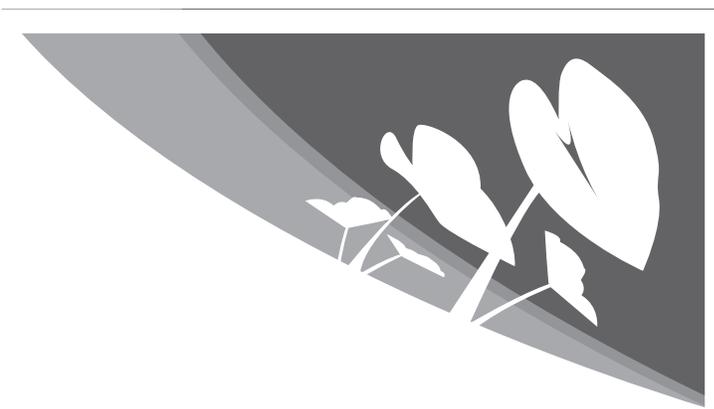
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# Glossary



**Academic Year** Starts at the beginning of the fall semester, ends at the close of the spring semester; does not include summer sessions.

**Accreditation** Official certification by an external academic organization that a college, school, or academic unit meets minimum requirements for academic achievement, curriculum, facilities, etc.

**Add Period** Time at the beginning of each semester during which registered students may enroll in additional courses.

**Articulated General Education Courses** UH system courses reviewed by the systemwide Articulation Standing Committees and accepted by campus core/curriculum committees as meeting undergraduate requirements at one or more system campuses.

**Auditors** Regularly admitted students who register, with the consent of the instructor, for informational instruction only and who receive no credit. They do not take course examinations and the extent of their classroom participation is at the instructor's discretion. Auditors are generally not allowed in art studio, laboratory science, mathematics, elementary and intermediate Hawaiian and foreign languages, creative writing, English composition, physical education, speech and other performance courses or in classes where they might displace credit students. Audit courses are entered on the student's transcripts with a grade of L and are subject to regular tuition and fee charges.

**Bachelor's Degree** Undergraduate degree signifying successful completion of the Mānoa General Education Core, major, elective, and credit requirements of UH Mānoa and of an academic unit.

**Backtracking** Completion of a lower-level or prerequisite course after (or while) taking an advanced course. Additional credit and grade points are not awarded for lower-level courses if they are taken after or concurrently with the advanced course for which they are explicitly or implicitly prerequisites.

**Classified Students (Graduate)** Students admitted by the Graduate Division to a program that offers a graduate certificate, or a master's or doctoral degree.

**Classified Students (Undergraduate)** Students who intend to earn an undergraduate degree and/or are admitted into a degree-granting college or school such as Arts and Sciences, Business, Education, Engineering, etc.

**Community Colleges** Campuses within the UH system that usually offer lower division courses and grant two-year degrees and certificates.

**Conditional Students (Graduate)** Students admitted to graduate programs on the condition that they make up academic deficiencies or other requirements within a prescribed period of time.

**Continuing Students** For registration purposes, those who were registered for the previous semester (fall or spring), are in good standing, have not completely withdrawn, have not graduated in their current classification, and intend to register for the upcoming semester.

**Co-requisite** A course that must be taken in conjunction with and at the same time as another course. Co-requisites are indicated in the course descriptions.

**Core Requirements** See "Undergraduate General Education Requirements."

**Credit Overload (Graduate)** For classified graduate students, registration for more than 16 credits (9 credits for graduate assistants) in any one semester. Permission from the graduate dean is required.

**Credit Overload (Undergraduate)** Registration for more than 19 UH Mānoa credit hours in any one semester for undergraduate and professional diploma students. Permission from the appropriate college/school dean is required. The request for credit overload is processed during late registration only.

**Credits (or Semester Credit Hours)** Earned after successful completion (pass) of a course. If students fail a course, they have only attempted (but not earned) the credits for the course. Three semester credits are approximately equivalent to three 50-minute meeting periods per week in a 15-week semester.

**Cross-Listed Courses** Courses whose contents are identical and are jointly offered by more than one department. Although the departments and course numbers are different—for example, AMST 365 and HIST 379—these courses are the same.

**Curriculum** All the courses of study offered by UH Mānoa. May also refer to a particular course of study (major) and the courses in that area.

**Discipline** A branch of knowledge or teaching. Typically refers to an area of study or a major field.

**Diversification Requirement (Undergraduate)** Specified courses in the General Education Core intended to assure that every student has a broad exposure to different domains of academic knowledge, while at the same time allowing flexibility for students with different goals and interests.

**Double Major** Multiple majors falling under one degree will normally be approved for students who show promise of success in both, provided there is sufficient divergence between the majors. No one course may be used to satisfy more than one major requirement.

**Drop Period** Time at the beginning of each semester during which registered students may drop unwanted courses and not have them appear on their transcripts.

**Early-Admits** Academically superior and accomplished youths under 18 years of age who are continuing high school students admitted to UH Mānoa to take specific courses for which they are qualified.

**Electives** Courses not designated as part of the General Education Core, college/school, or major requirements. Students should consult their major advisors and college advisors to discuss the selection of electives.

**Emeriti Faculty** Recognition, designation, and privileges given by the UH Board of Regents to faculty members who have retired but still retain ties to UH Mānoa.

**Excess Credit Policy (Undergraduate)** Students who, by the end of any semester, have earned 24 credit hours beyond those required for graduation and have fulfilled all specific program and UH Mānoa requirements may graduate by action of their college or school.

**Focus Requirement (Undergraduate)** Specified courses in the UH Mānoa Graduation Requirements identifying important skills and discourses necessary for living and working in diverse communities.

**Foundation Requirement (Undergraduate)** Specified courses in the General Education Core intended to give students skills and perspectives that are fundamental to undertaking higher education.

**Freshmen** Students who have earned fewer than 25 semester credit hours.

**Full-Time Students** For academic purposes, undergraduates carrying 12 or more credits per semester or graduates carrying 8 or more credits.

**General Education Core** Specified courses labeled “Foundation” or “Diversification” that are intended to give students fundamental college skills and perspectives and broad exposure to different domains of academic knowledge.

**Grade Point Average (GPA)** Determined by first multiplying the number of credits for each course taken for a letter grade by the points earned for that course (i.e., A+ is 4.0, A is 4.0, A- is 3.7, B+ is 3.3, B is 3, B- is 2.7, C+ is 2.3, C is 2, C- is 1.7, D+ is 1.3, D is 1, D- is 0.7 and F is 0), then by adding all the points, and finally by dividing total grade points by the total number of credits attempted for courses in which letter grades were given.

**Graduate Assistants** Graduate students hired by UH Mānoa as teaching or research assistants.

**Graduate Courses** Courses offered as part of a graduate degree program, numbered 600–800.

**Graduate Faculty** Members of the UH Mānoa community eligible to advise classified graduate students.

**Graduate Record Examination (GRE)** A standardized test required for admission to many graduate fields of study.

**Graduate Students** Students admitted to the Graduate Division to pursue advanced degrees.

**Hawaiian or Second Language Requirement (Undergraduate)** A special General Education graduation requirement intended to prepare students to function in a global society and provide an educational experience with an international dimension. The Hawaiian or Second Language (HSL) requirement varies by UH Mānoa college/school. Students should check with their college/school advisor to learn about their requirement.

**Incomplete Grades** With the instructor’s approval, students may receive a grade of I if they are unable to complete a small, but important part of a course’s requirements by semester’s end but are committed to doing so by a specified deadline.

**Interdisciplinary Studies** An undergraduate program within the Colleges of Arts and Sciences that allows students to design their own major.

**Introductory Courses** All 100-level courses and those 200-level courses without explicit college course prerequisites.

**Juniors** Students who have earned 55–88 semester credit hours.

**Lower Division Courses** Freshman- and sophomore-level courses that generally do not require any prerequisite courses and are numbered 100–299.

**Major** The area of academic concentration or specialization in which the degree is conferred.

**Maximum Registration** No more than 19 credit hours per semester for undergraduate and professional diploma students without special approval from a college dean. Graduate students are limited to 16 credit hours per semester (9 for graduate assistants) unless special approval is given.

**Minor** Limited concentration of courses in an area other than the major and relating to an approved baccalaureate degree.

**Part-Time Students** For academic purposes, undergraduates carrying fewer than 12 credits per semester, or graduates carrying fewer than 8 credits per semester.

**Placement Examinations** Noncredit tests used to measure a student’s proficiency in a specific subject area in order to determine the appropriate level of courses in which to enroll.

**Post-baccalaureate Unclassified Students** Those who have earned a bachelor’s degree from a regionally accredited college or university and wish to enroll as unclassified students.

**Pre-professional Programs** Programs designed to prepare students to pursue admission into professional programs, such as dentistry, law, medicine, or veterinary medicine.

**Prerequisite** A necessary condition for enrollment in a course. Prerequisites for courses usually consist of a previous course or courses in a related subject and/or the instructor’s consent. Prerequisites are specified in the course descriptions.

**Residence** This word is used in several ways in this *Catalog*: (1) to denote registration in a regular session (i.e., when a student is “in residence” during the fall or spring semesters); (2) to denote the period of time that a student must be registered at UH Mānoa in order to be eligible for graduation (i.e., academic residence); (3) to denote a student’s state of residence (e.g., Hawai‘i) to determine if nonresident tuition must be paid (i.e., legal residence); (4) to indicate the student’s place of residence (i.e., living quarters).

**Residents** Individuals at any level of post-graduate medical education in a program accredited by the Accreditation Council for Graduate Medical Education (ACGME).

**Returning Students** Students resuming studies after staying out of school for one semester or longer.

**Sabbatical** A leave of absence granted to UH Mānoa faculty members for research, professional improvement, etc.

**Seniors** Students who have earned 89 or more semester credit hours.

**Sophomores** Students who have earned 25–54 semester credit hours.

**Test of English as a Foreign Language (TOEFL)** Test required of students whose first language is not English.

**Transcript** Official record of courses and grades earned at a secondary or postsecondary institution.

**Transfer Students** Students admitted to UH Mānoa who have previously attended another college or university.

**Tuition Waiver** An exemption from the requirement to pay UH Mānoa tuition. Waivers awarded by the UH can range from partial to full waivers and do not include student fees.

**UH System** The state of Hawai‘i’s postsecondary education system, comprised of 10 campuses and other research and learning facilities throughout the islands. In addition to UH Mānoa, it includes UH Hilo, UH West O‘ahu, and the seven campuses of the UH Community Colleges.

**Unclassified Students** Students who have not been accepted into a degree or certificate program but who have been admitted into Outreach College and may enroll in regular credit courses and graduate courses with the permission of the instructor.

**Undergraduate Students** Students who have not earned a bachelor’s degree.

**Upper Division Courses** Junior- and senior-level courses, numbered 300–499, which generally have prerequisites.

**Variable Credit Courses** Courses in which the number of credits to be earned is determined in advance by the student and instructor.

**Withdrawal Grades** Grades of W are given for courses from which the student has officially withdrawn with the approval of the instructor and the student’s college dean. Withdrawals are only approved until the end of the ninth week.

**Writing-Intensive Courses** Courses that put emphasis on written work as part of the regular course of study and are officially designed as WI sections. WI sections are identified in each semester’s *Registration Guide* (formerly *Schedule of Classes*).

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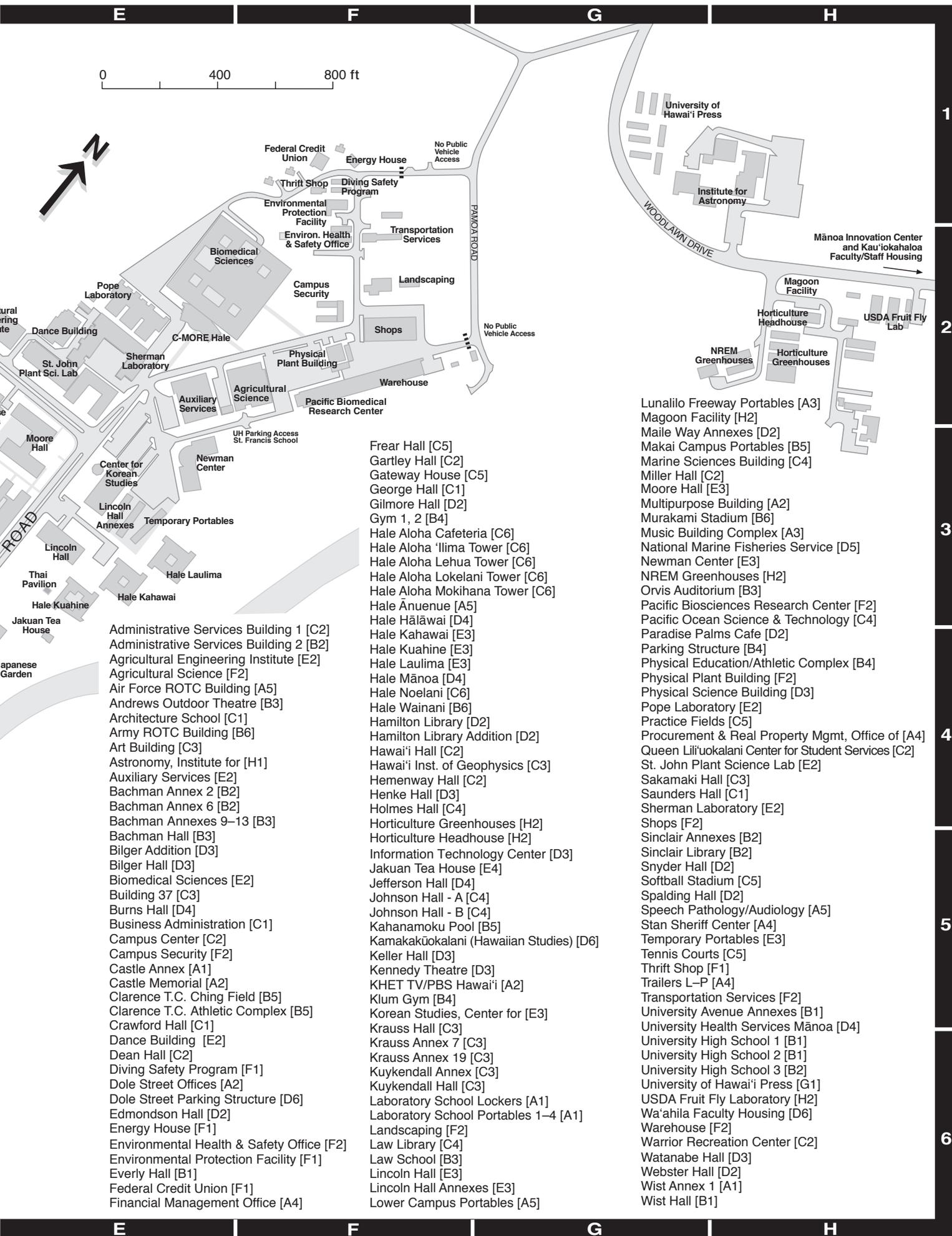


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