Academy for Creative Media (ACM)

College of Arts and Humanities

A grade of C or better in the prerequisite courses is required for continued enrollment.

ACM 350 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 animating computer generated characters with the illusion of life. Project-based. A-F only. Pre: consent.

ACM 220 Advanced Rendering (3)

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.

ACM 310 Cinematic Narrative Production (4)
Productions with an emphasis on acting and personality in animated characters 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, 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. Narrative plot structures, conceptual design, animation, visual design, complexity, storyboarding, and gameplay. ACM majors only. A-F only. Pre: B+ or better, 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 or B or better in 255 and ART 113, or consent.

ACM 317 3D Cinematography and Dynamics (3) Computer animation rendering and cinematography for the design and creation of visual effects. Using particles and dynamic systems to simulate natural phenomena. Compositing of visual layers. ACM majors only. A-F only. Pre: 215 and 216 or B or better in 255 and ART 113, or consent.

ACM 318 Classical 2D Full Animation (3) Hand-drawn animation techniques; rough animation, inbetweening, clean up animation and digital color processes. Digital line testing, sync dial and other advanced skills for classical 2D full animation. ACM majors only. A-F only. Pre: 215 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 30 second computer-animated short film. Emphasis on visual storytelling and character animation. ACM majors only. A-F only. Pre: 315 and 255, or consent.

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 consent.

ACM 350 Screenwriting (3) Introduction to the basics of writing a short narrative screenplay for film or television. Students learn the fundamentals and format of screenwriting as well as basic elements of storytelling and character development. 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 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)
Instruction 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 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 scène in screen narratives 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 author theory and specific application to film. Examine the work of 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 UHM campus approved study abroad location. Repeatably 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 on different topics. ACM majors only. A-F only. Pre: 255 and junior standing, or consent.

ACM 390 Workshop in Creative Media (V)
Short-term intensive workshop in focused area of media production. Repeatable. ACM majors only. A-F only. Pre: 255 or consent.

ACM 399 Independent Group Project (V)
Participation in a group research or creative project under supervision of ACM faculty member. Only six credits of 399/499 in any combination can be applied to meet requirements for the major. A-F only. Repeatable up to six credits. ACM majors only. A-F only. Pre: 310 or 315 and 350, or consent.

Accounting (ACC)

Sheller 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 of providing 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 321 Intermediate Financial Accounting I (3) Accounts prepared in accordance with GAAP to the recognition and measurement of cash, receivables, inventories, property plant and equipment, depreciation and depletion, intangibles, and current liabilities. Pre: 201 (with C- or better) and 202 (with C- or better).


ACC 395 Accounting Internship (V) On-the-job experience in the accounting community. Term paper and meeting with faculty advisor required. CJ 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. Pre: 401 with C- or better.

ACC 400 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 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. Includes analysis of activities planned, identification, reading and analyzing primary author reports, and computerized accounting system. A-F only. Pre: 323 (with C- or better or concurrent) and BUS 311 (with C or better).

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. Special fund, restricted fund, 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: 325.

ACC 418 Auditing (3) Auditing concepts including standards, objectives and ethics for external auditors. Focus on current auditing 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 Accounting Capstone (4, 1 credit per al- pha) Lectures, discussions, case analysis. Integration of numerous elements of the accounting program. Current accounting issues discussed. Relevant topics for (B) managerial; (C) financial; (D) auditing and accounting information systems; (E) tax and ethics. Repeatable one time, credit earned for one time only. ACC majors only. Pre: 418 (or concurrent), no waiver. Co-requisites: C, D, and E for (B); B, D, and E for (C); B, C, and E for (D); B, C, and D for (E).

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 583 Cost Accounting (5) Information for managerial decision-making 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 current and relevant measurement topics. A-F only. Pre: 581.

ACC 610 International Corporate Governance (3) Understanding of complex and critical issues of international corporate governance, financial reporting, and ethical conduct. Includes corporate governance in the U.S., major European markets, and Asia. Emphasis on internal and external stakeholders, regulators, and gatekeepers. Graduate students only. A-F only.

ACC 616 Accounting Theory and Development (3) History and theoretical background of accounting standards. Including accounting theories, forecasting and testing theories; scientific, pragmatic, syntactic and semantic theories; normative and positive theories; literature review and critical of accounting theories and standards. Pre: 323 or 582 with C- or better, or consent.

ACC 619 Advanced Auditing (3) Focus on auditing processes, standards, and guidance specific to IT risks. Exposure to advanced IT audit software and its practical application and real world IT audit issues. Pre: 418 or 585 with C- or better, or consent.

ACC 620 Global Accounting (3) Theory and fundamental causes of international variations in accounting. Problems such as exchange rate fluctuations create for financial reporting, control, and decision-making within multinational business enterprises. Pre: 325 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 author, and communicating results. Credit not given for both 606 and 625, Pre: 401 or 584 with C- or better, or orientation permission.

ACC 631 Tax of Partners/Partnerships (2) 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, or consent.

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 (2) Examines estate and gift tax provisions and basic estate planning techniques to 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 (2) 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 660 Analysis and Decision-Making (3) Integrates learning through analysis and communication of complex business problems. Stresses research, critical thinking, and analytical and communication skills applied to contemporary accounting and tax issues. Pre: 625 with C- or better (or concurrent), no waiver.

ACC 690 Current Topics in Accounting (V) Concentration on current issues impacting the accounting profession. Topics vary each semester. Repeatable two times, up to nine credits.

ACC 695 Accounting Internship (V) 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 senior semester. 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. 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 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 the combined cadet corps with progression of experiences designed to develop leadership potential. Intervale 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 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 I (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 demonstrating 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 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 I (3) Study of the national security environment, international 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.

Key to symbols & abbreviations: see the first page of this section.
AMST 344 American Thought and Culture (3) Continued 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 contexts 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 are chronology. 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 Lands and Waters (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 explores the role of travel writing in American identity- and nation-formation, from early colonial history to the present. A-F only. Pre: 110, 150, 201, 202. (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: imperial and political culture, social movements and international affairs, race, gender and class relations. (Cross-listed as HIST 365) 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

AMST 386 Studies in literature and culture, and contemporary criticism. Pre: junior standing or consent. Required for all 400-level courses.

AMST 401 Filipinos in America: Research Topics (3) A research seminar on the study of Filipino Americans. Special attention will be given to 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 literatures, film/video/media, 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 practices, 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 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 inter racial 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 symbolism. 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 workplaces. 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 standpoint and traces the legacy of slavery in the post-emancipation societies of the New World. (Cross-listed as HIST 473) DH

AMST 433 Islands, Empires, and the Arts (3) Histories of colonialism, neocolonialism, and cultures of resistance in literature, film, and arts of the Caribbean and American diaspora. Role of arts in political dissent; historical memory; nation building; construction of race, class, gender. Junior standing or higher. A-F only. Spring (Cross-listed as HIST 333) DH

AMST 434 Politics in Hawai‘i (3) Discussion of modern politics against the background of recent history and major contemporary issues. 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 American life and society. (Cross-listed as HIST 442) 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 and interpreted political and racialized identities through film, video and media work. DH

AMST 450 Victims, Virtue, and Violence (3) Examination of the history and significance of melo-drama 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, movements and modes of popular or mass culture in the U.S.; emphasis on cultural trends and social implications. DH

AMST 452 The '20s and '30s (3) Novelist, paint- ers, 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 intellec- tual and moral response of Americans to institutions and culture of 20th-century marketplace economy. DH

AMST 454 Fashioning America (3) Examines linkages between American identity, representation, labor and capital through fashion theory, clothing discourses and other practices of textile produc- tion 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 various film experience from historical and contemporary points of view. DL

AMST 459 Sports in America (3) Sports as re- flected in literature, film, 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) DS

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 frameworks. 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. DS

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 Building Survey/Historic 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. A-F only. Pre: 480. (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)  
The course focuses on one or more 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.

AMST 610 Early America (3)  
Interdisciplinary approach to understanding early American culture and history. Repeatable one time. Pre: graduate standing or consent. (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

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 research. (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 applications 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)  
The course examines the impact of the African Diaspora on the cultures and histories of the Americas through interdisciplinary and feminist scholarship and cultural sources including fiction, folklore, film, poetry, religion, music, and dance. A-F only. Pre: 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. 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)  
Aural appearance examination 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, monuments, and landscapes.

AMST 638 American Punishment (3)  
Examines the history of American criminal punishment, from the birth of the penal system 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 dissent 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 639C)

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 artifacts, documents, 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 development 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)  
Examinations of experience of 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 671 Indigenous Curation and Museums: Practice Meets Theory (3)  
Seminar explores the history, evolution, and contemporary movement towards indigenous curation within museums, emphasis on the Americas and Oceania, as shaped by colonialism, globalization, multiculturalism, self-determination, and nationalism. (Fall only)

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 and development 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)  

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 688 Indigenous Studies Practicum (3)  
Applies course work in Indigenous studies to hands-on activities under the direction of practicing professionals and university faculty. Repeatable one time. Graduate students only. A-F only.

AMST 690 Research Seminar (3)  
Themes, problems, and issues not addressed in other American studies graduate courses; emphasis upon research methods. Repeatable unlimited times.

Key to symbols & abbreviations: see the first page of this section.
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 in the United States.

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 Medicines*

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 independent study of surgical procedures (C) topics in reproductory biology. Repeatable two times. CR/NC only. Pre: FMCH, MED, OBGN, PEDI, PSTD, 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); one repeatable time for (D). Pre: consent for (B) and (C); MDED 551 for (D).

ANAT 603 Lower Extremity, Thorax, and Abdo- men (3) Human gross anatomy dissection of the lower extremity, thorax, and abdomen. Emphasis is placed on muscles, function, innervation, and vascular supply of 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, bases 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 anatomy, laboratory, 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 (2) (lec, 3 hr lab) Introduction to animal agriculture, animal science, and the use of animals by humans. Emphasis on 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 and nutrition 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 Domestic Animals (3) Micro and gross anatomical arrangements of tissues and organ systems of domestic animals. Pre: 200 (or concurrent). CHEM 161/L or higher. DB

ANSC 301L Domestic Animal Anatomy Laboratory (1) Laboratory to accompany 301. Dissection and identification of anatomical arrangements of tissues and organ systems of domestic animals. A-F only. Pre: 206L (or concurrent) DEM 121/122 (DY)

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, turkeys, 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 related to animals in 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). DB

ANSC 353 Horses and Horsemanship (3) (1 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, animal health, 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 regulation; emphasis on gene structure, re-combinant 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 on 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 including 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) Identification and anatomy 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) Exploring human-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 Insemina-tion Lab (1) 1 3-hr Lab) Identification and anatomy of domestic animals, estrous synchronizations 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 reproduc-tion. Pre: 301. DB

ANSC 490 Aquaculture Business Planning and Entrepreneurship (2) Practical aspects of planning and developing an aquaculture business from conception to a profit making enterprise. 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 lecturers for introduction to a specific discipline or as an extension program. 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.

Key to symbols & abbreviations: see the first page of this section.
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. F-A 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. FGA

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 215L Physical Anthropology Laboratory (1) Laboratory to accompany 215. Co-requisite: 215. EDB

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 308 American Culture (3) Contemporary culture of the U.S. Variations in kinship, family, work, play, values, religion; selected topics such as ethnicity, alternative lifestyles, consumerism, addiction. Pre: 152. DH

ANTH 310 Human Origins (3) Theory of evolution, evolutionary systems, and taxonomy; evolutionary biology of primates; fossil records for primates and hominidae; human origins. 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 biological and cultural constructions of gender and relatedness; link 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 commodification. Open to nonmajors. DS

ANTH 323 Pacific Islands Archaeology (3) Origins of Pacific peoples; chronology of settlement; sequences of culture. Advanced level. A grade of C or better in the prerequisite courses is required for all courses. (A C- is not acceptable.)

ANTH 327 Ethnobiology (3) Review of ethnobiology, i.e., the interdisciplinary, holistic and inclusive investigation of the histories of native peoples drawing not only on documented sources, but also on oral traditions, 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 AMST 327) 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) DS

ANTH 345 Aggression, War, and Peace (3) Bio-cultural, evolutionary, and cross-cultural perspectives on the conditions, patterns, and consequences 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 European contact to modern 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 South America. 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; investigation of the histories of native peoples; human variation and the dynamics and social functions of traditional and modern cultural tourism. Junior standing or higher. (Cross-listed as LAIS 375) DS

ANTH 379 Archaeology Practicum (V) Students will gain practical archaeological experience (e.g., materials processing, analysis, documentation, conservation) under the direction of practicing anthropologists in the local community and in collaboration with supervising archaeological faculty. Repeatable two times, up to 6 credits. ANTH majors or minors only. Sophomore standing or higher. A-F only. Pre: 210 or consent of instructor. 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 in the field at a national or international archaeological site. Repeatable one time with consent. Pre: 210. DS

ANTH 382 How Archaeology Works (3) Uses archaeological examples to illustrate social science research techniques. Students learn how to create, analyze, and evaluate data through lab-based exercises, and examine ethical issues inherent in anthropologi-
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, non-Western, and global contexts. A-F only. Pre: 152. DS

ANTH 422 Anthropology of Religion (3)
Cults, legends, millenial movements, myths, possession, rituals, sacred healing, shamanism, sorcery, sports, symbolism, with forms of religion 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 changes in non-institution, 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 reality in the formation of self-concept 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 the use of medicine to the beliefs, social systems, ecological adaptations, and cultural changes of human groups. Pre: 215. DS

ANTH 427 Food, Health, and Society (3)
How human groups identify, collect, create, and transform foods; how their dietary behaviors and the influence of those behaviors on health. Pre: junior standing or higher. 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 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 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. Includes: Hindu caste and gender, constructions of ethnicity, Tibetans and tourists, Sherpas and mountaineers, development ideologies, and consumerism. Sophomore standing or higher. Pre: 152. (Alt. years) Fall (Cross-listed as ASAN 442) DS

ANTH 443 Anthropology of Buddhism (3)
Selected aspects of national, regional and local manifestations of Buddhism are explored through a series of perspectives, 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 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. DS

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)
Neanderthal Quarterly provides an overview of human evolution in East Asia during the Pleistocene; Out of Africa I; modern human origins. Pre: sophomore standing, recommend 310, or consent. (Alt. years) DR

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. Readings 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 anthropological 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. Experimental data analysis approach. A-F only. ANTH majors only. Junior standing or higher. Pre: 210. (Alt. years) DS

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 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 472 Ceramic Analysis in Archaeology (3)

ANTH 473 Lithic Artifact Assemblage Analysis (4)
Combined lecture/lab on the manufacture and analysis of stone tools. Students work with
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.

Architectural (ARCH)

College of Languages, Linguistics and Literature

Students choosing Arabic for the language requirement should realize it may not be offered if demand is limited.

ARCH 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.

ARCH 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

ARCH 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

ARCH 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

ARCH 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.

ARCH 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.

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 physical, cultural, communication, and technological, with emphasis on the impact of scientific knowledge on environmental design. Open to non-majors. A-F only. DS

ARCH 101 Basic Design Studio (4) Introduction to creative design and studio focusing on the investigation of composition within defined perceivable space. Hands-on exploration of materials and structures as an introduction to design processes. Open to non-majors. A-F only. DS

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, engineering, planning, and environmental 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 process 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: 231 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. Emphasis on sociocultural, and natural science determinants of landscape form and pattern. Open to non-majors if space available.

ARCH 271 World Architecture and Urbanism A (4) Exploration of architectural design 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. A-F only. Pre: ARCH 151. DH

ARCH 272 World Architecture and Urbanism B (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. A-F only. 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. Investigation 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: 200 and 201.


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.

ARCH 351 Introduction to Landscape Design (3) Principles and practice of design within the comprehensive planning process. Sociocultural, economic, political, environmental determinants of urban form and pattern. Open to non-majors if space available.

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 (4) Basic skills of landscape graphic communication through a creative process model. Learning free hand and technical drafting techniques to creative effective landscape graphics. Pre: consent. (Alt. years) (Cross-listed as TPSS 353) DA

ARCH 354 Tropical Landscape Planting Design Studio (4) 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 world to 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. 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 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 architectural/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 specific design process activities; management of project teams, project operations and services; design parameter definition; design service documentation; and project execution. 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 design research problems. 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 423 Construction Project 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 law. ARCH majors only. A-F only. (Cross-listed as CEE 472)

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.

tion, 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, and 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. DS

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 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 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 project; (S) seminar. A-F only. Pre: departmental approval.

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 695 Applied Theories of Landscape Architecture (3) Graduate seminar on discussion of central ideas and theories in landscape architecture and environmental design, drawing on primary literature and speculative or built design work over many decades of thought. Graduate students only. A-F only.

ARCH 699 Directed Work (V) ARCH 715 Asia-Pacific Architectural History and Theory (3) Study of the history and theory of culture, climate and the built environment with particular focus on the Asia-Pacific region. ARCH majors only. Graduate students only. A-F only.

ARCH 716 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 722 Architecture Systems I: Introduction to Systems (3) Study of building materials, assemblage, and organization of systems; the built environment; and historical precedents, building/block approaches and other disciplines. Conceptual skills for 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 737 Advanced Design Communications II (3) Interdisciplinary design of a major work of architecture as it is connected to design theories related to presentation techniques, particularly oral and written, to current developments in architectural practice. A-F only.

ARCH 739 Research Methods Seminar (3) Comprehensive assessment of objectives and function of research in architecture. Lecture, seminar, independent study, and doctorate project topic and proposal development. ARCH majors only. Graduate students only. A-F only. Pre: 715.

ARCH 740 Architecture Studio I: Intro to Design (6) Design theories and systematic analytic and synthetic methodologies applied to the design of building and site spaces responsive to environmental and human needs. Several individual projects. ARCH majors only. A-F only.

ARCH 741 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 742 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. Graduate standing only. A-F only.

ARCH 743 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

Key to symbols & abbreviations: see the first page of this section.

ARCH 745 Architectural 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: 744, 745, 739 and 743 (G).

ARCH 747 (Alpha) Professional Studio (V) Scholarly and research activity combined with professional experience occurring in an off-campus location. (B) business; (C) community design; (E) alternative experience (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: 744, and 750C or 750G for (B), (G), and (T). Pre: 744, and 750C or 750G for (E), (H), and (P).

ARCH 750 (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; (C) design research. A-F only. ARCH Global Track only. Graduate standing only. Pre: 744 for (C); 739 and 743 for (G).

ARCH 751 Architecture Topics (1) Range of topics allowing an Aultion of knowledge and ability needed for professional architectural practice offered online. Repeatable two times. ARCH majors only. A-F only. Pre: 745.

ARCH 754 Research Seminar (3) Varied topics furthering knowledge and ability needed for professional design and investigating communication methods for collaborative and integrated design using digital technologies. ARCH majors only. A-F only. Pre: 739.


ARCH 760 Study Abroad: Architectural Study Tour (V) Firsthand examination of the architecture of various countries, with emphasis on experiencing and comprehending significant spaces within historic, political, and cultural contexts. Topics and countries visited change with each offering. Open to nonmajors. Repeatable two times.

ARCH 771 Architecture History (3) Investigation of architectural history and theory in the world from antiquity to present. Examining social, political, technical, technological, material, and environmental forces. ARCH majors only. A-F only.

ARCH 777 History of Hawaiian Architecture (3) Investigation of social, cultural, political, dimactic, and technological factors influencing the historical development of architecture in Hawai‘i. ARCH majors only. A-F only.

ARCH 781 Critical Inquiry Research Program (3) Individual development of a doctorate proposal that advances architectural knowledge through analysis, research, scholarship, and design. ARCH majors only. Graduate standing only. A-F only.

ARCH 782 (Alpha) Doctorate Project I (6) Individual development of a doctorate project with an approved chair and doctorate project committee that advances architectural knowledge through analysis, research, scholarship, and design; (H) Hawai‘i; (T) Tongii. ARCH majors only. Graduate students only. A-F only. Pre: 747C or 747P or 747E for (H); 750C or 750G for (T).

ARCH 786 (Alpha) Doctorate Project II (6) Individual development of a doctorate project with an approved chair and doctorate project committee that advances architectural knowledge through analysis, research, scholarship, design, and engages theoretical and architectonic propositions; (H) Hawai‘i; (T) Tongii. Repeatable one time for (H). ARCH majors only. Graduate students only. A-F only. Pre: 784H for (H); 784T for (T).

ARCH 788 Doctorate Project II Extension (3) Extension of the development of a doctorate project with an approved committee that advances architectonic propositions. Repeatable one time. ARCH majors only. A-F only. Pre: 786.

ARCH 794 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: 733.

ARCH 795 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.

Art and Art History (ART)

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)

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 300 series.

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, and architecture, 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, and architecture, applied art, body art, and textiles. (Spring only) FGB

ART 302 Introduction to Contemporary Critical Theory (3) Examination of the significant themes and issues in contemporary critical theory 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 research, reading, 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

Key to symbols & abbreviations: see the first page of this section.
ART 486 Traditional Chinese Painting (3) Sylistic 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) History of new art in 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 (4) Specialized study of particular periods, regions and critical themes in Southeast Asian art and architectural history. (B) Angkor & art of Khmer civilization; (C) art & architectural history of 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. DH

ART 688 Topics in the Art of China (3) Research topics in the history of Chinese sculpture, ceramics, bronze, jade, and textiles. Pre: consent.

ART 690 Seminar in Contemporary Critical Theory (3) Research and discussion seminar supporting advanced critical theory in the context of contemporary art and other creative practice. Pre: consent.

ART 691 Seminar in Global Contemporary Art (3) Selected topics in global contemporary art history. Repeatable one time. A-F only. Pre: consent. (Alt. years)

ART 695 Seminar in Western Art History (3) Selected topics in European and American art history. Pre: consent.


ART 791 Seminar in South/Southeast Asian Art History (3) Selected topics in South and/or Southeast Asian art history 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)

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. Pre: 242 or consent. DA

ART 344 Ceramics—Vessels (3) Exploration of the ceramic vessel as form, function, and expression. Advanced hand-building, throwing, glazing, and firing techniques. Repeatable one time. Pre: 242 or consent. DA

ART 345 Ceramics—Low Temperature (3) Form and surface problems related to lightweight clay bodies and low-temperature glazes; mold-making for ceramics. Repeatable one time. 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, 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 (with a minimum grade of B). 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 (with a minimum grade of B). 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) Investigation of human 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: 115 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 (2) Experiments with various traditional and contemporary materials and procedures; discussion of their influences on painting. Pre: 125, 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: 225 or consent. DA

ART 324 Painting from Life (3) Painting from the model; survey of the figural representation. Repeatable one time. Pre: 123 and 214. 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 (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 studios 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 handmade paper 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 creative technique. 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. Prereq: 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 studio and structure. Repeatable one time. A-F only. Prereq: 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 in the papermaking environment. Repeatable up to twelve credits. A-F only. Prereq: 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 experience in basic and related fiber processes and concepts. Includes lectures, discussions, demonstration, and individual and collaborative studio projects. Prereq: 175 and 176 and one 200-level fiber 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 the integration of the object based intervention. Repeatable one time. A-F only. Prereq: 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. Prereq: 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, sand-blasting, acid etching techniques. Repeatable one time. Prereq: 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. Repeatable one time. Prereq: 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. Prereq: 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. Prereq: 230 and either 254 or 356, or consent. DA

GRAPHIC DESIGN

ART 265 Design: Studio I (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. Prereq: 113 or consent. Co-requisite: 265L and 266.

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. Prereq: 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. Prereq: 113 or consent. Co-requisite: 265 and 265L. DA


ART 365L Design: Studio II Lab (1) Intermediate instruction in the Macintosh computer environment, including software, and peripheral devices, including intermediate layout. Introduction to graphic design industry standard multi-media and web design programs. CR/NC only. Prereq: 265, 265L, and 266; or consent. Co-requisite: 365L. DA


ART 466 Design: Typography III (3) Advanced typographic design. Exploration of 2D, 3D, electronic, and internet media. Emphasis on contemporary typographic media. A-F only. Prereq: 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. Prereq: 465, 465L, and 466; or consent. DA

ART 467L Design: Production Techniques Lab (1) Advanced study of digital media for graphic designers. Focuses on skills and specific technical information to complement material covered in 467, 465, 465L, and 466. Co-requisite: 467. (Spring only)

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 current and current questions in the graphic design field. A-F only. Prereq: with a minimum grade of B- for 465 and 466 and credit for 465L. (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 a 35mm film based camera with adjustable shutter speed, and light meter. Prereq: 113 or consent. DA

ART 207 Intermediate Photo: Black and White (3) The development of roll film cameras and black and white photographic techniques. Emphasis on the subjective experience in the basic techniques and concepts. Repeatable one time. Prereq: 116 or consent. DA

ART 308 (Alpha) Advanced Photographic Techniques (3) Emphasis on aesthetic and critical analysis. (B) color; (C) hand-applied emulsion. Repeatable one time with consent. Prereq: 202 and 207 with a minimum grade of B. DA

Key to symbols & abbreviations: see the first page of this section.

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 woodcut, linoleum cut, drypoint, monotype, and basic stencil processes. DA

ART 215 Intaglio Printmaking (3) Studio practice in the techniques and concepts of making prints from metal plates including etching, engraving, aquatint, and drypoint. Prereq: 113. DA

ART 217 Screenprinting (3) Studio practice in screenprinting on paper. Copy camera and basic photo-stencil techniques introduced. Prereq: 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. Prereq: 113. DA

ART 316 Lithography (3) Studio practice in concepts and techniques of making prints from lithographic limestone and plates. Prereq: with a minimum grade of B) two of 215 or 217 or 218. 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. Prereq: with a minimum grade of B) two of 215, 217, 218, or 316. DA

SCULPTURE

ART 254 Sculpture—Metal Casting (3) Metal casting and development of associated practices and concepts. Repeatable one time. Prereq: 116 or consent. DA

ART 255 Sculpture—Carving, Mixed Media (3) Investigations of traditional and contemporary carving concepts and methods. Repeatable one time. Prereq: 116 or consent. DA

ART 351 Sculpture—Figure Modeling (3) Figure modeling, mold making, and casting. Repeatable one time. Prereq: 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. Prereq: 116 or consent. DA

ART 356 Sculpture—Metal Fabrication (3) Metal fabrication and development of associated practices, concepts, and historical references. Repeatable one time. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 113 or 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. Prereq: 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. Prereq: consent. DH
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 chair. ART 400 (Alpha) Special Topics (V) Intensive and specialized work at advanced level in fields of special interest of visiting or resident faculty; (B) studio art; (C) art history. Repeatable three times per alpha. Junior standing or higher and instructor consent only. 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; organizing, teamwork, 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/Studio (5) In conjunction with the production of art for the BFA annual exhibitions, 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 into their practice. 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, historical sites, parks, and related places. Considers how interpretations contribute to cultural knowledge. Repeatable one time. Pre: consent. (Cross-listed as AMST 457) DH GRADUATE STUDIES Course structure for the Master of Fine Arts degree: ceramics, electronic arts, glass, 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 and conceptual aspects of studio practice, and the exploration of new modes 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 interest of visiting or resident faculty; (B) studio art; (C) art history. Repeatable three times per alpha. Junior standing or higher and instructor consent only. ART 623 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 356 Geography of Southeast Asia (3) An investigation of the development context of Southeast Asia including socioeconomic, cultural, and environmental resources. Problems and prospects for change. (Cross-listed as GEOG 356) DS ASAN 360 Buddhist Philosophy (3) Survey of central thinkers and schools above in PHIL, CHIN, 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 IF 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 364) DL ASAN 393 (Alpha) Field Study in Asia (3) Students may submit proposals to have academic coursework, 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 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 commercialization. Pre: one DH or DL. (Alt. years: fall) (Cross-listed as ANTH 442) DS ASAN 462 Contested Issues in Contemporary Japan (3) Familiarizes students with public discourse in Japan by analyzing key topics that have recently been 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, 320, 323, 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 identities are produced and how they relate to 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/identity politics in China from an anthropological perspective. Pre: 201 or 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). Examines filmic discussions in class, readings on visual culture, media studies, and film criticism. Course material will also include theater productions, art exhibits, 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 entertainments and forms that are produced and appreciated transnationally. Examples include martial arts genres, kun 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 (5) 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 developments and forms that are produced and appreciated in 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 agriculture 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 Asia-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, and case studies (including Hawaii). 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, 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 proposals. Pre: (C) China; (G) 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 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 cultures in Asia with each other and with the so-called "core" Middle Eastern Muslim societies. Pre: 600 or consent.

ASAN 612 Topics in 20th Century Chinese Literature 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: colonial 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) Interdisciplinary analytical study 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 Asian societies. 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).

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, consumption of tradition and heritage 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: 500 (or 600) with a grade of B or above. (Cross-listed as GEOG 638 and PLAN 638)

ASAN 640 Topics in Japanese Literature (3) Intensive study of selected topics in Japanese literature, primarily the modern period. Original translations of texts will be provided whenever available. Repeatable unlimited times with consent. Pre: consent. (Cross-listed as JPN 640)

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 JAP 655 through 658)

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 works and writings to arrive at informed appraisal of their contribution to modern Korean literature. Repeatable one time. Pre: KOR 494 or consent.

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.

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 WPVA 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.
Astronomy (ASTR)
College of Natural Sciences
Credit not given for more than one of 110, 120, and 140. Credit not given for 440 and 24. 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 oriented experiments illustrating basic concepts in astronomy. Offered in the evening. Pre: 110 (or concurrent). (DY)

ASTR 120 Astronomical Origns (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)

ASTR 140 History of Astronomy (3)
Covers the major developments and astronomies 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 trips are also offered (as GC 105) (DP)

ASTR 210 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 240 (DP)

ASTR 241 Foundations of Astrophysics I: The Solar System (3)
Solr system astrophysics. Dynamics of planets, satellite systems, asteroids and comets; internal and atmospheric structure of terrestrial and giant planets; the Sun as a star; the Sun; 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; 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 the formation and evolution of galaxies and stars. Pre: any introductory astronomy or physics course, or consent. 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 310 Observational Astronomy (3)
Principles and techniques of optical and near-infrared astronomical observation. Astronomical coordinate systems. Telescopes, cameras, spectrophotometers, and detectors. Astrometry, photometry, and spectrophotometry 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 210 in the summer. (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 format. Introduces LaTeX, literature research, time allocation. A-F only. Pre: 300 and 300L. (Spring only) (DY)

ASTR 320 Astronomical Spectroscopy (3)
Introduction to astronomical spectroscopy. Stellar atmospheres, line formation, elements of radiative transfer, phases of interstellar medium. Emission line diagnostics. Doppler shift and kinematics. A-F only. Pre: 240 or 242; PHYS 152 or 274; MATH 216 or 242 or 252A. (Spring only) (DP)

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. DP

ASTR 423 Stellar Astrophysics (3)
Calculus-based introduction to stellar astrophysics, including: 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 450 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 627. Pre: PHYS 274 or consent. (Alt. years: spring) (DP)

ASTR 470 Research Project (V)
Research in observational, theoretical, or numerical astronomy or astronomical instrumentation development, supervised by Institute for Astronomy faculty. Alternatively, research combining astronomy with additional field, conducted within faculty. Significantly written products required. Repeatable one time, up to eight credits. A-F only. Pre: 301.

Key to symbols & abbreviations: see the first page of this section.

ASTR 500 Master’s Plan B/C Studies (1)
ASTR 622 The Interstellar Medium (3)
ASTR 263 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)

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 634 Astronomical Instrumentation (3)

ASTR 655 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 (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: Origins of Life 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
habitatibility. 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.

Atmospheric Sciences (ATMO)
School of Ocean and Earth Science and Technology
(See Meteorology (MET) for Fall. Effective Spring 2016, changes to ATMO.)

Biochemistry (BIOC)
School of Medicine
Adapted 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 organic 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, hematological, 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; assay; activity-site identification; amino acid sequence determination; radioimmunoassay, in vitro studies of nucleic acids. Pre: 441 or consent.

BIOC 644 Metabolic Biochemistry (2) Biochemical and physiological bases of structure and function of human organs, including 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. Pre: 499 Directed Research (V) Repeatable unlimited times. Pre: consent.


Bioengineering (BE)
College of Tropical Agriculture and Human Resources

BE 110 Introduction to Sustainable Engineering (3) An introduction to sustainability and its technical significance; global population growth; resource management and quantification; design for sustainable society; challenges interfacing technology and culture/religious green and ecological engineering; life cycle analyses; engineering ethics; selected case studies. A-F only. (Fall only)

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. (Fall only)

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 161, or PHYS 170; and MATH 242 or 252A; or consent. DP


BE 375 Transport Phenomena (3) Fundamental principles and applications relating to mass, momentum, and energy transfer in biosystems and other systems for engineers and scientists. Pre: 260, CEE 270, MATH 245 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, cash flow, and financial calculus. Pre: ECON 120 or 130, and senior standing. (Cross-listed as CEE 405) DB

BE 410 Biomass Conversion to Biofuels and Bioenergy (3) Overview of biofuel/bioenergy production; fundamentals of 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) DB

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 421 Bioprocess Control (3) Process control in both time and Laplace domain with an introduction to the frequency domain; selection and design of appropriate control strategies for bioprocesses with consideration of the total system; identification of safety concerns in designing control systems and process equipment. Pre: 260, MATH 243; or consent. (Cross-listed as FSHN 420) 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 nuts, vegetables, animals, and other bioproducts. Pre: 373, CEE 320 or ME 322; or consent. DP

BE 440 Bioremediation: Principles and Practice (3) (2 Lec, 1 3-hr Lab) Soil environment, fate and transport of contaminants, biodegradation, 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 basis 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) DB

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 project; project management; design methods; modeling and simulation; design optimization; engineering economics; engineering statistics, initiation of an opened-design project. Pre: 350/350L, 373, CEE 320 or ME 322, ME 311, EE 211; or consent. DB

BE 482 Senior Engineering Design II (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; processing of fruits 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 purposes. Repeatable unlimited times. Pre: consent.

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. DB

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; implications of 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) DB

BE 622 Experimental Methods in Cause-Effect Modeling (3) Factorial designs and fractional factorial designs: analysis and response optimization. Response surface methodology. Experimental designs appropriate to building and testing multi-variable behavior relationships. Sequential experimental designs. DB

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) DB

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 treating wastewater, air, solid wastes, and soil. A-F only. Pre: consent. (Alt. years: spring) (Cross-listed as CEE 634) DB

BE 638 Biosystems Modeling (3) Introduction to system thinking, procedures for developing system models, characteristics of important agricultural system models and an example approach to evaluation and optimization of system models. Pre: one of MATH 215, MATH 241, MATH 251A; or consent. (Cross-listed as AREC 610) DB

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 620 and NREM 660) DB

BE 699 Directed Research (V) Repeatable unlimited times. DB

BE 700 Thesis Research (V) Repeatable unlimited times. DB

BE 750 Seminar (1) Use of computer and video technology in instruction, review of current biosystems engineering research. Pre: consent. DB

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 inquiry with society, illustrated by topics from biological sciences. 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 marine 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 IS 100) DB

BIOL 123 Hawaiian Environment (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) Arotel 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 530) DB

BIOL 360 Island Ecosystems (3) Characteristics of island biota; examples from Hawaii 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 Global 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 habitation. Pre: GEOL 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 DB

Courses for Life Science Majors

BIOL 171 Introduction to Biology I (3) Introducy biology for all life science majors. Cell structure and chemistry; growth, reproduction, genetics, evolution, viruses, bacteria, and simple eukaryotes. Pre: CHEM (131, 151, 161, 171, or 181A) or consent, and BIOL 171L (or concurrent), or consent. DB

BIOL 171L Introduction to Biology I Lab (1) (1 3-hr Lab) Laboratory to accompany 171. Pre: CHEM (131, 151, 161, 171, or 181A) or concurrent, and BIOL 171L (or concurrent) or consent. DB

BIOL 172L Introduction to Biology II Lab (1) (1 3-hr Lab) Laboratory to accompany 172. Pre: CHEM (131, 151, 161, 171, or 181A) or concurrent, and BIOL 172 (or concurrent) or consent. DB

BIOL 265 Ecology and Evolutionary Biology (3) Principles of ecology and evolution for life science majors stressing integrated approach and recent advances. Pre: C (not C-) or better in 171/171L, 172/172L (or concurrent), and 265L (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 265 (or concurrent). DB

BIOL 275 Cell and Molecular Biology (3) Integrated cell and molecular biology for life science majors. Modern molecular biology and DNA technology. A-F only. Pre: C (not C-) or better in 171/171L and CHEM 272. DB

BIOL 275L Cell and Molecular Biology Lab (1) (1 3-hr Lab) Laboratory for Cell and Molecular Biology. A-F only. Pre: BIOL 275 (or concurrent) and CHEM 272. DY

BIOL 295 Service Learning for Biology Majors (1) 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. DB

BIOL 301 Marine Ecology and Evolution (3) Functional, ecological, and evolutionary problems faced by life in the sea. DB

BIOL 302 Marine Option Program Seminar (1) (1 4-hr Lab) Laboratory to accompany 301. A-F only. Pre: C (not C-) or better in 265/265L, 301L (or concurrent), and OCN 201; or consent. DB

BIOL 311 Marine Ecology and Evolution Lab (2) (1 3-hr Lab) Laboratory to accompany 301. A-F only. Pre: C (not C-) or better in 301 (or concurrent). DY

BIOL 317 Biotechnology: Science and Ethical Issues (3) Introduction to the concepts, goals, ethical issues, and consequences of human biology using real-life scenarios. DNA fingerprinting, gene therapy and genetic engineering. Pre: consent. (Cross-listed as MBBE 304) DB

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 estimation 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 331L (or concurrent), or consent. DB

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, linkage, evolution and evolutionary genetics. Pre: 275. 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. DB

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 students. Research papers, lab reports, project proposals, conference presentations are covered. A-F only. Pre: C (not C-) or better in 171/171L, 172/172L, and ENG 100. DB

BIOL 395 Internship in Biology Teaching (2) Supervised laboratory instruction in the development and demonstration of laboratory experiments in selected laboratory courses. Repeatable one time. Pre: consent. DB

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/BIO 104 or consent, project proposal. (Cross-listed as IS 400) DB

BIOL 401 Molecular Biotechnology (3) General principles, applications, and recent advances of the rapidly growing science of biotechnology. Topics include impact of biotechnology on human and 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

Key to symbols & abbreviations: see the first page of this section.
Biology (BIOL)

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 MBIE 402 and PEP 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 expertise in scientific assessment. Repeatable two times. MBIO majors only. 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 the macromolecular level. Pre: C (not C-) or better in 275/275L and CHEM 273, or consent. (Cross-listed as MCB 407) DB

BIOL 408 Molecular Cellular Biology II (3) Cell structure and function. Structure, chemistry, and function of organelles and macromolecules. Pre: C (not C-) or better in 407; or consent. (Cross-listed as MBIE 408 and MCB 408) DB

BIOL 408L Advanced Molecular and Cellular Biology Laboratory (2) (2-hr-lab) A laboratory to accompany BIOL 408/408L. A-F only. (Concurrent enrollment required) Pre: 407 or (concurrent) Pre: 408 or (concurrent). (Cross-listed as MCB 408L) DY

BIOL 410 Human Role in Environmental Change (3) Human impacts through time on vegetation, animals, landforms, soils, climate, and atmosphere. Special stresses recognized in specific geographic regions. Implications of long-term environmental change for human habitability. Pre: one of 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 427 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. Pre: 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) Report on 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) DB

BIOL 490L Biological Problems (V) Directed reading and research. For juniors and seniors majoring in life science 1-2 credits. Repeatable up to 9 credits, up to 6 credits applies towards BA and BS BIOL major requirements. A-F only. Pre: 2.5 GPA minimum, written proposal and consent.

BIOL 650 Population Genetics (3) Mathemati
cal, observational, experimental results on effects of mutation, selection, and systems of mating on distribution of genes. Analysis of non-experimental data. 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 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 and 679 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. Repeatable unlimited times.

BIOM 500 Master’s Plan B/C Studies (1) Repeatable unlimited times.


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 biometric data collection, sample size, consent form, budget and timetable. A-F only. Pre: consent.

BIOM 641 Legal and Regulatory Issues and Bioethics (2) Ethical research in health care and science. Corecognizance of groups, institutions, and research settings. A-F only. (Cross-listed as MMB 641)

BIOM 642 Applied Clinical Epidemiology and Biostatistics (3) Introductory epidemiological and intermediate biostatistical methods are applied to clinical research. Biostatistical methods for analysis of clinical data are resolved. A-F only. (Cross-listed as CMB 620)

BIOM 642 Applied Clinical Epidemiology and Biostatistics (3) Introductory epidemiologic and intermediate biostatistical methods are applied to clinical research. Biostatistical methods for analysis of clinical data are resolved. A-F only. Pre: 642 or 643.

BIOM 643 Applied Biostatistics (3) Combines a didactic approach to multivariable regression with hands-on analysis of a clinical database. 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 mutation, cloning and expression 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 I (3) Provides overview of research related to health and health disparities in Hawai’i. Seminar topics include ethical disparities in health research, Native Hawaiian health, childhood research initiatives, fitness and health disparities in health research, Native Hawaiian health, and others. Repeatable two 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, medical counseling, informed consent, healthcare reform, and social justice. Repeatable two times. A-F only.

BIOM 650 Cultural Competence in Biomedical Research II (3) Explores topics in cultural competence in greater depth: encourages 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 collaboratively in order to accomplish specific goals. 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 (5) 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 research materials, 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. Topics 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 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.


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.

Key to symbols & abbreviations: see the first page of this section.
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, consent.

BIOC 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.


Botany (BOT)

College of Natural Sciences

BOT 100 Freshman Seminar (1) Discussion of hot topics in botany, including conservation of rare plants, invasives 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 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 relationships 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). DB

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 human-kind. 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 1-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, biogeography, 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: 201/101L. (Once a year)

BOT 201L Plant Evolutionary Diversity Lab (1) (1 3-hr Lab) Exercises in the morphology and systematics of land plants, fungi, and algae. Co-requisite: 201 DY

BOT 202 Plant Ecology (3) Lecture with concurrent 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)

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: 202L. (Once a year)

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 301L Plant Conservation Biology Lab (1) (1 3-hr Lab) Lecture/laboratory to examine the biological basis for, and ecological effects of traditional and local resource management systems. Pre: 301. (Fall only)

BOT 302 Grant Writing (3) 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

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 topics in botany presented in discussion forum; 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 (TD) 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: BOT 101. Co-requisite: 410L. Recommended: 410L, 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 top 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, medicinal, ethnobotanical, ethnoecological, ethnohistorical, 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 BIOL 541; or consent.

BOT 444 Ethnobotany and Conservation (3) Ecological implications of plant uses. Examines the biological basis for, and ecological effects of traditional and local resource management systems. Pre: 440, and 350 or 453 or GEOG 530; or consent.

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 Hawaii Islands (3) (2 Lec, 1 3-hr Lab) Geology, 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 171, or ZOOL 101. DB

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

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: 201/301L and BIOL 265/265L. DB
write a DDIG and participate in a panel. Professional through management to completion; students will
Science (2)
BOT 600 Grant Writing and Your Career in
303, and consent.
Repeatability 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 Macrophytos 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, 470 (or equivalent), 480 (or equivalent), or consent. Co-requisite: 682L.

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 648 Conservation Ethnobotany (3) Practical field training experience for a scientific career conducting ethnobotanical research. Repeatable one time. Pre: 640 or consent. (Summer only)

BOT 651 Inversion Biology (3) Theories, models, patterns, and predictive methods relating to the inversion, establishment, and spread of introduced organisms. Application of principles of invasion biology to conservation resource management. Pre: one of 453, 456, MCR 485 or ZOOL 439; and 462 or BIOL 375; or consent.

BOT 652 Population Biology (3) Theory and applications of population biology; behavior of populations, 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 623, or BIOL 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 on a specific research project, oral and written presentation of project results. Repeatable three times. Pre: consent.

Key to symbols & abbreviations: see the first page of this section.

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 integrative. 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 function. 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 the lab. Prerequisites include 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 for 1-4 credits. Prerequisite.

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 Ecophysiology: Theory and Modeling (3) Vegetative response to hydrological controls and nutrient cycles; quantitative linkages between hydrological dynamics and ecological patterns/processes. MatLab is used to develop and simulate ecophysiological 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 648 Conservation Ethnobotany (3) Practical field training experience for a scientific career conducting ethnobotanical research. Repeatable one time. Pre: 640 or consent. (Summer only)

BOT 651 Inversion 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 resource management. Pre: one of 453, 456, MCR 485 or ZOOL 439; and 462 or BIOL 375; or consent.

BOT 652 Population Biology (3) Theory and applications of population biology; behavior of populations, 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 623, or BIOL 623; or consent. (Cross-listed as ZOOL 652)


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 Macrophytos 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, 470 (or equivalent), 480 (or equivalent), or consent. Co-requisite: 682L.

BOT 699 Directed Research (V) Research pre- liminary 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 oversees an 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 relationships of business functions in the different areas and the role of business in society. Stresses written communication in business. BUS majors only. Freshman or sopho- more 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.
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 specific geographic areas 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/or collaboration, 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 complete learning 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 an 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. Evaluates the role of microeconomics 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 "Financial Accounting, Online Course Introductory Section" and "Cost-Volume-Profit models, Online Tutorial" both from “hbsp.harvard.edu”, or completing a 12 contact-hour tutorial.

BUS 625 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-requisites: 628 and 630.

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.

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 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 academic requirement, pass/fail 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 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 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)

Muller 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

Key to symbols & abbreviations: see the first page of this section.
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 application of laws; contracts, torts, business and 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. Pre: 103 or exam 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 learning and enhancing 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 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. 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 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 course covering the molecular, cellular, physiological, and functional aspects of the 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 examining biological processes and challenges relevant to the public health professional. Topics include anatomy, pathophysiology, 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; BIOL 441 or BIOL 402, MBBE 802, 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 animals. Pre: one of 621, BIOL 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. Repeatable two times. Pre: 311 (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 of the course director. (Cross-listed as PHRM 640)

CMB 642 Introductory Bioinformatics for the Bench Biologist (3) Modern bioinformatics and genomic concepts will be taught briefly using hands-on web-based bioinformatic projects using public domain resources. Understanding key concepts and algorithms, technical literacy, and operational confidence are goals. Programming skill development is student optional. A-F only. (Fall only)

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. Pre: consent. (B) molecular biology of cancer; (D) human genetics; (E) cytogenetics; (F) evolutionary genetics; (G) molecular biology of the cell; (H) drosophila genetics; (I) population statistics; (K) insect molecular biology; (M) genetics and molecular biology of fungi. Repeatable unlimited times for (G). Pre: graduate standing in genetics or consent.

CMB 669 Essentials in Grant Writing (1) Presentation and discussion of the principles and practices of grant writing. Topics include the process of proposal, submission, and review. Course work includes writing, critiquing, and revising a proposal. Graduate students only. Repeatable two times. CR/NC only. Pre: recommended 626 and consent.

CMB 671 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 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 insufficient.

CHAM 101 Elementary Chamorro (4) Introduction to Chamorro, emphasis on listening and speaking, language structure. Meets five hours weekly. HSL
CHEM 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

CHEM 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

CHEM 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, 161, 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 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 colloidal 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, 162L (or concurrent). 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, and 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: CHEM 171L. DP

CHEM 171L Principles of Chemistry Lab (1) (1 3.5-hr Lab) Laboratory experiments illustrating fundamental principles of chemistry. Co-requisite: 171L. (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 3-hr Lab) Techniques, synthesis and qualitative analysis, applications of spectroscopy. Pre: 162L or 172L 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). DP

CHEM 274 Principles of Analytical Chemistry (3) Selected methods and principles, e.g., phase equilibria, ion-specific equilibria, electrode equilibria, separations, spectroscopy, automation, and process control. Pre: C (not C-) or better in 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, or 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 242 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, mass action, enzyme kinetics, bio-molecular 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) DY

CHEM 372 Bioorganic Chemistry (3) Mechanism of biochemical reactions, bioophysical 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. CHEM or BIOC majors only. CR/NC only. Pre: 274 (or concurrent). DY

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 dissection of reaction mechanisms. Pre: CHEM or BIOL majors only. A-F only. Pre: 273 with a grade of C (not C-) or better, or departmental approval. (Fall 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) DP

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, nucleic acids, 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 (3) 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. (Different topics. Pre: graduate standing in CHEM.

CHEM 622 Organicmetallurgy 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 structures from primarily (NMR) and secondary (IR, mass spectrometry) 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 physics. Prereq: 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. Prereq: graduate standing in CHEM.

CHEM 657 Astrochemistry–A Molecular Approach (3) Formation of astrobiologically important molecules and their precursors in the interstellar medium and in solar system: first principles and latest trends. Prereq: 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. Prereq: 352 and MATH 244 or MATH 253A.

CHEM 661 Enzyme Reaction Mechanisms (3) The chemical mechanisms of reactions catalyzed by enzymes and biochemical pathways, with an emphasis on the major types of cofactor and metal catalyzed reactions. Prereq: 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. Prereq: 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. Prereq: graduate standing.

CHEM 699 Directed Research (V) Repeatable unlimited times. Prereq: consent.

CHEM 700 Thesis Research (V) Repeatable unlimited times. Prereq: 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. Prereq: consent.

CHEM 741 Special Topics: Organic Chemistry (V) Theory and applications. Repeatable unlimited times in different topics. Prereq: consent.

CHEM 751 Special Topics: Physical Chemistry (V) Theory and applications. Repeatable unlimited times in different topics. Prereq: consent.

CHEM 761 Special Topics: Biochemistry (V) Theory and applications. A-F only. Repeatable unlimited times in different topics.

CHEM 800 Dissertation Research (V) Repeatable unlimited times. Prereq: 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 Asian Languages and Literatures for a brief interview. A grade of C or better in the prerequisite courses is required for continuation.

CHN 101 Elementary Mandarin (4) Listening, speaking, reading, writing, grammar. Meets one hour, four times a week. Prereq: placement test. HSL

CHN 102 Elementary Mandarin (4) Continuation of 101. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 111 or consent. HSL

CHN 201 Intermediate Mandarin (4) Continuation of 101 and 102. Meets one hour a day, four times a week. Prereq: 102 or 103 or 105 or consent. HSL

CHN 202 Intermediate Mandarin (4) Continuation of 201. Prereq: 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. Prereq: 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 learning, speaking, reading, and writing communicative needs of business professionals in the Chinese business context. Prereq: 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 speak at the paragraph level. Prereq: 102 or 105 or 112 or consent. HSL

CHN 212 Intermediate Conversational Mandarin II (3) Continuation of 211. Prereq: 201 or 211, or consent. HSL

CHN 251 Reading and Writing Chinese I (3) For students who have passed 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. Prereq: 212 or consent.

CHN 252 Reading and Writing Chinese II (3) Continuation of 251. Prereq: 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. Prereq: 202 or 204 or 252; or consent.

CHN 302 Third-Level Mandarin (4) Continuation of 301. Prereq: 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. Prereq: 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 business context. Prereq: 205 (or equivalent) or consent.

CHN 311 Mandarin Conversation (3) Systematic practice on everyday topics of conversation. Lab work. Prereq: 202 or 204 or 252; or consent.

CHN 312 Mandarin Conversation (3) Continuation of 311. Prereq: 311 or consent.

CHN 319 Chinese Dialect Studies (V) Advanced Cantonese or other Chinese dialects. Repeatable one time. CR/NC for native Chinese speakers. Prereq: 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. Prereq: 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 website. Ideal for in-service professionals seeking language development and maintenance. Repeatable one time. Prereq: 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 that of some standard courses. CR/NC only. Repeatable unlimited times. CR/NC only.

CHN 401 Fourth-Level Mandarin (4) Extensive reading in academic topics. Meets one hour a day, four times a week. Prereq: 302 or 303 or 305; 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. Prereq: 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. Prereq: 305 (or equivalent) or consent. (Spring only)

CHN 411 Advanced Mandarin Conversation (3) Systematic practice on academic topics of conversation. Lab work. Prereq: 302 or 303, or consent.

CHN 421 (Alpha) Chinese Translation (3) Training in techniques; theory of translation. (B) Chinese–English; (C) English–Chinese. Prereq: consent. (Cross-listed as TI 420(Alpha))

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. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 202 or 204; or consent. DH

CHN 453 Study of Chinese Characters (3) Origin, structure, and evolution. Prereq: 402; 461; or consent. (Alt. years)

CHN 454 Study of Chinese Characters (3) Continuation of 453. Prereq: 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. Prereq: 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–English; (C) English–Chinese. Prereq: consent. (Cross-listed as TI 456)

CHN 470 Language and Culture of China (3) Extensive exposure—chiefly through tape recordings, classroom conversation, and outside readings—to history, culture, and institutions. Prereq: 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. Pre: short stories; (C) poetry and drama; (D) novels and essays. Repeatable two times. Pre: 402 or consent. Key: Alpha.

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. Key: FL.

CHN 499 Directed Fourth-Level Reading (V) For those who need special assistance; i.e., 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); or 452 or consent for (C).

CHN 633 Chinese Dialects (3) Synchronic description of a Chinese dialect other than Cantoneses 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, verbal constructions. Interaction between syntax and semantics. Pre: 452 or consent.

CHN 642 Contrastive Analysis of Mandarin and English (3) Pre: 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, teaching 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; (C) teaching and testing 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 literacy 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). Pre: EAL 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: 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.

CEE 270 Applied Mechanics I (3) Forces, resultants, and statics of particles, frames, trusses, 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.

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; estimation 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 of steady flow. Application of steady flow concepts to various fluid processes; with an emphasis on instruction in writing lab reports. A-F only. Pre: MATH 244 or MATH 253A.

CEE 330 Environmental Engineering (4) (3 Lec, 1.2-hr Lab) Water quality factors, standards and regulations; environmental impact, protection, and pollution control; water and wastewater regulations and engineering design. A-F only. Pre: MATH 244 or MATH 253A.

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, groundwater, settlements, compressibility, consolidation, shear strength. Substantial emphasis on writing lab reports. A-F only. Pre: 320, 370, DP


CEE 370 Mechanics of Materials I (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). DP

CEE 370L Mechanics of Materials Lab I (1) Tension, compression, and torsion of bars, and bending of beams. A-F only. DP

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 (or concurrent); 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 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 floodplain 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, jet transport, and transport in rivers, reservoirs, groundwater and estuaries; non point source pollution. A-F only. Pre: 320, and MATH 244 or MATH 253A (or equivalent). (Alt. years) DP

CEE 424 Applied Hydrology (3) Surface water hydrolgy 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, floodplain, and coastal freshwater 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; wastewater 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 major inorganic and organic 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 related 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 450 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 shake 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 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 472 Construction Project Management (3) Introduction to the management of construction. Construction supervision, contract documents, estimating and bidding, organization, planning and scheduling, administration, business methods, safety, and labor. ENGR majors only. A-F only. Pre: 375. (Cross-listed as ARCH 432)

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: senior standing and consent.

CEE 476 Construction Planning and Scheduling (3) To teach the theory and the practice of planning and 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 studies, computer, and project. Pre: 375. DP

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 (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) 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 (5) 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 courses. A-F only. Pre: 476 (or equivalent) (with a minimum grade of B-), and consent.

CEE 602 Construction Scheduling and Claims (3) Precedence networks, CPM, float, updating, resource leveling, cost scheduling, scheduling case studies, computerized scheduling, exclusion reports, sorting, contract project; contract law, types of claims, proving claims, delay claims, impact of changes, Eichley 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 such as earned value analysis, probabilistic cost estimating, construction risk management, construction quality control, and operations research in construction. Recommended: 472 or 474, or consent.

CEE 606 Process Simulation (3) Analysis of operations and construction processes; CYCLONE simulation language; MicroCyclone and EZstrobe software; production rates; queue waiting time, resource utilization; throughput; cost measurements; production costs; Pre: CEE MA and EE majors only. Graduate students only. A-F only. Pre: (with a minimum grade of C) 474, 476, and consent. (Spring only)

CEE 614 Negotiation and Alternative Dispute Resolution (V) Leveraging interest-based negotiation to get 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. (PAT) technology, in-situ bioremediation, soil vapor extraction, air sparging, electrokinetics, hydraulic fracturing, reactive wall, and soil vapor injection. A-F only. Pre: 627 or consent. Co-requisite: 664 and 635. (Fall only)

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) Examines 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 621 Fluid Mechanics (3) Theory of fluid dynamics in different domains, controlling equation of motion, vortex generation, flow in rotating frame, potential theory, laminar flow, and introduction to turbulence. Key to symbols & abbreviations: see the first page of this section.
COURSE INDEX

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polarization from practical/theoretical standpoints. A-F only. Pre: 635 or consent.

CENG 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)

CENG 651 Deep Foundations (3) Analysis and design of deep foundations; driven piles and drilled shafts. A-F only. Recommended: 455 or consent. (Alt. years)

CENG 652 Experimental Soil Mechanics (3) Advanced laboratory testing and application of analyses using test data for solution of a hypothetical geotechnical problem. A-F only. Recommended: 455 or consent. (Alt. years)

CENG 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)

CENG 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)

CENG 655 Slope and Earth Structures (3) Classification of landslides and triggering mechanisms; field investigation procedures; limit equilibrium slope stability methods; numerical techniques; slope and dynamic considerations; case studies. A-F only. Recommended: 455 or consent. (Alt. years)

CENG 656 Marine Geotechnics (3) Principles of geotechnical engineering applied to marine environments: marine geology; sampling and sampling methods; seabed sediment types, properties, and behavior; scour, erosion, and sediment transport; coastal and offshore foundations; seafloor stability; dredging and wastewater disposal. A-F only. Recommended: 455 or consent. (Alt. years)

CENG 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)

CENG 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)

CENG 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: 455 or consent. (Alt. years)

CENG 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, and logistics. Open to engineering students. Computer applications and labs. Recommended: 462 or 464, or consent.


CENG 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.

CENG 671 Continuum Mechanics (3) Cartesian tensor notation and mathematical foundations; 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)

CENG 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; team building, change and culture in construction organizations; competitive bidding. A-F only. Pre: consent.


CENG 677 Smart Structures Technology (3) Fundamentals of smart structures and marine 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)

CENG 681 Advanced Reinforced Concrete Design (3) Slender columns; bracing elements; combined shear and torsion; building structural design frame analysis and design—shearwalls, flexible walls. Floor system analysis and design—flat slabs, joist systems. Computer applications. A-F only. Recommended: 485 or consent.

CENG 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; connections; and gusset plates. A-F only. Recommended: 482 (or concurrent) and 486, or consent.


CENG 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.

CENG 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)

CENG 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.

Key to symbols & abbreviations: see the first page of this section.
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 and supervised 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.

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, associated 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 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) DS

COM 475 Global Communication (3) Problems and opportunities of communication in a variety of international contexts. Focus on commerce, diplomacy, 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, practical and theoretical production. Pre 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 evolution 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 342 or 438; or consent.

COM 480 Communication Seminar (3) Application of theoretical 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 498 (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 concepts 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 as a viable alternative to 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 interventions 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 702 Communication/Information Technologies (3) Technological and social change and its impact on researchable questions. Topics will vary. Pre: consent.

CIS 703 Communication/Theory of Society (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 Trancription of English speech sounds; phonological development 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 acquisi-
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 utilizing 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 nature 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 theory, research and communication patterns in the evolution of culture, based on both constructive and destructive. 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, research and development of obtaining reliable information from others. Pre: one of 151, 170, 181, 185, 251 or 301; or consent. DS

COMG 392 Evolution and Human Communication (3) Survey of the role of human communication in mate attraction, intrasexual competition, cooperation, family dynamics, and coalition formation; discussion on the biological function of language, laughter, emotion and expression. Pre: one of 170, or 181, or 301 (or concurrent), or 302 (or concurrent). DS

COMG 395 Research on Communication Behavior (3) Survey of research on communication behavior. Verbal and nonverbal data collection; analysis; research design and implementation of a research project. Repeatable three times. Pre: 301 and 302. DS

COMG 399 Internship (V) Application and analysis 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 parliametary debate theory and organization 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: consent. DS

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 action, 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 302; or consent. DS

COMG 464 The Evolution of Public Discourse in the Digital Era (3) Analysis of evolving public discourse and about cyberpace; 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. 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. Focus on communication management, deception, jealousy, privacy, communication of emotions. Pre: 301 or 302 (or concurrent), and 381; or consent. DS

COMG 490 Communication in Helping Relations (3) Emphasis upon interpersonal and interpersonal elements affecting communication of human-service professionals. Supervised practice, video lab. Pre: one of 151, 251 or PSY 100. (Cross-listed as PSY 477) DS

COMG 493 Teaching Speech (6) For communicators who lead, under supervision, a freshman seminar section of communicology. Pre: senior standing and consent.

COMG 495 Health Communication (3) Develop understanding of the processes through which communication influences health outcomes, and learn how to design effective health communication programs using theory and research. 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 Kommunicology (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 Kommunicology (3) Introduction to methods of research in the field of Kommunicology. Pre: consent. DS

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 environments. Emphasis on development training in educational settings. Pre: 601 (or concurrent) or 602 (or concurrent), or consent.

COMG 752 Research in Intergroup Communication (3) Theory, concepts, research, and application of communication processes between members of different social groups. 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 787 A.I. and Communication (3) Comprehensive understanding of the role and function of computer technology (including, A.I.) within the field of communication. Basic methodological and analytical issues of research related to semi-intelligent artifacts as information receivers. COMG majors only or consent. Graduate students only. A-F only. Pre: 601 (or concurrent) and 602 (or concurrent) 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 415 Clinical Nutrition (3) Overview of applied clinical nutrition that includes nutrients, dietary recommendations for healthy populations,
and medical nutrition therapies for patients with related diet conditions or diseases. Repeatable one time. Junior standing and higher. Pre: CHEM 151 (or higher) or BIO 241 (or higher); PHYL 141 or ZOOL 141; highly encouraged: FSHN 185 or any other basic nutrition course.

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)**

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 Teaching and Learning for Diverse Young Children (Continuation of 415) (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 Teaching and Learning for Diverse Young Children Lab (Lab 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 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 preschool programs for infants and toddlers, including criteria for evaluation and planning. Pre: FAMR 250 (or concurrent), FAMR 351 (or concurrent); or consent. (Cross-listed as SPED 451)

EDCS 453 Gender Issues in Education (3) Examination of current 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: ITEC 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 lifespan within various social contexts. Textual analysis, sociological, and cultural foundations of reading; 21st century literacies; emergent literacy; diversity; multilingual learners, formative assessment; state/national initiatives. Pre: student teaching or teaching experience or consent.

EDCS 602 Advanced Topics in Writing and Oral Language (3) Current theories and teaching strategies of writing and oral language throughout the lifespan within various social contexts. Focus on teaching writing and oral language as tools for learning and to demonstrate learning. Pre: student teaching or teaching experience or consent.

EDCS 603 Children’s Literature in the Elementary Curriculum (3) In-depth examination of traditional and current books/media, birth through young adult, with emphasis on applications in schools or other educational contexts. Focus on use of narrative, exposition, and other genres across the curriculum. Pre: student teaching or teaching experience or consent.

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 Literacy Coaching and Leadership (3) Exploration and application of literacy specialist roles. Includes teaching, coaching, providing resources, advocating for all students, and collaborating with other professionals. 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 Leadership (3) New approaches to analyzing 21st century literacies K-12, including visual, media, digital, and critical literacies as well as developing leadership practices in multi-literacies pedagogy. A-F only. Pre: consent.

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 application of selected early childhood education program and/or instructional materials. Restricted to majors. Repeatable two times. Pre: 415 and 416, or consent.

EDCS 619 Social and Cultural Constructions of Childhood (3) Seminar examines the interrelated socially constructed concepts of children and childhood and places them in the larger contexts informed by sociological, anthropological, historical, critical, and technological perspectives. A-F only. Graduate students only.

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 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 art and problem solving art in elementary school curriculum development and current approaches in art education. Materials and techniques in art media. Pre: student teaching or teaching experience.

EDCS 628 Function of Play in Early Childhood Education (3) Review of research and theory of play as a function of early childhood education. (Summer only)

EDCS 630 Cultural Diversity and Education (3) Examines issues, theories, perspectives and practices in multicultural education and their importance to multicultural education. A-F only. Pre: consent.

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 resources related to art education and studio art in 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, BEd,
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 curricula. A-F only. Pre: consent.
EDCS 640 (Alpha) Seminar (3) Study in trends, research, and problems of implementation in teaching field. (C) English; (F) mathematics; (I) literacy; (J) science; (K) social studies; (M) interdisciplinary education and 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, Instruction, and Intervention (3) Application of formative assessments to better monitor/guide struggling readers and writers. Topics include diversity and state/national initiatives. A-F only.
EDCS 647 Classroom and School Literacy Assessment (3) Advanced use of formative and summative assessments to monitor/lead classroom and school literacy programs. Focus on diversity, leadership, state/national initiatives, and practical applications in schools or other educational contexts. A-F only. Pre: 646 or consent.
EDCS 648 Reading for English Language Learners (3) Study of 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: 681 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, learning, and teaching; (E) geometry and measurement; (F) probability and statistics; (G) 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 of key 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 before 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 EDEF 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 research, 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 LTEC 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: 695 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 analysis 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 new disciplinary perspectives on research on teaching and learning and 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 Instruction: Theoretical 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 LTEC 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
Key to symbols & abbreviations: see the first page of this section.

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 141 Jazz Dance Technique (1) Introduction to jazz dance technique. Repeatable two times. DA
DNCE 142 Ballroom Dance (1) Introduction to those with or without ballroom dance experience. Students will learn the fundamentals of various ballroom dances. Repeatable five 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 rhythm 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: 31 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 students to 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) Multimedia overview of world dance forms, with emphasis on Asia and the Pacific, and related concepts. Pre: sophomore standing. 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 281 Masters Thesis 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 Indonesian 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 I Ch’i 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 in 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. (Consort 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) Introduc- tory 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) Improvisa- tion 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 I (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 I (1) Performance and techniques at intermediate level. Repeatable up to eight credits. Pre: 303 or consent. DA

DNCE 404 Indonesian 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 I (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 I (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 movement techniques according 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) Train- ing actors to discover experimentally the sources of movement; to teach skills for analyzing movement for its mechanical, anatomical, spatial, and dynamic content; and to 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 Baronienni 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 development 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 development of the Baroque and post-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, draping, 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 directions. Pre: 490, THEA 470, or consent. (Alt. years) (Cross-listed as THEA 458) DA

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. DA

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: audition or 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 exhibits 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 candidate consent. DA

DNCE 617 Seminar in Performance Studies (3) Special topics. Repeatable up to two times when topics change. Pre: THEA 615 or consent. (Cross-listed as THEA 617) DA

DNCE 651 Seminar in Dance Research (3) Research methods and materials; preparation for thesis and scholarly research reporting. Required for graduate concentrations in dance. (Alt. years) DA

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) DA

DNCE 654 Dance and Performance Theory: Asia (3) Dance content and historical and cultural context of principal dance traditions. Pre: graduate standing or consent. (Alt. years) DA

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) DA

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 671 Advanced Choreography (3) Advanced artistic and creative study. Pre: 372 or consent. (Alt. years) DA

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. Repeat- able one time. Pre: 371, 372; or consent. (Alt. years) DA

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 concur- rent); 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) DA

DNCE 692 Practicum in Teaching (V) Supervised teaching experience at the introductory or under- graduate level. Students will teach an appropriate level course in their field of expertise under faculty supervision. Repeatable up to nine credits. THEA or DNCE majors only. (Cross-listed as THEA 692) DA

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)
Dental Hygiene (DH)

School of Nursing and Dental Hygiene

Dental hygiene course 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 oral and 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: 231L. DY

DH 232L Basic Dental Hygiene I (1) 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 240L Basic Dental Hygiene Lab/Lab (1) (1-2 hr-Lab) Laboratory and clinical experience in basic dental hygiene skills and competencies including 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 241L Basic Dental Hygiene Lab/Lab (1) (1-6 hr-Lab) Laboratory and clinical experience 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: 240L, 240L, 241L, 242L. DY

DH 242L Basic Dental Hygiene Lab/Lab (1) (1-4 hr-Lab) Laboratory and clinical experience in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and support procedures. A-F only. Pre: 238 and 238L. Co-requisite: 240L, 240L, 241L, 242L. 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/Lab (Clinic) (1) (1-3 hr-Lab/Clinic) Preparation and evaluation of radiographic survey of patients with varying dentition; methods and indications of intra-oral and roentgenographic sections, and oppositions in application of roentgenays. A-F only. Repeatable one time. Pre: 231. Co-requisite: 281L.

DH 361 Health Education and Promotion (2) Provides an overview of the concepts and application of health education and health communication 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 of disease and causative agents and associated alterations of tissues, 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. (Fall only) DB


DH 369L Dental Materials Lab/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: 369L.


DH 370L Expanded Functions Lab/Lab (Clinic) (1) (1.5-2 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 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 381 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 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 and immunomodulatory 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 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 475L Advanced Dental Hygiene I Clinic A (1) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-aimed 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, 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-aimed 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, 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-aimed 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, and 478L. (Fall only)
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 481L. 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: 480L, 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: 480L, 481L, 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: 480L, 481L, 482L, 483L. (Spring only)

DH 499 Directed Reading, Field Work, or Research (V) Individualized program of directed reading, field work (in periodontics) for major under supervision in related areas of dentistry and dental hygiene. Pre: consent.

Developmental and Reproductive Biology (DBR)

School of Medicine

The minimum grade required for undergraduate prerequisites is a C or better, and graduate prerequisites is a C (not C-) or better.

DBR 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)

DBR 613 Seminar in Developmental and Reproductive Biology I (1) Presentations of current research carried out by developmental and reproductive biology graduate program faculty.

DBR 614 Developmental and Reproductive Biology Scientific Investigations (3) Discussion of current research in developmental and reproductive biology.

DBR 650 Stem Cell Biology (3) Seminar designed to teach graduate students and advanced undergraduates 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 PHYTL 604, or consent. (Spring only)

DBR 660 Applied Developmental and Reproductive Biology (3) Introduction to 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)

DBR 695 DBR Research Rotation (3) Introductory laboratory research experience under the supervision of faculty. Repeatable two times. A-F only.

DBR 699 Directed Research (V) Research experience in developmental and reproductive biology. Repeatable principles are required for continuation.

DBR 700 Thesis Research (V) Repeatable unlimited times.

DBR 800 Dissertation Research (V) Repeatable unlimited times.

Disability and Diversity Studies (DIS)

College of Education

DIS 363 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 and bad practice. 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 673 Ethics and Professional Conduct (3) Focuses on content on the Behavior Analysis Certification Board’s code for ethical conduct as well as advanced concepts, principles, and processes of applied behavior analysis. 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 1 credit. 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 682 Special Topics in Disability and Diversity Studies (V) Explores disability and diversity across time to gain an understanding and context of issues such as difference, culture, identity, community, privilege, and oppression and how the past affects the present and future. Repeatable two times. 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 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.

Key to symbols & abbreviations: see the first page of this section.

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 700 Portfolio Field Experience (V) Portfolio field experience provides a community experience and portfolios 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.

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 research proposal. Repeatable one time. (Once a year)

East Asian Languages and Literatures (EALL)

College of Languages, Linguistics and Literature

All students taking language study in an institution part-time for the first time must take a regularly scheduled placement test in the appropriate language, thus with no background must come to the department office for a brief interview. A grade of C or better in the prerequisite course is required for continuation.

EALL 140 Introduction to Chinese Language and Culture (3) Provides students with interesting perspectives 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 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)

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)

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 (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, 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 modernity 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 and cultural relationships 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, exhibitions, and other visual material depending on availability. Pre: any 300- or 400-level DH or DL course. (Cross-listed as ASAN 473) DH

EALL 474 Transnational Chinese Popular Culture (3) Survey 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 DH or DL 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 proficiency; film. Pre: one DH or DL course, or consent. 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: CHIN 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: CHIN 402 for (C); JPN 407 (alpha) for (J); KOR 402 for (K).

EALL 611 Topics in 20th Century Chinese 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 ASAN 612)

EALL 647 Contemporary Chinese Documentary Research, Expressions, Cultural Space (3) Introduction to contemporary Chinese independent documentary with these goals: to achieve in-depth understanding of Chinese society through documentary; be familiar with theoretical debates on documentary form; and understand documentary as a cultural discourse. Pre: 473 or 476, or instructor consent. (Alt. years: fall)

EALL 691 Introduction to Classical Tibetan (3) Introduction to Classical Tibetan grammar and vocabulary with selected 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 755 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: CHIN 451, CHIN 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 trade, 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 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 role 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: the value of 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. Prereq: 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. Prereq: 130, 131, or HIST 151, or HIST 152; or consent. (Alt. years) (Cross-listed as HIST 342) DH

ECON 350 Sustainable Development (3) Trans-disciplinary 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, and decision-making. Topics include: sustainable development, environmental economics, and policies; and the political and economic consequences of the internet and other large networks. Prereq: 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. Prereq: 120, 130, or 131; or consent. DS

ECON 358 Environmental Economics (3) Nature and causes of environmental degradation; ecosystem 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. Prereq: 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 experience. Repeated twice. Prereq: consent. 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. Prereq: 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 twice. Prereq: 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. Repeated twice. Prereq: consent.

ECON 396 Contemporary Topics in Economics (3) Economic analysis of current events. Topics announced each semester. Repeatable unlimited times. Prereq: 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. Prereq: 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. Prereq: 120 or 130, or consent. (Once a year) DS

ECON 412 Economic History of the United States (3) U.S. economic history over four periods: government policies, industries, financial markets, economic growth, economic crises. Prereq: 120, 130, or 131; or consent. DS

ECON 414 Global Economic Crisis and Recovery (3) Causes and consequences of financial and economic crises: crisis, recovery, and global transmission; macroeconomic and regulatory policy responses; recovery challenges. Prereq: 120, 130, or 131; or consent. DS

ECON 415 Asian Economic Development (3) History and economic development. Resource, population, and income, saving, investment, and consumption patterns. Role of government and private enterprise. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 300, 301; MATH 205, MATH 215, MATH 251A, MATH 251B, or consent. 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, and tests. Prereq: 120, 130, or 131; or consent. DS

ECON 427 Economic Forecasting (3) Forecasting methods and business 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. Prereq: 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 Economics (3) Spreadsheet design, modeling, and forecast evaluation. A-F only. Prereq: 300 or 301 or consent. (Cross-listed as WS 361) 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. Prereq: 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. Prereq: 300 or 301 or consent. DS

ECON 442 Development Economics (3) Theoretical foundation and empirical evidence for analyzing key issues facing today’s developing world. Topics include characteristics of underdeveloped economies, economic growth, structural change, poverty, inequality, education, population growth, foreign aid and financial sector. Prereq: 300 or 301, or consent. DS

ECON 450 Public Economics (3) Welfare economics, public expenditure and policy evaluation, public finance by debt and taxes. Prereq: 301. DS

ECON 452 State and Local Finance (3) Fiscal institutions, operations, and policy questions within state and local governments and their public programs, and other links with central government. Prereq: 301. DS

ECON 458 Project Evaluation and Resource Management (5) Principles of project evaluation and policy analysis, Shadow pricing, economic costs of taxes and tariffs; public policy for exhaustible, renewable, and environmental resources. Prereq: 301. DS

ECON 460 International Trade and Welfare (3) Theory of international specialization and exchange; general equilibrium, tariffs, quotas, common markets. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 300 or 301. 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. Prereq: minimum GPA of 3.0 in economics and consent. DS

ECON 500 Master’s Plan B/C Studies (1) Repeatable unlimited times.


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) Neo-classical 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 equilibrium; 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 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 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 information 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 Econometrics (3) Sets, functions, limits, 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 preparedness, 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. Evaluation 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 657)

ECON 638 Environmental Resource Economics (3) Principles of policy design and evaluation for environmental resource 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; output, price, and exchange rate determination, international aspects of growth and economic fluctuations, alternative exchange rates 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, interest rates and exchange rates, models of exchange rate determination, capital flows, balance of payments crises. Pre: 607 and 629, 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 mechanisms; private and public demand for health, health insurance, and medical care; provider behavior. Pre: 604 (or concurrent) or 606 (or concurrent), 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) Repeatable unlimited times. Pre: consent of department chair.

ECON 730 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.

ECON 799 Internship in College Teaching (V) Internship in 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.


Education (EDUC)

EDUC 616 Prevention of School Violence (3) Examines cultural and societal factors contributing to and extent of violence in schools, and outlines school-wide education in physical 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 at 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 consultation 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 development of an 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 Education 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) Internship in 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.

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 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, research models, 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 research 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, organization of school-community information program.

EDEA 620 Education Finance (3) Educational revenues, apportionments, budgetary procedures, costs, 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 instructional systems and computer technology in educational planning, policy analysis, decision-making, and program assessment. Pre: LTEC 442 and consent.

EDEA 645 Principles of School Leadership (3) Examine the emergent theories, issues, practices, and problems relevant to educational leaders in school organizations. Integrates the aspects of management and administration within the context of leadership.

EDEA 646 American College Student (Study) (3) Psycho-social characteristics of the American college student and development, 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, communication, 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 development 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) 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 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 psychological adult learner; factors that affect learning in dynamics of individual, group, and organizational behavior; concept of lifelong learning vis-a-vis development of creative strategies that assist mature, self-directed persons to develop their potentialities. (Cross-listed as EDEF 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 679, or consent. (Cross-listed as EDEF 767)

EDEA 775 Seminar on the Principalship (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 B 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 sociocultural contexts of education with an emphasis on identifying, analyzing, and deliberating on contemporary ethical issues, 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 this course. 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 intergroup 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, etc.

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 501 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, perspectives, and practices in multicultural education. Encourages critical thinking, 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-Supported Topics (3) Multi-disciplinary (historical, philosophical, social/cultural and comparative/international) focus on topical issues in education; (A) governance and policy/legislation; (B) educational policy and governance in education; (D) educational reform; (F) foundations of teaching; (G) globalization in education; (H) moral political education. Repeatable one time for (A); 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, an examination of 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 legal and ethical theories, 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 multicultural/multilingual 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 society. 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 understanding 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 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 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)

EDEP 201 Introduction to Teaching as a Career (3) An experience-based introduction to teaching as a career. Repeatable unlimited times. Pre: consent of department chair.

EDEP 311 Psychological Foundations (3) Principles of learning and individual differences; relationships of these factors to classroom experience. DS


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. Pre: PSY 200 or consent.

EDEP 429 Introductory Statistics (3) Use of descriptive statistics in analyzing test scores; application of linear correlation and 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 objective.)

EDEP 603 Design and Analysis of Psychological Experiments (3) Analysis of variance and other designs and their influence in educational research. DS

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, ANCOVA with repeated measures. A-F only or consent.

EDEP 605 Structural Equation Modeling (3) Theories and applications to test models with manifest and latent variables. Topics include path analysis, factor analysis, variable analysis, Pre: 604, PSY 610, 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 Models 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, PSY 610, 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; item response theory; and applications in research. Class requires knowledge in ANOVA and regression. (Cross-listed as PSY 616)

EDEP 616 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 items 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 validity, summative uses, planning and design approaches, and meta-evaluation processes. A-F only. Pre: 608 (or equivalent).

EDEP 661 Development and Learning (3) Analysis of development 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 interactional 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 pre-requisite to effective social interaction in educational settings.

EDEP 699 Directed Research and/or Research (V) Individual reading and/or research. Repeatable unlimited times. Pre: consent.

EDEP 700 Thesis Research (V) Research for master's thesis. Repeatable unlimited times.


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) psychosocial development; (M) education; (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.

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, except as noted. EE 101 Electrical Engineering Skills (3) Electrical engineering subjects in a skill acquisition context at the freshman level and a 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 types, simple searching and sorting techniques. CEE, EE, ME, PREM 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 252 (or concurrent), and PHYS 272 (or concurrent). Pre: 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). Pre: 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 110 or ECS 111 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) Semiconduc-

tor structures, operating principles and characteristics of devices, their applications 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. DV 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 charging and discharging of capacitors by transport. Metal-semiconductor and PIN junctions. Pre: MATH 243 or MATH 253A, and PHYS 274; or consent. DP EE 326 Microelectronic Circuits II (3) Principles and design of linear and logic electronic circuits including differential, operational, feedback, and tuned amplifiers; integrated circuits, current mirrors, signal generators, filters, and stability. Pre: 325. 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. DV EE 327 Theory and Design of IC Devices (3) Band structure models and carrier transport physics review. Theory and design of IC devices: Schottky diodes, bipolar devices (PN junction diodes, BJTs), FETs (MOSFETs, JFETs, and MESFETs). Pre: 324 and either MATH 245 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: 328. DP EE 328L Microcircuit Fabrication Lab (1) (1 3-hr Lab) Hands-on laboratory where students make various electronic and electromechanical micro-devices using IC technology. Devices are also tested and analyzed. Pre: 324 or consent. Co-requisite: 328. DV EE 342 Probability and Statistics (3) Probability, statistics, random variables, distributions, 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, and angle and angle modulated systems; sampling theorems, pulse and digital modulation systems; carrier modulation by digital signals. Pre: 342 (or concurrent) and 315. DP 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 curriculum. Internet experience with routers and switches; prepares students for the CCNA. Topics include TCP/IP, LAN, WANs, routing protocols, network security; PPP, ISDN, frame relay; internet relay, etc. Pre: 160 or consent.


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 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: 205 (or concurrent).

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) (3 Lec, 1 3-hr Lab) Digital image processing; 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 distribut...
Efficient 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. Pre: 414 or equivalent. RIS. 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 design patterns, object-oriented 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, assembly language, 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 for mobile agents. 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 solve electromagnetic design problems focusing on electromagnetic techniques. Finite difference, method of moments, and finite elements methods will be described; students will write computer programs in each. 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 or consent.


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: 372 or consent.

EE 477 Fundamentals of Radar, Sonar, and Navigation Systems (3) Discussion of basic radar detection and position-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 biomedical and medical problems. Introduction, 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 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. Topics 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 engineers with the necessary background for ethical reasoning, as it pertains to technology, society, workplace issues, and the environment. Pre 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 standards and realistic constraints. Written report must document all aspects of the design process: reliability, safety, economics. 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 1 (3) Design and evaluation of machine representations, techniques and algorithms for sorting, pattern recognition, 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 autonom- ous 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 ECS 313 (or equivalent), graduate standing, or consent. (Once a year) (Cross-listed as ECS 606)

EE 607 Advanced Network Algorithms (3) Network algorithms, protocols, and packet switching systems for the Internet including TCP/IP, routing algorithms, transmission, internetworking, 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 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 signal processing and applications. Topics include fast DFT algorithms, multirate systems and filter banks, power spectrum estimation, linear prediction, optimum linear filters, and adaptive filtering. A-F only. Pre: 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 problems, 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) Pre: MATH 311. Multiple criteria 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 621 Advanced Solid-State Devices (3) Advanced physics and principles of 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 642 Detection and Estimation Theory (3) Fundamentals of signal detection and estimation theory. Hypothesis testing, parametric and nonparametric detection, sequential probability ratio test, 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, intentional jamming.

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 668 Telecommunication Networks (3) Telecommunication-network architecture; switching, broadcast, and wireless networks; protocols, interfaces, routing, flow- and congestion-control techniques; intelligent networks; 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 681 Biosensors and Bioelectronics (3) Advanced topics in the design of biological detection technologies. Topics include fundamentals of electrochemistry, electrochemical biosensors, DNA and protein biosensors, and biocatalysis 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 static and nanoscale microelectronics, micromachined micromirrors 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. Voltterra series, Wiener series, Poisson-Wiener series, multichannel data, causality. CE, EE, ME, ICS, MATH 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 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.


Engineering (ENGR)

College of Engineering
Preference in registration is given to declared engineering majors.

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 growth, and the development of cognitive experiential classroom methods and mentor-student 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 Language, 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, research 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
ENGL 200 and 209 are courses in intermediate expository writing.

ENGL 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. Pr: FW.

ENGL 209 Business Writing (3) Practice in informative, analytical, persuasive writing. Pr: FW. Students may not earn credit for both ENGL 209 and BUS 209.

ENGL 270-273 courses fulfill the UH Mānoa General Education Diversity in Literature (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.

ENGL 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. Pr: FW. DL

ENGL 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. Pr: FW. DL

ENGL 272 Introduction to Literature: Culture and Language (3) Study of significant works of selected cultures and linguistic traditions. A significant portion of class time is dedicated to writing instruction. Repeatable one time. Requires a minimum of 4,000 words of graded writing. Pr: FW. DL

ENGL 273 Introduction to Literature: Creative Writing and Literature (3) Study of significant works through analytical and creative writing. Repeatable one time. Pr: FW. No waiver. DL

ENGL 300 Introduction to Rhetoric (3) History of theory and practice of rhetoric from Classical to contemporary periods; e.g., Plato, Aristotle, Cicero, Quintilian, Augustine, K. Burke, D. Man. Pr: one ENGL DL course or consent. DL

ENGL 302 History of the English Language (3) Basic concepts and methods for the study of the English language; general history of the language; grammar and usage. Basic concepts and representative works fostering written and oral language. Pr: one ENGL DL course or consent. DH

ENGL 303 Modern English Grammar (3) Introduces to the structure of present-day English for native speakers of English; mastery of standard written and spoken English. Pr: one ENGL DL course or consent. DH

ENGL 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. Pr: FW and either 200 or one ENGL DL course, or consent. DL

ENGL 311 Autobiography and Writing (3) Writing traditional and multimedia essays. Pr: one ENGL DL course or consent. DA

ENGL 308 Technical Writing (3) Combined lecture/lab preparing students to write about technical subjects in written and oral media. Emphasizes technical communication and document design and teaches students to make use of relevant technology. A-F only. Pr: FW and either 200 or one ENGL DL course, or consent. DH

ENGL 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. Pr: one ENGL DL course or consent. DA

ENGL 320 Introduction to English Studies (3) Introduction to English Studies at UH Mānoa, including the purpose, practice, and potential of literary and rhetorical study of texts; consideration given to Hawaiian and/or Pacific texts in cultural and historical context. Restricted to ENGL majors/minors and Secondary Education-English majors only. Prerequisite to 400-level work for ENGL majors. Pr: 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 courses. Please reference the Registration Guide for these designated courses. English majors can use at most two "large enrollment courses" to fulfill major requirements.

ENGL 321 Backgrounds of Western Literature (3) Sources of European literary themes and allusions; myth, legend, and folklore of Western cultures; e.g., Classical texts, Arthurian romances, King James Bible. Pr: one ENGL DL course or consent. DL

ENGL 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. Pr: one ENGL DL course or consent. DL

ENGL 328 Backgrounds of American Literature (3) Focus on events, figures, and themes of American literature from 1500 to 1780. Pr: one English DL course or consent. DL

ENGL 329 19th Century Literature in English (3) Basic concepts and representative works for the study of 19th-century fiction, poetry, and drama. Pr: one English DL course or consent. DL

ENGL 331 Renaissance Literature in English (3) Basic concepts and representative works for the study of poetry, prose, and drama from 1500 to 1660. Pr: one English DL course or consent. DL

ENGL 333 Restoration/18th Century Literature in English (Except American) (3) Basic concepts and representative works for the study of 18th-century prose, poetry, and drama in English. Pr: one English DL course or consent. DL

ENGL 334 19th Century Literature in English (Except American) (3) Basic concepts and representative works for the study of 19th-century prose, poetry, and drama in English. Pr: one English DL course or consent. DL

ENGL 335 Literature in English After 1900 (Except American) (3) Basic concepts and representative works for the study of 19th-century prose, poetry, and drama in English. Pr: one English DL course or consent. DL

ENGL 336 American Literature Mid-19th Century (3) Basic concepts and representative works for the study of 19th-century prose, poetry, and drama in American literature from 1835 to 1865. Pr: one English DL course or consent. DL

ENGL 337 American Literature Mid-19th to Mid-20th Century (3) Basic concepts and representative works for the study of 19th-century prose, poetry, and drama in American literature from 1865 to 1945. Pr: one English DL course or consent. DL

ENGL 338 American Literature Since Mid-20th Century (3) Basic concepts and representative works for the study of American literature since approximately 1950. Pr: one English DL course or consent. DL

ENGL 340 The Novel (3) Basic concepts and representative works for the study of the novel. Prerequisite to 400-level work for English majors. Prerequisite to 400-level work for ENGL majors. Pr: one English DL course or consent. DL

ENGL 340 The Novel (3) Basic concepts and representative works for the study of the novel. Prerequisite to 400-level work for English majors. Prerequisite to 400-level work for ENGL majors. Pr: one English DL course or consent. DL

ENGL 346 Non-fiction Prose (3) Basic concepts and representative works 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. Pr: one ENGL DL course or consent. DL

ENGL 357 Shakespeare and Film (3) Comparative analysis of selected plays by Shakespeare and films which appropriate, reenact, adapt, or offer variations on his texts. Pr: one ENGL DL course or consent. DL

ENGL 357 Literature of Hawaii (3) Wrtings of various Hawaiian and Polynesian groups in various contemporary, songs, stories, poetry, fiction, essays that illustrate the social history of Hawaii. Pr: one ENGL DL course or consent. (Cross-listed as ES 570) DL

ENGL 371 Literature of the Pacific (3) Basic concepts and representative works for the study of the literature of the Pacific, including Pacific voyagers and contemporary writings in English by Pacific Islanders. Pr: one ENGL DL course or consent. (Cross-listed as PACS 371) DL

ENGL 372 Asian American Literature (3) Basic concepts and representative works for the study of Asian American literature by writers from a variety of backgrounds. Pr: one ENGL DL course or consent. (Cross-listed as ES 372) DL

ENGL 373 African American Literature (3) Basic concepts and representative works for the study of African American literature by writers from a variety of backgrounds. Pr: one ENGL DL course or consent. DL

ENGL 374 Race, Ethnicity, and Literature (3) Basic concepts and representative works for the study of race and ethnicity as the basis for literary inquiry. Pr: one ENGL DL course or consent. DL

ENGL 375 Philippine Contemporary Literature in English (3) Critical survey of 20th-century Philippine literature written in English; cultural values. Pr: one ENGL DL course or consent. (Cross-listed as IP 363) DL

ENGL 376 Philippine Literature and Folklore in Translation (3) Philippine folk literature translated into English; epic, myths, legends, and other folklore. Classic works of vernacular writers. Pr: one ENGL DL course or consent. (Cross-listed as IP 396) DL

ENGL 378 Native Hawaiian Literature in English (3) Basic concepts and representative works for the study of Native Hawaiian literature, ancient to contemporary, in translation and in English, that demonstrate the depth and breadth of the Native Hawaiian literary tradition. Pr: one ENGL DL course or consent. DL

ENGL 380 Folklore and Oral Tradition (3) Basic concepts and representative works for the study of folktales, legends, ballads and other folklore genres in various cultures; consideration given to folklore/literature relationships. Pr: one ENGL DL course or consent. DL

ENGL 381 Popular Literature (3) Basic concepts and representative works for the study of popular literature genres, such as detective fiction, science fiction, the thriller, the romance, and westerns. Pr: one ENGL DL course or consent. DL

ENGL 382 Gender, Sexuality and Literature (3) Basic concepts and representative works for the study of literary constructions of gender and sexuality. Pr: one ENGL DL course or consent. DL

ENGL 383 Children’s Literature (3) Basic concepts and representative works for the study of children’s literature; may include study of children’s book illustration. Pr: one ENGL DL course or consent. DL

ENGL 384 Literature and Technology (3) Basic concepts and representative works for the study of literature in relation to technological developments. May include history of the book, impact of printing and computer networks, science fiction. Pr: one ENGL 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. DH
The specific content of 400-level Studies courses varies by semester. Students should obtain the English department's full and spring course descriptions prior to enrolling. Descriptions are available on the department's webpage (http://www.manoa.hawaii.edu) a week or so before registration begins. All Studies courses require a significant research component and are writing-intensive.
ENG 404 English in Hawaii (3) English language in Hawaii's 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. Recommended: 306.
ENG 405 Teaching Composition (3) 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: ENG 405 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: 303, 306, 311, 313, 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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 410 Form and Poetry of Poetry (3) Poetic theories and techniques for students interested in writing poetry. Pre: ENG 405 or consent. DA
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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
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 the field of literary criticism and critical theory. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 421 Studies in Comparative Literature (3) Intensive study of selected problems, issues, writers, traditions, or movements in the field of 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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 422 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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 423 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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 424 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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 425 U.S. Women's Literature and Culture (3) Reading of selected works of U.S. woman'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) CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 426 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. CR/NC only. Repeatable two times. Pre: two ENG DL courses or consent. DH
ENG 427 Studies in Literary Criticism and Theory (3) Intensive study of selected problems, issues, writers, traditions, or movements in the field of
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 study 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; (D) fiction; (D) nonfiction. Repeatable one time in each English graduate degree. 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 historical criticism; (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-Romanticism.

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 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 and critical practice; 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. Repeatable one time in each English graduate degree. 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 poetry; (C) techniques in poetry; (D) techniques in creative nonfiction. Repeatable one time in each ENG graduate degree. Pre: 613 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 (B) Study of a major poet, (C) 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 literature; (E) American literature naturalism; (F) African American literature and theory; (G) American transcendentalism; (H) 19th century American novel; (I) contemporary American poetry; (J) 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 background; (T) Austen; (U) Yeats and his circle; (W) F. Dreiser; (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 and 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 novels; (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 writing and fictionalizations 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. Pre: graduate standing or consent. (Fall only)

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. (Fall 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 literatures; (C) folkloric and literature; (G) theory/practice of poetry; (H) contemporary drama; (I) mythic method; (J) modernist fiction; (M) modernist; (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.
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 DS or DH course.

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, transformation, and the Civil War and Reconstruction. Pre: one DS or DH course.

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 DS or DH course.

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 DS or DH course. (Summer only)

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 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 patterns of Pacific areas; cultural and economic imperialism, land alienation, and the impact of development on Pacific peoples. Pre: one DS or DH course.

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 DS or DH course.

ES 331 Chinese America: History, Politics, and Representation (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 DS or DH course.

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 DS or DH course.

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 DS or DH course.

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 diaspora; causes and patterns of migration, inter-ethnic relations policies; role of race, gender, culture in community, identity formation, A-F only. Pre: one DS or DH course.

ES 340 Land Tenure and Use in Hawai‘i (3) Dynamics of change: indigenous Hawaiian land tenure; Great Mahele and Kulaena Act; ethnic succession of land ownership of ownership today; effects of land development on ethnic communities. Pre: one DS or DH 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 industry; local and multinational corporations; scenarios for Hawai‘i’s future development. Pre: one DS or DH course.

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 DS course. DH
candidates are immersed in a general education, Special Education Classroom Settings (6) ESEE 353 Field Experience III: Elementary and inclusion, or a self-contained special education field setting. A mentor teacher and a field supervisor from the university provide support and oversight. A-F only.

ESEE 354 Student Teaching in Elementary and Special Education Classrooms (10) Full-time student teaching in grades K-6 in an elementary school inclusion classroom, or a combination of general education and special education settings. The experience is directed by a qualified mentor teacher and has university-supervised participation. A-F only.

ESEE 355 Seminar for Student Teaching (2) Seminar to support student teaching; designed to enhance personal and interactive leadership. Pre: 230 or FDM 200, or consent.

FAMR 341 Parenting (3) Parenting theories, methods, skills, issues, and 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 consent.

FAMR 352 Community Needs and Resources (3) Theory and practice in determining community needs and resources; community resource development based on needs identification. Pre: 230 or consent.

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 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. DS

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 (5) 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.

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, methods, and procedures in administration and supervision of volunteer services surveyed and analyzed. Pre: 352. DS

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. Pr: 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. Pr: 230, 340, 360, 380, 380L. A-F only. Pre: 492 or consent.

FAMR 499 Directed Reading and Research (V) Independent reading and research on a topic, done under supervision of faculty member working 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. Pr: 205.

FDM 216 Fashion Illustration in Motion (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, DS

FDM 221 Textiles (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. Application of 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. Pr: 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. Pr: 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. Pr: 221 or consent. Co-requisite: 321. (Spring only) DY

FDM 330 Advanced Apparel Construction (3) Principles of advanced techniques for garment construction with low and high tech-to-handle fabrics. Repeatable one time. Pr: 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.

FDM 339 3D Retail Store Design (3) Visual merchandising concepts and planning; use of a virtual 3D retail store environment; use of OptiTex Virtual Retailing/Mockshop to design store interiors, layouts, fixtures, lighting, signs, merchandising planograms, and 3D virtual garments using OptiTex. FDM majors/minors only. A-F only. Pre: 338. (Spring only)

FDM 340 Computerized Pattern Grading (3) Gerber Technology (GT) AccuMark System. The system is designed to use CAD for specific apparel industry applications in grading patterns into different sizes and making production markers. Pr: 338. Contact the 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 criticized in a group environment. Pr: 205. A-F only. Pre: Consent.

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-mortar opportunities and e-commerce 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 administrative aspects of the apparel merchandising 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. Examination of dress of China, Japan, Korea, Mongolia, Okinawa, Tibet, and Vietnam. Pr: 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. Pr: 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 course must be taken in sequence. Repeatable one time. Pr: 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. Pr: 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 document, 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 up to 12 credits. Pre: Consent.

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 empowering 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. Structured language lab. Meets four hours weekly, includes one hour out-of-class field experience (Co-curricular activities) weekly. Pre: Consent.

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 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 at the elementary and secondary levels. 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 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 1980s (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 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 pricing, hedging strategies and applications. Contemporary developments in financial engineering. A-F only. Pre: 311 or consent.


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 Economic Community. 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 the corresponding 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. (Cross-listed as ASAN 470)

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 through comprehensive analysis 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 as an urgent issue, Status and role of Asian business; current technological, economic, and financial developments; impact on world economy. Prereq: ASAN 201, ASAN 312, or BUS 314 or consent. (Cross-listed as ASAN 449)

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 management of 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. Analysis of capital movements and role of capital in internationalization 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 issues and problems. (A) Japanese financial management; (B) portfolio management theory; (C) bonds, and modern instruments. Pre: BUS 629 or consent.

FIN 657 International Financial Management (3) Financial decisions 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 659 Mortgage/Weather Derivatives (3) Cov- ers the real estate market, mortgage backed securities (MBSs) and real estate derivatives. Focuses on mod- eling weather, climate and weather deriva- tives. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

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. Research experience for students in this program. A-F only. Pre: graduate standing in Financial Engineering program, or consent. (Once a year)

FIN 688 Healthcare Financial Management (3) Focus on important accounting and financial management principles relevant to management of...
health services organizations. Designed around a series of cases that examine the issues that confront healthcare managers. A-F only. Pre: BUS 629. (Alt. years: fall only) FIN 701 Theory of International Finance (3) Concise framework of critical knowledge to understand the theory and related empirical evidence. Includes fundamentals of capital markets, capital budgeting, utility theory, asset pricing, portfolio diversification and performance evaluation, derivatives, and risk management. A-F only. Pre: Ph.D 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 Ph.D 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 Ph.D student status in international management or consent.

FIN 704 International Asian Finance (3) In-depth review of scholarly research and working papers relevant to Asian finance to prepare Ph.D students for scholarly research work. A-F only. Pre: 701 and Ph.D 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. May advance by department chair and the faculty advisor. A-F only. Pre: Ph.D 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 Introduction to Food Preparation (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: 181L.

FSHN 185 The Science of Human Nutrition (3) Integration of nutritional concepts basic to the study of human nutrition. Emphasis on nutrient requirements of healthy individuals, food sources, functions of nutrients. DB

FSHN 241 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 161L or higher. (Cross-listed as ANSC 244) DB

FSHN 311 Institutional Food Service Management and Sanitation (3) Critical and essential aspects of managing institutional food service operations and personnel in healthcare settings; understanding food and beverage purchasing procedures and inventory control for food and beverage; includes national sanitation exam. Pre: 181 and 181L (or concurrent), or consent.

FSHN 312 Quantity Foods and Institutional Purchasing (3) Food and beverage organizations, 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 (with a minimum grade of C), or consent.

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 human 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 (3) Nutritional requirements and food needs during infancy, early childhood and adolescence. One credit is provided for each age group module. One to three credits. 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 (3) 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 161/161L. Co-requisite: 381L. DB

FSHN 381L Experimental Foods Laboratory (1) Experimental approach to study food preparation problems. Applying basic food science research design to conduct experiments, interpret data and write reports. A-F only. Pre: 181/181L, CHEM 161/161L. Co-requisite: 381L DB

FSHN 389 Nutritional Assessment (2) 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. A-F only. Pre: 185 and 370 (or concurrent).

FSHN 403 Microbiology of Foods (3) Microorganisms encountered in foods; types of food spoilage; microbial hazards in food; methods of food preservation. Pre: MIRC 130 and MIRC 140L, or consent. DB

FSHN 411 Food Engineering (3) (2 Lec, 3-3-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 DY

FSHN 420 Sensors and Instrumentation for Biological Systems (3) Principles of common physical and chemical 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 161 and 161L 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: 430L (or consent). DB

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 161. (Cross-listed as ANSC 440)

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 control.

FSHN 451 Community Nutrition and Nutrition Education (4) (4 Lec) Concepts and methods of nutrition program planning and nutrition education; analysis of nutritional problems of local, national, and international communities; strategies used to educate groups or individuals. Pre: 370 and either FMAR 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) Principles and applications of food dehydration, thermal processing, low temperature processing, chemical and biochemical preservation, irradiation, packaging, manufacturing, plant sanitation, water and waste management. Pre: 403 and 430; 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: 389 and 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, computer 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 BIOL 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 ANSC, BIOL 150 or 160, 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: 480; 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, and PHYL 103 or 141 or 301. (Cross-listed as KRS 480) DB
Molecular techniques, such as PCR, DNA marker development of malnutrition. Pre: 185 or consent.

Major nutrition problems in developing countries. FSHN 633 International Nutrition (3) Chemistry. Basic food science knowledge is required; microbiology, food processing, physics and organic applications, advanced emerging topics in food safety, and controls, including laws and regulations of food packaging, labeling, sensory evaluation, and quality assurance. 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. Satisfaction only. Pre: candidacy for PhD in Nutrition.

French (FR) College of Language, Linguistics and Literature All courses are conducted in French.


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. DH 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. DH 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 repeated. DH FR 332 Survey of French Literature (3) Continuation of 331. Pre: 311 (or concurrent) and 312, only 311 may be concurrent. DH

Key to symbols & abbreviations: see the first page of this section.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>FR 358</td>
<td>Third-Level French Abroad (3)</td>
<td>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.</td>
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<tr>
<td>FR 359</td>
<td>Third-Level French Abroad (3)</td>
<td>Continuation of 358.</td>
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<tr>
<td>FR 360</td>
<td>Intensive Third-Level French Abroad (V)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 361</td>
<td>Contemporary French Civilization (3)</td>
<td>Survey of culture and institutions of modern France. Pre: 202 or 210 or 259 or consent.</td>
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<tr>
<td>FR 364</td>
<td>Survey of French Civilization (3)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 391</td>
<td>Alpha Topics in French Literature (3)</td>
<td>(B) French film; (C) the Fantastic; (D) Francophone literature. Repeatable two times with consent. Pre: 311 or 312, or consent. DL</td>
</tr>
<tr>
<td>FR 399</td>
<td>Directed Reading (V)</td>
<td>Independent study of approved reading with faculty supervision. Repeatable two times.</td>
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<tr>
<td>FR 405</td>
<td>Advanced Oral and Written Expression (3)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 406</td>
<td>French-English Translation (3)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 408</td>
<td>Masterpieces of Medieval Literature (3)</td>
<td>Samplings from epic, novel, verse and prose, tale, lyric poetry, chronicle, theater, didactic literature. Emphasis on original text in editions giving modern French translation. Pre: 331 or consent. DL</td>
</tr>
<tr>
<td>FR 409</td>
<td>Advanced Language Study: French (3)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 410</td>
<td>Masterpieces of 16th-Century Literature (3)</td>
<td>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</td>
</tr>
<tr>
<td>FR 411</td>
<td>Masterpieces of 17th-Century Literature (3)</td>
<td>Principal works of major dramatists: Corneille, Moliere, Racine. Principal movements and major authors of non-dramatic prose and poetry. Pre: 331 or consent. DL</td>
</tr>
<tr>
<td>FR 413</td>
<td>Masterpieces of 18th-Century Literature (3)</td>
<td>Pre: 332 or consent. DL</td>
</tr>
<tr>
<td>FR 421</td>
<td>20th-Century French Theater (3)</td>
<td>Major French playwrights and their works: Claudel, Giraudoux, Anouilh, Sartre, Camus, etc. Pre: 332 or consent. DL</td>
</tr>
<tr>
<td>FR 423</td>
<td>20th Century French Prose and Poetry (3)</td>
<td>Study of representative prose and poetry of the major trends of 20th century France: modernism, surrealism, existentialism, postmodernism and multi-culturalism. Pre: 332 or consent. DL</td>
</tr>
<tr>
<td>FR 458</td>
<td>Fourth-Level French Abroad (3)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 459</td>
<td>Fourth-Level French Abroad (3)</td>
<td>Continuation of 458.</td>
</tr>
<tr>
<td>FR 460</td>
<td>Intensive Fourth-Level French Abroad (V)</td>
<td>Intensive course of formal instruction on the fourth-year level in French language and literature in a French-speaking country. For semester programs only. Pre: 360 or equivalent.</td>
</tr>
<tr>
<td>FR 491</td>
<td>(Alpha) Seminar in French Literature (3)</td>
<td>(B) French literature by period; (C) Francophone literature; (D) French film; (E) topic in French literature. Repeat: 331 (or concurrent) and 352 (or concurrent), or consent. DL</td>
</tr>
<tr>
<td>FR 499</td>
<td>Directed Reading and Research (V)</td>
<td>Independent study of approved readings and research with faculty supervision. Repeatable two times. A-F only. Pre: consent.</td>
</tr>
<tr>
<td>FR 506</td>
<td>French for Reading Proficiency (3)</td>
<td>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.</td>
</tr>
<tr>
<td>FR 601</td>
<td>Seminar in 20th-Century French Literature (3)</td>
<td>Authors and movements of modern period.</td>
</tr>
<tr>
<td>FR 620</td>
<td>Masterpieces of the 17th Century (3)</td>
<td>Dramatic or prose works of the classical period.</td>
</tr>
<tr>
<td>FR 651</td>
<td>Philosophical Currents in 18th Century (3)</td>
<td>Philosophic movements and their impact on the social, political, and literary life of the period and the modern era.</td>
</tr>
<tr>
<td>FR 661</td>
<td>Advanced French-English Translation: Practice and Theory (3)</td>
<td>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. Repeatable one time.</td>
</tr>
<tr>
<td>FR 672</td>
<td>Seminar in Medieval Literature (3)</td>
<td>Genres and evolution of literary genres from the 12th to 15th centuries. Epic, romance, lyric poetry, prose, and drama. Repeatable two times with consent.</td>
</tr>
<tr>
<td>FR 681</td>
<td>Seminar: The Novel in France (3)</td>
<td>Novels which have influenced movements or established techniques. Repeatable two times with consent.</td>
</tr>
<tr>
<td>FR 690</td>
<td>The Theater in France (3)</td>
<td>Historical development; major dramatists who have influenced movements or established techniques. Pre: 6 credit hours at 400 level.</td>
</tr>
<tr>
<td>FR 699</td>
<td>Directed Research (V)</td>
<td>Repeatable unlimited times. Pre: consent of department chair.</td>
</tr>
<tr>
<td>FR 735</td>
<td>Seminar in French Literature (3)</td>
<td>Study of authors or a period. Repeatable two times with consent. Pre: consent of instructor and French graduate advisor.</td>
</tr>
</tbody>
</table>

**Geography (GEOG)**

<table>
<thead>
<tr>
<th>College of Social Sciences</th>
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<tbody>
<tr>
<td>Sophomore standing or higher is required for all 300-level courses, except noted. Junior standing or higher is required for all 400-level courses except as noted.</td>
</tr>
</tbody>
</table>

**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). |

**GEOG 102** **Survey of French Civilization (3)**

The major trends of 19th century France: romanticism, realism, symbolism, aestheticism. Pre: 332 or consent. |

**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. Pre: 101 or MET/ATMO 101 or MET/ATMO 200, or consent. |

**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 hill slopes, fluvial, 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 historical perspectives. Pre: sophomore standing or higher, or consent. |

**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. |

**GEOG 310** **Introduction to Planning (3)**

Perspectives on planning: planning tools and techniques; 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) |

**GEOG 322** **Globalization and the 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, or 151. (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 and forestry, mineral resources, energy and metal industries. Manufacturing industries in development. The network of world trade, regional associations, and international economic aid. |

**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. |

**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. |

**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 innovation in agriculture, industrial potential and institutional settlement, location patterns and rural urban symbiosis. DS

GEOG 355 Geography of South Asia (3) Introduction to physical and human geography of India, Bangladesh, Nepal, Afghanistan, and the Himalayan kingdoms. Environmental, economic, social, cultural, and political factors in development. DS

GEOG 356 Geography of Southeast Asia (3) An investigation of the development context of Southeast Asia including socioeconomic, cultural, and environmental resources. Problems and prospects for change. (Cross-listed as ASAN 356) DS

GEOG 365 Geography of the Pacific (3) Physical character of the Pacific; cultural, political, economic geography of Melanesia, Micronesia, Polynesia (except Hawaii). DS

GEOG 366 Geography of Honolulu (3) Development of Honolulu and O’ahu from 1778. Evolution of function, land use, and social patterns. Contemporaneous 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, 2 3-hr Lab) Principles of cartography; compilation and measurement from aerial photographs, alternate forms of data presentation, symbolism, design, and map projection. DS

GEOG 376 Map Design and Production (3) (2 Lec, 3-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 analyzing geographic/environmental phenomena. Topics will include data display, measurement, sampling, statistical 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: 300 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. Environmental applications. 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 MET/ATMO 101 or MET/ATMO 200 or MET/ATMO 302 or MET/ATMO 303 or MET/ATMO 310, or consent. DP

GEOG 401 Climate Change (3) Approaches to the study of past and future climate change. Pre: 101 or 400 or 402 or 405 or MET/ATMO 101 or MET/ATMO 200 or MET/ATMO 302 or MET/ATMO 303 or MET/ATMO 310, or consent. DP

GEOG 402 Agricultural Climatology (3) Analyzing climatic data; relation to photosynthesis, pheno- logical development, and agricultural cropping systems. Pre: 101 or 400 or 401 or 405 or MET/ATMO 101 or MET/ATMO 200 or MET/ATMO 302 or MET/ATMO 303 or MET/ATMO 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.

GEOG 405 Water in the Environment (3) Water flows in the environment. Occurrence and movement of water; water chemistry, water balance of soil-plant system: precipitation, interception, infiltration, runoff, soil moisture, evapotranspiration, and groundwater recharge. Pre: 101 or 300 or 401 or 402 or MET/ATMO 200 or MET/ATMO 302 or MET/ATMO 303 or MET/ATMO 310, or consent. DP

GEOG 408 Conservation and Evolutionary Biogeography (3) Theories and techniques for the analysis of spatial and temporal 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 plants for food, medicine, 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 123 and either 320 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 environmental 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) (Cross-listed as PLAN 412)

GEOG 413 Resource Management (3) (2 Lec, 1 3-hr Lab) Human use of physical 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) Introduction to 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 current impacts, objectives, 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, functional, 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 131 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 change to food security, environment and development. Open to nonmajors. Pre: junior standing or higher, or consent. DS

GEOG 424 Marine Policy (3) Introduction to the law and policies concerning the marine environment, commerce and security. Role of science, law and politics in historical and current policies for maritime trades, navigation safety, marine resources, and marine exploration. Pre: junior standing or higher, or consent.

GEOG 425 The Geography of Film (3) Landscapes of film maps. Studying 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, overfishing, pollution, shipping, trade. Pre: junior standing or higher, or consent. DH

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 Topics in Geography (3) Selected topics in geography not offered in the regular geography curriculum. Pre: 101 or 102 or 151, or consent. DS

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: 570 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) (2 3-hr Lab) Special topics: computer mapping, relief representation, map reproduction methods, use of color, key to symbols & abbreviations: see the first page of this section.
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 (Y) Internship in applied geography under professional and faculty supervision. Field placement integrated with academic study. Repeatable up to six credit hours maximum with consent of faculty and consent.

GEOG 493 Capstone Undergraduate Seminar (3) Current and historical geographical literature provides a background for local and global issues. Through discussion, written reviews, and research reports, the geographical perspective in modern life will be explored. Pre: senior GEOG major and consent.

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 405 or MET/ATMO 303 or MET/ATMO 310 or MET/ATMO 320; or consent.

GEOG 618 Human Environment Systems (3) Role and potential of systems science in analysis of human-environment systems, 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-group, and inter-gender differences in development are expanding. Graduate standing only. A-F only. (Fall only)

GEOG 621 Human Geographies of the Ocean (3) Core course in the ocean studies specialization in human geography introduces graduate students to themes and methods of human geography and cognate fields as applied to the oceans. Repeatable one time with consent.

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 630; PLAN 631; or consent.

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 ASAN 637)

GEOG 638 Asian Development and Urbanization (3) Theory of growth and sustainability in development; impacts of globalization and sustainability on development planning and policy formation, selected case studies of Asia-Pacific development. Pre: (ASAN 680 or PLAN 680) 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 philosophical 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: 654.

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 TFSS 680)

GEOG 692 Faculty Seminar Series (1) Graduate seminar required of all MA students and recommended for PhD students. Single credit course in which each faculty present ongoing research in their fields. Pre: Consent. Co-requisite: 695.

GEOG 693 Technology and Natural Risks Methods of Analysis, tools for evaluation of risks to human health from technological and natural hazards. Historical and international context of methods. Pre: 455 or consent.


GEOG 696 Research Design/Methods in Geography (3) Elements of research design, practical field experience, exposure to research and ideological, 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; (D) 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 economy 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, 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 construction of 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)

Key to symbols & abbreviations: see the first page of this section.

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.

Geography 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) Hand-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. DP

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, emissions, human nutrition and industrial agriculture. A-F only. (Spring only) DP

GG 103 Geography of the Hawaiian Islands (3) Hawaiian geography 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) (Lecture with field work) Introductory course covering the causes of, and effects from, earthquakes, tsunamis, 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

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) Structure, composition and evolution of Earth, processes responsible for formation, deformation and transformation of rocks; 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 algebra and an 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 are formal 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) continuing 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, isotopy, 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, sedimentary chemistry 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 hydrophobic-hydrophile-biophile system, origin and 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) Experimental approach to earth science; students serve as interns. Field responsibilities include supervised field work. Open to undergraduate SOEST majors. Repeatable one time. CR/NC only. Pre: junior/senior standing and consent.

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 evolution of the Hawaiian Islands will be covered. Pre: 302 and 303; or consent. DP

GG 406 Natural Disasters: Geothysics and the Layman (3) Evaluates ethical practice of geoscience as it relates to studies of natural disasters that result from geological and meteorological phenomena. Means that earth scientists interact with the laymen. Pre: 101, 103, or 170. (Once a year)

GG 407 Energy and Mineral Resources (3) Lecture and discussion on the origin, distribution and exploitation of the world's fossil fuel 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 presentations of 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: 101 and 101L, or 103, and 101L. (Fall only)

GG 413 Introduction to Statistics and Data Analysis (3) Exploratory data analysis, error propagation, probability theory and statistics, curve fitting, regression, sequence and spectral analysis, multivariate analysis, and data. Pre: 250 and MATH 242 (or concurrent) or consent.

GG 420 Beaches, Reefs, and Climate Change (3) Global and local aspects of climate change and paleoclimate; beach and reef processes and response to climate change; management of coastal environments; field study local sites. 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 (atmosphere, ocean, vegetation, land) and traces their interactions through geological history. Open to non-majors. A-F only. Pre: 200 or MET/ATMO 310, GCN 310, OEST 310; or consent. DP

GG 423 Marine Geology (3) Sediments, structure, geophysics, geologic history of coastal environments; field study local sites. Repeatable one time. Pre: 309 or consent. DP

GG 425 Environmental Geochemistry (3) Theory and applications of geochemistry to contaminant/ pollutant distribution in the hydrosphere-greosphere- biosphere system; assessment of aquatic geochemistry, thermodynamics, kinetics, organic and isotopic 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. Field: 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 454 Engineering Geology (3) Solutions of geotechnical problems by geologists and engineers through recognition, evaluation, and assessment of geologic processes that impact people, engineering structures, and engineering operations. Group format. GG and CEE majors only. Junior standing and higher. Pre: consent. (Spring only)

GG 455 Hydrogeology (4) (3 Lec, 1 3-hr Lab) Occurrence, characteristics, movement, quality, development, and contamination of water in the Earth’s crust. 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 non-majors. Pre: 200 or consent. (Alt. years) 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 terrestrial planets. Introduction to the exploration of Mercury, Venus, and Earth; impact cratering, volcanism, tectonism, geomorphology, weathering; manned and unmanned space exploration. Pre: any 100-level GG course. DP

GG 472 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; Besel Hankel functions, spherical harmonics, potential theory, plane waves, spherical waves; emphasis on underlying mathematics. 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 volcanoanology 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 672)

GG 605 lava Flow Rheology and Morphology (3) Eruption eruptions: from eruption to final flow form. Includes: rheology, effusion rate, heat loss, and field measurements, followed by inflation, flow forms, lava lake 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 Volcanism (3) Seminar exploring different aspects of submarine effusive
Key to symbols & abbreviations: see the first page of this section.

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 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 retains 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 10-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, mantle convection, geodynamics (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. (Fall 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 graduate 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: 300 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 631 Geophysics—Solid, Fluid, and Wave Mechanics (3) Continuum mechanics in geophysics, as applied to the deformation of Earth materials (elastic, viscous, viscoelastic, and plastic deformations) and seismic wave propagation (body waves, surface waves, anisotropy, and attenuation). Pre: (with a minimum grade of B-) for PHYS 170, PHYS 272, and MATH 307 or GG 312 (or equivalent). Fall only.

GG 632 Geophysics—Gravity, Magnetics, and Heat Transfer (3) Fundamental theory and practical applications of the use of gravity, magnetics, and heat conduction to probing the structure of the Earth; heat transfer via mantle convection is a major control on Earth’s internal structure. Pre: (with a minimum grade of B-) for PHYS 170, PHYS 272, and MATH 307 or GG 312 (or equivalent). (Spring only)

GG 638 Earth System Science and Global Change (3) Global view of the planet and how it functions as an integrated unit. Biogeochromical 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 Biogeochimstry (3) Stable isotope geochemistry applied to questions of biogeochemical cycling in the oceans, sediment diagenesis, palaeocenography, environmental geochimistry 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 radionuclides 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 organo-chemical rocks. Sedimentology, sedimentary petrography, and petrochemistry 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 bedded rocks over a range of pressure and 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, Magnetics, 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; application to groundwater recharges 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 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 ASTR 657 and CHEM 657)

GG 660 Introduction to the Solar System and Planetary Processes (3) Origin and structure of the 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, geochemistry of 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 and 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; tectonics; remote sensing applied to geologic phenomena; instrumental design and data analysis. (B) planets; (C) volcanoes. Pre: 660 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: 660 or consent.

GG 672 Seminar in Tectonics (3) Evolution of ocean basins, margins, foldbelts, and platforms, from plate tectonics and regional synthesis 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 paleoclimates and paleoclimate evolution of the Earth’s oceans, atmosphere and biosphere. Repeatable one time. Pre: consent. (Alt. years) (Cross-listed as OCN 674)


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 Data Exploration and Processing (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 Bayesian Data Analysis (3) Linear and nonlinear techniques for model selection, parameter estimation, simulation and forecasting, from Bayesian principles with particular attention to large data sets and sparse noisy data. 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 Fractals (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.
Key to symbols & abbreviations: see the first page of this section.
Greek (GRK)
College of Languages, Linguistics and Literature
A grade of C- or better in the prerequisite course 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 course is required for continuation. Requirement is different for HAW majors, so please see Kawaihuelani'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/Hawaiian/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 ʻOlelo Nā Ke Ola (4) Accelerated lecture/lab to bridge fluent speakers mainly from Kula Kaipuni 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 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 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 375 Ka Moʻomeheu 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 ʻOe a Kani Pono-Hawaiian Radio Broadcasting (3) Combined lecture/lab involving students in the planning and production of a weekly Hawaiian 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 recurring 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 Moʻolelo 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 ʻIlima. Pre: 320 or consent.
HAW 426 Kaʻao Hawai‘i (3) Survey of the core literature written by Hawaiian scholars, including both historical and mythological epics and folk tales. Pre: 302. DH
HAW 427 I Le‘a ka Hula 1 Ka Hoʻopa’a (Moʻolelo, Kaʻao, Mele and Hula) (3) The incorporation of mele and hula performance with moʻolelo and kaʻao. 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 344) DH
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 Nûhou Hawai‘i—Politics in Hawaiian Language Media (5) 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 456) 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‘uku: 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; (D) volleyball; (F) 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 government departments, Department of Education, and internal political struggles. Pre: 401 (or concurrent with consent).
HAW 470 Ho’omohala 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 concurrent.
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 Hanakea–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.
HAW 486 Kahua Hanakea–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 ʻOlelo No’eau (3) Survey and analysis of traditional proverbs and their koa or symbolic meanings. A-F only: Pre: 402 or consent. DH
HAW 490 Ka Makau ʻOlelo 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 competencies of the program with respect to Hawaiian language proficiency. CR/NC only. Pre: 402 (or concurrent) and 463 (or concurrent) or consent.

Key to symbols & abbreviations: see the first page of this section.
HAW 499 Directed Studies (V) Study of Hawaiian language through vernacular readings in various academic fields. Repeatable up to 6 credits. Prec. 302 and consent.

HAW 601 Kakau Mo‘olelo (3) Analyzes various genres of written Hawaiian literature. HAW majors only. Prec. graduate standing and 402, or consent.

HAW 602 Kakā‘olelo Oratory (3) A survey of oral performance styles to build increased oral skills. Prec. graduate standing and 601, or consent.

HAW 604 Haku Palapaloi Nai Laoe 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. Majors are encouraged not to take this course in their first semester of the program. A-F only. (Once a year)

HAW 605 Ka Hana No‘i‘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. Prec. 604 or consent. (Once a year)

HAW 612 Na Mana’o Politiika 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. Prec. 402, 412, 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. Prec. 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. Prec. 402 or consent.

HAW 638 (Alpha) Na Mea Kakau/Nā Haku Mo‘olelo (3) Intensive study of an individual author, his/her works and nuances of his/her works. (E.) H. Kanepu‘u; (I) S. M. Kamakau. Prec. 601 or consent. (Once a year)

HAW 643 Ke A‘o ‘Olelo 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. Prec. 401 and 452 or consent.

HAW 652 Pilina ‘Olelo (3) In-depth examination and research into the grammar of Hawaiian including discussion of theories of language and incorporation of meta-language. Prec. 452 or consent. (Once a year)

HAW 654 ‘Olelo 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. Prec. 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. Prec. 402 and 484, or consent.

HAW 695 Papahana Lāeo-o’ (V) Research for Plan B project/non-thesis. May include but not limited to the islands ceded to the U.S., and the contemporary politics that surround the region today. A-F only. Prec. 107C or 202, or consent. (Once a year)

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 Li‘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) (A-F only. Pre: 107 or 457 or BOT 457 or 458 or BOT 390) Classroom lectures, discussion and analysis from traditional Hawaiian, scientific and economic perspectives, from the perspective of Indigenous scholars. HWST majors only. Junior/senior standing only. Pre: 270, 341 (or concurrent) and HAW 102 (Fall only) DH

HWST 421 Visiting Artist Seminar (4) (2 cr. 2 lec, 2 cr. Lab) Explore indigenous concepts through the media of a visiting indigenous master artist by looking at traditional and contemporary, academic and non-academic, arts and the possibilities for contemporary expression in other media. Repeatable one time. HWST majors only. A-F only: Pre: 107/107C, one course in 220 level (222, 224, 225, 226), or two courses in 230 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) (Inventoried “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 442 Introduction to Indigenous Research Methods (3) Survey course introduces students to a range of methods by beginning with a critical analysis of dominant research methodologies from the perspective of Indigenous scholars. HWST majors only. Junior/senior standing only. Pre: 270; and 341 or 342 or 343; or consent. (Fall only)

HWST 445 Hawaiian Institutions (3) Comprehensive analysis of historical institutions as Bishop Estate/ Kamehameha Schools, Lili‘uokalani Trust, Department of Hawaiian Home Lands and The Queen’s Hospital. Pre: 342.

HWST 457 ‘aina Mauliola: Hawaiian Ecosystems (3) Comprehensive analysis of traditional Hawaiian and modern restoration 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, economy and scientific research. A-F only. Pre: 457 or BOT 457 or 458 (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 ‘aina Field Methods Course (6) Intensive field methods program to research Mālama ‘aina 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 Aku’a Papakī Makawalu: Ancestral Understanding (3) Uses Dr. Puulanlani Kanahēle’s Papakī Makawalu methodology to analyze akua as elements and as a paradigm for understanding ancestral knowledge. Senior standing or higher. Pre: 270, 342 (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, 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. Senior major in HWST or consent.

HWST 493 Hawaiian Poetic Speech: Ha‘i ‘ole lo‘u ‘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: 107, 270, 341, 342; or consent.

HWST 495 Kunu Kānawai: Western Law and Hawaiian Law (3) The rise of Western law in Hawai‘i, its contribution to nation building and colonialism. 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 496 Kûkulu Aupuni: Envisioning the Future (3) (with a minimum grade of B) and HAW 302 (with a minimum grade of B) or consent. (Once a year)

HWST 497 Huaka‘i Huli Heiau Hawai‘inui‘a‘ea: 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 670 Kumu Kahiki: Comparative Hawaiian and Tahitian Cosmogonies (3) Seminar comparing Gods/myths from Ancient Tahiti by Teitara 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 literature, history and culture 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‘inui‘a‘ea: 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 679 Kukulua Aupuni: Envisioning the Nation (3) A research seminar aimed 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 490 (or concurrent). (Once a year)

HWST 680 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 680 ‘Ike Pono-Visual/Visual Interpretations (3) Graduate seminar and visual studio that examines (from a Kanaka Maoli viewpoint) colonial imaginary, place-based 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 681 ‘Ike Maka-Visual/Cultural Knowldge(s) (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 684 Mo’olelo ‘Owiwi: Historical Perspectives (3) Research seminar for developing interpretations of the past from Native Hawaiian and foreign views with particular and unique understanding of the meaning of culturally-based knowledge systems. A-F only.

HWST 690 Hawaiian Geography and Resource Management (3) Seminar in geography of Hawai‘i from a Native Hawaiian perspective. This seminar 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 690 Kumu Kahiki: Pacific Life Narratives in Mixed Media and Literature (3) Research seminar in relevant literature, history and culture 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 690 Kukulua Aupuni: Envisioning the Nation (3) A research seminar aimed 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 490 (or concurrent). (Once a year)

HWST 695 Practicum Research Plan B (V) Practicum for Plan B. Repeatable unlimited times. CR/NC only. Pre: consent.
HIST 699 Directed Reading and Research (V) Repeatable unlimited times. A-F only. Prerequisite: Consent.
HIST 700 Thesis Research (V) Research for master's thesis. (F) Full-time. S/U (F) only. Repeatable up to six credits; Repeatable unlimited times for (F). Prerequisite: 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. Prerequisite: HSL
HNDI 201 Intermediate Hindi (4) Continuation of 102. Listening, reading, speaking, writing, language structure, and culture integrated in a variety of communicative and creative activities. Prerequisite: HSL
HNDI 202 Intermediate Hindi (4) Continuation of 201. Prerequisite: 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. Prerequisite: 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. Prerequisite: 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. FGA
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. FGA
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. Prerequisite: Consent.
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, South Asia, Southeast Asia. DH
HIST 242 Civilization of Asia (3) Continuation of 241. Survey of major civilizations of Asia from 1500 to the present; East Asia, Southeast Asia, South Asia. DH
HIST 245 Atlantic History: Colonies to Revolutions (3) Comparative 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 chieftains 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 pre-colonial 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
HIST 301 History of Early India (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 South Asia from 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 (uraseke): 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, Mycenean, 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. Prerequisite: 151, 152, ECON 130, or ECON 151; 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

Key to symbols & abbreviations: see the first page of this section.
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 Revoluition 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 empire—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, Russian, and Ottoman 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 until 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 of 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. Junior standing or higher. (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 interrelationships with the social order. Pre: sophomore level 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) Continued from 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 changes, 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. 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 emphasizing the 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: any 300-level HIST course.

HIST 400 Digital History in the Global Village (3) History of the digital age in global perspective connecting people, media, and technology. Faculty and students will use digital media to introduce innovative approaches. (Fall only) DH

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, diaspora, and globalization, including actors like slave, sailors, women, and merchants. A-F only. Pre: junior or senior standing or consent. (Alt. years) DH

HIST 402 Researching WWII in Southeast Asia (3) Introduces students to the practice of conducting archival research by using materials about World War II in Southeast Asia that have been digitized by various institutions around the world and available on the Internet. Junior standing or higher. (Spring only) 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 nonmajors. 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 ASIAN 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) China's 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, Hsiien and sub-Hsiien politics, warlordism, Kuomintang tutelage, and the Chinese Communist movement and rule. DH

HIST 416 Chinese Intellectual History (3) An interpretative 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) Interpretative 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) Interpretative 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, 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 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–Israel Wars, revolutions in the Arab countries, the Turkish experiment with secularism, the Islamic/Chadriani 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 medi-
eval 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.

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 interpretations of key 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 policies; and the ecological impact of industrialization, urbanization, science, technology, war, etc. Pre: junior standing or consent. (Once a year) DH

HIST 438 European Cultures of the Primate (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 continuities and 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 capture of 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. Pre: 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;Peterine 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 slavery, slave craft 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 pre-Columbian to the present. 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, Vietnamese 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 the nation, exporter to the world. DH

HIST 472 American Social History (3) Introductions to the new social history; interdisciplinary approaches to the study of the "ordinary lives" of American Indians 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, ideologies, and institutional effects on 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) Examination of Hawaii 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 488 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 in 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. Pre: upper division standing or consent. 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 C and any 400-level HIST course.

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) English; (6) Chinese; (7) Russian; (8) Hawaiian; (9) South Asian; (10) Southeast Asian; (11) Korean. 400-level course or consent.

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 607 Advanced Topics in Environmental History (3) Introduction to leading themes, methodologies, and topics in world environmental history. Drawing on new and influential scholarship, readings explore how the diverse forces that shape humans‘ adaptation to and impact on the natural world. Repeatable one time. (Alt. years)

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 bound 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. Pre: 350 and graduate standing or consent.

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. Pre: graduate standing and consent. (B) Cross-listed as AMST 640; (F) Cross-listed as AMST 614; (K) Cross-listed as AMST 647

HIST 650 Seminar: Comparative Asia (3) This reading seminar in 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 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) Primary sources and selected topics. (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. Key to symbols & abbreviations: see the first page of this section.

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 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 Teaching Assistants assigned to 151-152.

HIST 800 Dissertation Research (V) Repeatable unlimited times. Pre: consent.

Hons (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 250 (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; (F) human; (H) Physical science; (R) arts; (S) social science; (T) literature. Repeatable one time. A-F only. Pre: 101 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 305 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 volunteering, 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 instruction. Multi-disciplinary topics vary each semester. Honors Program students only. 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. Pre: 101 or departmental approval.

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. Repeatable one time. Pre: departmental approval.

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:

- ACC 201A Introduction to Financial Accounting
- AMST 150A America and the World FGB
- AMST 202A Diversity in American Life DH
- AMST 220A Introduction to Indigenous Studies DH
- ANT 151A Emerging Humanity FGA
- ANT 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 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
- 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 355A Political Philosophy and Theory DS
- PSY 371A Abnormal Psychology DS
- REL 151A Religion and the Meaning of Existence DH
- REL 210A Understanding Christianity DH
- SOC 100A Introduction to Sociology DS
- SOC 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 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. (Spring only)


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 majors only. Graduate students only. A-F only.

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 majors only. Graduate students only. A-F only.

HRM 673 Advanced Organizational Behavior (3) Organizational development (OD) and major concepts in organizational behavior. MHRM majors only. A-F only.

HRM 674 Finance for Human Resource Management (3) Intends to give the HR professional 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.

HRM 675 Compensation (3) Survey of compensation methods and procedures including job evaluation, incentive systems, salary administration, fringe benefits, appropriate legislation, policies and strategy
issues of compensation systems. HRM majors only. Graduate students only. A-F only.

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 majors only. Graduate students only. A-F only.

HRM 677 Negotiations and Labor Relations (3) Theory and practice of negotiation. Exploration of alternative dispute resolution; an evaluation of such forms using critical hermeneutic frames. A-F only. 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 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 367 Persian Theater and Culture (3) Study of Persian and Iranian theater and culture with an overview of history from 2500 B.C. to the contemporary era. Pre: THEA 101 or consent.

IP 368 Introduction to South/Southeast Asian Film, History, Theory and Appreciation (3) Study and analysis of South/Southeast Asian, forms, developments, theoretical framework and relationship to cultural, social, philosophical and aesthetic context. (B) Filipino; (C) Iranian. A-F only. Pre: one of ENG 270-272, or consent. DH


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 deities. A-F only. Pre: ANTH 200, ANST 302, 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, ANST 302, HIST 151, LLEA 122, or PHIL 102; or consent. (Spring only)

IP 376 Philippine Diasporic Literatures (3) Appreciation, reexamination, and analysis of Philippine literature of exile; a reevaluation of Philippine writing from the diaspora. Sophomore standing or higher or consent. DL

IP 377 Critical Discourses in IPLL Studies: Philippines (3) Revaluation 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. yrs: spring)

IP 395 Polyneesian 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 folklore literature translated into English: epics, tales, 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.
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 open to students who wish to teach Hawaiian or any Indo-Pacific language. 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.

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 I (4) Continuation of 102 or 104. Pre: 102 or equivalent. HSL
IND 202 Intermediate Indonesian I (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 II (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 303 Third Level Indonesian (3) 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 colloquioal 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. Discussion and writing 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 451.
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) Fundamentals 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 (Alpha) Introduction to Computer Programming (3) Basic concepts needed to write computer programs. Simple program design and implementation using a specific programming language; (C) C; (D) through animations; (P) Python. Each alpha repeatable unlimited times, but credit earned one time only.
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. (Offered 1 time per year)
ICS 211 Introduction to Computer Science II (4) (3 Lec, 1 3-hr Lab) Algorithms and their complexity, introduction to software engineering, data structures, searching and sorting algorithms, numerical error. 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 techniques, 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, applications to systems and web pages, server-side application integration, regular expressions, event handing, input validation, selection, repetition, parameter passing, Perl, Java's script, 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, 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 (4) (4 1-hr Lec) 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 order 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 oriented instruction sets, 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, hierarchial design, program design methods, cost estimation, project management, computer-aided software design. Team-based 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, database operations, 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 and 241, 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. (Fall only)


ICS 361 Introduction to Artificial Intelligence Programming (3) Introduction to the theory of Artificial Intelligence and the practical application of AI techniques in Functional (Common LISP and/or Scheme) and Prolog (Prolog). 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 on ethical issues and instructional techniques for students assisting a laboratory section of ICS 101. The class uses multiple significant written 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 Social 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; video games and 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, and intellectual property. Pre: both 311 and 312, or consent.

ICS 424 Application Frameworks (3) Experience producing applications with at least two different application 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: 351 or EE 361/361L.

ICS 432 Concurrent and High-Performance Programming (3) Parallelism and concurrent 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 will be used to explain supervised and unsupervised learning. Basic of statistical learning theory. Pre: 311 or consent. Recommended: MATH 307. (Once a year)

ICS 441 Theory of Computation (3) Grammars, sequential and indexed file processing, report generation, 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 fundamental models and methods in computer science with emphasis on discrete mathematics, numerical computation, algebraic models, operations research. Pre: 311 or consent.

ICS 443 Parallel Algorithms (3) Introduction to parallel models of computation and design and analysis of parallel algorithms. Pre: 311. (Fall only)

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, 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 Survey of artificial intelligence, including 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. Pre: two ICS 300-level courses or consent. (Alt. years: fall)

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 statistics 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 science students focusing on how computer sciences techniques can be used for the storage, analysis, and visualization 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 bioinformatics 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 484 Data Visualization (3) Introduction to data visualization through practical techniques for turning data into images to produce insight. Topics include: information visualization, geospatial visualization, scientific visualization, social network visualization, and media visualization. Junior standing or higher. Pre: two ICS 300-level courses. (Spring only)

ICS 485 Video Game Design and Development (3) Students will team design, build, and demonstrate video games or related video game environment environments and applications. Topics will include emerging computer science techniques relevant to the development of these types of environments. Junior standing or higher. Pre: two ICS 300-level courses. (Spring only)

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 495 Special Topics in Security (3) Special topics in security oriented toward juniors and seniors. Repeatable unlimited times. Pre: at least two 300-level ICS courses or consent. (Alt. years: fall)

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) Theoretical, experimental and practical design and implementation of autonomous agent systems, including common applications of both software and hardware (robotic) agents. In-depth practical experience with autonomous agent systems. Pre: two ICS 300-level courses and assignments or projects. Pre: 313 or EE 467 (or equivalent). (Spring only)

ICS 611 Compiler Theory and Construction (3) Design and implementation of compilers, syntactic and semantic descriptions of programming languages, algorithms for syntax 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) Fundamentals of 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 to design and evaluate 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 relational and object-relational database 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 (5) 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 parallel computing environments with experience in message passing and multi-threaded programming. A-F only. Pre: graduate standing in computer science or closely related field, or consent. (One 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. (One 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 and bioinformatics. A-F only. Pre: graduate standing in computer science or mathematics background, or consent. (One 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: 451.

ICS 655 Security and Trust III: Cyber Security and Commerce (3) Tools and methods for security managers. Tools and methods to secure and monetize services. Network as a computer and as a market. Problems of cyber war, cyber crime, cyber bullying. Graduate students only. (Spring only)

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 664 Human-Computer Interaction II (3) Studies of human performance in designing and using information systems. Emphasizes core 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 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. Pre: 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 effective and efficient content generated social collections. Theoretical and practical aspects of online interaction, identity, trust, and virtual social capital. A-F only. (One a year)

ICS 674 Evolutionary Computation I: Survey of Methods (3) An introduction to 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, variations, genetic 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. (One a year: fall)

ICS 675 Bioinformatics: Sequences Analysis (3) To expose students to the biologically relevant topics in bioinformatic analysis. Pre: consent. (One a year)

ICS 676 Bioinformatics: Microarrays (3) Introduction to the basic principles of biology relevant for microarray gene expression data and to Bioconductor, a 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. (One 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 computing. Typical examples include sparse matrix methods, finite element methods, mathematical programming. Pre: consent.

ICS 683 Advanced Computer Vision (3) Fundamentals of image and video processing. Emphasis on computational techniques and 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 695 Advanced Special Topics in Security (3) Current topics and upcoming issues relevant to the field of information assurance and cyber security. Repeatable unlimited times. (Alt. years: spring)

ICS 699 Directed Research (Research) Repeatable unlimited times. Pre: graduate standing and consent.


ICS 800 Dissertation Research (Research) Research for doctoral dissertation. Repeatable eight times. Pre: candidacy for PhD in computer science.

Key to symbols & abbreviations: see the first page of this section.
related to reading instruction in elementary class-
rooms. Emphasis on writing instruction; (B) dual
preparation in ECE and elementary education; (C)
elementary education. A-F only.

ITE 314 (Alpha) 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; (B) dual
preparation in ECE and elementary education; (C)
elementary education. A-F only.

ITE 315 Field Training – Blended ECE (4)
Students spend 15 hours per week in settings ap-
propriate to concurrently enrolled classes; supervi-
sion provided by participating teacher and college
supervisor. Taken in conjunction with professional
courses; (B) dual preparation in ECE and elementary
education; (C) elementary education. Repeatable two
times or up to 9 credits. CR/NC only.

ITE 317 (Alpha) Field Experience (V) Supervised
field experience in schools. Minimum of 2 full days
per week in classrooms, plus mandatory seminar
sessions conducted by UH Mānoa field supervisor. Taken
in conjunction with professional education courses; (B)
dual preparation in ECE and elementary education;
(C) elementary education. Repeatable two times or
up to 9 credits. CR/NC only.

ITE 319 Children’s Literature (2) Acquaintance
with wide range of children’s books; criteria for eval-
uation of literature; using literature in the class-
room. 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: BUS 630 and BUS 631, or consent.

ITE 322 (Alpha) Social Studies, Elementary (V)
Purposes, methods, curriculum, and assessment in
teaching social studies; focus on enriching children’s
understanding of the communities of which they are a part through inquiry, investigation, collaboration,
and experiential skills. Emphasis on writing instruc-
tion; (B) dual preparation in ECE and elementary
education; (C) elementary education. A-F only.

ITE 323 (Alpha) Science, Elementary (V) Science
education in elementary school; methods and materi-
als; laboratory activities selected from new science
curricula; (B) dual preparation in ECE and elemen-
tary education (V); (C) elementary education. Each alpha
repeatable one time, up to 3 credits. A-F only.

ITE 324 (Alpha) Mathematics, Elementary (V)
Inquiry-based approach to concepts and algorithms
of whole numbers and introduction to geometry/
measurement; laboratory experiences with appropri-
ate manipulatives; (B) dual preparation in ECE and
elementary education; (C) elementary education. A-F
only. Pre: MATH 111 and MATH 112.

ITE 325 (Alpha) Mathematics, Elementary II (V)
Inquiry-based approach to concepts and algorithms
of fractions, decimals, graphing, and probability and
statistics. Laboratory experiences with appropriate
manipulatives; (B) dual preparation in ECE and
elementary education; (C) elementary education. A-F
only. Pre: 324 B or consent for (B); 324C or consent for (C).

ITE 326 (Alpha) Visual Art, Elementary (V) Scope
and organization of art in PK-6 school curriculum,
creative uses of art in classroom, and lab experi-
ence; (B) dual preparation in ECE and elementary
education; (C) elementary education. A-F only.

ITE 329 (Alpha) 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 pre-K-6 lessons that integrate
the performing arts; (B) dual preparation in ECE and
elementary education; (C) elementary education. A-F only.

ITE 343 (Alpha) Personal and Social K-6 Health
Skills (V) Standards-based planning, teaching, as-
sessing 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; (B) dual preparation in ECE
and elementary education; (C) elementary education.
A-F only.

ITE 346 Methods of Instruction, Industrial/Agricul-
tural Education (3) Techniques of individual and
group instruction in laboratory and related classes.

ITE 347 Management of Industrial/Agricultural
Facilities (3) Organization of instruction; handling
supplies; maintaining equipment and tools; purchas-
ing materials; keeping records; making inventories.

ITE 348 Teaching Business and Office Education
(3) Theory and methods of teaching business and of-

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 school process. (Cross-listed as EDEF
560) DS

ITE 371 Home Economics Education (3) Curricu-
ulum 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 pro-
mote 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, examination of knowl-
dge, skills, and dispositions for teaching; stand-
ards-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 prepara-
tion in elementary and special education (1). Repeat-
able nine times for (D). 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 re-
peat student teaching. (C) elementary; (D) secondary.
Pre: extensive teaching experience; re-
quirements listed under “student teaching”; approval
of review committee; consent. Co-requisite: 391.

ITE 399 Directed Study (V) Individual work
supervised by instructor. May be repeated with con-
sent. Schedule by UH Mānoa field supervisor. Taken in
conjunction with professional education courses; (B)
dual preparation in ECE and elementary education;
(C) elementary education. A-F only.

ITE 401 Engaging the Adolescent Learner (3)
Examines how reading, writing, thinking, viewing,
technology, etc., are tools for learning content and
engaging diverse adolescents across all disciplines.
Includes a disciplinary literacies frame-
work 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, classroom 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 from department, community, 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 license.

ITE 406 Seminar in Teaching Residency (3) Analytical and research articles on 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 frameworks, rules and guidelines between the professional teacher and the observation-participation student; Pre: two years’ teaching experience and consent.

ITE 415 Observation and Assessment in Early Childhood Education (3) Introduction to the purposes, theoretical bases, methods of early childhood assessment. Emphasizes observation, documentation, and assessment to provide evidence of children’s development and learning and how to use assessment to guide teaching and learning. Pre: FAMR 331 or consent.

ITE 415L Observation and Assessment in Early Childhood Education Lab (3) Direct experience with children in early childhood settings in order to apply concepts from 415, develop skills in observation and assessment and develop perspective on the role of the teacher in ECE settings. CR/NC only. Co-requisite: 415.

ITE 416 Teaching and Learning for Diverse Young Children (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 416L).

ITE 416L Teaching and Learning for Diverse Young Children Lab (3) Continuation of 415L. CR/NC only. Co-requisite: 416. (Cross-listed as EDCS 416L).


ITE 420 Supervision of Student Teaching (3) Principles and methods; role of supervisor; human resources supervision. 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 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 Hawaii.

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) Principles of multicultural education and practice in school curricula and programs, and multicultural education and its related area of study—bilingual-bicultural education. (Cross-listed as EDCS 440)


ITE 442 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, 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: LITEC 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 (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 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 612 Teaching Internship (V) Full-time supervised teaching experience. CR/NC 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.

Key to symbols & abbreviations: see the first page of this section.
Interdisciplinary Studies (IS)
Office of Undergraduate Education
IS 099 Mānoa International Exchange (V)
Designed for students interested for participation in an international exchange program while enrolled at UH Mānoa. Repeatable unlimited times, credit for 12 credits only. CR/NC only. Pre: admissitance 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 ENCR 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, along with issues in anthropology, law, science, and conservation are intimately linked, but rarely studied together. Pre: any ENG DL or PHIL or GEOG course, or consent. (Alt. years)

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 well as traditional Eurocolonial history. A-F only. Pre: HIST 152 and an introductory course in cultural anthropology, political science or sociology, or consent. (Alt. years) DS

IS 330 Information Technology and Culture (3)
Investigation of the impact of information technology 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 interactions of science, race, gender and environment. A-F only. Pre: upper division or consent.

IS 340 Human Values and the Environment (3)
Examination of human values as they are expressed in the values of scientific communities. Prerequisite: for ENGL 201. For semester programs only. Pre: any ENG DL or PHIL or GEG 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 coastal and ocean environments, especially Hawaiian; scientific, legal, socioeconomic aspects. Ocean pollution, ocean technology. Pre: OCN 201, ORE 202, or ZOOL 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 ocean-related internships, practice research projects or field experience on-or off-campus with faculty guidance. Repeatable one time. A-F only. Pre: minimum 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.

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 field and consent. A-F only. Pre: HIST 152, or 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-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 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) Biocultural, cultural, and linguistic conservation and the implications 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)

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 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 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 Italian 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 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 formal course of 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 course 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 (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 consent. HSL

JPN 201Intermediate 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 202Intermediate 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. Prewritten 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 238 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 322Advanced 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: 301 or consent. DH


JPN 359 Third-Level Japanese Abroad (4) Continuation of 358. Pre: 301 or 358.


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 401Fourth-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 402Fourth-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 403Fourth-Year Japanese for Advanced Speakers I (3) Continuation of 308 for bilingual students. Pre: 308 or placement; or consent. (Fall only)

JPN 404Fourth-Year Japanese for Advanced Speakers II (3) Continuation of 403 for bilingual students. Pre: 403 or placement; or consent. (Spring only)

JPN 405Fourth-Level Japanese Reading Accelerated (4) Continuation of 402 covered in one semester. Meets two hours, four times a week. Pre: 302, 305, 308, or placement test.

JPN 407Alphabet Readings in Original Texts (3) Reading modern discursive texts. Pre: two of 407B, 407C, 407D, or 407E; or consent. DH

JPN 415Japanese Aural Comprehension (3) Training in comprehension of spoken material presented in news broadcasts, documentary narration, formal lectures, etc. Pre: 402; or consent. May be repeated twice. Pre: 402, 404, or 405; or consent.

JPN 420Fourth-Level Spoken Japanese (3) Training in oral communication skills in varied social contexts. Pre: 402 or 405.

JPN 421Japanese Composition (3) Writing skills refined through practice in various styles (essays, letters, etc.). Pre: 402, 404, or 405; or consent.

Key to symbols & abbreviations: see the first page of this section.

JPN 423Advanced 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 424English to Japanese Translation (3) Training in techniques of translating English into Japanese. Pre: 407B, 407C, 407D, or 407E; or consent. (Cross-listed as TI 424)

JPN 425Japanese to English Translation (3) Training in techniques of translating Japanese into English. Pre: 407B, 407C, 407D, or 407E; or consent. (Cross-listed as TI 425)


JPN 451Structure of Japanese (3) Introduction to phonology, morphology, syntax, and semantics of modern colloquial Japanese. Pre: 402, 404, or 405; or consent. HSL

JPN 452Introduction to Japanese Pedagogical Grammar (3) Introduction to teaching of basic Japanese grammatical patterns. Pre: 350 or LING 320, and 407; or consent.


JPN 461Introduction to Classical Japanese (3) Basic classical Japanese grammar to develop reading skills. Pre: 407 or consent.

JPN 466Readings in Classical Japanese (3) Introduction to major genres of prose and poetry. Repeatable one time with permission. Pre: 461 or consent. DH

JPN 471Okinawan 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 472Okinawan 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. DH

JPN 475Introduction to Japanese Sociolinguistics (3) Application of sociolinguistics to social phenomena such as group identity, language and gender, dialects and intercultural communication. Pre: 350 and 370, or consent.

JPN 485Advanced 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. DH

JPN 486Advanced 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 493Project Work in Japanese (5) 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 one time. Pre: 490 or 492 or equivalent, or consent.

JPN 495Alpha)Internship Program (3) Analysis of interpersonal communication processes under faculty supervision through participation in an organization serving native speakers of Japanese. Pre: business, repeatable one time; (C) travel industry internship. Repeatable one time. A-F only. Pre: 370 or consent for (C); 451 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 Japanese 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) 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; (B) Meiji–Taisho (1868–1926); (C) Showa–Heisei (1926–present). Each alpha repeatable one time with consent. 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 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) Practicum in teaching in the 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 Topics in Japanese Literature (3) Intensive study of selected topics in Japanese literature, primarily of the modern period. English translations of original texts will be provided whenever available. Repeatable unlimited times with consent. Pre: consent. (Cross-listed as ASAN 640)

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: 640 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); 602 for (G); 631 for (H) and (K); 601 for (M); 601 or 602 for (P); 632 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 (5) Modern; Pre: 611 (P) pre-modern; (D) pre-modern; 612, 613, or 614.

JPN 730 (Alpha) Research Seminar in Japanese Linguistics (5) (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 602 for (C); 602 for (G); 632 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. 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 news stories, with emphasis on writing. 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. 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 concurrent.

JOUR 320 Visual Journalism: Multimedia (3) Fundamentals of visual journalism, 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) (or concurrent).

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, shooting, 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) Intensive 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 or COM majors only. Pre: consent. (Cross-listed as COM 459)

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 minor 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 fitness. Student 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 by regularly attending and practicing safe workout routines. Learn fitness components, names of muscles and exercises associated with each one. Repeatable unlimited times, but credit earned one time only.

KRS 103 Swimming: Beginning (1) Adjusting to and improving swimming strokes, correct arm stroke, leg kick, breathing technique and their coordination. (Student to provide own swimming attire approved by instructor.) Repeatable unlimited times, but credit earned one time only.

KRS 104 Swimming: Beginning and Intermediate (1) Adjusting, sculling, arm and leg kick, breathing technique and coordination. Perfecting and integrating basic strokes with emphasis on speed and distance. (Student to provide own swimming attire approved by instructor.) Repeatable unlimited times, but credit earned one time only.

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-practical 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 basics. Measuring 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 student for play on courses. Repeatable unlimited times, but credit earned one time only. Pre: 111 and consent.

KRS 113 Human Physiology and Anatomy (5) Introduction to human physiology and anatomy designed to serve the needs of dental hygiene students and others interested in health-related careers. (Cross-listed as PHYL 130) DB

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. Pre: 124 or consent. DA

KRS 125 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. Pre: 124 or consent.

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 categories: Open to all skill levels. Repeatable unlimited times, but credit earned one time only.

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-laboratory activity with emphasis on beginning skills and knowledge relative to serving, passing, spiking, blocking, offensive and defensive strategies and team play. Repeatable unlimited times, but credit earned one time only.

KRS 136 Volleyball: Intermediate (1) Combined lecture-laboratory activity with emphasis on improving skills and knowledge through practice and cognitive activities relative to serving, passing, spiking, blocking, 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.

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 theory 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 162 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 Tai 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.

KRS 170 Yoga: Beginning (1) Experiencing yoga and its effects on body and mind, and consciousness of individual. Encompasses exercise, breathing techniques, deep relaxation, meditation, practice in concentration, and yoga 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 offensive awareness and offensive 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, position, and strategy of net, field and target 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, but repeatable one time only, but credit earned one time only. A-F only.

KRS 185 Floor Exercise Gymnastics (1) Target type exercises with emphasis on basic skills and selected kata. (Student to provide own gi.) Repeatable unlimited times, but credit earned one time only. Pre: 104 or consent.

Key to symbols & abbreviations: see the first page of this section.
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 only one time.

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 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) Historical and contemporary roles of recreation; relationship to health, physical education, and exercise science.

KRS 210 Leisure education and Life Skills Development (5) 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 and community 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 facilitation 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 curricula and strategies 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.

KRS 305 Principles of Sports Medicine (3) Examines 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 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 earned one time only. A-F only. Pre: consent 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) Unusual education programming (K-12), emphasizing selection of appropriate music for specific activities as expressive or creative movement, movement exploration, rhythmic gymnastics, and dance. 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 335 Movement Education I (3) A movement-based approach to teaching basic motor skills in preschool/elementary 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 336 Movement Education II (3) (Lec., 1 hr.; Lab) Continuing work in 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 only one time.

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 programs. Repeatable one time.


KRS 337 Fieldwork in Recreation I (5) Initial supervised leadership experience in recreational agencies. One hour per week in class discussion sessions. For credit accumulation. 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. 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 and biochemical responses during physical training. Lab report development and scientific writing will also be emphasized. A-F only. Pre: PHYL 103 or 142/142L (or concurrent) or BIOL 171/171L (or concurrent); or consent. Co-requisite: 354L.

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; others admitted on space-available basis. Repeatable unlimited times.

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 regulation; 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 scientifically 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 learn about 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 problem. Limited to senior majors in health education, physical education, athletic training, or recreation major. May be repeated to a maximum of up to 6 credits. Primarily for KRS majors. A-F only. Pre: PHYL 103 or 142/142L (or concurrent) or BIOL 171/171L (or concurrent); or consent. Co-requisite: 354L.

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. Emphasis 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 and concepts for classroom management for teachers. Pre: consent.

KRS 404 K-12 Teaching Methods in Physical Education (3) Methods and materials in teaching

Key to symbols & abbreviations: see the first page of this section.
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 level counts 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 prerequisites 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, gender, identity and human development, social class, disabilities, and sexual orientation on sport experience. A-F only. Pre: consent. DS

KRS 415 Prevent/Care of Athletic Injuries (3)
An examination of 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. Emphasis on 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, Exercise Science and Allied Health professions. Kinesiology and Rehabilitation Science, Physical Education majors only. A-F only. Pre: 353, 415, or consent.

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 and 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 professions. Kinesiology and Rehabilitation Science, 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 and 428, or consent.

KRS 428 Current Issues in Leisure Services (3)
Philosophical foundations and current and emerging issues in leisure services management and program. 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 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 15 is 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. Include 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 intellectual ability, 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 patterns. 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 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 Hawaii’s Health 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 processes, and methodologies of the cooperative learning process known as ‘tribes.’ Will develop students’ 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’s ethnic groups; study of prejudice and inter-ethnic hostilities as these impact education and learning communities in a variety of settings. Repeatable one time. Pre: 331 or consent.

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 kinesthesis, 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. Pre: FSHN 185, and PHYL 103 or 141 or 301. (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, or content, data collection, and reporting 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, organization and administration, 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 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 465, 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, 353, 354, 354L, and 465; or consent.

KRS 490 Introduction to Athletic Training Clinical (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 experience in the provision 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.

Key to symbols & abbreviations: see the first page of this section.
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. Pre: 609.

KRS 494 Athletic Training Practicum IV (3) 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. Pre: 609.

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 ED 500 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/ RepBioI & Phys majors) or consent. A-F only. Pre: consent. (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/RepBioI & Phys majors) or consent. A-F only. Pre: consent. (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 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-hr Practicum in which the student will perform the duties and responsibilities of an athletic training student. A practical field experience in athletic training will be required. A-F only. Pre: 490 or consent. Co-requisite: 615B and 617.

KRS 610 Athletic Training, Clinical Experience II (3) 1 Sem, 5 h-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 to the program. A-F only. Pre: 490; or consent. Co-requisite: 615B and 617.

KRS 611 Athletic Training, Clinical Experience III (3) 1 Sem, 5 h-practicum) 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 612 Athletic Training, Clinical Experience IV (3) 1 Sem, 5 h-practicum) 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 h-practicum) Advanced clinical practicum in which the BOC certified or certification-eligible graduate student experiences an enhancement of athletic training knowledge and development of athletic training skills. Repeatable up to 10 credits. A-F only. Pre: consent.

KRS 614 Athletic Training Research Practicum (V) (1 Sem, 5 h-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 10 credits. 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 extremity. EL-GATEP majors only. Graduate students only. A-F only. Pre: 490 for (B); 615B and 615U, or consent for (H); 615B or consent for (U). Co-requisite: 609 and 617 for (B); 490 and 611 for (H); 610 and 618 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 and rehabilitation of sport-related injuries. (e.g. epidemiology, legal, ethical concerns, sports psychology, pharmac, drug abuse, health issues) Pre: ANAT 604 or consent.

KRS 617 Therapeutic Interventions: Modalities (3) (5 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. Co-requisite: 609 and 615B.

KRS 618 Therapeutic Exercise—Rehabilitative Exercise (3) (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 progression, progression and regression criteria, and the physiological effects of tissue trauma and inactiv).


KRS 620 Seminar in Athletic Training (1) De- signed to provide 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 end-neck-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. KRSMajors 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 competencies in the BOC Exam. Repeatable two times. KRSMajors 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) Prerequisite: Practicum for supervised experiences in school, church, 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 conduct including basic standards, 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) Concepts 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 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 adaptations 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. Enrollment limited to 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 for 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 EDC 646)


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 basis of motor 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 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) Key concepts, principles and techniques 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 in 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. Pre: professional/client relationship, interviewing process, decision-making, goal-setting, recording/documentation, time management, and other tasks. Pre: 680 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., continuing, 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 Assessment and Placement in Rehabilitation (3) Theory, principles, and techniques of vocational assessment and evaluation. Assessment methods and processes as they relate to vocational choice and adjustment of special groups. Pre: 681 and consent.

KRS 687 Assistant 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. Emphasis on the importance of using a consumer-centered approach in providing assistive technology services. A-F only. Pre: 681 and consent.


KRS 695 Promoting Physical Activity (3) Overview of the theoretical and applied study of physical activity epidemiology. Content includes benefits, factors that influence, levels, valid instruments to assess, and programs to promote physical activity. (Fall only) (Cross-listed as PH 695)

KRS 699 Directed Reading and/or Research (V) Individual study and/or research. Repeatable unlimited times. Pre: consent of instructor and department chair.


KRS 703 (Alpha) Practicum in Counseling (V) Supervised clinical (alpha) counseling and guidance activities at an approved site, including a weekly class meeting. Provides practical application of formal academic training; (C) community service; (E) elementary; (H) secondary; (R) rehabilitation; (U) college. Each alpha is repeatable three times. Pre: 626 or 683, and consent.


KRS 733 (Alpha) Internship I (V) Supervised post-practicum experience in counseling and guidance activities at an approved site, including a weekly class meeting. Provides practical application of formal academic training; (C) community service; (E) elementary; (H) secondary; (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 in counseling and guidance activities at an approved site, including a weekly class meeting. Provides practical application of formal academic training; (C) community service; (E) elementary; (H) secondary; (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 or H and consent. (Spring only)

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: 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/lab techniques, and subject or data collector exposures as directed by faculty members. Repeatable one time. KRS majors only. CR/NC 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. Repeatable one time. KRS majors only. CR/NC only. Pre: 775 or 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. Repeatable three times or up to 12 credits. KRS majors only. CR/NC only. Pre: 776 or 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.

KOR 771 Seminar in Rehabilitation Counseling (V) In-depth study of professional concerns in rehabilitation counseling. A-F only. Pre: 703R and consent.

Korean (KOR)

Courses prefixed with KOR are in the Department of Languages, Literatures and Linguistics. 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.

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 respond to simpler conversation 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 situational-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: 421 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: 420 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) Study of Korean culture through films to elevate students' Korean proficiency level and improve their knowledge of Korean. Emphasis on writing instruction. Requires a minimum of 16 pages of graded writing. Pre: 402 or consent.

KOR 485 (Alpha) Korean for Career Professionals (V) Combined lecture-conference on functional command of various 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 content, 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. 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. 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 gradu- ate 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., byangga, changga, banbui, sijo, kasa, free form): (M) modern; (T) traditional. Pre: 494 or consent for (M) 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) 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) or consent for (T). Repeatable three times. Pre: consent of department chair.

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 research papers and a final research paper. Pre: diagnostic assessment procedures (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.

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: equivalent of 623 or consent. (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) ecological 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 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 and didactic materials development by examining theoretical issues and conducting classroom research; practical techniques of teaching and testing skills in listening, reading, speaking, and writing. 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 Acquisi- tion (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 Lit- erature (3) Advanced study of major Korean fiction writers from the 1910s to the present with emphasis on critical reading of their lives and writings, and arrive at informed appraisal of their contribution to modern Korean literature. Repeatable one time. Pre: 494 or consent.

KOR 655 Practicum: Teaching Korean as a Sec- ond 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.

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 Lan- guage (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 (LEA)

LEA 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 literary 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 instructor. (Spring only)

LLEA 327 Ancient Greek Literature in Translation
(3) Major writers: emphasis on Homer, drama, and philosophy. Pre: sophomore standing or higher or consent. DL

LLEA 328 Ancient Roman Literature in Translation
(3) Major writers: emphasis on Vergil, satire, and novel. Pre: Sophomore standing or higher or consent. DL

LLEA 237 French Film (3) Study of French film history and techniques. 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 nepotism, 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 or consent. DL

LLEA 340 Classical German Literature
(3) Readings in major works of Lessing, Goethe, Schiller. Philosophic and aesthetic views of leading writers of the Enlightenment, Storm and Stress, and critical 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

LLEA 236 Italian Film
(3) Study of Italian film history and techniques. 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

LLEA 196 Russian Short Story
(3) Origin and development of the short story in Russian literature. Pre: sophomore standing or consent. DL

LLEA 351 19th-Century Russian Literature
(3) Survey in English of major writers from Pushkin through Chekhov. 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 Russian literature and their works for perspective of reality and poetic representation. Pre: sophomore standing or consent. DH

LLEA 355 Russian Film
(3) A study of Russian film from the 1920's to the present. Pre: sophomore standing or consent. DH

LLEA 700 Thesis Research
(V) Directed research for graduate students. Topics include 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: (A) 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
(1) Study in European languages not taught regularly, depending on demand and staff. Pre: consent of department chair.

LLEA 399 Directed Reading
(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.
ment 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 course is required for continuation.

LATN 101 Elementary Latin (3)
Grammar and vocabulary, with reading of simple Latin. Pre: 101. 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 Cicero, 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. DL

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 standing or consent. DL

LAIS 362 Latin American Literature (3)
Reading and discussion of classic works of Spanish literature. Pre: sophomore standing or consent. DL

LAIS 365 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 South America. 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 collections with Africa, Asia, the U.S., and Hawai'i. Pre: sophomore standing or consent. DH

LAIS 468 Colonial Latin American History (3)
Pre-Colombian 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 creativity of African, indigenous, and Iberian ideological frameworks in the Americas. Topics may include syncretic religions (voodoo, candomble), Ancestral Christianity, spiritual conquest, conceptualization of death, etc. Sophomore standing or higher. Minimum C- prerequisite for pre-registration. 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 topics-political, social, cultural-in Iberian or Latin American topics. Topics pre-annealed. 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, 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 502 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 Lawyering Fundamentals I (V)
An introduction to basic legal concepts 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 520 Advanced Legal Studies (V) Faculty members or visiting scholars present selected topics focusing upon subject areas in their area of specialty or expertise. Pre: business law; Pre: constitutional law; Pre: criminal law; Pre: criminal legal; Pre: education law; Pre: health law; Pre: intellectual property law; Pre: practice of law; Pre: public interest law; Pre: topic 10; Pre: topic 12; Pre: topic 15; Pre: topic 14; Pre: topic 15; Pre: topic 16; Pre: topic 17; Pre: topic 18; Pre: topic 20. Alphas B-Q repeatable three times, up to 12 credits; alphas R-W repeatable three times, up to 16 credits.

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 those interested in civil litigation and personal injury law. Recent important developments in Hawaii's 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 Hawaii's law-making processes, direct democracy, legislative drafting, and theories of the legislative process and statutory interpretation.
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 579 Legal Research (V) Provides a theoretical understanding of the process of law making and of developing and implementing a research plan. LAW majors only.

LAW 580 Land Use Management and Control (V) Survey course on land use management. (Cross-listed as PLAN 680)

LAW 583 Real Estate Development and Financing (V) Federal and state laws in the practice of real estate development and financing law. Condominiums, 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 unlimited employment relationship. Emphasis on legal documents, research, and processes, 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) medical legal partnership; (W) advanced elder law clinic (S). 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 (C); 529 or 561 or LWVE 582 for (E); 568 or consent for (J); 548 for (Q); 590D for (W). Co-requisite: 543 for (B). (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 contractors and federal, state, and local governments; examines the federal acquisition process, bids and proposals, and contract award controversies before judicial and administrative forums; reviews socioeconomic 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 development of the medium of the Internet has required legal practitioners to reexamine 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 the digital space, 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) Designed for students participating in an international exchange program, visiting student program, or independent study while enrolled at UH Mânoa. Student must obtain departmental approval prior to registering. CR/NC only.

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) regulation; (D) legislation; (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, regulation, 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, communities, and businesses.

LWEV 582 Environmental Law (V) Basic statutory law and policy questions and problems concerning the environment. Focus on federal Hawai'i issues.

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 including special Hawaiian problems. Repeatable one time.

LWEV 593 International Ocean Law (V) Examination of the history of international ocean law, including comprehensive coverage of modern problems and issues concerning the laws of the sea.

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. Travel/registration fees required. (B) Black Law Students Association; (C) client counseling; (D) Hispanic Bar Association; (E) environmental law; (H) Native American; (J) Jessup international; (K) international environmental law; (M) intellectual property; (N) labor; (O) other. 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.

Key to symbols & abbreviations: see the first page of this section.

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 one time, up to 4 credits. LAW majors only.

LWLW 537 Law Teaching Seminar I (V) Interdisciplinary seminar uses 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 (LWLW)

School of Law

LWLW 570 Introduction to American Law (V) General introduction to the fundamental principles and distinctive aspects of the American legal system and its institutions. Pre: L.L.M. students only.

LWLW 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 of countries that have followed the 1997 Asian Financial Crisis. Law students only. Recommended: LWIA 515, LWIA 554, LWIA 562. (Alt. years)

Examines the structure and role of the courts, judicial process, the legal profession and constitutional 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 cover 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. Includes 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 research. 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 property rights, and the common law. Repeatable one time. CR/NC only.

Learning Design and Technology (LTEC)
College of Education
LTEC 112 Technology Resources for Learning (3)
Virtual and hands-on analysis of technology resources and their application in instruction. Repeatable one time. LTEC majors only or consent. A-F only. Pre: LTEC major or consent.

LTEC 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.

LTEC 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.

LTEC 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.

LTEC 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.

LTEC 448 Links to Lifelong Learning (3)
Focused exploration of the implications of digital technologies to effective teaching/learning, including finding, evaluating, using, creating information on the web; culminating project involving designing, creating, and publishing a web portfolio with copyright law and standards. Repeatable one time. Pre: upper division standing (junior-) and consent.

LTEC 499 Directed Activity (V)
Individual work, supervised by instructor. May consist of reading, research, and/or projects. Repeatable two times, up to six credits. Pre: consent.

LTEC 500 Master’s Plan B/C Studies (1)
Enrollment for degree completion. Pre: master’s Plan B candidate and consent. Repeatable nine times.

LTEC 501 Professional Development in Educational Technology: Technology Skills for Educators (1)
Exploring technology resources needed for distance learning and classroom integration. Repeatable two times.

LTEC 502 PDET: Technology Skills for Educators (2)
Exploring technology resources needed for integration into classroom instruction. Repeatable one time. CR/NC only.

LTEC 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.

LTEC 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.

LTEC 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.

LTEC 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.

LTEC 600 Theory and Practice in Educational Technology (3)
The practice of educational technology and the role of instructional designers. Theoretical and philosophical foundations underlying practice that includes technology 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: LTEC major or consent.

LTEC 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: LTEC major or consent.

LTEC 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. LTEC majors only or consent. A-F only.

LTEC 612 Introduction to E-learning (3)
Introduction to e-learning and their application in formal and informal instructional settings. LTEC majors only or consent. A-F only.

LTEC 613 Instructional Design and Development (3)
Basic concepts and techniques of instructional design and development. Application to solving instructional problems in real-life situations. A-F only. Pre: LTEC major or consent.

LTEC 620 Visual Design (3)
Theory and practice involved in planning educational/instructional graphic and photographic material for print and computer-based media. LTEC majors only or consent.

LTEC 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: LTEC majors or consent. A-F only.

LTEC 623 Digital Video Design (3)
Development and utilization of digital video for the purpose of improving the teaching/learning process. A-F only. Pre: LTEC major or consent.

LTEC 632 Developing E-learning Environments (3)
Planning, design, and development of e-learning instruction for educational and training settings. Implementation of online environments such as student interaction, course management, testing, and content delivery using a learning management environments and open courseware. Repeatable one time. LTEC majors only or consent. A-F only. Pre: 673 or consent.

LTEC 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...
LTEC 642 Facilitating E-learning Communities (3) Exploration of tools and design considerations for effective online communication and development of learning communities. Pre: LTEC major or consent.

LTEC 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: LTEC major or consent.

LTEC 647 (Alpha) 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) educational games and simulations; (E) critical trends. Repeatable one time per alpha. A-F only. Pre: LTEC major or consent. (Fall only for (B) and (D)) (Spring only for (C) and (E))

LTEC 651 Interactive Multimedia Production (3) The utilization and application of advanced authoring tools, combining video, animation, graphics, and sound to support learning. Primarily for advanced LTEC students. LTEC majors only or consent.

LTEC 652 (Alpha) Authoring E-learning Environments (3) Conceptualization of instructional design and its application to the development of e-learning environments: (B) assisted instruction (CAI); (C) taught class; (D) virtual reality; (E) animation. Repeatable two times. LTEC majors only or consent.

LTEC 654 Programming for Games and Simulations (3) Project-based exploration of the breadth of programming in the context of educational games and simulations. Pre: LTEC major or consent.

LTEC 662 Assessment and Evaluation in Educational Technology (3) Evaluation and assessment processes, sources, and instruments applicable to systematic appraisal of learning with technology. Repeatable one time. A-F only. Pre: LTEC major or consent.

LTEC 665 Research Design: Multiple Methods and Traditions (3) Explores research methods used in educational technology with a focus on developing a design for dissertation research. Emphasis is on the use of digital technologies in data collection and analysis. A-F only. Graduate students only.

LTEC 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. LTEC majors only or consent. A-F only. (Once a year)

LTEC 668 Quantitative Research in Educational Technology (3) Application of methodological and statistical concepts in a projects-based classroom framework. Formative and summative evaluation, measurement, descriptive, and inferential statistics. LTEC majors only or consent. A-F only.

LTEC 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: LTEC major or consent.

LTEC 673 Planning for Technology and Resources (3) Planning, needs assessment, and change theory applied to technology support services and delivery systems. (B) management; (C) systems; (D) networks. Pre: LTEC major or consent.

LTEC 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: LTEC major or consent.

Library and Information Science (LIS)

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 and curriculum needs. Required for Librarian HDOE licensure. Pre: LTEC major or consent. (Cross-listed as EDCS 686 and LIS 686)

LIS 687 Instructional Design and Technology Pracicum (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. LTEC majors only or consent. A-F only.

LIS 689 LTEC 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. LTEC majors only or consent. Pre: instructor consent.

LIS 690 Seminar in Technology Leadership (3) Supervised activity in application of technology to teaching/training experiences. Repeatable three times. LTEC majors only or consent. A-F only.

LIS 692 Practicum in E-learning (3) Practicum in e-learning in academic or non-academic settings, under close supervision of capable mentors. Repeatable three times. LTEC majors only or consent. A-F only.

LIS 699 Directed Reading and/or Research (V) Individual reading and/or research. Repeatable for 3 credit hours maximum each term. Pre: LTEC major or consent.


LIS 701 Instructional Design Studio (3) Covers multiple instructional design models within the context of theory and research. Focus will be on studio approach to focus on facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources. LTEC majors only. Graduate students only: A-F only.

LIS 703 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 instructional materials. Repeatable unlimited times. LTEC majors only. A-F only.

LIS 750 (Alpha) Seminar in Educational Technology Issues (3) Study and discussion of significant topics and problems. (B) instructional development; (C) online communication; (E) research. Repeatable five times. A-F only. Pre: consent.

LIS 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 unlimited times. A-F only. (Once a year)

LIS 780 Mixed Methods Research Design (3) Mixed methods research is designed for PhD and masters students in educational sciences considering combining quantitative and qualitative 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 LIS 780)

LIS 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 for qualitative inquiry research project. Repeatable one time. LTEC majors only. A-F only. Pre: 667 or graduate level qualitative research course. (Summer only)

LIS 800 Dissertation Research (1) Research for doctoral dissertation. Repeatable five times. Satisfactory only.

Key to symbols & abbreviations: see the first page of this section.
ies 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. MLIS degree required course.

LIS 652 Introduction to Archives Management (3) Study of archival principles and management theories applicable to all types of archives. Includes professional ethics, applications of information technology, 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 relationships 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, 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 Boolean operators, free text and specialized functions to match retrieved resources with user needs. MLIS 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 principles, practices 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 620.

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 preference 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: 641, 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 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 target 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 the 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 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 LTEC 686) Pre: 601.

LIS 687 Hawaiian Studies Information Resources (3) Study 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 and criticism of literature format of online cata-
logs, 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 of socio-historical roots in China, Japan, and multicultural context.

LIS 690 Internship (3) Field experience in library or information agency settings with supervision of professional librarians and other personnel. 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, etc. Pre: 601.

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 and applications of online searching, etc. Pre: 601. 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 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)

LING 101 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. CR/NC only.

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. CR/NC only.

LING 103 Language and Symbolic Reasoning (3) Introduction to language as a formal symbolic system and to the techniques 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 emphasis on Hawai‘i and the Pacific; (B) unit mastery; (C) lecture discussion. A-F only.

LING 201 Language Documentation for Non-Linguists (2) Provides training in the fundamentals of language documentation 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 phonet-
ics, 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. Prereq: 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. Prereq: 320 or consent. DS
LING 346 The Philippine Language Family (3) Introduction: phonological and grammatical systems; historical developments; emphasis on Filipino, Cebuano, and Ilokano. Prereq: grade of B or better in 102 or 320 and experience with a Philippine language, or consent. DH
LING 347Pidgin and Creole Languages (3) Nature, history, structure, and geographic distribution of pidgins and creoles. Prereq: 102 or consent. (Alt. years) (Cross-listed as IS 347)
LING 410Articulatory 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 412Psycholinguistics (3) The mental processes involved in producing, understanding, and acquiring language. Students will conduct a small psycholinguistic experiment. Open to nonmajors. Prereq: one of 102, 320, or consent. DS
LING 414Introduction to Linguistic Anthropology (3) Introduction to the ethnographic study of speech and language. Prereq: 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 415) 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. Prereq: 102 or 320 or consent. DS
LING 420 Morphology (3) Theory of word structure; analysis of various morphological types. Prereq: 320 (or concurrent) or consent. DH
LING 421 Introduction to Phonological Analysis (3) Phonological analysis and theory. Prereq: 410. DH
LING 422 Introduction to Grammatical Analysis (3) Syntactic analysis and grammatical theory. Prereq: 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. Prereq: 102, 320, ICS 111, or PSY 100; or consent.
LING 430 Animal Communication (3) Investigates animal communication from the perspective of modern linguistics. Dispel 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. Prereq: 102 or consent. DS
LING 431Computational 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. Prereq: 102, 320, ICS 111, or PSY 100; or consent.
LING 441Meaning (3) Theories of how literal and figurative language meanings and processes of meaning encoding and decoding. Open to nonmajors. Prereq: 102, 320, ICS 111, or PSY 100; or consent.
LING 445Polynesian 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. Prereq: 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 undocumented language are determined by linguistic analysis of data obtained from speakers of the language. Prereq: 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. Prereq: 320. DS
LING 499Directed Research (V) Repeatable up to 3 credits. CR/NC only. Prereq: consent.
LING 500 Master’s Plan B/C Studies (1) Enrollment for degree completion. Prereq: master’s Plan B or C candidate and consent.
LING 511 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. Prereq: 410 or consent.
LING 515 The Nature of Language (3) Language as a communication system, current theories of grammar, meaning, sociolinguistics, linguistic change and comparison.
LING 617Acquisition and Language Revitalization (3) Provides training relevant to the study and revitalization of heritage languages and endangered languages. Prereq: 320 or equivalent.
LING 621 Phonology (3) Phonological theory and problems of analysis. Prereq: 421 or consent. (Fall only)
LING 622 Grammar (3) Grammatical theory and problems of analysis. Prereq: 421 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) inference. Prereq: 422 or consent.
LING 630 Field Methods (3) Work with native speakers of less-known languages to develop techniques for data collection and analysis. Repeatable unlimited times. Prereq: 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 SNOBOL 4. Applies to student’s research. Prereq: 421, or consent. DS
LING 632 Laboratory and Quantitative Research Methods (3) Laboratory and quantitative methods for research on language. Introduction to hardware, software, research designs, and analysis techniques commonly used in quantitative language research. Combines lecture, laboratory work and discussion. Prereq: graduate standing.
LING 640 Topics in Linguistics (3) History of the discipline, schools of linguistic thought, current issues, etc. A-F only. (G) general; (H) history of the discipline; (S) sociolinguistics; (F) phonology and phonetics; (M) Semantics; (Q) language acquisition; (R) written language; (S) sociolinguistics; (X) syntax; (Y) psycholinguistics. Repeatable unlimited times. Prereq: consent.
LING 700 Thesis Research (V) Repeatable up to 12 credit hours.
LING 710 Techniques of Language Documentation (3) Students learn to conduct best-practice digital language documentation projects, from equipment purchase to data collection to data annotation to archival and presentation. Prereq: 680 or consent.
LING 720 Language Typology (3) Language typology deals with how the diversity of language interact and function. Students acquire a broad overview of this grammatical make-up of languages in general and understanding of Functional-Typological linguistics. Graduate students only. Prereq: 320 and 422 or consent. (Alt. years)
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. Comprises lecture, laboratory work and discussion. Repeatable four times. Prereq: 632 or consent.
LING 750 (Alpha) Seminar (3) Reporting and discussion of current research in linguistics. (E) ethnolinguistics; (P) phonology and phonetics; (D) general; (M) semantics; (Q) language acquisition; (R) written language; (S) sociolinguistics; (X) syntax; (Y) psycholinguistics. Repeatable unlimited times. Prereq: consent.
LING 770 Areal Linguistics (3) Structures of languages of various areas of the world; diffusion. Repeatable unlimited times. Prereq: 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. Prereq: admission to doctoral program and consent.
LING 800 Dissertation Research (V) Repeatable unlimited times.

Management (MGT)
Shafter College of Business
MGT 320 Fundamentals of Entrepreneurship (3) Covers the role of new ventures and entrepreneurship 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. Prereq: BUS 315. DS
MGT 342 Multinational Business Management (3) Introduction to the unique problems and challenges of managing multinational business enterprise. Systems approach to multinational processes in such multinational firms stressed. Prereq: 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. Prereq: 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. Prereq: 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. Prereq: 320 or consent.
approaches. Format (lecture/lab/discussion) will vary by topic. Repeatable unlimited times. Graduate students only. A-F only.

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 projects. 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; competition and 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 and Sales Management (3) Delves into selling and the sales management process. Through a variety of activities, students experience applying selling techniques, sales planning, recruiting and training salespeople, methods of motivating and compensating, territory management and sales team communication. 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 311 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. Pre: 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 methodology to be used. 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 marketing decisions. Through hands-on experience, students learn software tools 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 modern 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 evolving marketing environment in a global environment. Applications to both developing and industrialized markets. Pre: BUS 623 or consent.

MKT 654 Strategic Brand Management and Marketing Communications (3) The study of brands and brand strategy management with emphasis on developing integrated advertising, sales promotion, public relations, and internet communication strategies that build brand equity. Includes relevant theory 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, service 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 theory introduced. A-F only. Pre: BUS 623 or consent. (Fall only)

MKT 688 Patient Centered Communication Management in Health Care Organizations (3) Provides training in managing patient communication in general and shared decision making in particular. Increases ability to use tools available to improve patient-provider decision making quality and satisfaction. A-F only. Pre: BUS 623.

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.

MATH 100 Survey of Mathematics (3) Selected topics designed to acquaint nonspecialists with examples 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: MATH 100.

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 is 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 of 134, 135, or 161. FS

MATH 190 Introduction to Programming (2) (FS) 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 operations with functions and their graphs; 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 of 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 concurrent. FS

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: 216 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 exam 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 and second order 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 and writing is an integral part of the course. Pre: 243 (or concurrent) or 253A, or consent.

MATH 331 Introduction to Real Analysis (3) A rigorous axiomatic development of one variable calculus, Completeness, topology of the plane, limits, continuity, differentiability, integration. Pre: 242 or 252A, or 321; 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, or 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 403 Partial Differential Equations II (3) Laplace’s equation, Fourier transform methods for PDEs, higher dimensional PDEs, spherical harmonics, Laplace server, 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, 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, eigenvalues, eigenvectors, unitary and Hermitian matrices, quadratic forms. Pre: a grade of B or better in 311 and 321, or consent.

MATH 412 Introduction to Abstract Algebra I (3) Introduction to basic algebraic structures. Groups, finite groups, abelian groups, rings, integral domains, fields, factorization, polynomial rings, field extensions, quotient fields. Emphasis on writing instruction. (These topics are covered in the year sequence 412–413.) Pre: 311 and 321, or consent.

MATH 413 Introduction to Abstract Algebra II (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 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: 321 or consent.


MATH 431 Principles of Analysis I (3) Topology of the Rn, continuous functions, Riemann integration, sequences and series, uniform convergence. Optional topics include function theorems, differentials and Jacobians. Emphasis on teaching mathematical writing. (These topics are covered in the year sequence 431–432.) Pre: 311, 321, 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, vector 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 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 projects. 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 domain, 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, soluble 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, various free lattices, coordinatisation 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, metrizability, 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, Poincare lemma, Stokes’ 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; (U) differential 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., Prime, and Logspace classes. Nondeterminism, parallelization, alternation, and Boolean circuits. Reducibility and completeness.

MATH 661 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 twice. Graduate standing in MATH. A-F only.

MATH 699 Directed Reading and Research (V) Maximum of 3 credit hours. Repeatable unlimited times.


MATH 799 Apprenticeship in Teaching (V) An experience-based apprenticeship program: students teach; students serve as student teachers to professors; responsibilities include supervised teaching and participation in planning and evaluation. Open to graduate students 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 to declared engineering majors.

ME 113 Introduction to Engineering Design I (2) (1 Lec, 1 2-hr Lab) Introductory experience in design. Pre: high school physics or consent.

ME 211 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: High School physics or consent.

ME 217 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 and generalized differential 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. Similarity, 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 crystal structure 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 component solutions 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). DP

ME 371 Mechanics of Solids (3) Stress, strain and constitutive relations; load and force introduction 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 (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. Pre: MATH 380, MATH 407, or PHYS 305 (or equivalent for any) and 375 (or concurrent). DY

ME 403 Advanced Mathematics for Engineers (3) Applications of ordinary differential equations, Laplace transform, vector calculus, theory, matrices, line integrals, Pre: MATH 244 (or MATH 253A), and MATH 302 (or MATH 307). DP

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:

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; orbit determination; orbit analysis and perfor- mance; 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 diffu- sion; diffusion in a stationary medium; diffusion in a moving medium; low and high mass transfer theo- ries; simultaneous heat and mass transfer; condensa- tion, evaporation; spray; transpiration and cooling; species boundary layers; engineering and design of heat and mass exchangers; current refrigerants and environmental regulations. A-F only. Pre: 422 or consent. (Spring only)

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 packag- ing 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 con- straints; multi-scale optimal design of mechanical, thermal, and natural systems; effectiveness of heat, fluid, and convective trees; theoretical design optimi- zation of manmade and natural power systems; analysis of time dependent structures. A-F only. Pre: 371 and 422 (or concurrent). DP

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) Meth- odology for the selection of materials for mechan- ical 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 experi- mental techniques in materials testing and research: x-ray diffraction, optical and electron microscopy, thermal and mechanical properties, electrical system methods—theory and hands-on experience. Pre: 341 and consent.

ME 436 Corrosion Engineering (3) Basics of cor- rosion processes and emphasis on corrosion control. Thermodynamics and kinetics of corrosion, metal al- loys 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, 2-2 hr Lab) Introduction to anisotropic materials, advanced manufacturing techniques for composite and intelligent materials, joining of composites, thin film processing and stereolithography, 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 nano- technology in design, modeling, simulations, analysis, fabrication, testing and characterization; nano-materials, nanocomposites, nano-coatings, 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 for root locus and Bode analysis. Routh/Nyquist stabili- ty. State space representation and introduction to MIMO formulation. Controllability/observability. Application to physical dynamic systems such as industrial robot. Pre: 312 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. Con- ventional, hydroelectric, nuclear fission and fusion, fuel cells. A-F only. Pre: 312, 322, and 422 (or concurrent) or consent. DP

ME 455 Nuclear Power Engineering (3) Nuclear reactor principles. Reactor heat transfer; heat genera- tion and removal; control of nuclear reactors; 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 gage stress conversion, principal and maxi- mum 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 480 Thermofluid Measurements and Design (3) Measurement techniques in thermodynamics, fluid mechanics and heat transfer in hands-on experi- ence with instrumentation. Open-ended design of thermofluid systems. Contemporary engineering eth- ics issues. Final report and presentation are required. A-F only. Pre: 422 (or concurrent).

ME 481 Design Project I (3) (1 hr Lab, 2-2 hr Lab) Engineering design methodology, design process, project planning, decision making, materials selection, economic analysis, quality control, finite element analysis, initiation of design project, A-F only. Pre: 372 (or consent) and 375 (or concurrent).

ME 482 Design Project II (3) (1 hr Lab, 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: 422 (or concurrent).

ME 491 Special Topics in Mechanical Engineer- ing (3) Specialized topics in thermosciences, me- chanics, materials, systems, or design. Pre: consent. ME 492 Special Topics in Mechanical Engineer- ing (3) Specialized topics in thermosciences, me- chanics, materials, systems, or design. Pre: consent.

ME 499 Project (V) Advanced projects in mechanical engineering design or develop- ment. Student must find faculty sponsor before registering. Pre: senior standing.

ME 500 Master’s Plan B/C Studies (1) DP


ME 611 Advanced Thermodynamics (3) Introduc- tion to general principles of classical thermodynam- ics. 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, flow control, aero- dynamic 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 622 Convection Heat Transfer (3) Heat transfer in laminar and turbulent boundary layers. Analogy between heat, momentum, mass transfer. Pre: 422 and 626.


ME 626 Viscous Flows (3) Formulation and prop- erties 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 opera- tions. Constitutive equations. Generalized Newtonian fluids and linear viscoelastic fluids. Rheometry and experiments. Flow of suspensions. Advanced topics and rheology of polymers, polymeric biomateri- als and asphalt, laboratories. Pre: 626 or consent. (Spring only)


ME 636 Fundamentals of Electrochemistry (3) Thermodynamics of cells, electrode kinetics, mass transfer by migration and convection, elec- trode techniques, forced convection, impedance, double-layer structure, and absorbed intermediates in electrode processes. Pre: consent.

ME 645 Clinically Driven Design and Devel- opment (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 666 Mechanics and Design Composites (3) Introduction to composites; anisotropic elasticity and laminate theory; hygrothermal effects; composite beams, columns, rods, plates, and shells; energy methods; failure theories; joining of composites; computer-aided design in composites. Pre: 371 or consent.

Key to symbols & abbreviations: see the first page of this section.
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 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, trans formations, 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 592)

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) High-level specialized topics in thermodynamics, 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 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: permission 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, PSTD. (Fall only)

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 under served care. MD majors only. CR/NC only. (Pre: D). Pre: FMCH, MED, OBGN, PED, PSTD. 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 (5) Laboratory on rigid-body mechanics; Lagrangian mechanics; Hamilton's principle of least action; electrical, thermal, and mechanical properties of materials. A-F 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 concepts of health and disease through MD 1 health care problems. MD majors only. CR/NC only. Co-requisite: 551L. (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 concepts of cardiovascular and pulmonary health care problems. CR/NC only. Pre: 551 and 551L. Co-requisite: 552L. (Fall only)

MDED 555 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 concepts of gastrointestinal and endocrine health care problems. CR/NC only. Pre: 555 and 555L. Co-requisite: 554L. (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 (8) 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: 556L. (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 563 Third Year Colloquia (2) A series of lecture-discussions intended to broaden the perspectives of third-year medical students on 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 student 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: 574 or consent. (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. Repeatable one time. 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: 585 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 selectsives in medical education for second-year medical students. (B) rural health preceptorship; (C) health care 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

Key to symbols & abbreviations: see the first page of this section.
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 451 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: 451 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, and clinical analysis, 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 532 Internal Medicine Longitudinal Clerkship (8) Six-month long clerkship in ambulatory setting, and six-week hospital-based experience. Repeatable one time 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) pediatrics; (P) nuclear medicine; (Q) oncology; (R) pulmonary diseases; (R) research in medicine; (S) rehabilitation medicine; (T) critical care medicine; sub-internship. Pre: 531 or 532 for (C), (E), (F), (G), (H), (I), (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 elective 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 (Effective Spring 2016, changes to MET/ATMO)

MET/ATMO 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 Hawaii.

MET/ATMO 101L Introduction to Meteorology Lab (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). DP

MET/ATMO 103 Introduction to Atmospheric Dynamics (3) Scalar and vector development of basic laws of hydrodynamics, equations of motion, kinematics, divergence, vorticity, vorticity and turbulence, introduction to numerical weather prediction, general circulation. Pre: 501 and MATH 241.

MET/ATMO 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: 200, MATH 242, and PHYS 272; or consent. DP

MET/ATMO 303 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/ATMO 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/ATMO 395 Undergraduate Internship (V) Experiential approach to earth science; students serve as interns to field professionals. Includes supervised field work. Open to undergraduate SOEST majors. Repeatable one time. CR/NC only. Pre: junior/senior standing and consent. (Fall only)

MET/ATMO 399 Undergraduate Directed Reading (V) Individual reading in ocean sciences. Repeatable one time, up to three credits. MET/ATMO students only. Junior and senior standing only. A-F only. Pre: consent.

MET/ATMO 402 Advanced Atmospheric Dynamics (4) Advanced concepts in atmospheric physics, cyclogenesis, jet streams, fronts, mesoscale circulations. Pre: 305. DP

MET/ATMO 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/ATMO 406 Tropical Meteorology (3) History; tropical clouds and hydrometeors; typhoons; monsoons; local and diurnal effects. Pre: 305. DP

MET/ATMO 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/ATMO 416 Tropical Analysis Lab (3) (2 3-hr Lab) Techniques of portraying and analyzing at-
MET/ATMO 499 Undergraduate Thesis (1) Capstone for senior Meteorology majors. Undergraduate thesis project involving literature review, experiment or research design, data collection and analysis, technical writing of a final thesis paper and oral presentation of the paper. Junior and senior standing only. A-F or (Capstone) or Repeatable one time. Pre: 402 (or concurrent) or MATH 402 or MATH 405; or consent.

MET/ATMO 600 Atmospheric Dynamics I (3) Governing equations for moist atmospheric motions, approximations, basic theoretical models, boundary layer dynamics, atmospheric waves, quasi-geostrophic theory for 2-D flows. Pre: 402, and either MATH 402 or MATH 405; or consent.

MET/ATMO 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/ATMO 606 Cumulus Dynamics (3) Dynamics of convective systems: tornadoes, waterspouts, squall lines. Interactions with synoptic scale. Pre: 620 or consent. (Alt. years)

MET/ATMO 607 Mesoscale Meteorology (3) Scale analysis. Observational and theoretical aspects of mesoscale circulation systems. Pre: 600 or consent. (Alt. years)

MET/ATMO 610 Tropical Climate and Weather (3) Climate and general circulation of the tropics; El Niño and Southern Oscillation; interseasonal oscillation; trade winds; tropical weather systems; energy balance; typhoons. Pre: 303 or consent. (Alt. years)

MET/ATMO 611 Satellite Data Applications (3) Lectures and laboratory sessions for students to develop hands-on skills in data manipulation, analysis, and visualization using Matlab. A-F only. Pre: 620 or consent. (Alt. years)

MET/ATMO 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/ATMO 616 Advanced Meteorology (3) Synoptic components of monsoons, regional and temporal variability, numerical models, research exercises. Pre: 610 or consent. (Alt. years)

MET/ATMO 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/ATMO 628 Radar Meteorology (3) (2 lec, 1-3 hr. Lab) Principles and practice of radar remote sensing as used in the atmospheric sciences, specifically clouds, aerosols, precipitation, ocean and land cover datasets from various satellites. Develop skills in data manipulation, analysis, and visualization using Matlab. A-F only. Pre: 620 or consent. (Alt. years)

MET/ATMO 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 models for students to construct and run immediate tropical atmosphere and ocean models. Pre: 600.

MET/ATMO 708 General Circulation of the Atmosphere (3) Theory, observations, large-scale analyses, and global models of the atmosphere. Pre: 600 or OCN 620, or consent. (Alt. years)

MET/ATMO 752 Special Topics in Meteorology (3) Concentrated studies on selected atmospheric problems. Repeatable two times. Pre: 600 or consent.

MET/ATMO 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/ATMO 800 Dissertation Research (V) Repeatable unlimited times.

MET/ATMO 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/ATMO 666 Large-Scale Ocean-Air Interaction (3) Ecosystem and ecosystem physics, 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 over 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/ATMO 699 Directed Research (V) Repeatable unlimited times.

MET/ATMO 700 Thesis Research (V) Repeatable unlimited times.

MET/ATMO 792 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 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/ATMO 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, prediction of future climate. Repeatable one time. Pre: 600 or OCN 620, or consent. (Alt. years)

MET/ATMO 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 models for students to construct and run immediate tropical atmosphere and ocean models. Pre: 600.
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, bioengineering, 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. DP

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 4.0 in virology. Pre: consent. DP

MICR 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent. DB

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 MBIO 601) DB

MICR 614 Research Ethics (1) Introduction to ethical principles 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: spring)

MICR 632 Advanced Microbial Physiology (3) Selected topics. Pre: 431 or consent. (Alt. years: spring)

MICR 646 Plant-Bacterial Interactions (3) Diagnosis, immunity, genetics, and infection mechanisms of bacterial plant pathogens and symbionts. Pre: one of 351, 475, or BIOL 481; or consent. (Cross-listed as PEP 464)

MICR 652 Advanced Marine Microbiology (3) Advanced microorganisms in diverse habitats with consideration of applications of marine microbes, interactions with larger 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, BIOL 441; or consent. (Alt. years: fall)

MICR 671 Bacterial Genetics (3) Directed study and discussion of research literature on bacterial and viral 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 microorganisms with abiotic and biotic components of their environments. Modern techniques for study of ecology and synecology of microorganisms. Pre: 485 or 485R or consent. DP

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 problem proposals. Pre: 451, 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 cadets following the ROTC advanced course. Credit will be given for 203 or basic courses, but not both. Pre: consent.

MSL 201 Intermediate Military Science I (3) Explores creative and innovative tactical leadership strategies and styles through historical case studies and engaging in interactive 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 uniform, common courtesies, and traditions.

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 as cadets experience 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 course. 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, 201, 202; or consent.

MSL 302 Leading Small Organizations II (4) (2.5 Lec, 1.5-hr Lab) Intense situational leadership challenges to build cadets expertise 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, and develop 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, stronger relationships among cadets through common experience and practical interaction are critical.

Key to symbols & abbreviations: see the first page of this section.
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. MCB 475 or BIOL 275, or consent. (Cross-listed as MICR 475) DB

MCB 475L Bacterial Genetics Lab (2) (3 hr/2 Lab) Techniques for study of transfer and expression of prokaryotic genes: transformation, conjugation, transposon mutagenesis, preparation and analysis of plasmid and bacterial chromosomes. 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) Fundamentals of 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. Development of 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. 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 BEd, 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 through 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 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 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.


Key to symbols & abbreviations: see the first page of this section.
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 music. 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) Philip- pines; (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 small 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) Theoreti- cal techniques in music of the 20th and 21st centu- ries; emphasis on writing as the synthesis of concepts. Investigation of important stylistic movements. Pre: 286 and 288.

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, mu- sical 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; (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 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 majors only. Study of 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 level. 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, methodological 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 alphabas.

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 historiographic 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; consent.

MUS 680 (Alpha) Studies in Music Theory (3) (B) stylistic counterpart to 1700; (C) stylistic counterpart from 1700; (D) advanced analysis; (E) comparative theory; (F) history of theory; (G) contemporary techniques and resources; (H) aonal 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 notated and nonnotated traditions. 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. Individual study for students preparing to write a thesis. (E) grading 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. Pre: consent.

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 applied music education. Pre: consent of instructor. Repeatable in different alphabas.

MUS 702 Seminar for Doctoral Students (V) Selected topics centered around areas pertinent to the student's degree needs and research interests. Pre: permission of instructor. Repeatable in different alphabas. Pre: appropriate to topic or consent.

MUS 750 (Alpha) Seminar in Music Education (3) Selected problems in music education. Pre: consent of instructor. Repeatable two times. MUS majors only. Graduate students only. 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 notifies the student a reasonable time in advance of the excused absence.

Registration for lessons and choices 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 adding 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 first performance 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; (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 three semesters. Pre: audition.


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 advanced level. See 231 for list of sections. (E) conducting. Repeatable for six semesters; repeatable five times, up to 12 credits for (E). A-F only for (E). MUS majors only for (E). Juniors and seniors only for (E). Pre: advancement from 231 or consent; any 231 or consent for (E).

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. Weekly repertoire laboratory required. Full recital required for completion of this performance level. See 232 for list of sections. Repeatable two times. Pre: consent.

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 450 Applied Health Disparities Research (V) Instruction on social determinants of health, issues of health equity, and how these issues can be addressed through research. Discussions and activities promote a greater understanding of health disparities research. Repeatable unlimited times. Pre: consent.

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, culture and contributions of the Pacific. CR/NC only. Pre: admission to Imi Ho‘ola Post-Baccalaureate Program.


NHH 503 Medical Biology I (11) (2 Lec, 2 Tuto

r, 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 Tuto

r, 1 3-hr Lab) Continuation of 503. Pre: 503.

NHH 505 Medical Biochemistry I (3) Provides 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 testing, 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.
### Natural Resources and Environmental Management (NREM)

**College of Tropical Agriculture and Human Resources**

**NREM 105 Environmental Service Learning I** (3) Experiential service learning course for students participating in the Hawai‘i Youth Conservation Corps summer program as team members and leaders. Repeatable one time. Hawai‘i Youth Conservation Corps summer program students only. A-F only. (Summer only)

**NREM 200 Environmental Service Learning II** (3) Experiential service learning course for students participating in the Hawai‘i Youth Conservation Corps summer program as Hana Hou members. Hawai‘i Youth Conservation Corps summer program students only. A-F only. (Summer only)

**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, applied maxima and minima) 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 inference 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 the nature 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 PEP 210) DB

**NREM 220 Agricultural and Resource Economics** (3) Introduction to basic economics concepts, including demand, supply, exchange, market price and market 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 economic 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. Pr: 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 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 assessment. Pr: 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 1-hr Lab) Origin, development, properties, management of tropical soils; classification of Hawai‘i soils. A-F only. Minimum prerequisite grade of C or consent. Pr: PREM 161 and 161L. (Fall only) (Cross-listed as TPSS 304) PD, DS

**NREM 306 Environmental Ethics** (3) Application of traditional moral theories to environmental issues. Development and evaluation of specific environmental ethical theories. Application of ethical theories to environmental problems. A-F only. Pr: 210 or GEOG 102 or PHIL 104 and 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 the current relevance to students preparing for careers in applied plant sciences. Oral focus designation. A-F only. Pr: 210 or TPSS 200, or consent. (Cross-listed as TPSS 311)

**NREM 341 Accounting and Financial Analysis** (3) Principles and management 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. Pr: 220 or ECON 130 or consent. (Cross-listed as TPSS 341)

**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 applications to environmental improvement and projects; case studies. Pr: 220 or ECON 130 or consent. DS

**NREM 380 Tropical Forestry/Agroforestry** (3) (2 Lec, 1 1-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 global and regional development, and the development of sustainable management systems for rural communities will be discussed. Pr: CHEM 151 or higher and BIOL 171 or higher. (Alt. years: spring) DB

**NREM 399 Directed Study** (V) Limited to exceptional students qualified to carry on advanced study. Pr: consent. DS

**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 framework. Topics include sustainable development, extension programming, participatory learning and communication, evaluation, and conflict management. Pr: 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 agricultural management through optimization models of scheduling, logistics, risk analysis, inventory, and forecasting. Emphasis on problem identification, model formulation and solution, and interpretation of results. Pr: ECON 210, 310 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 a global perspective. Pr: CHEM 161 or consent. One or two field trips may be required. Class size limited to 25 students. Pr: BIOL 172 or consent. (Alt. years)

**NREM 461 Soil and Water Conservation** (Past and present issues of 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. Pr: 301 or 304. DP

**NREM 463 Irrigation and Water Management** (Basic soil-water-plant relationships, irrigation water requirements, irrigation efficiencies, different methods of irrigation, as well as TPSS 200). Pr: CHEM 151 or equivalent and NREM/TPSS 304 or equivalent, or consent. (Alt. years) DP

**NREM 467 Native Lands Conservation Planning** (3) Designed for students to identify essential nutrients required by plants; diagnose nutrient disorders in plants; and propose environmentally sound solutions to correct disorders. Pr: 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. Pr: either 310 or MATH 140 or MATH 373, and 301; or consent. (Once a year)

**NREM 478 Fundamentals of Soil Science** (3) (Cross-listed as TPSS 478)

**NREM 480 Applied Forest Ecology** (3) Application of ecological theory to sustainable management of forest resources in Hawai‘i 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. Pr: 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. Pr: consent.

**NREM 492 Internship** (1) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pr: 301.

**NREM 492I Internship Experience** (3) Internship work experience for NREM majors. NREM majors only. A-F only. Pr: 301 (or concurrent) and consent.

**NREM 494 Environmental Problem Solving** (3) (2 Lec, 1 1-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 communication. 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 applications of the framework in selected subject areas. (Spring only) Pre: one ECON course.

NREM 605 Research Skills (2) Assists the student in developing the ability 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: AEC 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 reserves in agriculture and role in economic development. Pre: ECON 608 and ECON 629. (Cross-listed as ECON 637)

NREM 652 Information Research Skills (1) Examination and utilization of information technology for scholarly investigation in support of scientific research; provides experience utilizing and critically analyzing primary and secondary literature. 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 in using databases 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 modeling of small watersheds: 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) Management of 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 hydrology, 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 for 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. 461), 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 ecosystems, 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 foundation ecosystem 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 of ecosystems. Pre: WRI 375 and either ZOOL 480 or BOT 462; and either ZOOL 410, 439, 620, 623, BOT 453, 454, 456, or 492. (Cross-listed as BOT 670 and ZOOL 690)

NREM 691 Advanced Topics in Natural Resources and Environmental Management (V) Lecture 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.

Key to symbols & abbreviations: see the first page of this section.

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), or 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. Pre: 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 Pinch (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 worldviews of belief, invention, and system thinking.

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. Pre: MATH 305

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. Pre: PHYS 305

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 ZOOL 619)

See also the biology professional development course, BIO 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 prerequisites courses is C 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 200 Introduction to Professional Nursing I (1) This first level course focuses on nursing practice and education. Professional responsibilities in the practice of nursing are emphasized. NURS majors only. A-F only. Pre: admittance into HS-DEN program. (Fall only)

NURS 201 Introduction to Professional Nursing II (1) This second level course builds on the knowledge and skills gained in the first level and focuses on professional responsibilities in nursing practice and education. NURS majors only. A-F only. Pre: admittance into DEN program. (Spring only)
NURS 210 Health Promotion Across the Lifespan
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. Pre: 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
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
Professional responsibilities of nursing practice are examined for the purposes of maintaining, promoting, and improving the health of the public. Focuses on professional behaviors, ethical decision making, and the social, cultural, and environmental context of nursing practice. Pre: admission to the School of Nursing and Dental Hygiene, or consent. Co-requisite: 210, 210L, and 212.

NURS 212 Pathophysiology
Focuses 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-requisites: 210, 210L, and 211.

NURS 220 Health and Illness I
Focuses on nursing assessment to support identification of risk factors and detection/prevention of complications from illness. NURS majors only. A-F only. Pre: 210L, 210L, 211, and 212, or departmental approval. Co-requisite: 220L.

NURS 220L Health and Illness Lab (6)
Clinical course focuses on using nursing assessment to support identification of risk factors and detection/prevention of complications from illness. NURS majors are integrated into clinical experiences. NURS majors only. CR/NC only. Pre: 210L, 210L, 211, and 212. Co-requisite: 220.

NURS 300 Introduction to Evidence Based Practice and Health Promotion
Provides an introduction to the HSNC 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 306 Statistics in Nursing Research
Focuses on the basic concepts and applications of statistics as applied to nursing research. NURS majors only. A-F only. Pre: admission to the Executive RN to BS in Nursing Program. (Summer only)

NURS 320 Health and Illness II: Family Health
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 340 Contemporary Ethical Issues in Health Care
Explores contemporary ethical issues and their implications for 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
Focuses on the aging process, the biocultural 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
Focuses on historical, cultural, and political influences on health care. Focus on decision-making in professional practice and social policy formation. Pre: open to non-nursing majors with consent.

NURS 360 Health and Illness III
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. CR/NC only. Pre: 320 and 320L or departmental approval. Co-requisite: 360L.

NURS 360L Health and Illness III Lab
Clinical course focuses on complex situations requiring application of strong recognition skills and rapid decision making. Evidence base supporting assessment and intervention is explored. NURS majors only. CR/NC only. Pre: See 320 and 320L.

NURS 361 Health Education and Promotion
Provides an overview of the concepts and application of health education and health promotion theories and principles as applied 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 I
Continuation of 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. Pre: 320 and 320L or departmental approval. Co-requisite: 360 and 360L.

NURS 363 Introduction to Nursing Research
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: college-level statistics course.

NURS 399 Directed Reading/Research I, II
Limited to juniors and seniors in nursing.

NURS 402 Student Ambassador Program
Focuses on professional leadership development, mentorship, and professional skills for nurses. Students learn to be representatives between the Department of Nursing and alumni, prospective students, and the general public. NURS majors only. A-F only. Pre: one semester as a Nursing Student Ambassador.

NURS 411 NCLEX Review (2)
Overview of the NCLEX-RN licensure examination and regular, systematic practice in taking multiple choice examination. Pre: open to non-nursing majors with consent.

NURS 420 Cooperative Education in Nursing
A two-semester cooperative educationprofessional role development in addition to paid work experience in nursing at a local agency. Upper division NURS majors only. Repeatable 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
Survey of complementary and alternative therapies used for health promotion of individuals and groups. NURS majors only. Pre: open to non-nursing majors with consent.

NURS 432 Veteran-Military Culture, Educational, and Health Care Needs
Provides a broad overview of the Veteran-Military population and their unique culture, educational, and health care needs. Open to non-nursing majors. A-F only.

NURS 439 Management for Health Professionals
Focuses on basic management concepts. Emphasizes problem solving methods as a means of determining situational 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
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
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, 465, and 465L.

NURS 452 Cultural Aspects of Health Management in Populations Indigenous to Hawai‘i, the Pacific, and Asia (3) Focuses on one semester as a Nursing Student Ambassador. NURS majors only. CR/NC only. Pre: 450 and 465L. Co-requisite: 460.

NURS 460 Complex Nursing and Leadership
Theory course emphasizes the judgments, knowledge, and skills necessary for nursing practice, including case management, quality management experiences. NURS majors only. A-F only. Pre: 450 and 465L. Co-requisite: 460.

NURS 461 Advanced Pathophysiology and Neurobiology
Provides an advanced understanding of pathophysiologic mechanisms 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 462 Community Health Nursing for Executive RN
Theory course focuses on community health nursing with an emphasis for the Executive RN on strategies applied to improve health and health promotion. NURS majors only. A-F only. (Fall only)

NURS 462L Community Health Nursing for Executive RN Field Work (3) Field work focuses on community health nursing with an emphasis for the Executive RN 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: 301 and 306. Co-requisite: 363 and 462L.

NURS 462L Community Health Nursing for Executive RN Field Work (3) Field work focuses on community health nursing with an emphasis for the Executive RN 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: 301 and 306. Co-requisite: 363 and 462L. (Fall only)

NURS 465 Psychiatric-Mental Health Nursing

NURS 465L Psychiatric-Mental Health Nursing Lab
Application of the nursing process involving human responses to psychiatric and mental illness in relation to physiologic, psychological, social, cultural, and environmental health. Focuses on self-awareness, therapeutic communication, and holistic, individualized health-related outcomes. NURS majors only. CR/NC only. Pre: 360, 360L, and 363.
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 and completion of 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 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 biotreatments 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 their 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); 675 (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 biopsychosocial 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, mecanisms 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 Introduction to Information Technology in Healthcare (3) Introduction to the use of information systems in healthcare. Selected information systems and data sets are explored with application of results to various patient populations and clinical practice settings.

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 care needs. Includes management of chronic illnesses and 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 639 Disposition Knowledge (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 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 preceptor'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. Pre: consent. (Spring only)

NURS 661 Human Resource Management in Healthcare Agencies (3) Focuses on managing human resources from a systems perspective. Pre: 663 (or concurrent) or consent. A-F only. Pre: 612/612L, 613, and 629 (or concurrent).

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 executive 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, managing, and evaluating health care super- vision and 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: 675 (once a year).


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 biostatistical techniques and the application of statistical findings to practice programmatic decisions. NURS majors only. Repeatable one time. 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 community 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. NURS majors only. Repeatable 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: 675 (once a year).

NURS 680 Cultural Competency in Nursing Education (3) Evaluates the impact on the culture of nursing and nursing education. NURS majors only. A-F only. Pre: 675 (once a year).

NURS 682 Health and Healing Practices of Populations 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. Pre: 612/612L, 613, and 629 (or concurrent).

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 692 Methods for Nursing Research (3) Nursing research methods for qualitative and quantitative studies, institutional review board procedures, and how to develop a research proposal. NURS majors only. A-F only.

NURS 693 Advanced Practice Clinical for Clinical Nurse Specialists (V) Application of concepts and principles of education, consultation, research, and management and evaluation of, and identifies facilitators and barriers to, practice change. NURS majors only. A-F only. Pre: consent.

NURS 695 Successful Aging: Psychologic (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 populations including common health problems and concerns specific to...
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 552 courses.

OBGN 545 (Alpha) Electives in OB/GYN (V) Opportunities for advanced study of selected topics. Pre: advanced standing; 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) undergraduate and graduate elective 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 MU 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 100 The College Experience (0) Required for entering SOEST majors to develop skills and applications for a successful college experience. Students will examine academic goals and implement strategies to achieve goals including time management and career exploration. SOEST majors only. CR/NC only.

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 the impact of human activities on their exposure to and mitigation of the hazards. DP

OEST 109 Contemporary Issues in Energy Systems (3) Introductory experience in energy systems including current status of fossil fuel, renewable energy technologies, energy utilization and conservation; environmental and policy aspects. A-F only. (Fall only)

OEST 350 Ethics in Scientific Research (1) Introduction to issues of ethics in scientific research and scientific misconduct. GG, GES, or MET/ATMO 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 disciplines with 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.
Ocean and Resources Engineering (ORE)

School of Ocean and Earth Science and Technology

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 SOCS 735)

ORE 654 Applications in Ocean Acoustics (3) Using sound to observe the ocean. Fundamentals of propagation. Topics include marine mammals, navigation and communication, seisms, ships, wind and rain, ocean dynamics, flow and biological imaging and measurement, seafloor mapping, and the forward/reverse problem. Pre: consent. (Once a year)

ORE 661 Coastal and Harbor Engineering (3) Planning and design of seawalls, groins, jetties, breakwaters, and other coastal structures. 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. Emphasis is placed 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 Resources Engineering (3) Activities in marine minerals development are examined in a multidisciplinary systems approach involving engineering, Earth and environmental sciences, and economics in a standing committee setup. 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 766 Numerical Methods in Ocean Engineering (3) Formulation and application of numerical methods for simulating and solving ocean engineering problems. Mathematical and computational fundamentals and scientific constraints. Pre: MATH 242, PHYS 170/170L, CHEM 161/161L, or ORE 301, or consent. (Repeatable DP)

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 varies depending on 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: graduate standing and consent 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 105 Sustainability in a Changing World (3) Examines how environmentally sustainable and non-sustainable practices have affected the development and spread of human culture and societies from pre-history to the 1500s in Asia, Africa, Europe, the Americas, and Hawaii/Oceania. (Fall only) FGA

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 (2) (2-hr Lab) Laboratory to supplement OCN 201. Quantitative and qualitative 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. (Repeatable DP)

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 desertification and the effects of climate change, etc. Pre: OCN 201, MET/ATMO 200, GG 101, GG 103, or GG 170; or consent. (Cross-listed as MET/ATMO 310) DP

OCN 310L Global Environmental Change Laboratory (2) Laboratory to supplement OCN 310. Quantitative and qualitative 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. (Repeatable DP)

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 solution. 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 corrections. 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 software tools for managing and analyzing data, 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 and participate in supervised field work. Undergraduate SOEST majors only. Open to GES majors. Repeatable one time. CR/NC only. Pre: junior/senior standing and consent.
tific 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 50 students; specializations, 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 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 602 Marine Biology-Processes and Impacts (4) (3 hr LeC, 3 hr Lab) Investigation of biological phenomena and their production of 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) (Cross-listed as MBIO 602)

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 631 Biogeochemical Cycles (3) Factors governing productivity, population dynamics, distribution of organisms in major ecosystems of the ocean, emphasis on pelagic zone. GES majors only. Pre: consent.

OCN 622 Geophysical Oceanography (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, 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, 3 hr Lab) Ecology of pelagic animals including feeding, energetics, predation, and anti-predation tactics. Life-history strategies, vertical flux of material, population dynamics, fisheries. Pre: consent. (Spring only)

OCN 628 Benthic Biological Oceanography (4) (3 LeC, 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 Ecol- ogy (3) Molecular methods for studying marine ecological processes and the development of new methods 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 include benthos, pelagic, deep-zonation, energetics, diversity, adaptations, hydrothermal vents, seamounts, abyssal plains, deep-sea resource extraction, and global climate change. Pre: consent. (Alt. years)


OCN 633 Biogeochemical Methods in Oceanogra- phy (3) (1 LeC, 2 3-hr Lab) Current methods of analysis used in the ocean sciences, both in the lab and in the laboratory. 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 quarter. Pre: consent (Fall only)

OCN 637 Aquatic Microbial Geochemistry (3) The synergy between the biogeochemistry of element cycling and the microbial organisms involved, interplay across different scales, 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 637)

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; ocean climate and climate prediction. Pre: 620 and consent.


OCN 642 Elemental Composition Changes (3) (Global chemical composition of the crust and 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 Geochimstry (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 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 253.

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, and attenuation. Major oceanographic 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 and 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/ATMO 660 consent. (Alt. years) (Cross-listed as MET/ATMO 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 Nino/Southern Oscillation, the North Atlantic Oscillation, the Pacific Decadal Oscillation, and global climate change. Repeatable one time. Pre: 620 or MET/ATMO 660, or consent. (Alt. years) (Cross-listed as MET/ATMO 666)

OCN 667 Advanced Geophysical Fluid Dynamics I (3) Basic concepts 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 Paleoclimatology (3) Study of the paleoclimatic and paleoceanographic records 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 productivity. Students will learn biological, physical dynamics, basic numerical methods, and Matlab programming. Pre: 620, 621, or consent. (Alt. years)

OCN 682 Introduction to Programming and Statistics in R (3) Hands on Lab. Introduces project management, data analysis, and mathematical and statistical modeling using R as a platform. Students will learn principles and benefits of programming languages to apply skills to their own research. (Spring only)

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 several of the 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, remote sensing, etc. Typically given by visiting professors in their specialties, or in response to student interest. Repeatable up to 12 credits. Pre: consent.

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. 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 999 Overseas Study (V) Registration allows students 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 and Island Studies. Concerns about 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 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 dynamics of Pacific Islander migration; parameterization of turbulent fluxes. Pre: MATH 403. DS

PACS 301 Pacific Communities in Hawai‘i (3) Examines Pacific Islander communities’ experiences in Hawai‘i through service learning, reading, writing, lecture, discussion, and fieldwork. A-F only. Pre: 108 or 201 or 202, or consent. DS

PACS 302 Contemporary Issues in Oceania (3) Combined lecture/discussion examining critical political, social, and economic issues in the Pacific Islands region today. Pre: 108 or 201 or 202, or consent. DS

PACS 305 Thinking Through Pacific Arts, Ritual, and Performance (3) Lecture, discussion, and workshop series surveys arts, ritual, and performance practices throughout the Pacific. Engaging with Pacific traditions of thought, and creative approaches to research, students also return findings to Pacific communities. Repeatable one time. Pre: upper division standing or higher. Pre: 108 or 201 or 202 or 301 or 302.

PACS 371 Literature of the Pacific (3) Basic concepts and representative texts for the study of the literature of the Pacific. Includes Pacific voyages 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. Pre: PACS 301 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. 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 474 Studies in Pacific Literature (3) Intensive study of selected questions, issues, traditions, writers, movements, or genres in the field of Pacific literature. Repeatable one time. Pre: ENG 320 and one other 300-level ENG course. (Cross-listed as ENG 474) DL

PACS 492 Topics in Pacific Islands Studies (3) Repeatable two times. Pre: 201 or 202 or 301 or 302 or consent. DS

PACS 493 Moving Images in the Pacific Islands (3) Critically examines indigenous and foreign representations of the Pacific Islands and is designed to make film a central focus of inquiry for students interested in the contemporary Pacific. Repeatable one time. Pre: 108 or 201 or 202 or 301 or 302 or 303.

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. Pre: consent.

PATH 512 Unit II Concurrent Elective (1) Elective course for first-year medical students. CR/NC only. Pre: BIOM 551 and consent.

Key to symbols & abbreviations: see the first page of this section.
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, and (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 551.

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: MDED 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 concerning 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) Bio-cultural, 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 alternative 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 and policies. Pre: any 200 level 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 430 Leadership for Social Change (3) In-depth study of current models and emerging theories of ethical leadership in community service; development of tangible leadership skills, including communication, conflict resolution, team-building, and management skills. Sophomore standing or higher. A-F only. Pre: any 200-level DS course. DS

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 the Mediation Center or on mediation panel. Pre: either 247, 310, or consent.

PACE 477 Culture and Conflict Resolution (3) Conflict resolution techniques for major world cultures. 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.

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. Pre: 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 simulate, construct, 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 SOSC 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, 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 or consent.

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 governments, 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 660 Family Mediation (3) Theory and skills in practicing divorce and custody mediation. Negotiation and conflict intervention skills used by social workers, lawyers, and other intervenors in family conflict. Focus on Hawaii’s divorce and custody laws and practices. Repeatable one time. Graduate students only. A-F only. Pre: consent.

PACE 668 Facilitation: Facilitating Community and Organizational Change (3) Advanced conflict resolution course. Covers key issues in the prevention, management and resolution of multiplicity 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 in 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 specialty areas in which medical students may receive clinical experiences and an in-depth study of elected 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) Sub-Internship in 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 pediatrics; (R) Sub-Internship in pediatric critical care; (S) Pediatric radiology; (T) pediatric ultrasound; (U) pediatric nephrology. 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
PHRM 111 Intensive Beginning Modern Persian (6) Combined content of 101 and 102 covered in one intensive course. HSL

PHRM 201 Intermediate Modern Persian I (4) Continuation of 102. Listening, reading, writing, speaking, knowledge of syntax and structure, and culture integrated in a variety of communicative and creative activities. Pre 102, 111, or consent. HSL

PHRM 202 Intermediate Modern Persian II (4) Continuation of 201. Pre: 201 or consent. HSL


PHRM 302 Third-Level Modern Persian II (3) Continuation of 301. Pre: 301 or consent.


PHRM 402 Fourth-Level Modern Persian II (3) Conducted in Persian. Advanced reading, writing, and conversations. Cultural contemporary and historical topics. Pre: 401 or consent.

PHRM 451 Structure of Modern Persian (3) Introduction to phonology, morphology, syntax, and semantics of Modern Persian. Pre: 202 or consent.

**Pharmacology (PHRM)**

**School of Medicine**

PHRM 205 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, organism 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. Focus on synaptic chemistry and signaling. A-F only. Pre: CMIB 606, or consent from the course director. (Cross-listed as CMIB 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 some of the solutions that have been attempted. Pre: DB or DP designation; or consent. DH

PHIL 208 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 beings, 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 100 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: any 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 ethical issues through readings, discussions 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 100 or above in PHIL or above 100 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 above 100 in 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 100 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: any 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 in PHIL, or above 100 in PHIL or ARAB, 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, Bhagavad Gita, Vedanta, Jainism, Buddhism. Pre: any course 100 or above in PHIL or PILL or SNSK, or DS designation; or consent. DH

PHIL 360 Buddhist Philosophy (3) Survey of central thinkers and schools. Pre: any course 100 or above in PHIL, or any course 100 or above in PHIL, or above 100 in CHN, JPN, PALI, SNSK, or DS designation; or consent. DH

Key to symbols & abbreviations: see the first page of this section.
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 410 Introduction to Zen (Ch’an) Buddhism 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 alphabets, not in same alphabet. 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) Contem- porary 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) Introduction to each of 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 theoretical and practical issues of teaching 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 and 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 is- sues 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 inter- pretation. Pre: graduate standing or consent.

PHIL 630 History and Theory of Science (3) Ex- ploration 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 310.

PHIL 670 Confucianism (3) Ethical, social, institu- tional problems in classical theory. Repeatable one time with consent. Pre: graduate standing or consent. Recommended: 370.

PHIL 671 Neo-Confucianism (3) Logic, episte- morey, 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 six credits. Pre: 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 phi- losopher. 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) Ma- jor 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 philosophical 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 translators). 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 790 Seminar in Comparative Philosophy (3) Comparison of wide-ranging 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 152/152L 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: PHYS 100 or equivalent. DP

**PHYS 109 Physics in the Arts (3)** Introduction to physics of sound and light, with applications to music and visual arts: sound perception, harmony, musical scales, instruments; lenses, cameras, color perception and mixing. Uses algebra and geometry. Intended primarily for non-science majors. DP

**PHYS 121 How Things Work: Physics for Ev- eryday 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). DP

**PHYS 152 College Physics II (3)** Electricity, mag- netism, optics, modern physics. Pre: 151 or 170. 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). DP

**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

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Key to symbols & abbreviations: see the first page of this section.
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) (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 for physicists. Pre: 151 or 170 and MATH 242 or MATH 252A. MATH 216 may be substituted with consent. Co-requisite: 272L. DP

PHYS 272L General Physics II Lab (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) (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 (4) (3 Lec, 1 3-hr Lab) Analysis of physical systems and problem solving using computers and numerical methods. Pre: 152 or 272 or MATH 244 (or concurrent) or MATH 253A (or concurrent); or consent. DP

PHYS 310 Theoretical Mechanics I (3) Particle dynamics, rigid-body dynamics, planer motion. Pre: 151 or 170 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 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. 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 600 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 and MATH 252A (or concurrent). MATH 216 may be substituted with consent. Co-requisite: 170L. DP

PHYS 475 Electronics for Physicists (4) (3 Lec, 1 3-hr Lab) Investigation of Kirchoff’s Laws, electromagnetic circuit theory. Fourier analysis and stability analysis of 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 layout; feedback configurations; 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, Schrödinger 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 postionion 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. DP

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 postionion 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. DP

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. DP

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. DP

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. DP

PHYS 650 Electrodynamics I (3) Potential theory, Maxwell’s equations, optical wave 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. years)

PHYS 670 Quantum Mechanics (3) Physical basis and formulation of quantum theory. Exact solutions of Schrödinger equation and their applications. Approximation methods. Applications to atomic, nuclear, and condensed matter physics. Pre: 400 or 481 or 600 and MATH 402. DP


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 712 Seminar in Elementary Particle Physics (1) Reports and discussion on recent developments in elementary particle physics. Repeatable four times. Pre: consent.

PHYS 730 Physical Statistics 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 breakdown, Higgs and Goldstone bosons; the standard electroweak theory; grand unified theories. Pre: 772. (Alt. years)

PHYS 777 Nuclear and Particle Physics (3) Nuclear physics; electrodynamics; 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 dissertation. Repeatable unlimited times.
Physiology (PHYL)

School of Medicine

The minimum grade required for undergraduate 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. (Cross-listed as KRS 113) 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 201L Human Anatomy and Physiology Lab (1)
Laboratory study of human anatomy and physiology by means of models, histology slides, experiments, and demonstrations. Co-requisite: 201 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. DB

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 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 endocrine system). 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, physiology, and physics 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 populational and biocultural 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; diversity, 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, gastro intestinal, endocrine, and neuropsychology. 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 course.

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.

PEPS 310 Environment and Agriculture (3)
Overview of environmental issues 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 societal 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, diversity, and ecology of insects with emphasis on Hawaiian fauna. Classification to order level. A-F only. Pre: BOT 101 or ZOOL 101 or BIOL 171; or consent. DB

PEPS 363L General Entomology Laboratory (1)
Laboratory in 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. Gene mapping and identification, and plant and animal breeding as practical applications. Repeatable one time. A-F only. (Cross-listed as TPSS 371)

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)
Classification, morphology, ecology, and biology of bacteria, fungi, nematodes, and viruses that attack economic crops. Effects 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 ap proaches for plant health management. Pre: 211 or Prepares students for research applied 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 only one time. A-F only. Pre: 210 or consent. (Fall only) (Cross-listed as TPSS 418)

PEPS 421 Foundations of Pest Management (4)
Principles and concepts of insect pest management. Prerequisites: Molecular, ecological, behavioral, physiological, 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 (3)
Diagnostics, epidemiology, and integrated management of important plant diseases. Important crop 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)
Lect, 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)
Detailed study of weeds, and their interactions with crops. A-F only. Pre: one of the following: CHEM 152 or CHEM 272, and CHEM 162 or CHEM 171, or CHEM 171, or BOT 101; or consent. (Spring only) DB

PEPS 484 Insect-Microbe Interactions (3)
Multi-disciplinary 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 systems. May be offered by visiting faculty, extension faculty or research faculty. Repeatable two times.

Key to symbols & abbreviations: see the first page of this section.
PEPS 495 PEPs Capstone (4) Integration and application of academic knowledge and critical skills emphasizing professional development, Directed Research, field studies, employment with cooperating business, 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.

PEPS 601 Agrosecurity and Food Safety (2) Concepts of agrosecurity and food safety (including plant and animal biosecurity), global impacts of introduced pests and diseases, and current mechanisms for interception of pests and mitigation of disease. A-F only. (Fall only)

PEPS 605 Biology of Plant Pathogens: Fungi and Nematodes (4) (2 Lec, 2-3 hr. Lab) Principles and concepts in pathogen biology, epidemiology and management of plant diseases caused by fungi, oomycetes, and nematodes. Laboratory techniques for isolation and identification of pathogens and disease diagnosis. A-F only. (Fall only)

PEPS 606 Biology of Plant Pathogens: Bacteria and Viruses (4) (2 Lec, 2-3 hr Lab) Principles and concepts in pathogen biology, epidemiology and management of plant diseases caused by bacteria and viruses. Laboratory techniques for isolation and identification of pathogens and disease diagnosis. A-F only. Pre: 605 (with a minimum grade of B). (Spring 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/laboratory assistant. 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 BIOG 481, MICR 351, MICR 475; or consent. (Cross-listed as MICR 464)

PEPS 652 Molecular Plant-Fungus Interactions (3) Focus on interactions of plant pathogenic fungi/oomycetes and their host responses at the molecular and cellular level. Current synthetic and genomic approaches to study plant-fungal interactions will be discussed. Graduate standing only. Pre: consent. (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 health. Pre: 402 or consent.

PEPS 664 Plant-Viral Interactions (3) Invertebrates and viruses in the context of evolution, epidemiology, and management of viral plant diseases. Pre: consent of instructor. Pre: graduate standing or consent.

PEPS 666 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 BIOG 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- and cellular insect-pathogen interactions and management strategies are employed. A-F only. Pre: graduate standing in entomology or tropical plant pathology.

PEPS 688 Insect Transmission of Plant Pathogens (V) Directed research, critical reviews in environmental protection sciences, entomology, or plant pathology. Repeatable unlimited times. CR/NC only.


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. Pre: 100 level or consent.

POLS 120 Introduction to World Politics (3) Power and contemporary world politics since 1945 with emphasis on the U.S. role. Pre: consent.

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.

POLS 150 Introduction to Global Politics (3) Foundations in global politics political, historical, and multicultural perspectives. A-F only. FGB

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. Pre: consent.

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. Pre: consent.

POLS 190 Media and Politics (3) Influences and effects of media on politics. Setting public agendas, political mobilization, and political movement. Pre: consent.

POLS 200 Reading and Writing Politics (1) Develop skills needed to read and write political texts. Weigh competing views; read and analyze texts for what they do and do not say; craft and defend evidence-based arguments; practice writing mechanisms and style. Repeatable two times. POLS majors only or consent. A-F only.

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. Pre: consent.

POLS 241 Political Design and Futurostics (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. Pre: consent.

POLS 271 Race and Politics (3) Racial inequality in the U.S.; mechanisms of institutional racism in employment, education, criminal justice, electoral politics.

POLS 301 Hawai’i Politics (3) Introduction to and critical study of institutions, governments, and political processes in Hawai’i. Pre: consent.

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.

POLS 303 Alpha Topics in Hawai’i Politics (3) Intensive examination of particular institutions, processes, and issues. Pre: consent.

POLS 304 Indigenous Politics (3) Conceptualizing politics from the perspective of indigenous epistemologies, philosophies, language, and social and political movement. Pre: any 100- or 200-level POLS course or consent.

POLS 305 Global Politics/Comparative (3) Introduction to global politics with emphasis on concepts and theories developed from a comparative perspective. Pre: consent.


POLS 307 (Alpha) Topics in Comparative Politics: Country/Regional (3) Political, social, and economic processes in specific countries/regions. Pre: consent.


POLS 310 (Alpha) Topics in Hawai’i Politics (3) Intensive examination of particular institutions, processes, and issues. Pre: consent.

POLS 315 Global Politics/International Relations (3) Introduction to global politics with emphasis on concepts and theories developed from an international relations perspective. Pre: consent.

POLS 317 International Law (3) Nature and function of international law in international politics. Pre: consent.

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.

POLS 319 International Organization (3) International relations of governmental and nongovernmental organizations. Pre: consent.

Key to symbols & abbreviations: see the first page of this section.
POLS 321 International Migration (3) Political-cultural economy of international migration: post-colonial populations, refugees, and immigrants. Pre: sophomore standing or, 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, or consent.

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.

POLS 324 Global Environmental Politics (3) Evolution of 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 taken, cannot be AMST 325)

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. (A) 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 339)

POLS 340 Korean Politics and Society Through Film (3) Examines modern Korean politics and society through films. Through movies and documentary materials, students will learn major sociopolitical issues including military dictatorship, democratization, and globalizing that Korea underwent for the last several decades. Repeatable one time. Sophomore standing or, A-F only.

POLS 341 The Politics of Media (3) Study of the political manipulation of aural and visual images. Exercises to improve 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.

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 Na Politika ma ka Nihou Hawai‘i - Political Media 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, 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, or consent. (Fall only)

POLS 372 Asian Women (3) History, culture, and contemporary reality of Asian women in Asia and the U.S. Includes Asian American feminist methodology and theory. Pre: one of 339, AMST 310, AMST 316, 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 major events and processes (participation, apathy, socialization, symbolic process, media, etc.); ideologies and belief systems. Pre: sophomore standing or, or consent.

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, or consent.

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, or consent.

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.

POLS 377 Topics in Law and Politics (3) Current issues; recent research findings; practical research undertaken by student. Pre: sophomore standing or, or consent.

POLS 378 Topics in American Politics (3) Specific institutions and processes of the American governmental system. Pre: sophomore standing or, or consent.

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, or consent.

POLS 380 Environmental Law and Politics (3) Focuses on theories, law, policies, and future of U.S. environmental politics. Sophomore standing or, Pre: any 100 level POLS course, or consent. (Alt. years) 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; constitution of the administered individual. Pre: sophomore standing or, or consent.

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, or consent.

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.

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 361 (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 agenda 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 501) DS

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, unions, and collectives; indigenous 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 scientism and reaches for nonviolent alternatives in politics. Pre: any 100- or 200-level POLS course, or consent. (Cross-listed as PAGE 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 junior standing. DS

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 Congressiol 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

Key to symbols & abbreviations: see the first page of this section.
POL 500 Master’s Plan B/C Studies (1) Enrollment for degree completion. Pre: master’s Plan B or C candidate and consent.

POL 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.

POL 601 Political Analysis and Theory Building (3) Survey of theory-building, approaches and validation techniques.

POL 602 Research Techniques and Analytic Methods (3) Quantitative models and statistical inference techniques.

POL 605 Topics in Methodology (3) Specific methodological techniques and practices introduced in 601 and 602. Pre: graduate standing or consent.

POL 610 Political Theory and Analysis (3) Major contemporary approaches and styles in political theory, philosophy, and analysis.

POL 611 Tradition of Political Philosophy (3) Discussion of texts and themes in the Western political tradition from Plato to Nietzsche. Repeatable one time.

POL 612 Hawaiian Political Thought: Theory and Methodologies/Na Mana’o Polityka Hawai’i (3) Study of Hawaiian political thought 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)

POL 615 (Alpha) Topics in Political Thought (3) Specific traditions and individuals, or particular issues and problems. (C) feminist theory. Pre: graduate standing or consent. (CC) Cross-listed as WS 615.

POL 620 Introduction to Indigenous Politics (3) Historical treatment of the contact between state and indigenous peoples in the Americas, Pacific, and Asia. Pre-announced topics. Repeatable one time.

POL 621 Politics of Indigenous Representation (3) Politics of indigenous representations in media, literature, and academic scholarship.

POL 630 International Relations (3) Analysis of theories: actors, decisions, systems, conflict, integration, alternative approaches to validation. Pre: graduate standing or consent.

POL 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.

POL 635 (Alpha) Topics in International Relations (3) (B) international relations and war; (E) international organization; (F) modeling international systems. Pre: graduate standing or consent.

POL 640 Comparative Politics (3) Emphasis on Asia, theories of development, and comparative methods. At least one section a semester.

POL 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.

POL 645 (Alpha) Politics and Development: Regional (3) Politics in particular regions; particular development processes. (C) China. (CC) Cross-listed as ASAN 608 and PLAN 608.

POL 646 (Alpha) Politics and Development: Topical (3) (F) political ecology and development. POL 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 devise will be emphasized, as will American influence and penetration abroad. A-F only. Pre: graduate standing or consent. (Once a year)

POL 650 Public Administrative Theory (3) Focus varies among theoretical, comparative and developmental approaches to study of administration. One section each semester.

POL 651 Political Leadership (3) Exploration of political leadership as a focus for research, teaching, and applied political science.

POL 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.

POL 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.

POL 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)

POL 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.

POL 673 The Future of Political Systems (3) Normative and descriptive forecasts of political institutions, systems, subsystems, and behaviors. Design of preferred systems.

POL 675 Topics in Public Policy (3) Particular processes, specific political institutions, or particular policy area. Pre: graduate standing or consent.

POL 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.

POL 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.

POL 685 (Alpha) Topics in Asian and/or Pacific Politics (3) (C) Korean politics. Pre: graduate standing or consent.

POL 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.

POL 695 Colloquium (3) Specialized subjects in political science.

POL 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.

POL 699 Directed Reading and Research (V) Repeatable unlimited times. Pre: consent.

POL 700 Thesis Research (V) Repeatable unlimited times. Pre: consent.

POL 730 Seminar: International Relations (3) Pre-announced problems of both international organization and politics. Repeatable. At least one section a semester.

POL 740 Seminar: Comparative Government and Politics (3) Pre-announced topics. Repeatable. At least one section a semester.

POL 770 Seminar: Public Policy (3) Pre-announced topics. Repeatable three times. Pre: consent of instructor. At least one section a year.


POL 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 these futures.

POL 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 course is required for continuance.

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 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 psychiatry, 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 psychiatry and medical practice. Repeatable two times. Pre: third-year standing and concurrent registration in 532 courses.
PSY 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 active 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 OBGN, PED, MED, SURG; (H) sub-internship in adult PSTY; (I) substance abuse; (J) PSTY aspects of rehabilitation 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.

PSY 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)

PSY 599 Directed Reading/Research (V) Pre: consent.

Psychology (PSY)

College of Social Sciences

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 401 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 (5) Selected topics in the psychology of knowledge and mind from Western and/or non-Western perspectives, basic principles of learning, basic 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)


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 of the statistical differences, measurement, or aspects of psychometrics. Repeatable to six credit hours. Pre: 100. DS

PSY 610 Introduction to Regression (3) Introduction to quantitative methods in behavioral sciences and the general linear model with a focus on regression. Topics include correlation, bivariate and multiple regression, mediation, and moderation. 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.

PSY 612 Applied Regression and Analysis of Variance (3) Introduction to linear statistical models. 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.

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 growth analysis. Pre: 610, 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) Topics in measurement 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, and latent variable analysis 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: 610, 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 behavioral, social, and experimental methods requirement or elective).

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 memory, attention, and learning. Survey of major theories and findings in cognitive psychology. Pre: 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 622 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.

PSY 801 Psychology of Learning (3)

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 336 Sensation and Perception (3) In-depth coverage of the basic principles involved in sensing and perceiving our environment. PSY majors only. A-F only. Pre: 100. (Fall only)

PSY 439 Psychobiology: Advanced Topics (3) Coverage in-depth of some area of theory and research in psychobiological, physiological psychology, or sensory processes. Repeatable to six credit hours. Pre: 100. DB

PSY 631 Comparative Psychology (3) Comparatative 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 Psychopathology (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) DB

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 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. 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 (5) 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 Social 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, intersexual 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.

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: consent.


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 522. 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 scientific-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 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 Psychopathology (3) Comprehensive study of the mental disorders across the lifespan. A-F only. (Once a year)


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: 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, interpersonal relations, cultural identity, 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 area of theory and research. Repeatable to six credit hours. Pre: 100. DS

PSY 500 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.
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 portraits of leadership, and talking together with guests about the challenges of leadership, effective followship, and positive change. A-F only.

PUBA 623 Organizational Communication (3) Explores the communication and interpersonal skills that are critical to effective leadership, including the principles and methods used to conduct and analyze organizational communication; assessments of strengths and weaknesses of organizational communications systems.

PUBA 624 Intercultural Challenges in the Public Sector (3) Seminar on the dimensions of cultural variation; 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. A-F only. Pre: graduate standing or consent.


PUBA 626 Collaborative Public Management (3) Theories, skills and tools needed to effectively manage networks in government and nonprofit organizations. Topics include managing diversity, employment law and discrimination, performance appraisal, and labor-management relations. PUBA and PUBA Cert. majors only. Graduate students only. A-F only. (Spring only)

PUBA 627 Public Administration Research Methods (3) Introduction to research methods for graduate students and administrators to understand the principles and methods used to conduct and analyze valid research. Examples are oriented to the field; theory and hands-on practice utilized. PUBA and PUBA Cert. majors only. Graduate students only. A-F only. (Spring only)

PUBA 628 Public Budgeting (3) Institutions and issues related to public-sector budgeting at federal, state, and local levels. Processes of developing public budgets and constraints on public policy reflected in budgets. PUBA majors only. A-F only. (Fall only)

PUBA 629 Policy Analysis and Implementation (3) Explore contemporary policy issues relating to public administration. Develop analytic techniques and models of public policy-making processes, administrative rules and policy implementation strategies. Learn how social forces, political, and economic factors influence policy orientation. PUBA majors only. A-F only. (Spring only)

PUBA 630 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 695 Capstone Planning Seminar (V) Develops topics, methods, objectives, and resources to guide work of capstone seminar. A-F only. Pre: 602, 603, 605, 607.

PUBA 696 Capstone Seminar (3) Culminates public administration coursework by incorporating theoretical, analytical, and practicum observations into examination of public issues of importance to Hawaiʻi and the region. A-F only. Pre: 695.

PUBA 699 Directed Reading (V) Repeatable unlimited times.

PUBA 700 Thesis Research (V) Repeatable unlimited times.
PH 455 Biostatistics I (3) Introductory course on statistical methods for public health sciences. Probability, descriptive statistics, hypothesis testing, estimation, and quality assurance. Pre: consent. (Cross-listed as GHPS 652)

PH 505 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 analysis, and study design, and association and causation.

PH 530 Analytic Approaches to MCH (3) Advanced Epidemiology. Topics covered include: analytical epidemiology, health policy, and management. Pre: 520 or consent. (Once a year)

PH 566 Seminar in Infectious Disease Control (3) Strategies for controlling important infectious diseases in the Pacific region. Emphasis on understanding the physiological, ecological, and public health principles. Pre: 663 (or concurrent) and one semester in microbiology, public health, or epidemiology. Repeatable one time. A-F only. Pre: MICR 461 (or equivalent) or consent. (Cross-listed as TRMD 604)

PH 650 Ecological Epidemiology (2) Examines micropopulation dynamics and the epidemiology of infectious diseases. Topics include: disease ecology, population genetics, and the impact of population size and composition on disease. Pre: PH 520 or consent. (Cross-listed as TRMD 605)

PH 667 Infectious Disease Micro II (3) Will cover different families of antiviral agents in 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 663 or MICR 351, or consent. (Cross-listed as TRMD 605)

PH 688 Public Health Program Planning (2) Combined seminar and laboratory course on 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: 502 or consent.

PH 700 Master’s Plan B/C Studies (1) Enrollment for degree completion. Pre: master’s Plan B or C candidate and consent.

PH 450 Introduction to Biostatistics (3) Basic biostatistics methods in public health and biomedically oriented 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 425 or PSY 225.


PH 490 Directed Reading/Research (V) Repeatable up to six credits. PH majors only. Junior standing or higher.

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 Public Health Foundation (2) Focus will provide a broad introduction to the field of public health and an understanding of current trends, practices, and issues in the delivery of health care services. Repeatable one time.

PH 610 Public Health Biology (3) Writing-intensive asymmetric computer-based course examines interactions between the biology of health care factors and the public health system. Pre: U.S. health care professional. A-F only. Pre: PH 465, completion of one semester of calculus; or consent.

PH 623 Social Science and Public Health (3) Individual and community health; implications for public health practice, individual and social change processes.

PH 420 Social Behavioral Health I: Health Promotion for Individuals and Groups (3) Focus on the application of social and behavioral theory in health education and promotion. New health promotion programs are created for various populations with an emphasis on cultural diversity and social determinants of health. Pre: PH 420. A-F only. Pre: 201 and 310.

PH 430 Health Policy and Management (3) Examines the role that health policy and management play in public health practice, including the delivery, quality, and costs of health care and the structure, process, and outcomes of health services delivery. Senior standing or higher. A-F only.

PH 445 Introduction to Environmental Microbiology (3) Lecture/discussion. Will define the nature and biological activities of microorganisms in different environments and evaluate the effects of these microbes on human activities and health. Pre: PH 310. A-F only. Pre: 201 and 310.

PH 480 Application of Public Health Principles in Research and Practice (3) Introduction to a diverse range of public health projects and associated methods that public health professionals use in applied learning project proposal. PH majors only. Junior standing or higher. A-F only. Pre: 201 and 310.

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 reflect on, finalize, and present their applied learning experience projects. Senior standing and higher. A-F only. Pre: 480 and 485.

PH 505 Principles of Epidemiology I (3) Introductory course on 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 analysis, and study design, and association and causation.

PH 564 Seminar 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. Stress group approaches to solve community health problems. A-F only.

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 646 Grant Writing in Public Health (1) Explains how to develop and write grant applications for federal, state, and local programs, and private foundations. Pre: consent.

PH 649 Needs Assessment (3) Introduction to needs assessment and its practice in public health program planning. Pre: consent. (Cross-listed as GHPS 659 and SOC 659)

PH 650 Epidemiology I (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 GPHS 651 and SOC 651)

PH 651 Introduction to Human Population (3) Application of descriptive and methodological approaches to the study of human population. Emphasis on understanding the pattern of human population change, the factors that influence this change, and the implications of population change for society. Pre: 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 of Health (3) Examinations 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 practice. With a focus on Indigenous Peoples’ health, we delve into Indigenous knowledge and empowerment in evaluation, needs assessment, intervention, and health promotion. Major or consent. Graduate students only. Pre: 655 and 673. (Fall only)

PH 676 Hawai’i Public Health Policies on Infectious Diseases (1) Examines quarantine/isolation of patients infected with Hansen’s disease. Focus on PH policies before 1823 and after; analysis of other infections in Hawai’i and the world to examine differences in policies and their effect on the public. Graduate students only. Repeatable one time. A-F only.

PH 677 Managing Global Health Service Delivery (3) Provides knowledge, skills, attitudes and resources that health managers require to manage and maintain the quality of partnerships, facilities, programs, community services, people, drugs, and information in diverse settings. 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 public 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 (3) Examines a variety of issues associated with nutritional and supplemental approaches to reduce disease incidence/tomorbidity, and mortality in relation to public health prevention strategies. PH majors only. (Cross-listed as FSHN 684)

PH 685 Indigenous Child and Adolescent Nutrition (3) Addresses nutrition, growth, and development in children and adolescents and nutrition-related issues, such as childhood obesity and chronic disease risk factors, with a focus on current research in the Pacific region. Pre: FSHN 370 or consent. (Fall only) (Cross-listed as FSHN 686)

PH 688 Indigenous Peoples’ Food Systems, Environment and Health (3) Explores Indigenous Peoples’ food systems as local food resources Indigenous Peoples' interactions with 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. Pre: 647 or 737, or consent.

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, political, and environmental change. A-F only. (Once a year) (Cross-listed as GHS 690)

PH 691 Fundamentals of Environmental Epidemiology (2) Examines the complex relationship between environmental contaminants and human health. Includes examination of multiple epidemiologic study design, environmental exposure monitoring and risk assessment, disease and environmental exposure mapping, and spatial data analysis and modeling with GIS. A-F only.

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 695 Promoting Physical Activity (3) Overview of the theoretical and applied study of physical activity epidemiology. Course content includes benefits, factors that influence, levels, valid instruments to assess, and programs to promote physical activity. (Fall only) (Cross-listed as KRS 695)

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 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 core 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, 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. For- mulating hypotheses, discussions, reflection, writing assignments, and a fieldwork project. DPH 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 729 Scientific Explorations in Social Justice for Indigenous People (V) Provides students with an advanced application of health disparities research methodologies to address health and social injustices faced by Indigenous people. Builds on previous courses to advance and produce scientific scholarship. PH majors only or consent. Graduate students only. A-F only. Pre: 737.

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 742 Qualitative Research for Public Health Sciences (3) Provides a basic understanding of qualitative research approaches, methodologies, and techniques and for public health research and practice (needs assessment, program development, and evaluation strategies). Graduate students only.

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 748 Chronic Disease Epidemiology (3) Will cover selected topics in chronic diseases with critical analysis of the current epidemiologic 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 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. The course 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

Key to symbols & abbreviations: see the first page of this section.
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 factor epidemiologic 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 690)

PH 757 Evolution, Epidemiology, and Public Health (2) Will explore several aspects of human health through the perspective of how natural selection and evolution influence disease risk, with the aim of improving treatment and prevention. Graduate students only. A-F only. Pre: 663 (with a minimum grade of B). (Alt. years: fall)

PH 765 Program Evaluation (3) Presented are principles of and frameworks for program evaluation. Students develop and evaluate plans for a community program, and collect and analyze evaluation data. A-F only. Pre: 649. (Spring only)

PH 770 (Alpha) Doctoral Seminar in Translation-Research (2) Required for students in the DrPH program. (B) Doctoral 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 three times. Each alpha can only be taken one time. A-F only. Pre: 602 and 625 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. Repeatable unlimited times. Graduate standing in PH only. A-F only. Pre: 602 and 625 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. Standing only. Graduate standing only. A-F only. Pre: 602 and 625 and 655 and 663 and 681. (Alt. years)

PH 774 Managing Health Organizations (3) Reviews theories, knowledge, and practical skills that improve the capacity of health organizations to manage their challenges and generate public value. Pre: 655 or consent.

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- 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 current 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 coursework 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: 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.

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 role 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 may range from 1-3 and practicum. A-F only. Pre: up to 9 credits. Instructor consent only. A-F only. Graduate standing only.

Real Estate (RE)  
Shider 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; investment, 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 use planning, environmental law, 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 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 evaluated and reported. 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 technologies.

Religion (REL)  
College of Arts and Humanities  
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) Taoism, 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 traditions 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 religions, and modernism. (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; methodological approaches 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 literary 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. (Offering only 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 338 Religion, Politics, and Society (3) Exploration of the diverse approaches and perspectives that American religious traditions embrace with respect to some of the more controversial and diverse elements of contemporary American life. Pre: 150 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 mysticism: asceticism, monoeoneism, philosophy, love, union, sainthood, ecstatic experience, and spiritual uses of art. Pre: 209 or 231 or PHIL 310 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, 153; or consent. (Once a year) 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 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: one of 150, 209, 210; 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 400 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, millenial 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 anthropological work on the daily lives of monks, nuns and lay persons in their socio-cultural contexts. Pre: 207, 242, 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 SOCC 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 religion in 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 functions of religion; methodologies by which they are understood. Pre: one of 201, HIST 151, 152, 153. (Cross-listed as ANTH 444)
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 301.
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 the religious systems of Polynesia. Pre: one of 150, 203, 204; 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, 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 research in 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) Seminar on 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 (B) and up to nine credits for (C) and (D). Pre: 661B or 661C for (D).
REL 662 (Alpha) Seminar on South Asian Religions (3) Selected historical, thematic, and textual research topics in Indian religions: (B) Indian religions; (C) 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 religions. Repeatable up to ten credits. Pre: 663B or 663C.
REL 664 Seminar in Global Christianity (3) Examines topics in global Christianity, the conjunctions leading to Christianity as a worldwide religion, instantiations of Christianity 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). (C) Repeatable.
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.


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 definitions of gender 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. 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 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, bylines, 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 202. 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; lecture-discussion, short paper. Pre: 201. 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 LNG 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 408 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 Communicating 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

Key to symbols & abbreviations: see the first page of this section.
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 and evaluation of achievement and proficiency. Pre: upper division standing. DS.

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. Includes an emphasis on instruction and feedback in oral communication. Pre: 302 (or concurrent). DS.

SLS 408 Bilingual Education (3) Survey and analysis of current thinking and practices in bilingual/bicultural education. Includes emphasis on ESL. Includes an emphasis on instruction in writing. Pre: 302 (or concurrent) or 600 (or concurrent); or consent. DS.

SLS 418 Instructional Media (3) Theoretical foundations 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 430Pidgin 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 320, 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), or consent. 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 acquisition; (P) second language teaching; (U) second language teaching. Pre: 302 (or concurrent), or consent. DH.

SLS 610 Introduction to Teaching Second Language (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 published materials; practice in developing syllabi and other materials. 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 experimental 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 LING 403.

SLS 650 Second Language Acquisition (3) Survey of theories and research on second language learning by children and adults, learning naturallyistically 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 and their application 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 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 and their application 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 planning and creating survey instruments (both interviews and questionnaires), administering, compiling and analyzing survey data (quantitatively and qualitatively), and reporting research findings. Pre: one year of research methods. DS.

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.

SLT 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 research 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 techniques to discourse-analytic, 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 acquisition; (P) second language pedagogy; (R) second language research methodology; (U) second language use. Repeatable one time for different alphabas. 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 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.

Key to symbols & abbreviations: see the first page of this section.

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 valuable.

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 225 Statistical Analysis for Social Sciences (3) Statistical reasoning in the analysis of social sci-
ence 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 of DS.

SOC 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

SOC 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 how they are countered in service learning activities in the community. Repeatable two times. CR/NC only.

SOC 601 Topics in Teaching Innovations (3) Examination and critical analysis of contemporary curriculum development and issues in social sciences. Concepts, theories, principles underlying active learning, critical thinking, values inquiry, assessment, and multidisciplinary approaches to integration of knowledge.

SOC 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 skills. 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. A significant portion of class time is dedicated to writing instruction congruent with professional expectations. Pre: 302 (complete with C or better) and majors only. Co-requisite: 391.

SW 325 History of Social Welfare (3) Historical development 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 Hawaii’s social service programs. Pre: 325, DS.

SW 360 Human Development and Behavior for Social Work Practice (3) Examination of social and cultural variations in 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, 362 (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 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: 391.

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 Hawaii’s 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; 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 individual study and 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) Introduction to research design and data analysis; research design principles and their relationship to practices; use of published research. A-F only. Pre: graduate standing. (Fall only)

SW 650 Research Design 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. (MAY be 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, ANCOVA with repeated measures, and ANCOVA, Pre: 601 or consent.

SW 656 Multivariate Methods (3) Multivariate forms of multiple linear regression model and analysis of variance and co-variance. Multiple discrimi- nant 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 ecological factors and their relationship to problems 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 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. (Fall only)

SW 674 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: 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 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 nonomothetic and idiographic research; design principles and data collection and analysis; common inquiry methods requirement or elective.)

SW 645 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, ANCOVA with repeated measures, and ANCOVA, Pre: 601 or consent.

SW 656 Multivariate Methods (3) Multivariate forms of multiple linear regression model and analysis of variance and co-variance. Multiple discrimi- nant 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 ecological factors and their relationship to problems 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)

**Key to symbols & abbreviations:** see the first page of this section.
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 (S) 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 (S) 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 planning, critical thinking, and application of knowledge and research information are 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 applications 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 prerequisite. 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 health care 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, 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, adjustment reactions) and legal 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 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 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 across the life span 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 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 most 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 guidance 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 methodology in collecting and analyzing 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 Practice (3) Students develop 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: Hypothetical, 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) Culuminating 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 HAW 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, 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. 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: 100 or any 200-level SOC course, or WS 151 or WS 202; or POLS 110; or consent. (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-causal models and 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, psychology, 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 learning 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 and informal 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 doctors, nature of healing professions; use of medical services; alternative systems of medical organization. DS

Key to symbols & abbreviations: see the first page of this section.
SOC 641 Seminar in Historical and Comparative Criminology (3)

SOC 655 Seminar in Social Movements (3)

SOC 660 Seminar in Social Research (3)

SOC 670 Seminar in Statistics (3)

SOC 680 Seminar in Social Theory (3)

SOC 690 Seminar in Social Policy (3)

SOC 700 Seminar in Social Research (3)

SOC 710 Seminar in Social Research (3)

SOC 720 Seminar in Social Research (3)

SOC 730 Seminar in Social Research (3)

SOC 740 Seminar in Social Research (3)

SOC 750 Seminar in Social Research (3)

SOC 760 Seminar in Social Research (3)

SOC 770 Seminar in Social Research (3)

SOC 780 Seminar in Social Research (3)

SOC 790 Seminar in Social Research (3)

SOC 800 Seminar in Social Research (3)

SOC 810 Seminar in Social Research (3)

SOC 820 Seminar in Social Research (3)

SOC 830 Seminar in Social Research (3)

SOC 840 Seminar in Social Research (3)

SOC 850 Seminar in Social Research (3)

SOC 860 Seminar in Social Research (3)

SOC 870 Seminar in Social Research (3)

SOC 880 Seminar in Social Research (3)

SOC 890 Seminar in Social Research (3)

SOC 900 Seminar in Social Research (3)

SOC 910 Seminar in Social Research (3)

SOC 920 Seminar in Social Research (3)

SOC 930 Seminar in Social Research (3)

SOC 940 Seminar in Social Research (3)

SOC 950 Seminar in Social Research (3)

SOC 960 Seminar in Social Research (3)

SOC 970 Seminar in Social Research (3)

SOC 980 Seminar in Social Research (3)

SOC 990 Seminar in Social Research (3)

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 Intermediate Elementary Spanish (3) Course content of SPAN 101 and 102 covered in one semester. Three-two hour sessions per week. HSL

Key to symbols & abbreviations: see the first page of this section.
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-require: 391B for (B); 391C for (C); 391D for (D).

SPED 391 (Alpha) Seminar for Student Teachers in Special Education (3) 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-require: 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 and written consent 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-require: 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 methods and practices for gifted/talented students, including consideration of roles, expectations for learning, and organizational procedures. Pre: 414 or consent.

SPED 421 (Alpha) Strategies for Reading Difficulties (V) Overview of methods, programs, and strategies for or concurrent credit designed to improve the performance of elementary students, grades K-6, who experience difficulties in reading acquisition, fluency, and comprehension. (B) elementary/special 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 to 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 intellectual and physical disabilities, 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 448)

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 and multimodal students 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 450 Summer Internship for Infants/ Toddlers (3) Examination of current research, theory, 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 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 the inclusion of students with disabilities into general education environment. (B) elementary/special education, V credits; (C) early childhood elementary/special education; (D) unclassified. Repeatable up to six credits for (B). 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 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, V credits; (C) early childhood elementary/special education; (D) unclassified. Repeatable up to six credits for (B). 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 (V) Overview of technologies for children with disabilities. (B) elementary/special education, V credits; (C) early childhood education/special education; (D) unclassified. Repeatable one time per alpha; repeatable up to six credits for (B). A-F only.

SPED 485 (Alpha) Classroom Organization and Management (5) Knowledge and skills related to basic organizational management of an inclusive classroom, including scheduling, grouping, instructional and management stress and time management; techniques of applied behavior management, emphasizing behavior change and practical implementation of learning principles. (B) elementary/special education, V credits; (C) early childhood education/special education; (D) unclassified. Repeatable up to six credits for (B). A-F only. Pre: 304 (with a minimum grade of B).
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 experiences that are fully inclusive and give voice to diverse learners. Emerging technologies for access, accommodations, and universal design are explored. Pre: one of 480, LITEC 414, or LITEC 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 service 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 mild/moderate 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 and applied to development of ASL and English. 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 spoken English will be examined and 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 language development in the ASL and English. Functional communication objectives using ongoing diagnostic assessment, instruction, and curriculum development. 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: 461 and 606, 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 instruction across content areas based on ongoing diagnostic assessment. Taught in ASL and English. Repeatable one time. A-F only. Pre: 461 and 606, 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 curriculum approaches for working with students with mild/moderate disabilities. Pre: 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 and 606, 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 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. 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, school 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 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: 604 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 and English. Repeatable 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: 625 and 627.

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, and community based); in-service; 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); pre-school through postsecondary settings. Completion of SPED core required; must enroll for two consecutive semesters. A-F only. Repeatable two times. Pre: 626 and consent.

Key to symbols & abbreviations: see the first page of this section.

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 identifying 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 planning, instruction, and progress monitoring. Repeatable. A-F only. Pre: consent.

SPED 632 Language/Communication Intervention—Communication Disorders/Autism (3)

SPED 633 Motor Development/Intervention for Students with Severe Disabilities (3)
- Focus on 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 course.) Pre: consent.

SPED 634 Inclusive Physical Activity (3)
- Advanced knowledge on issues of socio-cultural, learning styles, diversity, and exceptionalities, and base line influence in physical development 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 skills gains and integrated programming options. A-F only. Pre: consent.

SPED 637 Topics and Issues in Reading Difficulties (3)
- Introduction to foundational knowledge of language and literacy development. Current topics and issues related to literacy development in students with Dyslexia and related reading difficulties. Repeatable one time. A-F only.

SPED 638 Fundamentals of Language and Literacy (3)
- Introduction of basic linguistic structures of written English related to reading, spelling, and writing for beginning or struggling readers. Covers evidence-based practices for teaching literacy to students with Dyslexia and related reading difficulties. Repeatable one time. A-F only.

SPED 639 Advanced Fundamentals of Language and Literacy (3)
- Advanced linguistic structures of English related to reading, spelling, and writing for older students. Covers diagnostic assessment, planning, instruction, and progress monitoring for students with Dyslexia or related reading difficulties. Repeatable one time. A-F only.

SPED 641 (Alpha) Seminar in Issues in Special Education (3)
- Seminar on issues, trends, research, and program development in the field of special education. (B) current issues and trends; (C) technology; (D) foundations; (E) developmental disabilities; (F) cultural and linguistic diversity; (G) evidence-based practices. Repeatable. A-F only. Pre: consent.

SPED 642 Seminar on Applied Research/Special Education (3)
- Study of issues, research, program development in the area of mild/moderate disabilities. Repeatable two times. Pre: consent.

SPED 644 Seminar on Research/Special Education (3)
- Seminar focused on special education research. (B) research methodology; (C) critical thinking; (D) professional development. Repeatable three times. Pre: consent.

SPED 645 Seminar on Applied Research/Special Education (3)
- Seminar focused on special education research. (B) research methodology; (C) critical thinking; (D) professional development. Repeatable three times. Pre: consent.

SPED 646 Seminar on Issues in Special Education (3)
- Seminar on issues, trends, research, and program development in the field of special education. (B) current issues and trends; (C) technology; (D) foundations; (E) developmental disabilities; (F) cultural and linguistic diversity; (G) evidence-based practices. Repeatable. A-F only. Pre: consent.
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. Prereq: 201. (Alt. years) DH


THEA 221 Acting I: Introduction to Performance (3) Concentration on voice, relaxation, body awareness, and movement exercises through theatre games, improvisations, monologues, and exercises. Emphasis on ensemble work. Repeatable one time with consent. Prereq: 221. DA

THEA 222 Acting II: Basic Scene Study (3) Basic character development and creation of characters through role-playing exercises, local dialects, and the performance of Pidgin/HCE plays. Repeatable one time with consent. (Alt. years) DA

THEA 240 Introduction to Theatre 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. Prereq: consent.

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 Theatre I: Script Analysis (3) Script analysis methods for world theatre. Required of all majors. Prereq: 101 or 221 or 240 or consent. DL

THEA 312 World Theatre 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. Prereq: 311 and consent. (Alt. years) DA

THEA 318 Playwriting (3) One-act plays; practice in writing in dramatic form. Repeatable one time. Prereq: 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. Prereq: 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. Prereq: 222 and consent. DA

THEA 322 Acting IV: Method Acting (3) Further exploration of character development through exercises and scene work. Repetition of scenes for criticism and review. Repeatable one time with consent. Prereq: 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. Repeatable one time. Prereq: 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. Prereq: 323 and consent. DA

THEA 325 Introduction to Asian Acting Styles (3) Principles of acting based on traditional Asian models. Voice, movement exercises. Prereq: 222. DA

THEA 334 Taiji (‘Tai Chi) for Actors I (3) Basic Taijiquan (‘Tai Chi Ch’uan) movement training. Repeatable two times. Prereq: 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. Prereq: sophomore status and social department consent. 

THEA 343 Alpha Topics in Theatre Production (3) Workshop in principles, techniques, and application of contemporary theatre production practices. Prereq: Three credit of 222 and 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. Prereq: 240 or DNCE 250, or consent. (Once a year) DA

THEA 353 Scene I: Beginning Scene Design (3) Workshop introducing basic principles and approaches of scenic design for theatre and dance, with emphasis on the creative process. Prereq: a course in Theatre or DNCE, production experience, or consent. (Consent required for production experience option) (Cross-listed as DNCE 355) 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 of costume design for theatre and dance. Visual communication methods, creative process, historical research, and organizational practices. Prereq: 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, painting, and mustaches. Repeatable one time. Prereq: 240 or consent. DA

THEA 380 Beginning Directing (3) Basic practical course in how to direct a play. Students will direct scenes. Prereq: upper division theatre majors or consent. 

THEA 400 (Alpha) Advanced Theatre Practicum (1) Advanced workshop experience in the practical application of theatre skills. B) acting; (C) stagecraft; (D) costume; (E) theatre management. Repeatable up to four credits per alpha. Prereq: 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 Theatre III: Elite and Popular (3) Ethnographic issues of production, interplay between elite and popular forms and the impact of colonialism, 1500-1900. Required of all majors. Prereq: 312 and consent. (Alt. years) DL

THEA 412 World Theatre IV: Modern (3) Pluralism in modern theatre, 1900–present. Reactions to realism and current international theatre forms. Required of all majors. Prereq: 411. (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 content. Prereq: (B) contemporary British and American drama; (C) political drama in the West. Prereq of one: 311, 312, 411, 412, or consent. DL

THEA 414 Women in Drama and Theatre (3) The role of women and their presentation in theater from ancient Greece to the present; focus on sociopolitical status of women. Prereq: 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. Prereq: 318. DA

THEA 420 (Alpha) Intermediate Voice for the Actor (3) Training in vocal and dynamic use of the voice for the actor. (B) Western traditions; (C) Asian traditions. Repeatable two times. Prereq: 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. Prereq: one of 321, 322, MUS 231B, or consent; and/or audition. (Cross-listed as MUS 421) DA

THEA 422 Acting VI: Pidgin Styles (3) Pidgin acting in comedy and tragedy; emphasis on performance styles in Elizabethan, Restoration, and 18th-century drama. Repeatable one time with consent. Prereq: 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. Prereq: 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 theatre forms. Emphasis on movement and vocal technique. Repeatable one time. A-F only. Prereq: 222 or consent. (Alt. years) DA

THEA 427 Chinese Acting Workshop (V) Training in skills and techniques for selected traditional Chinese theatre forms. Emphasis on movement and vocal technique. Repeatable to six credits. Prereq: 222 or consent. (Alt. years) DA

THEA 428 Japanese Acting Workshop (V) Training in skills and techniques for selected traditional Japanese theatre forms. Emphasis on movement and vocal technique. Repeatable to six credits. Prereq: 222 or consent. (Alt. years) DA

THEA 429 Contemporary Performance Practices (3) Focus on individual training in the skills and techniques of contemporary experimental theatre including acting, directing, and self-scripting. Repeatable two times. Prereq: one of 222, 318, 380, or consent. DA

THEA 433 Movement Workshop (V) Special workshops in movement relating to specific department, theatrical production or the other of movement taught in 437 and 438. Repeatable one time. Prereq: one of 435, DNCE 435, or consent. (Alt. years) (Cross-listed as DNCE 433) DA

THEA 434 Taiji (‘Tai Chi) for Actors II (3) Intermediate-level Taijiquan (‘Tai Chi Ch’uan) movement training. Repeatable two times. Prereq: 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. Prereq: 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 Barteneff fundamentals and movement analysis as it applies to the physical interpretation of theatrical roles. Prereq: 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 of the Baroque in European societies in the Renaissance and early Baroque periods. Prereq: 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 deportment of the Baroque and pre-Romantic periods in Europe and the American Colonies. Prereq: one of 435, DNCE 435, one semester of a 100-level dance technique
THEA 439 Musical Theatre Dance Forms (3) Theatrical dance forms used in 20th-century musical theatre. 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: undergarments and armatures, patterning, tailoring, dying, 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 theatre and dance productions. Pre: junior standing or consent.

THEA 448 Introduction to Computer-Aided Design for the Theatre (3) Basic concepts and techniques of 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: 345 or consent. (Once a year)

THEA 453 Scenic II: Intermediate Scenic Design (3) Workshop in advanced techniques and skills of scenic design; model making, rendering, and drafting. Pre: 356 or consent. DA

THEA 456 Costumes II: Intermediate Costume Design (3) Advanced costume design for theatre and dance. Introduction to collaborative process in costume design. 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 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: 101 or ANTH 350, or consent. (Cross-listed as PACS 462) DH

THEA 464 Drama and Theatre of Southeast Asia and India (3) Court, folk, popular traditions, and the manner of their production. Pre: DH

THEA 465 Drama and Theatre of China (3) Yuan, southern, spoken drama; Beijing opera and the manner of their production. Pre: consent.

THEA 466 Drama and Theatre 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. Hawai‘i’s 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, recreationists dealing with children. Supervised field activities. Pre: junior standing or consent. DA

THEA 474 Theatre for Young Audiences (3) Theories and principles of formal theatre for young audiences. Study and discussion 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. 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 478 Hula Ki‘i: Hawaiian Puppetry and Image Dancing (3) History, techniques, construction, and performance of Hawaiian puppetry and traditional image dancing. Repeatable one time. Junior standing or higher. 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 Theatre 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 equivalent preparation.

THEA 492 Topics in Drama and Theatre (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 one time 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 Theatre Research (3) Bibliography and research methods; preparation for thesis and dissertation writing. Required of all graduate theatre 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 Theatre II (3) Theatre as a cultural and social institution in the West, from the 19th century to the present. Pre: 311, 312, 411, 412, or consent. (Alt. years)

THEA 613 History of Western Theatre I (3) Theatre 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 614 (Alpha) Topics in Dramaturgy (3) (B) role of the dramaturg; covers history, theory, and practice; (C) dramaturgy workshop; accompanies specificKennedy 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 DANCE 617)


THEA 620 Advanced Voice for the Actor (3) Training in advancing 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 theatre repertory; focus on the individual actor and performance styles. Repeatable one time with consent. Pre: 422 and consent.

Key to symbols & abbreviations: see the first page of this section.

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 Production (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: 345 or 445 or consent.


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. Pre: 611 or 411. (Alt. years)

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. Repeatable two times. Pre: 445, 453, 456; or consent.

THEA 660 Asian Theatre 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 Theatre (3) Comparative and cross-cultural examination. (B) origins; (C) theories and systems; (D) modern Asian drama. Repeatable one time. Pre: consent.

THEA 670 Seminar in Advanced Creative Dramatics (3) Advanced seminar in applied methods and theories of creative dramatics. Repeatable one time. Pre: THEA or DNCE majors only. Pre: 412.

THEA 678 (Alpha) Topics in Theatre for Young Audiences (3) Creative movement/drama, puppetry, and theatre/dance; (B) production concepts. Repeatable when topics change. Pre: one of 470, 474, 475, 476, 477, DNCE 490 or consent.

THEA 680 Directing Asian Theatre (3) Directing traditional Asian theatre 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: directorial major and one Asian theatre course, or consent.

THEA 682 Graduate Workshop in Directing (3) Direction of scenes and major one-act plays. Thesis production. Repeatable one time with consent. Pre: 600 or consent.

THEA 683 Workshop in Directing Process (3) Methods class in theatre production for the director. Covers organization and techniques such as rehearsal planning, scheduling, and execution. Repeatable one time.

THEA 685 Directing Western Styles (3) Students direct scenes in classic or non-realistic western theatre styles or genres. Repeatable one time with consent. Pre: majors only. A-F only; pre: graduate student in theatre program, or consent.

THEA 690 Graduate Theatre Workshop (V) Practical and supervisory theatre work pertinent to professional degree objectives on productions being done in Kennedy Theatre or in other venues, by
approval. Repeatable eight times, up to 9 credits. Pre: consent.
THEA 691 Seminar in Teaching Dance/Theatre (3) Pedagogy and classroom experience in teaching technique and theory. (Alt. years) (Cross-listed as DANCE 691)
THEA 692 Practicum in Teaching (V) Supervised teaching experience at the introductory or undergraduate level. Students will teach an appropriate level course in their field of expertise under faculty supervision. Repeatable up to nine credits. THEA or DANCE majors only. (Cross-listed as DANCE 692)
THEA 693 Internship: Youth Theatre/Dance (V) Supervised leadership experiences in theatre/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 DANCE 490; or consent. (Cross-listed as DANCE 693)
THEA 695 Creative Projects (V) MFA play or dance productions, design projects, original full-length plays. Repeatable unlimited times.
THEA 699 Directed Research (V) Reading or research in theatre 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 Theatre (3) Special topics. Repeatable when topics change. Pre: consent.
THEA 763 (Alpha) Seminar in Asian Theatre (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 theatre/dance. Pre: one of 470, 474, 475, 476, 477, or DANCE 490; or consent.
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. Repeatable one time. Pre: four (4) hours weekly. HSL.
TONG 102 Beginning Tongan (4) Continuation of 101. Pre: four (4) hours weekly. 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 ciit.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 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 404 Spanish-English Translation (3) Factors in the art of translation. Practice in translating material from Spanish to English and the reverse. Pre: SPAN 305 or consent. (Cross-listed as SPAN 405)
TI 405 Court Interpreting I (3) Introduction to the legal system, as well as theoretical principles, 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; profound 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 Interpretation, diving deeper into the practical side of oral interpreting for various proceedings, including arraignments, trials, witness testimonies, etc. Must be bilingual. Real court scenarios 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 students must have 402 or above equivalency of second language skills (or instructor approval). Repeatable one time. Pre: 406 or consent.
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 452.
TI 413 (Alpha) Translation Skills (Second Language) (3) Language specific course. Basic technical 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. (K) Korean; (O) Other. Repeatable one time. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite: 401.
TI 414 (Alpha) Technical Translation (into Second Language) (3) Translation of nonfiction texts into a second Language. Training process, methodological approaches. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) Other. Repeatable one time. Pre: a previous translation course, or consent.
TI 420 (Alpha) Chinese Translation (3) Training in technique: theory of translation. (B) Chinese-English; (C) English-Chinese. Pre: consent. (Cross-listed as CHN 421(Alpha))
TI 422 Computer-Assisted Translation (3) (1 Lec, 1 1.5-hr Lab) The use of computers as aids in the translation process and in 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, and 452.
TI 424 English to Japanese Translation (3) Training in techniques of translating English into Japanese. Pre: JPN 407B, C, D, or E; or consent. (Cross-listed as JPN 424)
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) Technical translation of conversations between interpreter and client. 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, 452, and 455.
TI 452 (Alpha) Sight Translation (3) 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. 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, 452, 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 Manage- ment 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, placement 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 foods and eating habits, including hunger, 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. 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: TIM major and 315.
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, 200, or 302.
TIM 304 Principles of Travel Industry Marketing (3) Concepts, problems, processes of marketing within the travel industry; development of marketing

Key to symbols & abbreviations: see the first page of this section.
strategies including product, place, promotion, and price for travel institutions. Students may not earn credit for 304 and BUS 312. Pre: 101. Requires a (B) executive internship; (C) community service internship. Restricted to majors. CR/NC only. Pre: 313 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, practices, 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 1300. Recommended: 305.

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/ECON 324. (Cross-listed GOC 324) DS


TIM 425 Destination Development and Marketing (3) Tourism development in Hawai‘i and other Asia Pacific destinations. Focus on writing instruction. A-F only. Pre: 301, 302, 303, 304, 305 and graduation or graduate standing. (B) executive internship; (C) community service internship. 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 hotel management; (F) advanced restaurant management; (G) advanced tourism management; (H) advanced recreation management; (I) advanced leisure 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) 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 (V) 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 graduation or graduate standing. (B) executive internship; (C) community service internship. Pre: 353 (undergraduate) or consent (graduate).

Key to symbols & abbreviations: see the first page of this section.
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. (Fall 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 599 (Alpha) Selected Topics in Infectious Diseases (1) Research elective for medical students: (A) infectious diseases; (B) parasitology; (C) 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. Medical students only. CR/NC only. Pre: consent.

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, pathogenesis, immunobiology and diagnostic aspects of human parasitic infections; 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: MICR 351 or equivalent. (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 disease 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 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 the immune system in response to pathogen detection, inflammation in disease pathogenesis, pathogen immune evasion, and neuroimmunology. Repeatable two times. A-F only. Pre: MICR 465 or 460 (or concurrent). (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 macro-parasites, and implications for 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 interaction and responses of 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: fall)

TRMD 653 Bioinformatics and Molecular Evolution (2) Combined lecture/computer lab on bioinformatics tools used in genomics, including sequence analysis, search algorithms, DNA and protein analysis, metabolic networks, and molecular evolution/epidemiology. Focus will be on infectious disease examples. Open to non-majors. 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 and future directions. Pre: 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 statistics, biostatistics 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. A-F only. 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. A-F only. Pre: 605 or equivalent, or consent. (Alt. years: fall)

TRMD 675 Epidemiology of Tropical Infectious Diseases (3) Epidemiology of infectious diseases as it relates to tropical medicine. Lecture/semester 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 759)
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 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. Pre: consent.

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 Sciences

TPSS 120 (Alpha) Plants for People (1) The origins of our 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 (A) ferns, palms, medicinal herbs, orchids; (B) vegetable 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 plants, 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. Pre: consent. 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) DB

TPSS 300 Tropical Production Systems (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: TPSS 200 or consent. DB

TPSS 304 Fundamentals of Soil Science (4) (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: 200 or BIOL 171 or NREM 210, 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 220, or consent. (Cross-listed as NREM 311) DS

TPSS 322 Marketing Perishable Products (3) Problems, pricing, costs, flows, 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) (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) Introduces practical concepts and methods used in business management. Introduce broad range of business strategies. Undergraduate business travelers. Pre: 350, 352, or consent. (Alt. years) (Cross-listed as ARCH 352) DB

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 environment factors. (Alt. years) (Cross-listed as ARCH 352) DH

TPSS 353 Landscape Graphics Studio (4) Basic skills of landscape graphic communication through a creative process model. Learning free hand and technical drafting techniques, to creative effective landscape graphics. Pre: consent. (Alt. years) (Cross-listed as ARCH 353) DA

TPSS 354 Tropical Landscape Planting Design Studio (4) Students will develop basic skills of responsible landscape design 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 concurrent. DB

TPSS 371 Genetics: Theory to Application (3) Fundamentals of genetic theory using biotechnological procedures to study plant breeding and plant and animal breeding as practical applications. Repeatable one time. A-F only. (Cross-listed as PEPS 371) DB

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 concurrent. DB

TPSS 405 Turfgrass Management (4) (2 Lec, 1 3-hr Lab) Adaptability and selection, establishment, and cultural practices of grasses for various types of turf. Pre: 200 or concurrent. DB

TPSS 407 Tropical 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 407) 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: BIOL 171 or NREM 220, or consent. (Alt. years) DS

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 biology, 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) 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 of problems. Pre: NREM/TPSS 303 or consent. Pre: 301 or consent. (Cross-listed as NREM 429) DS

TPSS 430 Nursery Management (3) (2 Lec, 1 3-hr Lab) Principles of production and operations of commercial nurseries in Hawai'i. Pre: 200 and 369; or consent. (Alt. years) DB

TPSS 435 Environmental Soil Chemistry (3) Study of soil chemical processes such as weathering, adsorption, precipitation, 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 nitrates, phosphates, and trace elements such as As, Pb, and Se. A-F only. Pre: 304 or concurrent. (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 process of plant regeneration and plant propagation in tissue 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 PEPS 418 or BAD 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 use, irrigation and precipitation, and daily weather on crop yield and farm income. Pre: 304 and either PHYS 151 or PHYS 170, or consent. DB

TPSS 465 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 363 or (equivalent) and NREM 464 or (equivalent). Pre: consent. (Alt. years) (Cross-listed as NREM 468)

TPSS 470 Plant Physiology (3) Integration of form and function from cellular to whole plant levels in processes from seed germination, through photosynthesis, growth, reproduction, to flowering and senescence. A-F only. Pre: BIOL 171 or consent. DB

TPSS 470L Principles of Plant Physiology Lab (1) (3 3-hr Lab) Principles of experimentation in plant physiology; includes individual investigations. A-F only. Pre: consent. }
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 characteristics. 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 and 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 experimentation. A-F only. Pre: 200 and CHEM 152, or consent. (Fall only) (Cross-listed as PES 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 (1) 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 601 Crop Modeling (3) (2 Lec, 1 3-hr Lab) Principles of modeling crop growth and development, model types, techniques, simulation. Modeling influences 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: grading standing or consent. Recommended: ZOOL 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) (2 hr Lab, 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) Analysis of molecular genetics to crop improvement. Pre: 453 and MMBE 402, or consent.

TPSS 615 Quantitative Genetics (3) Applications of quantitative genetics to crop and animal improvement. Pre: 453 and 463, 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 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 Lab) Lab course for Technology course for improving communication abilities in the sciences and engineering. Presentations to lay audiences are emphasized. Hands-on experience in techniques and presentation. Pre: consent. (Cross-listed as ANSC 654)

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 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. Repeatable 1 and 2 times. Pre: consent.

TPSS 667 Graduate Seminar (1) Presentation of research reports; reviews of current literature in plant and soil sciences. Repeatable four times. Pre: graduate standing or consent.

TPSS 670 Agrarian Systems Analysis (3) Comparative analysis of processes of interdisciplinary and participatory approaches to sustainable development and rural resource management including farming systems research and extension (FSR/REA), agroecosystem analysis (AEA), participatory 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 mechanisms of plant growth and development. Aspects covered include vegetative and reproductive development, seed dormancy, senescence, abscission, and relevant biochemical and molecular processes. Pre: 470 and MMBE 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 characteristics; and develop models for spatial databases. Pre: consent. Repeatable unlimited times. CR/NC only. Pre: consent.

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: tools and methods; specific Hawai‘i planning-research problems from a multidisciplinary approach. Pre: junior standing or consent. (Cross-listed as GEOG 413)

PLAN 399 Directed Reading in Planning (V) Independent research on topics in urban and regional planning. Pre: 310.

PLAN 412 Environmental Impact Assessment (3) Introduction to analytical methods for identifying, measuring, and quantifying the resulting direct, indirect, and cumulative impacts of proposed projects, actions, or interventions in resource, human-environment, and other geographic systems. Pre: junior standing or higher, or consent. (Alt. years) (Cross-listed as GEOG 412)

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. Pre: 310 or consent. (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 types of urban 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) Analyses 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 temporal dimensions of planning decision-making 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 521, 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 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 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, interview, 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: consent or A-F only.

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 international communities. Pre: 600 (or concurrent).


PLAN 619 Multiculturalism in Planning and Policy (3) Graduate seminar focuses on issues of power and planning in diverse and 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 issues 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)

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 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 organizations’ 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 and the representations of tradition and modernity in urban space; spatial expression of state and society, perception and utilization of urban design, evolution of urban form in cities of Asia. Pre: 630, 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 nature of landscapes 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) Focus on the nature of 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 630) 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 policy public 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, reinforcement, 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 643 Project Planning and Management (3) Examines project management in theory and practice and the roles and responsibilities of the project manager. Focuses on planning, organizing, and controlling the efforts of projects. A-F only. Pre: 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 the use of computer 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 652 Policy Implementation and Program Evaluation (3) Implementation and evaluation in public policy analysis; philosophical and methodological issues; impact and program evaluation. 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 geographic models and tools 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 Policies (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...
ion 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 (5) How do communities recover from disaster? Provides students with an overview of recovery theory and an understanding of how planners, policymakers, 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. Pre: majors only. (Fall only)

PLAN 680 Land Use Management and Control (V) Survey course of public land use management. (Cross-listed as LAW 580)

PLAN 699 Directed Research and Readings (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 potential solutions, developing and evaluating alternatives, formulating strategies for implementation. Pre: 640 or consent.


Urdú (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.
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 them. Pre: HIST 151 and HIST 152; or consent.

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 anthropology and historical analysis. Pre: any ANTH, SOC, or WS course. (Cross-listed as ECON 360) 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 for 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 367 Sustainability, Technoscience, and Social Justice (3) Examines politics of sustainability and technoscience with an explicit attention to social justice and power relations in society. A-F only. Pre: at least one course in WS. (Fall only) DS

WS 375 Women and the Media (3) Media portrayal and 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 racial justice activism on the continent and in Hawai‘i. A-F only. Pre: 151 or ES 101 or junior standing. (Cross-listed as ES 390) DS

WS 392 Sexualities (3) Multi-disciplinary course draws from psychology, sociology, biology, history, cultural anthropology, and Asian, 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. (Cross-listed as DS 392) 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 embedded 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 PHIL 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 course, or SOC 300; or consent. (Cross-listed as WS 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 of gender and sexuality in cyberspace. A-F only. DH

WS 430 Seminar in the Biology of Women (3) Embryological, anatomical, and physiological development of female, male, and behavioral determinants of female sexual behavior; psychobiology of pregnancy, ovulation, and menopause. Pre: 350 or BIOL 172 or BIOL 350, or consent. (Cross-listed as PHIL 430) DH

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. Pre: any WS course. (Fall only) DS

WS 437 Gender and Violence (3) Interdisciplinary course will examine the ecology of gender and violence on its correlates with ethnicity, class, sexuality, nation, and empire. Repeatable one time. A-F only. Pre: one of 151, 202, 360, 361, 430, 439, 460, 462, or consent. (Cross-listed as PHIL 437) DH

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 about gender and sexuality in cyberspace. A-F only. DH

WS 444 Gender and Consumption in a Global World (3) Students learn theories of the global economy, histories of consumerism, constructions of gendered public and private 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 capacities. (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, women’s family roles, and other structures in the 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 race, class, and gender, within 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 feminist movements in the 19th and 20th centuries by exploring how U.S. racism, nationalism and imperialism have provided the context from which feminism emerged. A-F only. Pre: 151; 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, or 439 or 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 (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 anthropological critical analysis of approaches to reproductive health and rights 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 figuration contexts. Repeatable one time. Pre: ENG 320 and one other 300-level ENG course; or consent. (Cross-listed as ENG 483) 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) DS

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
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. Repeatable 2 times per alpha, credits earned for 3 credits only. Pre: 306 or equivalent or consent for (D).

ZOOL 492 Teaching Internship (1) Teaching intership 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 Laboratory (1) (1 3-hr Lab) Group or individual research projects depending on interest of students. Pre: 606 (or concurrent). Pre: graduate standing.

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: 608L. (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, multiple-sample, regression, and correlation analyses; frequency tables. Pre: MATH 215 or 216 or 241 or 251A or NREM 203 or equivalent. Pre: 306 or equivalent or consent.

ZOOL 632 Advanced Biometry (4) (3 Lec, 1 2-hr Discussion) Multivariate statistical methods: multiple regression and correlation; multivariate analysis; general linear models; repeated measures and multivariate analysis;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: 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, electrophysiology, or neurophysiology. Basic concepts and measurements of function at the organic or cellular level. Repeatable three times.

ZOOL 719 Topics in Systemsatics and Evolution (V) Selected problems of current and 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.