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- B.A. in Geology Requirements
- B.S. in Geology Requirements
- Geology Minor
- Earth and Space Science Minor
- Geology (GEOL) Courses

### B.A. in Geology Requirements

#### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements](#) and [graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

#### Group 2. Major Requirements and Assigned Credits (56-58 credits)

- GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
- GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
- GEOL 212 Earth Materials I: Minerals (4)
- GEOL 320 Erth Mat II: Igneous/Meta Rock (4)
- GEOL 445 GIS for Geology (3) **or** GEOL 450 Geological Remote Sensing (3)
- GEOL 495A-495B Seminar (1), Seminar (1)
- ASTR 180 Princ Of Astron I (3) **or** MARE 201 Oceanography (3)
- CHEM 151-151L Elementary Survey of Chemistry (3), Elementary Survey of Chem Lab (1) <sup>1</sup>
- MATH 125 Applied Calculus (3) <sup>2</sup>
- PHYS 151-151L College Physics I (3), College Physics I Lab (1) <sup>3</sup>
- **Two courses** from the following list: (6-8)
  - GEOL 330 Deformation of the Earth (4)
  - GEOL 340 Sedimentary Processes (4)
  - GEOL 342 Earth Surface Processes (3)
  - GEOL 370 Field Methods (3)
- **Five additional 300- or 400-level GEOL courses**, Up to two of the five courses may be substituted from
  - GEOG 300 Climatology (3)
  - GEOG 319 Nat Hazards/Disasters (3)
  - GEOG 470 Remote Sensing/Air Photo (3)
  - MARE 360 Marine Resources (3)
  - MARE 425 Chemical Oceanography (3)
  - MARE 461 Geological Oceanography (3)
  - SOIL 304 Tropical Soils (3)

<sup>1</sup> CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1) may substitute for CHEM 151-151L Elementary Survey of Chemistry (3), Elementary Survey of Chem Lab (1) .

<sup>2</sup> MATH 241 Calculus I (4) may substitute for MATH 125 Applied Calculus (3) .

<sup>3</sup> PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1) may substitute for PHYS 151-151L College Physics I (3), College Physics I Lab (1) .

#### Total Semester Hours Required for the B.A. in Geology

120 credits required.

#### Notes

1. Students must earn at least a 2.0 GPA in courses required for the major.
2. All courses in **Group 2, Major Requirements**, must be completed with a grade of "C" or better.
3. At least 36 credits must be earned at the 300- or 400-level.
4. To earn a Bachelor of Arts degree in Geology, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this catalog.
5. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
6. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
7. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

### B.S. in Geology Requirements

#### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements](#) and [graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

#### Group 2. Major Requirements and Assigned Credits (73 credits)

All required Courses in **GEOL** in **Group 2, Major Requirements**, must



be completed with a grade of "C" or better.

### 1. Required Courses from Geology

- GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
- GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
- GEOL 212 Earth Materials I: Minerals (4)
- GEOL 320 Erth Mat II: Igneous/Meta Rock (4)
- GEOL 330 Deformation of the Earth (4)
- GEOL 340 Sedimentary Processes (4)
- GEOL 342 Earth Surface Processes (3)
- GEOL 370 Field Methods (3)
- GEOL 445 GIS for Geology (3) or GEOL 450 Geological Remote Sensing (3)
- GEOL 495A-495B Seminar (1), Seminar (1)
- And **nine** additional semester hours in [GEOL courses](#) at the 300- or 400-level. (9)

### 2. Required Courses from Related Fields

- CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
- CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
- ENG 225 Writng for Sci & Technology (3)
- MATH 241 Calculus I (4)
- MATH 242 Calculus II (4)
- PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
- PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)

## Total Semester Hours Required for the B.S. in Geology

120 credits required.

### Notes

1. Students must earn at least a 2.0 GPA in courses required for the major.
2. At least 32 credits must be earned in courses at the 300- or 400-level. Courses in Group 2 supply 32 of these credits.
3. Students preparing for graduate school should consider taking a summer field course in Geology and possibly MATH 300 Ordinary Diff Equations (3) (Ordinary Differential Equations), CS 150 Intro To Computer Science I (3) (Introduction to Computer Science), or PHYS 260 Computational Physics & Astron (3) (Computational Physics and Astronomy).
4. To earn a Bachelor of Science degree in Geology, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
5. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
6. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
7. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Geology Minor

### Requirements (20 credits):

1. GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
2. GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
3. And **12 additional credits** of [GEOL courses](#). (At least six of the additional 12 credits must be at the 300- or 400-level.)

Note: Each course must be passed with a grade of "C" or better.

## Minor in Earth and Space Science

### Requirements (24 credits):

- ASTR 110L Gen Astronomy Lab (1)
- ASTR 180 Princ Of Astron I (3)
- ASTR 181 Princ Of Astron II (3)
- ASTR/GEOL 352 Planets and Exoplanets (3)
- GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
- GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
- GEOL 205 Geology Of Hawaiian Islands (3)
- And **one** of the following courses:
  - GEOG 300 Climatology (3)
  - GEOL 450 Geological Remote Sensing (3)
  - GEOG 470 Remote Sensing/Air Photo (3)

**Note: The minor in Earth and Space Science is undergoing review. Students are advised to consult with a Geology or Astronomy advisor before pursuing this program of study.**

## Kinesiology and Exercise Sciences

**Department Chair:** [Ozan Atalag](#) , Ph.D.

**Email:** [ozan@hawaii.edu](mailto:ozan@hawaii.edu)

### Professors:

- Harald Barkhoff, Ph.D.
- [Lincoln Gotshalk](#) , Ph.D.

### Associate Professors:

- [Ozan Atalag](#) , Ph.D.
- [Misty Pacheco](#) , DrPH, M.H.A.

### Assistant Professors:

- [Helen "Yolisa" Duley](#) , Ph.D.
- [Scott Ferguson](#) , Ph.D.

The Kinesiology and Exercise Sciences (KES) program within the College of Arts and Sciences offers students the following degrees:

- [B.A. in Kinesiology and Exercise Sciences](#)

The KES program focuses on the study of health and human performance. Students in the degree program will study foundational courses such as anatomical kinesiology, exercise physiology, nutrition, biomechanics, motor behavior, social/psychological aspects of physical activity, and health promotion. Successful degree candidates will



complete the UH Hilo general education requirements, set of core KES courses, and complete selected courses to fulfill one of three specialized tracks. Students can choose between the Allied Health, Applied KES, and Health Promotion tracks. Below is a short description of each track, as well as some possible career options.

### The Allied Health Track

Provides education and training for students who wish to prepare for advanced study in physical therapy, medicine, or other allied health fields.

**Career Options:** Physical Therapist, Athletic Trainer, Occupational Therapist, Chiropractor, Sports Medicine, Physician Assistant, Exercise Physiologist, Biomechanist.

### The Applied KES Track

Provides students the opportunity to pursue basic and applied studies of the physiological, biomechanical, and social-psychological aspects of human movement and performance.

**Career Options:** Coach, PE/Health Teacher, Health Club or Gym Administrator, Instructor, or Trainer, Sport Management, Strength and Conditioning Coach, Director of Youth Camps/Sports Programs.

### The Health Promotion Track

Gives students a deeper understanding of health issues, human behavior, and their impact on overall wellness and quality of life.

**Career Options:** Health Program Manager or Coordinator, Health Educator, Health or Life Coach, Epidemiologist- Physical Activity, Non-profit work, Public or Government Sector.

### Goals for Student Learning in the Major

A student who completes the Kinesiology and Exercise Sciences degree program will be able to:

- Understand the fundamental principles of human movement and be competent in the basics of most physical and recreational activities.
- Identify fundamental anatomical functions, physiological mechanisms, and mechanical concepts involved with human movement and human performance.
- Apply kinesiology and exercise science concepts and knowledge to real-life issues through current scientific research, internships, field experience and service.
- Identify and evaluate the various cultural and behavioral factors related to the adoption and maintenance of a physically active & healthy lifestyle within our society.
- Have a strong foundation in exercise science necessary to effectively work in the exercise science field or related professions.

### Curricula

- [B.A. in Kinesiology and Exercise Sciences Requirements](#)
- [Health Care Administration Certificate](#)
- [Indigenous Public Health Certificate](#)
- [Kinesiology and Exercise Sciences \(KES\) Courses](#)

## B.A. in Kinesiology and Exercise Sciences Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements and graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

### Group 2. Major Requirements

#### Students should choose one of the following three tracks

1. Applied KES
2. Allied Health
3. Health Promotion

#### Core Requirements for Applied KES and Allied Health tracks (35 credits)

- KES Activities courses (two 1 credit courses of choice; all activities courses are 100-level, one credit courses.)
- KES 202 Health Promotion (3)
- KES 212 Anatomical Kinesiology (3)
- KES 207 Basic Human Nutrition (3) **or** NURS 375 Applied Human Nutrition (3)
- KES 209 Data and Stats in Kinesiology (3) **or** MATH 115 Intro to Stats and Prob (3) **or** PSY 213 Statistical Techniques (4) **or** SOC 280 Statistical Reasoning (3)
- BIOL 243-243L Human Anatomy & Physiology I (3), Human Anatomy & Physio I Lab (1)
- BIOL 244-244L Human Anatomy & Physiology II (3), Human Anatomy & Physio II Lab (1)
- KES 307-307L Biomechanics of Human Movement (3), Biomechanics Lab (1)
- KES 348-348L Exercise Physiology (3), Exercise Physiology Lab (1)
- KES 210 Introduction to KES (3)
- KES 401 Sem in KES: Profess.Develop (2)

#### 1. Applied KES Track (19 credits)

- KES 308 Principles of Strength & Cond. (3)
- KES 370 Sport Psychology (3)
- KES 368 Sports and Exercise Nutrition (3)
- KES 311 Tests & Meas. in Sports & Exer (3)
- And **Two** additional [KES courses](#) at the 300- or 400-level (6)

**2. Allied Health Track (18 credits)**

- KES 310 Motor Learning (3)
- KES 335 Care & Prevention Athletic Inj (3)
- KES 370 Sport Psychology (3)
- KES 450 Health Promotion Practicum (3)
- And **Two** additional **KES courses** at the 300- or 400-level (6)

**Core Requirements for the Health Promotion track (33-35 credits)**

- KES Activities courses (two 1 credit courses of choice; all activities courses are 100-level, one credit courses.)
- KES 202 Health Promotion (3)
- KES 212 Anatomical Kinesiology (3)
- KES 207 Basic Human Nutrition (3) **or** NURS 375 Applied Human Nutrition (3)
- KES 209 Data and Stats in Kinesiology (3) **or** MATH 115 Intro to Stats and Prob (3) **or** PSY 213 Statistical Techniques (4) **or** SOC 280 Statistical Reasoning (3)
- BIOL 243-243L Human Anatomy & Physiology I (3), Human Anatomy & Physio I Lab (1)
- BIOL 244-244L Human Anatomy & Physiology II (3), Human Anatomy & Physio II Lab (1)
- KES 307-307L Biomechanics of Human Movement (3), Biomechanics Lab (1) **or** KES 351 Epidemiology (3)
- KES 348 Exercise Physiology (3) **or** NURS 348 Human Pathophysiology (3)
- KES 210 Introduction to KES (3)
- KES 401 Sem in KES: Profess.Develop (2)

**3. Health Promotion Track (18 credits)**

- KES 250 Foundation of Public Health (3)
- KES 350 Health Promotion Prog Planning (3)
- KES 450 Health Promotion Practicum (3)
- In addition choose **three courses** (9 credits), from any **KES courses** at the 300- or 400-level or from the following courses in related fields or other related courses at the 300- or 400- level with Health Promotion Track Advisor Approval:
  - ANTH/WS 324 Culture, Sex And Gender (3)
  - PSY/WS 325 Psychology Of Women (3)
  - PSY 352 Introduction to Biopsychology (3)
  - PSY 452 Drugs of Abuse (3)
  - PSY 360 Cross-Cultural Psy (3)
  - PSY 380 Health Psychology (3)
  - PHIL 355 Philosophy of Sport (3)
  - PHIL 329 Environmental Ethics (3)
  - PHIL 327 Bioethics (3)
  - PHIL 416 Science, Technology & Values (3)
  - SOC 310 Race & Ethnic Relations (3)

**Total Semester Hours Required for the B.A. in Kinesiology and Exercise Sciences**

120 credits required.

**Notes**

1. An overall GPA of 2.0 in the major is required.
2. At least 45 credits must be earned at the 300- or 400-level.
3. Students applying to graduate programs in AT or PT should complete the following courses: PHYS 152 and PHYS 152L, BIOL 171 and BIOL

171L, BIOL 172 and BIOL 172L, CHEM 161 and CHEM 161L, and CHEM 162 and CHEM 162L.

4. To earn a Bachelor of Arts degree in **Kinesiology and Exercise Sciences**, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the **Baccalaureate Degree Requirements** in this Catalog.)
5. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
6. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the **course listings** in this Catalog.
7. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

**Health Care Administration Certificate**

**Coordinator:** Randy Hirokawa , Ph.D.

**Email:** [randyh@hawaii.edu](mailto:randyh@hawaii.edu)

**Website:** <https://hilo.hawaii.edu/uhh/vcaa/HPSC-programs.php>

The subject certificate in Health Care Administration is designed for students who are interested in management and business-related careers in health care. The program provides students with the business and communication knowledge and skills needed to successfully work in entry-level supervisory positions in hospitals, long-term care, outpatient facilities, physician offices, mental health organizations, insurance companies, public health agencies, and other types of health organizations. Students who successfully complete the Health Care Administration certificate program will understand operation, management, and financing of health care organizations, and understand the role played by communication and information technology in managing and facilitating health care. The complete requirements are listed below.

**Curriculum (39-40 Credits)****1. Required courses (30-31 credits)**

- MATH 100 Survey Of Math (3) or Higher
- MATH 115 Intro to Stats and Prob (3)
- BIOL 243 Human Anatomy & Physiology I (3) and BIOL 243L Human Anatomy & Physio I Lab (1)
- BIOL 244 Human Anatomy & Physiology II (3) and BIOL 244L Human Anatomy & Physio II Lab (1)
- BIOL 275 Fund Microbiology (3) and BIOL 275L Microbiology Lab (1)
- CHEM 141 Surv Organ Chem & Biochem (3)
- NURS 203 General Pharmacology (3)
- NURS 348 Human Pathophysiology (3)
- NURS 375 Applied Human Nutrition (3)

**2. Required Business Courses (9 credits) Choose three (3) courses from the below**

- ACC 201 Intro to Financial Accounting (3)
- BUS 100 Intro To Business (3)
- BUS 240 Business Law (3)
- ECON 100 Intro To Economics (3) or ECON 130 Intro To Microeconomics (3)
- COM 240 Professional Communication (3) or COM 251 Public Speaking (3)



## Indigenous Public Health Certificate

### Office of the Dean

College Hall A, room 1

**Tel:** (808) 932-7506

**Email:** [cnhs@hawaii.edu](mailto:cnhs@hawaii.edu)

**Website:** [hilo.hawaii.edu/academics/cnhs/](http://hilo.hawaii.edu/academics/cnhs/)

The Indigenous Public Health Certificate will provide students with an understanding of the purpose and practice of public health, indigenous communities' practices of health and well-being, and/or conventional and traditional health perspectives. Students will become familiar with public health principles and gain an appreciation of indigenous health concerns, including Native Hawaiians, Pacific Islanders, as well as other groups. Students will develop their personal indigenous perspective or develop an understanding of indigenous perspectives on awareness of place, the natural environment, cultural practices, as they relate to health and well-being.

### Student Learning Outcomes

Students earning the Certificate in Indigenous Public Health will be able to:

- Understand the purpose and practice of public health.
- Explore indigenous communities' practices of health and well-being including Native Hawaiians, Pacific Islanders, as well as other groups.
- Compare conventional and traditional health perspectives.
- Understand indigenous health concerns and disparities.

### Curriculum

Total Credits Required: 18-19 Credits

#### Required Core (9-10 credits)

- KES 250 Foundation of Public Health (3)
- SOC 470 Indigenous Health & Well-Being (3)
- Any 3 or 4 credit HAW, KHAW, HWST, KHWS course

#### Electives (9 credits)

A minimum of 6 credits must be at the 300 or 400 level:

- ANTH 386 Hawaiian Culture Before 1819 (3) **or** ANTH 387 Modern Hawn Cult 1819-Present (3)
- KES 302 Sport & Spirituality (3)
- KES 351 Epidemiology (3)
- KES 450 Health Promotion Practicum (3)
- SOC 360 Health Care Policy (3)
- PSY 460 Psychology of Culture & Health (3)

### Notes

1. Students must earn at least a 2.0 GPA for all courses for the Certificate
2. Students must pass all courses for the Certificate with a C or Better

## Marine Science

**Department Chair:** Steven "Steve" Colbert , Ph.D.

**Email:** [colberts@hawaii.edu](mailto:colberts@hawaii.edu)

**Website:** [www.mare.hawaii.edu](http://www.mare.hawaii.edu)

### Faculty Emeriti:

- Walter Dudley, Jr., Ph.D.

### Professors:

- James Beets , Ph.D.
- Marta deMaintenon , Ph.D.
- Karla McDermid Smith , Ph.D.
- Tracy Wiegner , Ph.D.

### Associate Professors:

- Steven Colbert , Ph.D.
- Jason Turner , Ph.D.

### Assistant Professors:

- John H. R. Burns , Ph.D.

### Instructors:

- Lisa Parr , M.Env.St.

### Adjunct Associate Professor:

- Timothy B. Grabowski , Ph.D.

### Educational Specialists:

- Matthew Connelly
- Etta Karth

Marine Science is a well-rounded and multi-disciplinary program which has been carefully designed to take full advantage of the unique variety of marine environments available for study around the island of Hawai'i. Introductory lecture and laboratory courses in general oceanography and marine biology are followed by intermediate-level courses in marine ecology and evolution, marine methods, and statistical applications in marine science. The most advanced level of the degree programs is composed of specialized courses in geological, chemical, physical, and biological oceanography and electives. The programs culminate in a capstone sequence, allowing students to focus on independent projects involving research or applied internships.

### Vision

We will be an international leader in marine science education and research. Our *kuleana* (responsibility and privilege) is to provide student-focused, transformative, authentic science experiences, drawing from the unique natural and cultural environment of Hawai'i. Our graduates will be broadly equipped to become innovative members of the global workforce, successful life-long learners, and engaged stewards of the marine environment. Faculty, staff, and students will collaborate and draw upon each other's strengths and diversity to achieve our shared vision of student success.

### Mission

The marine science program at UH Hilo inspires and enlightens all learners about the ocean through interactive hands-on learning, research involvement, and community outreach centered on the natural and cultural environment of Hawai'i Island. This is supported by a broad background in the marine sciences, including fundamental knowledge of



biology, chemistry, physics, geology, and mathematics.

## Program Learning Goals

The Marine Science Program trains students in the primary disciplines in Marine Science and offers a wide diversity of courses in numerous sub-disciplines. The two degree options (B.A. and B.S.) provide students with opportunities to fulfill personal goals.

- **Content goals**—provide students with a solid background in:
  - The primary sciences and mathematics, including proficiency in chemistry, physics, calculus, computer applications related to the natural sciences, and laboratory techniques;
  - Marine science, including proficiency in marine biology, introductory oceanography, marine ecology, chemical oceanography, geological oceanography, and physical oceanography;
  - Advanced multidisciplinary undergraduate training in their choice of a variety of focal areas, including, but not limited to, geography, geology, biology, fisheries, and aquaculture.
- **General goals**—provide students with knowledge of and experience in:
  - The scientific method and critical thinking, including the ability to design and carry out an inquiry-based research or internship project, analyze primary scientific literature, write a scientific proposal, and write a research paper or compile a portfolio;
  - Scientific speech and discussion, including the ability to formally present a science project and discuss scientific issues.
- **Technical goals**—provide students with an understanding of and proficiency in:
  - Laboratory safety;
  - Oceanographic and marine biological laboratory methods and field techniques;
  - The use and application of bio-statistical and computer techniques;
  - Experimental design, data analysis, and interpretation of results, particularly in the use and application of marine monitoring techniques.

## Goals for Student Learning in the Major

- SLO1: Explain core concepts in marine biology and oceanography.
- SLO2: Examine and discuss current scientific issues using information from a variety of sources including the primary literature and from class content.
- SLO3: Describe, and apply, key concepts of lab and field safety.
- SLO4: Perform core oceanographic and marine biology-based lab techniques.
- SLO5: Access the primary literature to find scholarly articles that discuss the results of experiments.
- SLO6: Summarize scholarly articles from the primary literature, and synthesize summarized information into a literature review.
- SLO7: Write a testable hypothesis.
- SLO8: Design and carry out a controlled scientific experiment.
- SLO9: Choose and use appropriate statistical methods to analyze experimental data.
- SLO10: Report experimental results in graphs and tables.
- SLO11: Interpret graphically presented data.
- SLO12: Draw conclusions from experimental results.
- SLO13: Write a scientific paper that reports the results of an experiment, following accepted guidelines for publication in a scientific journal.
- SLO14: Create and deliver an oral presentation appropriate for a scientific conference or symposium.

- SLO15: Apply knowledge gained from courses by interacting with global and/or local communities.

## Prospects for Graduates

A Marine Science degree from UH Hilo opens doors to a wide variety of jobs, careers, graduate schools, and post-graduate opportunities. Employment possibilities following the B.A. include positions as marine research technicians, with marine-oriented government agencies and non-profit organizations, in eco-tourism, as teachers in public and private schools, and in the practice of environmental law. UH Hilo B.S. graduates are well prepared to continue to graduate schools in Hawai'i, in the continental USA, or overseas in pursuit of higher degrees and careers in management, secondary school education, academia, and research. Medical, dental, and veterinary schools are also post-graduate options for UH Hilo Marine Science graduates.

## Special Aspects of the Marine Science Program

### Marine Vessels

The Marine Science Department manages a fleet of marine vessels used for education and research. The R/V *Makani 'Aha*, a 38-foot research/education monohull catamaran is used to support marine science courses and student research and is capable of carrying up to 18 students and deploying a CTD, current meters, drogues, sediment coring apparatuses, and plankton nets. An 18-foot Larson motorboat is used as a nearshore research vessel and two Zodiac inflatables support scuba diving operations.

### SCUBA Diving

We collaborate with [UH Diving Safety Program](#) and the UH Hilo Unit Diving Coordinator to maintain an inventory of scuba equipment for research diver training and *in situ* research projects.

### Scanning Electron Microscopy Laboratory

The Marine Science department houses a scanning electron microscope and elemental analysis facility. Classes in oceanography and marine biology use the facility as part of the curriculum. Students can also take a course on basic principles of operation and applications, if interested, and then use the facility to conduct research as part of their degree program.

### The Marine Option Program (MOP)

The [Marine Option Program \(MOP\)](#) is a certificate program available to all undergraduate students at the University of Hawai'i, regardless of major. The program has branches on campuses throughout the UH system. The MOP certificate is earned by completing selected course work and completing a hands-on project or internship, thus combining academic requirements with practical experience in an area of marine interest of the student's choice. Each year MOP sponsors a Student Skill Project Symposium where selected students gain valuable experience by presenting the results of their projects. The site for the symposium rotates among UH campuses. UH Hilo MOP also coordinates QUEST (Quantitative Underwater Ecological Surveying Techniques), the annual UH system-wide scuba research techniques course.

MOP also serves as the UH Hilo center for marine-related activities. UH Hilo MOP offers students experience in a variety of skills, including



research, underwater photography, sailing and seamanship, fishing, snorkeling, and kayaking. MOP students often participate in tagging Green Sea Turtles in an on-going research program carried out in cooperation with the National Marine Fisheries Service, and also work with NOAA to respond to injured sea turtle rescue. MOP also sponsors seminars, films, field trips, and short courses on various marine-related subjects. All UH Hilo students are invited to take part in MOP-sponsored activities.

### The Marine Science Summer Program

The [Marine Science Summer Program](#) has received the Excellence of Program Award from the Western Association of Summer Session Administrators, which represents some 80 colleges and universities in the western United States, Canada, and Mexico. Course offerings vary yearly and may include courses on marine mammals, marine reptiles, coral reef ecology, small boat handling, advanced oceanography laboratory skills, and marine monitoring techniques. Summer courses in marine science combine classroom instruction with hands-on experience in the field and lab, and a primary goal of the program is to provide students with extensive personal attention.

### QUEST

[QUEST](#) stands for Quantitative Underwater Ecological Surveying Techniques, which is a special summer course taught in May each year. QUEST is designed to train undergraduates in underwater ecological surveying methodologies, including the design, implementation and analysis of a research project, and incorporates instruction in the identification of the common seaweeds, corals, invertebrates, and fishes of Hawaiian reefs. This unique two-week course involves classroom instruction coupled with extensive practical instruction surveying coral reefs off the west coast of Hawai'i using SCUBA.

### Curricula

- [B.A. in Marine Science Requirements](#)
- [B.S. in Marine Science Requirements](#)
- [Marine Science Minor](#)
- [Marine Option Program Certificate](#)
- [Marine Science \(MARE\) Courses](#)

## B.A. in Marine Science Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements and graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

## Group 2. Major Requirements (71-73 credits)

### 1. Required Courses from Marine Science (32)

- MARE 171-171L Marine Biology-Diversity (3), Marine Biology Laboratory (1)
- MARE 172 Marine Biology-Cellular Proc (3)
- MARE 201-201L Oceanography (3), Oceanography Lab (2)
- MARE 250 Statistical Apps in Marine Sci (3)
- MARE 265 Marine Ecology and Evolution (3)
- MARE 282 Global Change (3)
- MARE 350-350L Coastal Methods and Analyses (3), Coastal Methods & Analyses Lab (2) **or** MARE 353-353L Pelagic Methods and Analyses (3), Pelagic Methods & Analyses Lab (2)
- And **one sequence** from the following:
  - MARE 470 Senior Thesis Research (3) **and** MARE 471 Senior Thesis Report (3)
  - MARE 480 Senior Internship (3) **plus** 3 credits of MARE electives at the 300- or 400-level
  - MARE 495 Senior Seminar (3) **plus** 3 credits of MARE electives at the 300- or 400-level

### 2. Required Courses from Related Fields (21-23)

- CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
- CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
- PHYS 151-151L College Physics I (3), College Physics I Lab (1) **or** PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
- MATH 125 Applied Calculus (3) **or** MATH 241 Calculus I (4)
- COM 251 Public Speaking (3)
- ENG 225 Writng for Sci & Technology (3) **or** ENG 287 Introduction to Rhetoric (3)

### 3. Electives:\*\* 9 credits of electives from Block I and 9 credits from Block II (18)

- *Block I:*
  - An additional 9 credits of 200-, 300-, and 400-level MARE courses, which must include 6 credits of 300- or 400-level courses, excluding MARE 299, 399, 496, 499
- *Block II.* Choose 9 credits from the following courses from related fields, 6 of which must be 300- or 400-level
  - AGEC 380 Environ Pol & Mgt Hawn Nat Res (3)
  - AGEN 400 Aquaculture Engineering (4)
  - ANTH 447 Marine Anth:Fishers in Oceania (3)
  - AQUA 262 Intro Aquaculture (3)
  - AQUA 352 Aquaculture of Fishes (3)
  - AQUA 352L Aquaculture of Fishes Lab (1)
  - AQUA 353 Invertebrate & Algae Culture (3)
  - AQUA 353L Cultures of Invertebrates Lab (1)
  - AQUA 425 Water Qual & Aquatic Product (3)
  - AQUA 425L Water Qual & Aquatic Prod Lab (1)
  - AQUA 466 Fisheries Science (3)
  - BIOL 275 Fund Microbiology (3)
  - BIOL 275L Microbiology Lab (1)
  - BIOL 309 Biogeography (3)
  - BIOL 357 Evolution (3)
  - BIOL 357L Evolutionary Genetics Lab (1)
  - BIOL 375 Biology of Microorganisms (3)
  - BIOL 375L Biology of Microorganisms Lab (1)
  - BIOL 376 Genetics (3) (Formerly offered as BIOL 466)
  - BIOL 376L Genetics Lab (2) (Formerly offered as BIOL 466L)



- BIOL 381 Conservation Biology (3)
- BIOL 437 Marine Mammal Behavior (3)
- BIOL 443 Ecological Animal Physiology (3)
- BIOL 467 Ecological Genetics (3)
- CHEM 487 Environmental Toxicology (3)
- COM 344 Sustainability, Com & Culture (3)
- COM 352 Comm in Small Groups (3)
- COM 354 Comm in Innovation (3)
- COM 441 Leadership & Communication (3)
- COM 444 Public Relations (3)
- CS 200 Web Technology I (3)
- CS 300 Web Site Management (3)
- ECON 482 Natural Resource Env Eco (3)
- ENG 275 Literature of the Earth (3)
- ENG 387 Lit of the Environment (3)
- ENSC/GEOG 436 Environ Politics in Pacific (3)
- ENSC/GEOG 441 Environmentl Impact Assessment (3)
- GEOG 300 Climatology (3)
- GEOG 309 Biogeography (3)
- GEOG 319 Nat Hazards/Disasters (3)
- GEOG 326 Natural Resources (3)
- GEOG 331 Tourism Geographies (3)
- GEOG 340 Intro to Land Use Planning (3)
- GEOG 409 Principles of Landscape Ecology (3)
- GEOG 440 Community Planning (3)
- GEOG 470 Remote Sensing/Air Photo (3)
- GEOG 480 Geog Info Sys & Visualization (3)
- GEOL 205 Geology Of Hawaiian Islands (3)
- GEOL 344 Coastal Geology (3)
- GEOL 360 Surface Water (3)
- GEOL 445 GIS for Geology (3)
- GEOL 460 Groundwater (3)
- HORT 263 Hydroponics and Vegetables (3)
- MATH 407 Intro To Numerical Analysis I (3)
- MATH 408 Intro To Numerical Analysis II (3)
- NRES 230 Philippines Envirn & Nat Resou (3)
- NRES 410 Invasive Species & Ecosystems (3)
- NRES 420 Hydrology and Watershed Mgmt (3)
- NRES 425 Marine Biogeochemistry (3)
- NRES 430 GIS Application in Nat Res Mgt (3)
- NRES 455 Pac Climate Change Adaptation (3)
- PHIL 323 Professional Ethics (3)
- PHIL 390 History & Phil of Science (3)
- PHIL 392 Biology & Philosophy (3)
- POLS 342 International Law (3)
- PHIL 323 Professional Ethics (3)
- POLS 335 Envir Politics & Policy (3)
- PSY 323 Community Psychology (3)
- PSY 335 Animal Psychology (3)
- PSY 369 Evolutionary Psychology (3)
- PSY 422 Psychology of Sustainability (3)
- PSY 436 Animal Cognition (3)
- PSY 437 Marine Mammal Behavior (3)
- SOC 305 Org Theory & Analysis (3)

## Total Semester Hours Required for the B.A. in Marine Science

120 credits required.

## Notes

1. Students must earn a **minimum grade of "C-"** in all required

courses and prerequisite courses.

2. The 300- and 400-level credits needed for graduation for all degrees in Marine Science are met in the process of completing the degrees.
3. To earn a Bachelor of Arts degree in Marine Science, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this catalog.)
4. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
5. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
6. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## B.S. in Marine Science Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements and graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

### Group 2. Major Requirements (88-90 credits)

#### 1. Required Courses from Marine Science (38)

- MARE 171-171L Marine Biology-Diversity (3), Marine Biology Laboratory (1)
- MARE 172 Marine Biology-Cellular Proc (3)
- MARE 201-201L Oceanography (3), Oceanography Lab (2)
- MARE 250 Statistical Apps in Marine Sci (3)
- MARE 265 Marine Ecology and Evolution (3)
- MARE 350-350L Coastal Methods and Analyses (3), Coastal Methods & Analyses Lab (2) **or** MARE 353-353L Pelagic Methods and Analyses (3), Pelagic Methods & Analyses Lab (2)
- MARE 425 Chemical Oceanography (3)
- MARE 440 Physical Oceanography (3)
- MARE 461 Geological Oceanography (3)
- And **one sequence** from the following:
  - MARE 470 Senior Thesis Research (3) **and** MARE 471 Senior Thesis Report (3)
  - MARE 480 Senior Internship (3) **plus** 3 credits of [MARE](#) electives at the 300- or 400-level
  - MARE 495 Senior Seminar (3) **plus** 3 credits of [MARE](#) electives at the 300- or 400-level



## 2. Required Courses from Related Fields (41-43)

- CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
- CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
- CHEM 241-241L Organic Chem I (3), Organic Chem I Lab (1)
- CHEM 242-242L Organic Chem II (3), Organic Chem II Lab (1)
- GEOL 111 Understanding the Earth (3)
- PHYS 151-151L College Physics I (3), College Physics I Lab (1) **or** PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
- PHYS 152-152L College Physics II (3), College Physics II Lab (1) **or** PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
- MATH 241 Calculus I (4)
- MATH 242 Calculus II (4)
- COM 251 Public Speaking (3)
- ENG 225 Writing for Sci & Technology (3) **or** ENG 287 Introduction to Rhetoric (3)

## 3. Required Electives

6 credits from Block I and 3 credits from Block II

- Block I (6):
  - Additional 6 credits of any 300- or 400-level MARE courses, excluding MARE 399, 496, or 499-
- Block II: An additional 3 credits from the following courses from MARE or related fields (3)
  - Any 200-, 300-, or 400-level MARE courses, excluding MARE 299 Directed Studies (To Be Arranged), 399, 496 or 499 (1-3)
  - AGEN 400 Aquaculture Engineering (4)
  - AQUA 262 Intro Aquaculture (3)
  - AQUA 425-425L Water Qual & Aquatic Product (3), Water Qual & Aquatic Prod Lab (1)
  - AQUA 466 Fisheries Science (3)
  - ECON 482 Natural Resource Env Eco (3)
  - GEOG 340 Intro to Land Use Planning (3)
  - GEOG 440 Community Planning (3)
  - GEOG 470 Remote Sensing/Air Photo (3)
  - GEOG 480 Geog Info Sys & Visualization (3)
  - GEOL 344 Coastal Geology (3)
  - POLS 335 Envir Politics & Policy (3)

## Total Semester Hours Required for the B.S. in Marine Science

120 credits required.

## Notes

1. Students must earn a **minimum grade of "C-"** in all required courses and prerequisite courses.
2. 9 credits are required at the 300- or 400-level for graduation with a B.S. degree in Marine Science.
3. To earn a Bachelor of Science degree in Marine Science, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
4. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
5. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course](#)

[listings](#) in this Catalog.

6. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Marine Science Minor

The minor offers a broad exposure to Marine Science with a biological orientation and is desirable for:

- Teaching; for example, in conjunction with the Natural Sciences degree.
- Marine ecotourism or marine recreation careers; for example, in conjunction with a major in Anthropology, Business Administration, Economics, Geography, or Hawaiian Studies.
- Graduate school preparation in a specialized branch of a primary science with an emphasis in Marine Science; for example, in conjunction with a degree in Biology, Chemistry, Geology, or Physics

### Requirements (27 credits):

1. **Required Courses from Marine Science (15):**
  - MARE 171 Marine Biology-Diversity (3)
  - MARE 172 Marine Biology-Cellular Proc (3)
  - MARE 201 Oceanography (3)
  - MARE 265 Marine Ecology and Evolution (3)
  - MARE 282 Global Change (3)
2. **Electives:** choose 12 credits from the following courses
  - MARE 240 Small Boat Operations/Research (3)
  - MARE 264 Quest (3)
  - MARE 310 The Atoll Ecosystem (3)
  - MARE 325 Coral Reef Ecology (3)
  - MARE 350-350L Coastal Methods and Analyses (3), Coastal Methods & Analyses Lab (2) **or** MARE 353-353L Pelagic Methods and Analyses (3), Pelagic Methods & Analyses Lab (2)
  - MARE 360 Marine Resources (3)
  - MARE 364 Advanced Quest (3)
  - MARE 366 Trop Marine Research Investiga (3)
  - MARE 371-371L Biology Of Marine Invertebrate (3), Bio Of Marine Invertebrate Lab (1)
  - MARE 372-372L Biology Of Marine Plants (3), Biology of Marine Plants Lab (1)
  - MARE 380-380L Nat. Hist. of Sharks and Rays (3), Nat. Hist. of Sharks Lab (1)
  - MARE 390-390L Biology of Marine Mammals (3), Biol of Marine Mammals Lab (1)
  - MARE 394 Special Topics in Subject Matter (To Be Arranged)
  - MARE 405 Watersheds (3)
  - MARE 410 Marine Debris in the Pacific (3)
  - MARE 425 Chemical Oceanography (3)
  - MARE 434 Teaching Marine Science (3)
  - MARE 435 Marine Field Exper Tchers (3)
  - MARE 440 Physical Oceanography (3)
  - MARE 444 Biological Oceanography (3)
  - MARE 445 Marine Microbial Ecology (3)
  - MARE 446 Phytoplankton (3)
  - MARE 446L Phytoplankton Ecology Lab (2)
  - MARE 460 Marine Conservation (3)
  - MARE 461 Geological Oceanography (3)
  - MARE 484 Biology Of Fishes (3)
  - MARE 484L Biology Of Fishes Laboratory (1)
  - MARE 488 Kuula: Integrated Science (3)
  - MARE 490-490L Sea Turtle Conserv & Ecology (3), Sea Turtle Conserv & Ecol Lab (1)
  - MARE 494 Special Topics in Subject Matter (To Be Arranged)



## Marine Option Program Certificate

**Coordinator:** Lisa B. Parr

**Email:** lparr@hawaii.edu

**Website:** uhhmop.hawaii.edu

The Marine Option Program (MOP) offers a certificate for students of all majors at UH Hilo. Students in art can do a marine related piece of art or underwater photography of marine species for science or art. Or students in aquaculture can do a project with a marine emphasis, such as aquarium fish culturing to fish farming. Students of other majors such as computer science have done projects on databases related to oceanography data. MOP also oversees the sea turtle stranding program in East Hawai'i. The program is the only system wide certificate program offered and emphasizes intercampus involvement. MOP is currently on Kaua'i, O'ahu, Maui and the Big Island. Students from the different campuses gather regularly for QUEST, MAST (Maritime Archaeology Symposium and field school) and the annual symposium, as well as shared resources such as Kaho'olawe surveys, Turtle Tagging, Moloka'i fish pond work and other projects.

### Mission

The mission of the Marine Option Program is to provide a unique opportunity for undergraduates in any field of study who have an interest in the ocean. It is open to students in all fields and provides a clearinghouse for marine-oriented education and employment opportunities as well as a chance for students to network with professionals and fellow students who are involved with the ocean.

### Program Learning Outcomes

The Marine Option Program strives to:

1. Provide an opportunity for undergraduate students in any discipline to acquire a marine orientation during his/her residency at UH Hilo
2. Add focus and relevance to the academic marine courses by aiding the students in acquiring a practical "marine skill";
3. Help each MOP student, through counseling, discover and implement his/her individual marine-oriented educational career goals;
4. Provide special seminars and interdisciplinary courses designed to acquaint the undergraduate student with the many facets of marine affairs; and
5. Provide opportunities and guidance to students who wish to contribute their talents by working toward solutions for social and environmental ocean-related problems.

### Student Learning Outcomes

Upon completing the Marine Option Program Certificate, students will be able to:

1. Write a formal scientific proposal that includes a literature review, project objectives, a methodology and a section discussing proposed deliverables
2. Give an oral presentation of the proposal
3. Conduct a marine skills project that includes a collection of materials or data, following proposed activities, and completing of project including analyses.
4. Develop and deliver a scientific presentation in both oral and poster format

## Curriculum

### Requirements (14 credits):

1. **Required Courses (5)**
  - o MARE 100 Marine Option Program Seminar (1)
  - o MARE 104 Marine Option Program Project (2) (Repeated Once)
2. **Survey class (3)**
  - o MARE 140 Intro to Hawaiian Coral Reefs (3) **or** MARE 171 Marine Biology-Diversity (3) **or** MARE 201 Oceanography (3)
3. **Electives (6).** Any marine-related course approved by the MOP faculty advisor.
4. **Skills project or internship.** This must be approved by the MOP faculty advisor.

## Mathematics

**Department Chair:** Brian Wissman , Ph.D.

**Email:** uhhmath@hawaii.edu

**Website:** hilo.hawaii.edu/academics/math/

### Professors:

- Raina Ivanova , Ph.D.
- Shuguang Li , Ph.D.
- Efen Ruiz , Ph.D.
- Brian Wissman , Ph.D.

### Associate Professor:

- Ramón Figueroa-Centeno , Ph.D.

### Assistant Professor:

- Grady Weyenberg , Ph.D.

### Instructors:

- Erica Bernstein , Ph.D.
- Zorana Lazarevic , Ph.D.
- Zinat Rahman , M.S.
- Aaron Tresham , M.S.

The Mathematics program is designed to give the undergraduate a broad background in modern mathematics and its applications. The upper-division mathematics courses represent a core leading to further work in mathematics or mathematically related areas or careers in mathematics education. Applications may be pursued in such areas as systems theory, graph theory, number theory, statistics, and geometry, which are widely used in computer science, business, and the physical, life, and social sciences. Students majoring in other fields whose interests require a strong background in mathematics can minor in Mathematics or choose Mathematics as a secondary major.

The B.A. in Mathematics is offered through two tracks, the Traditional and the Teaching track. Each track requires two years of calculus, one semester each of discrete math and linear algebra. The traditional track requires one semester of real analysis and one semester of group theory. The remaining courses for the traditional track can be chosen from upper division mathematics courses and/or select courses from Astronomy, Biology, Computer Science, and/or Physics that fit the students' interest. The teaching track includes a one-year sequence in probability and statistics, consistent with recent National Council of Teachers of Mathematics standards, as well as one semester each in real analysis,



geometry, and ring theory. Students completing this broad curriculum are well prepared to teach all areas of intermediate and secondary math.

## Mission

The instructional mission of the Mathematics Department is threefold:

- First, the major program is designed to prepare its students for successful careers in secondary education and other areas requiring a strong foundation in mathematics, or for success at the graduate level, either in mathematics or a related discipline. The degree is intended to familiarize students with a wide range of areas within the field of mathematics, and to instill in them an appreciation for the rigor and structure of the discipline.
- Second, the Math Department provides extensive support to those departments requiring mathematics content for their majors, particularly those in the Natural Sciences.
- Third, the Department services non-science majors by offering a limited selection of courses that are designed to introduce the students to the fundamental concepts that constitute classical and contemporary mathematics.

## Program Goals

**Graduating majors in the Traditional Track should be able to:**

- Outcome 1 (Knowledge): Demonstrate mastery of the core material found in single and multi-variable Calculus and Linear Algebra.
- Outcome 2 (Knowledge): Demonstrate mastery of the core concepts in Group Theory and Real Analysis.
- Outcome 3 (Comprehension): Correctly identify fundamental concepts within and across the major areas of mathematics, with particular emphasis on Linear Algebra, Group Theory, and Real Analysis.
- Outcome 4 (Reasoning): Use a variety of theorem-proving techniques to prove mathematical results.
- Outcome 5 (Communication): Demonstrate the abilities to read and articulate mathematics verbally and in writing.

**Graduating majors in the Teaching Track should be able to:**

- Outcome 1 (Knowledge): Demonstrate mastery of the core material found in single and multi-variable Calculus and Linear Algebra.
- Outcome 2 (Knowledge): Demonstrate mastery of the core concepts in Ring Theory, Real Analysis, Probability, and Statistics.
- Outcome 3 (Comprehension): Correctly identify fundamental concepts within and across the major areas of mathematics, including Linear Algebra, Ring Theory, Real Analysis, Geometry, Probability, and Statistics.
- Outcome 4 (Reasoning): Use a variety of theorem-proving techniques to prove mathematical results.
- Outcome 5 (Communication): Demonstrate the abilities to read and articulate mathematics verbally and in writing.
- Outcome 6 (Application): Demonstrate a level of mathematical sophistication consistent with the ability to develop and deliver all pre-college mathematics.
- Outcome 7 (Technology): Demonstrate an ability to appropriately use technology in the problem-solving process, including graphing calculators, Computer Algebra Systems, and Statistical Software.

## Goals for Student Learning in the Major

As a result of having majored in mathematics, students are expected to develop:

- A general understanding of the different areas of mathematics and how they interrelate, and the importance of mathematics in a scientifically-oriented society;
- Classical theorem-proving skills, which include the ability to reason mathematically and to apply the rigor necessary to construct proofs;
- A refined understanding of the problem-solving process;
- The ability to independently develop and deliver all pre-college math curriculum, if the professional goal is teaching;
- A working knowledge of technology appropriate to the field;
- The skills necessary to:
  - Read, write, translate, and articulate mathematically-related material,
  - Solve problems using a variety of techniques, including algebraic, numerical, and spatial reasoning through visualization (e.g. graphically),
  - Make inferences and generalizations.

## Contributions to the General Education Program

All lower-division mathematics courses (**except MATH 103 Intro to College Algebra (3) , MATH 199 Directed Studies (To Be Arranged) , and MATH 299 Directed Studies (To Be Arranged) )** satisfy the CAS General Education “quantitative and logical reasoning” requirements. Students who have fulfilled this General Education requirement should have developed an appreciation for the applicability of mathematical concepts and techniques to contemporary society.

## Curricula

- [B.A. in Mathematics Requirements](#)
- [Mathematics Minor](#)
- [Mathematics \(MATH\) Courses](#)

## B.A. in Mathematics Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements and graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

### Group 2. Major Requirements and Assigned Credits (37-38 credits, 40 credits)

#### 1. Track One, Traditional (for students planning



## graduate work in mathematics or careers in science or technology 37-38 Credits)

- Calculus Required Core: (14 Credits)
  - MATH 241 Calculus I (4)
  - MATH 242 Calculus II (4)
  - MATH 243 Calculus III (3)
  - MATH 244 Calculus IV (3)
- Upper Math Required Core: (14 Credits)
  - MATH 310 Discrete Mathematics (3)
  - MATH 311 Intro Linear Algebra (3)
  - MATH 424 Group Theory (4)
  - MATH 431 Real Analysis I (4)
- Upper Electives: (9-10 Credits)
  - **One** from the following list of courses (3-4 Credits):
    - MATH 314 Topology (4)
    - MATH 317 Intro To Theory Of Equations (3)
    - MATH 324 Ring Theory (4)
  - **Two** from the following list of courses (6 Credits):
    - 300 or 400 level MATH courses, excluding MATH 399 Directed Studies (To Be Arranged) , 499, 496
    - ASTR 350 Stellar Astrophysics (3)
    - BIOL 481L Trop Island Ecology & Evol Lab (2)
    - CS 407 Intro To Numerical Analysis I (3)
    - CS 408 Intro To Numerical Analysis II (3)
    - CS 440 Artificial Intelligence (3)
    - CS 470 Theory Of Computing (3)
    - PHYS 330 Electromagnetism (3)
    - PHYS 331 Optics (3)
    - PHYS 341 Thermodynamics (3)
    - PHYS 360 Mathematical Physics (3)
    - PHYS 371 Classical Mechanics (3)
    - PHYS 380 Chaos (3)
    - PHYS 430 Quantum Mechanics I (3)

## 2. Track Two, Teaching (for students planning to teach mathematics, 40 Credits)

- Calculus Required Core: (14 Credits)
  - MATH 241 Calculus I (4)
  - MATH 242 Calculus II (4)
  - MATH 243 Calculus III (3)
  - MATH 244 Calculus IV (3)
- Upper Math Required Core: (26 Credits)
  - MATH 310 Discrete Mathematics (3)
  - MATH 311 Intro Linear Algebra (3)
  - MATH 324 Ring Theory (4)
  - MATH 421 Elem Probability Theory (3)
  - MATH 422 Elementary Math Statistics (3)
  - MATH 431 Real Analysis I (4)
  - MATH 441 Geometry I (3)
  - MATH 496 Tchg Assist & Tutoring Math (1-3) (See note 4)

## Total Semester Hours Required for the B.A. in Mathematics

120 credits required.

### Notes

1. Students should take MATH 310 Discrete Mathematics (3) as soon as possible after completing MATH 242 Calculus II (4) to make timely progress.

2. MATH 314 Topology (4) Topology is a recommended elective preceding MATH 431 Real Analysis I (4) Analysis.
3. MATH 324 Ring Theory (4) Ring Theory is a recommended elective preceding MATH 424 Group Theory (4) Group Theory.
4. Students in the Teaching Track are required to take 3 credits of MATH 496 Tchg Assist & Tutoring Math (1-3) Tchg Assist & Tutoring Math (1-3) to graduate. MATH 496 Tchg Assist & Tutoring Math (1-3) is a variable credit courses and may be taken for 1-3 credits. Students are allowed to repeat MATH 496 Tchg Assist & Tutoring Math (1-3) multiple times in order to reach the minimum of 3 credits required for graduation.
5. Students must earn at least a 2.0 cumulative GPA in courses required for the major.
6. At least 45 credits must be earned in courses at the 300- and 400-level.
7. To earn a Bachelor of Arts degree in Mathematics, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
8. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
9. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
10. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Mathematics Minor

The Mathematics Minor emphasizes the development of logical and quantitative thinking skills that are gained in studying mathematics. From a core set of calculus classes, you'll choose from a wide breadth of upper division mathematics electives. The Mathematics minor complements a variety of majors, including those from the natural sciences and business.

### Requirements (26 credits):

- MATH 241-242 Calculus I (4), Calculus II (4)
- MATH 243-244 Calculus III (3), Calculus IV (3)
- And at least **12 credits** of additional [MATH courses](#) at the 300- or 400-level, not including MATH 496 Tchg Assist & Tutoring Math (1-3) and at most 3 credits from MATH 399V Directed Studies (To Be Arranged) and MATH 499V Directed Studies (To Be Arranged) .

## STEM Research Honors Certificate Program

**Contact:** Dr. Raina 'Reni' Ivanova , Ph. D.  
STEM Research Honors Program Director

**Office Location** CH-8B

**Email:** [rivanova@hawaii.edu](mailto:rivanova@hawaii.edu)

**Website:** <https://hilo.hawaii.edu/academics/stem-honors/index.php>

The STEM Research Honors Certificate Program will expose students from all Natural Science departments and programs to the highest academic standards and provide them with guidance, academic mentorship, and opportunities to participate in advanced modern research. The total number of credits required for the Program varies by major (see table below).



## Mission

The STEM Research Honors Certificate Program promotes academic excellence and provides exceptional undergraduate students from all mathematics and science majors the opportunity to participate in collaborative research or conduct their own research under the guidance of a mentor.

## Program Learning Outcomes

The STEM Research Honors Certificate Program promotes the following skills:

1. (Knowledge): Demonstrate mastery of the core material in mathematics and their major discipline
2. (Knowledge): Demonstrate mastery of advanced concepts in their major discipline
3. (Reasoning): Use a variety of scientific techniques to collect data, analyze it, and test hypotheses.
4. (Reasoning): Analyze research activities in terms of where they fit within the scientific method
5. (Communication): Articulate, both verbally and in writing, the purpose, methods, findings, and significance of their research

## Student Learning Outcomes

STEM Research Honors Certificate Program graduates should be able to:

1. Conduct original research or engage in applications of prior research
2. Prepare a formal research proposal
3. Report their findings in a manuscript
4. Present their results in the STEM Honors Research Symposium

## Curricula

Requirements for the STEM Research Honors Certificate Program:

1. Required Courses
  - o MATH 241 Calculus I (4)
  - o MATH 242 Calculus II (4)
  - o 3-8 credits of major core courses for their major only (see list below)
  - o Major 399 (3)
  - o Major 499 (3)
  - o HON 495 Honors Research Symposium (1)
2. Overall GPA of 3.75 or higher

### Biology (8)

- BIOL 171-171L Introductory Biology I (3), Introductory Biology I Lab (1)
- BIOL 270-270L Intermed Cell & Molecular Biol (3), Inter Cell & Molecular Bio Lab (1)

### Chemistry (8)

- CHEM 241-241L Organic Chem I (3), Organic Chem I Lab (1)
- CHEM 242-242L Organic Chem II (3), Organic Chem II Lab (1)

### Computer Science (3)

- CS 321 Data Structures (3)

### Environmental Sciences (3)

- ENSC 385 Fld Meth in Geog & Environ Sci (3)

### Geology (7 or 8)

- GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
- and either:
  - o GEOL 212 Earth Materials I: Minerals (4) , **or**
  - o GEOL 330 Deformation of the Earth (4)

### Marine Science (8)

- MARE 265 Marine Ecology and Evolution (3)
- and either:
  - o MARE 350-350L Coastal Methods and Analyses (3), Coastal Methods & Analyses Lab (2) , **or**
  - o MARE 353-353L Pelagic Methods and Analyses (3), Pelagic Methods & Analyses Lab (2)

Note: In Marine Science, MARE 470 Senior Thesis Research (3) and MARE 471 Senior Thesis Report (3) will substitute for Major 399 Independent Study (3) and Major 499 Independent Study (3)

### Mathematics (6)

- MATH 243 Calculus III (3)
- MATH 244 Calculus IV (3)

### Physics & Astronomy (6)

- **Physics:**
  - o PHYS 274 Gen Phys III: Intro Modern Phy (3)
  - o PHYS 331 Optics (3)
- **Astronomy:**
  - o PHYS 274 Gen Phys III: Intro Modern Phy (3)
  - o ASTR 350 Stellar Astrophysics (3)

## Total number of semester hours required (by major)

Major	Total Credits
Biology	23
Chemistry	23
Computer Science	18
Environmental Science	18
Geology	23
Marine Science	23
Mathematics	21
Physics and Astronomy	21

## Natural Science

**Program Chair:** Jené Michaud , Ph.D.

**Email:** [jene@hawaii.edu](mailto:jene@hawaii.edu)



Website: [hilo.hawaii.edu/academics/natural-science/](http://hilo.hawaii.edu/academics/natural-science/)

#### Area Advisors:

- Steven Lundblad , Ph.D., Geology/Earth Science
- Jené Michaud , Ph.D., Geology
- Jon-Pierre Michaud , Ph.D., Chemistry
- Cedric Muir , Ph.D., Biology
- Marianne Takamiya , Ph.D., Physics

The interdisciplinary Natural Science program prepares students for careers that require a broad background in science fundamentals. The degree was designed for students that wish to teach science at the intermediate level or in rural high schools. The program also provides training for students with broad interests who intend to pursue non-teaching careers in interdisciplinary arenas.

Students in the Natural Science program take foundational courses in biology, chemistry, physics, and earth science. They then take additional advanced courses in one of these disciplines. This gives students an area of specialization. The curriculum is aligned with the competency requirements of the National Science Teachers Association. Graduates of the Natural Science program meet the subject matter entrance requirements of the UH Hilo [Master of Arts in Teaching](#) program, which leads to licensure as a secondary science teacher. It is also possible to earn a Subject Certificate in [Educational Studies](#) while pursuing a bachelors degree in Natural Science.

### Goals for Student Learning in the Major

Upon exit from UH Hilo, a graduate with a B.A. in Natural Science will be able to:

- Articulate basic concepts, methods, and theories of the natural sciences
- Articulate a detailed understanding of scientific concepts and methods in either biology, chemistry, physics, or earth/space science.
- Apply scientific concepts, methods, and theories to problems of societal relevance.
- Independently undertake laboratory investigations; articulate and follow safety protocols appropriate to teaching laboratories
- Demonstrate observational and experimental skills.
- Communicate their knowledge, orally and in writing, to a variety of audiences.

### Special Aspects of the Program

UH Hilo is surrounded by tropical ecosystems, world-class astronomy observatories, active volcanoes, and tropical coral reefs. Some courses in the Natural Science program emphasize field trips that use Hilo's extraordinary location as a "living laboratory." The plants, animals, volcanoes, ocean, and observatories of the Big Island are unique and bring to life the study of biology, geology, oceanography, and astronomy.

### Curriculum

- [B.A. in Natural Science Requirements](#)
- [Natural Sciences \(NSCI\) Courses](#)

## B.A. in Natural Science Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements and graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

### Group 2. Major Requirements

Choose one of the following four tracks.

- [Biology Track](#)
- [Chemistry Track](#)
- [Earth Science Track](#)
- [Physics Track](#)

#### A. Biology Track (69-72 credits)

- 1. Science Foundation for Biology Track (41-44 credits)**
  - BIOL 171-171L Introductory Biology I (3), Introductory Biology I Lab (1)
  - BIOL 172-172L Introductory Biology II (3), Introductory Biology II Lab (1)
  - CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
  - CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
  - GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
  - GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
  - BIOL 280 Biostatistics (3)
  - MATH 125 Applied Calculus (3) or MATH 241 Calculus I (4)
  - NSCI 476 Communicating Science (3)
  - **One** of the following sequences:
    - PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1) **and** PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
    - PHYS 151-151L College Physics I (3), College Physics I Lab (1) **and** PHYS 152-152L College Physics II (3), College Physics II Lab (1)
- 2. Biology Focus (19 credits)**
  - BIOL 125 Intro Cell & Molecular Biol (3) **or** BIOL 270 Intermed Cell & Molecular Biol (3)
  - BIOL 275-275L Fund Microbiology (3), Microbiology Lab (1)
  - BIOL 281 General Ecology (3)
  - BIOL 357 Evolution (3)
  - **Two courses** selected from:
    - AG 304 Applied Microbiology (3)
    - AG 375 Intro To Genetic Analysis (3)



- BIOL 371 Biology Of Marine Invertebrate (3)
- BIOL 443 Ecological Animal Physiology (3)
- BIOL 445 Behavioral Ecology & Evolution (3)
- BIOL 455 Plant Ecology (3)
- BIOL 457 Vegetation of the Hawaiian Isl (3)
- BIOL 460 Plant Diversity & Evolution (3)
- BIOL 467 Ecological Genetics (3)
- BIOL 477 Avian Biology (3)
- ENTO 304 General Entomology (3)
- PPTH 404 Tropical Plant Pathology (3)

### 3. Allied Science Electives for Biology Track (9 credits)

Three additional courses selected from:

- AG 304 Applied Microbiology (3)
- AG 375 Intro To Genetic Analysis (3)
- ANTH 481 Archaeometry (3)
- ANTH 484 Stone Tool Analysis (3)
- AQUA 425 Water Qual & Aquatic Product (3)
- BIOL 467 Ecological Genetics (3)
- BIOL 371 Biology Of Marine Invertebrate (3)
- BIOL 381 Conservation Biology (3)
- BIOL 443 Ecological Animal Physiology (3)
- BIOL 445 Behavioral Ecology & Evolution (3)
- BIOL 455 Plant Ecology (3)
- BIOL 457 Vegetation of the Hawaiian Isl (3)
- BIOL 460 Plant Diversity & Evolution (3)
- BIOL 467 Ecological Genetics (3)
- BIOL 477 Avian Biology (3)
- CHEM 274-274L Principles of Analytical Chem (3), Princ Analytical Chem Lab (2)
- CHEM 360 Environmental Chemistry (3)
- ENSC 301 Global Warming/Climate Change (3)
- ENTO 304 General Entomology (3)
- GEOG 300 Climatology (3)
- GEOL 300 Adv Environmental Earth Sci (3)
- GEOL 342 Earth Surface Processes (3)
- GEOL 431 Geology Of North America (3)
- GEOL 432 Plate Tectonics (3)
- GEOL 445 GIS for Geology (3)
- GEOL 450 Geological Remote Sensing (3)
- GEOL 460 Groundwater (3)
- GEOL 472 Volcano Seismology & Geodesy (3)
- PPTH 404 Tropical Plant Pathology (3)
- SOIL 304 Tropical Soils (3)
- One of the three required Allied Science Electives may be selected from the following:
  - ED 310 Foundations of Education (3)
  - ED 350 Developmental Concepts Of Learning (3)
  - PHIL 329 Environmental Ethics (3)
  - PHIL 412 Philosophy of Nature (3)
  - PHIL 416 Science, Technology & Values (3)

## B. Chemistry Track (70-73 credits)

### 1. Science Foundation for Chemistry Track (43 credits)

- BIOL 171-171L Introductory Biology I (3), Introductory Biology I Lab (1)
- BIOL 172-172L Introductory Biology II (3), Introductory Biology II Lab (1)
- CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
- CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
- GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)

- GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
- MATH 115 Intro to Stats and Prob (3)
- MATH 125 Applied Calculus (3) **or** MATH 241 Calculus I (4)
- NSCI 476 Communicating Science (3)
- **One** of the following sequences:
  - PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1) **and** PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
  - PHYS 151-151L College Physics I (3), College Physics I Lab (1) **and** PHYS 152-152L College Physics II (3), College Physics II Lab (1)

### 2. Chemistry Focus (20 credits)

- CHEM 141 Surv Organ Chem & Biochem (3)
- CHEM 274-274L Principles of Analytical Chem (3), Princ Analytical Chem Lab (2)
- CHEM 360 Environmental Chemistry (3)
- CHEM 320 Descriptive Inorganic Chem (3)
- **One course** selected from:
  - BIOL 125 Intro Cell & Molecular Biol (3)
  - CHEM 241 Organic Chem I (3)
- **One** selected from:
  - AQUA 425 Water Qual & Aquatic Product (3)
  - CHEM 431-431L Instrumental Analysis (2), Instrumental Analysis Lab (2)
  - ENSC 301 Global Warming/Climate Change (3)

### 3. Allied Science Electives for Chemistry Track (9 credits),

Choose **three** additional courses selected from:

- AG 304 Applied Microbiology (3)
- AG 375 Intro To Genetic Analysis (3)
- ANTH 481 Archaeometry (3)
- ANTH 484 Stone Tool Analysis (3)
- AQUA 425 Water Qual & Aquatic Product (3)
- BIOL 357 Evolution (3)
- BIOL 371 Biology Of Marine Invertebrate (3)
- BIOL 443 Ecological Animal Physiology (3)
- BIOL 467 Ecological Genetics (3)
- CHEM 431-431L Instrumental Analysis (2), Instrumental Analysis Lab (2)
- CHEM 487 Environmental Toxicology (3)
- ENSC 301 Global Warming/Climate Change (3)
- ENTO 304 General Entomology (3)
- GEOG 300 Climatology (3)
- GEOL 300 Adv Environmental Earth Sci (3)
- GEOL 342 Earth Surface Processes (3)
- GEOL 431 Geology Of North America (3)
- GEOL 432 Plate Tectonics (3)
- GEOL 445 GIS for Geology (3)
- GEOL 450 Geological Remote Sensing (3)
- GEOL 460 Groundwater (3)
- GEOL 472 Volcano Seismology & Geodesy (3)
- PPTH 404 Tropical Plant Pathology (3)
- SOIL 304 Tropical Soils (3)
- **One** of the three courses may be selected from the following:
  - ED 310 Foundations of Education (3)
  - ED 350 Developmental Concepts Of Learning (3)
  - PHIL 329 Environmental Ethics (3)
  - PHIL 412 Philosophy of Nature (3)
  - PHIL 416 Science, Technology & Values (3)

## C. Earth Science Track (74-77 credits)

### 1. Science Foundation for Earth Science Track (41-44 credits)

- BIOL 171-171L Introductory Biology I (3), Introductory Biology I



- Lab (1)
  - BIOL 172-172L Introductory Biology II (3), Introductory Biology II Lab (1)
  - CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
  - CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
  - GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
  - GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
  - MATH 115 Intro to Stats and Prob (3)
  - MATH 125 Applied Calculus (3) **or** MATH 241 Calculus I (4)
  - NSCI 476 Communicating Science (3)
  - **One** of the following sequences:
    - PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1) **and** PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
    - PHYS 151-151L College Physics I (3), College Physics I Lab (1) **and** PHYS 152-152L College Physics II (3), College Physics II Lab (1)
- 2. Earth Science Focus (24 credits)**
- ASTR 110L Gen Astronomy Lab (1)
  - ASTR 180 Princ Of Astron I (3)
  - ASTR 181 Princ Of Astron II (3)
  - GEOG 300 Climatology (3)
  - GEOL 205 Geology Of Hawaiian Islands (3)
  - GEOL 300 Adv Environmental Earth Sci (3)
  - MARE 201-201L Oceanography (3), Oceanography Lab (2)
  - **One course** selected from:
    - GEOG 319 Nat Hazards/Disasters (3)
    - GEOL 330 Deformation of the Earth (4)
    - GEOL 340 Sedimentary Processes (4)
    - GEOL 342 Earth Surface Processes (3)
    - GEOL 344 Coastal Geology (3)
    - GEOL 352 Planets and Exoplanets (3) /ASTR 352 Planets and Exoplanets (3)
    - GEOL 360 Surface Water (3)
    - GEOL 431 Geology Of North America (3)
    - GEOL 432 Plate Tectonics (3)
    - GEOL 460 Groundwater (3)
    - SOIL 304 Tropical Soils (3)
- 3. Allied Science Electives for Earth Science Track (9 credits),**  
Choose **three** additional courses selected from:
- AG 304 Applied Microbiology (3)
  - AG 375 Intro To Genetic Analysis (3)
  - ANTH 481 Archaeometry (3)
  - ANTH 484 Stone Tool Analysis (3)
  - AQUA 425 Water Qual & Aquatic Product (3)
  - BIOL 357 Evolution (3)
  - BIOL 467 Ecological Genetics (3)
  - BIOL 371 Biology Of Marine Invertebrate (3)
  - CHEM 274-274L Principles of Analytical Chem (3), Princ Analytical Chem Lab (2)
  - CHEM 360 Environmental Chemistry (3)
  - ENSC 301 Global Warming/Climate Change (3)
  - ENTO 304 General Entomology (3)
  - GEOL 342 Earth Surface Processes (3)
  - GEOL 431 Geology Of North America (3)
  - GEOL 432 Plate Tectonics (3)
  - GEOL 445 GIS for Geology (3)
  - GEOL 450 Geological Remote Sensing (3)
  - GEOL 460 Groundwater (3)
  - GEOL 472 Volcano Seismology & Geodesy (3)

- **One** of the three courses may be selected from the following:
  - ED 310 Foundations of Education (3)
  - ED 350 Developmntl Concppts Of Learning (3)
  - PHIL 329 Environmental Ethics (3)
  - PHIL 412 Philosophy of Nature (3)
  - PHIL 416 Science, Technology & Values (3)

## D. Physics Track (73 credits)

- 1. Science Foundation for Physics Track (44 credits)**
- BIOL 171-171L Introductory Biology I (3), Introductory Biology I Lab (1)
  - BIOL 172-172L Introductory Biology II (3), Introductory Biology II Lab (1)
  - CHEM 161-161L General Chemistry I (3), General Chemistry I Lab (1)
  - CHEM 162-162L General Chemistry II (3), General Chemistry II Lab (1)
  - GEOL 111-111L Understanding the Earth (3), Understanding the Earth Lab (1)
  - GEOL 112-112L Hist of the Earth & Its Life (3), History of the Earth Lab (1)
  - MATH 115 Intro to Stats and Prob (3)
  - MATH 241 Calculus I (4)
  - PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
  - PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
  - NSCI 476 Communicating Science (3)
- 2. Physics Focus (23 credits)**
- MATH 242 Calculus II (4)
  - MATH 243 Calculus III (3)
  - MATH 300 Ordinary Diff Equations (3)
  - PHYS 274 Gen Phys III: Intro Modern Phy (3)
  - PHYS 371 Classical Mechanics (3)
  - **One course** selected from:
    - PHYS 211 Electronics (4)
    - PHYS 230 Applied Electronics I (4)
  - **One course** selected from:
    - PHYS 330 Electromagnetism (3)
    - PHYS 331 Optics (3)
    - PHYS 341 Thermodynamics (3)
    - PHYS 360 Mathematical Physics (3)
- 3. Allied Science Electives for Physics Track (6 credits),** Choose **two** additional courses selected from:
- AG 304 Applied Microbiology (3)
  - AG 375 Intro To Genetic Analysis (3)
  - ANTH 481 Archaeometry (3)
  - ANTH 484 Stone Tool Analysis (3)
  - AQUA 425 Water Qual & Aquatic Product (3)
  - BIOL 357 Evolution (3)
  - BIOL 371 Biology Of Marine Invertebrate (3)
  - BIOL 467 Ecological Genetics (3)
  - CHEM 274-274L Principles of Analytical Chem (3), Princ Analytical Chem Lab (2)
  - CHEM 360 Environmental Chemistry (3)
  - ENSC 301 Global Warming/Climate Change (3)
  - ENTO 304 General Entomology (3)
  - GEOG 300 Climatology (3)
  - GEOL 300 Adv Environmental Earth Sci (3)
  - GEOL 342 Earth Surface Processes (3)
  - GEOL 431 Geology Of North America (3)
  - GEOL 432 Plate Tectonics (3)
  - GEOL 445 GIS for Geology (3)
  - GEOL 450 Geological Remote Sensing (3)



- GEOL 460 Groundwater (3)
- GEOL 472 Volcano Seismology & Geodesy (3)
- PHYS 330 Electromagnetism (3)
- PHYS 331 Optics (3)
- PHYS 341 Thermodynamics (3)
- PHYS 360 Mathematical Physics (3)
- PPTH 404 Tropical Plant Pathology (3)
- SOIL 304 Tropical Soils (3)
- **One** of the two courses may be selected from the following:
  - ED 310 Foundations of Education (3)
  - ED 350 Developmental Concepts of Learning (3)
  - PHIL 329 Environmental Ethics (3)
  - PHIL 412 Philosophy of Nature (3)
  - PHIL 416 Science, Technology & Values (3)

**Minimum number of upper division credits for Biology, Chemistry, Earth Science tracks: 24 credits; 21 credits for Physics track**

## Total Semester Hours Required for the B.A. in Natural Science

120 credits required.

### Notes

1. To earn a Bachelor of Arts degree in Natural Science, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
2. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
3. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
4. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Nursing - School of Nursing

**Director:** [Jeannette Ayers-Kawakami](#), DNP, MSN, RN

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**Nursing Office:** University Classroom Building (UCB), Room 239

**Tel:** (808) 932-7067

**Fax:** (808) 932-7066

**Website:** [hilo.hawaii.edu/depts/nursing/](http://hilo.hawaii.edu/depts/nursing/)

### Professors:

- [Katharyn Daub](#), Ed.D., RN, CTN-A, CLNC, CNE

### Associate Professors:

- [Jeannette Ayers-Kawakami](#), DNP, MSN, RN
- [Patricia Hensley](#), DNP, APRN, FNP-BC
- [Joan Thompson Pagan](#), PhD, CNE, APRN, NNP, MSN, RNC

### Assistant Professors:

- [Diane Van Hoose](#), MSN, RN

## Mission

The School of Nursing supports the mission of the University of Hawai'i at Hilo in providing a learning environment that is responsive to the needs of a diverse student population and that stresses rigorous high quality education in a caring, personalized atmosphere. This educational experience encourages student-faculty interactions and offers hands-on learning and leadership opportunities. The Nursing Program emphasizes lifelong learning and how to deliver culturally congruent nursing care in a rural environment. The UH Hilo B.S.N. mission is summarized below:

**C**—Culturally congruent care

**A**—Active learning, critical thinking

**R**—Responsive to needs of diverse students and communities

**I**—Invested in quality and research

**N**—Nursing professionalism

**G**—Global peace

## Program Goals

The program is committed to the following:

- Providing quality nursing education with a strong focus on transcultural caring and an emphasis on critical thinking skills;
- Maintaining currency with nursing practices and standards in the delivery of therapeutic nursing care to individuals, families and communities;
- Developing effective communication skills that are congruent with cultural values and beliefs
- Fostering community engagement through service and research projects which develops skills in collaboration, resource management and program development;
- Satisfactorily meeting the needs of students as well as those of clients and employers.
- Encouraging lifelong learning

The School of Nursing prepares students for careers in professional nursing. The UH Hilo School of Nursing is approved by the Hawai'i State Board of Nursing. The Baccalaureate program is accredited by the Accreditation Commission for Education in Nursing (ACEN). The Doctor of Nursing Program is accredited by the Commission on Collegiate Nursing Education (CCNE). The degrees offered will be granted by UH Hilo upon the recommendation of the nursing faculty to those students who have successfully completed the prescribed curriculum.

## Goals for Student Learning in the Major

The baccalaureate nursing graduate will be able to function at the beginning practice level skills:

- Organizes and prioritizes transcultural nursing care for individuals, families, and communities using the nursing process by demonstrating clinical proficiency in the delivery of care
- Uses critical thinking to provide therapeutic nursing care derived from current research and recognized state and national (professional) standards
- Communicates effectively with healthcare providers and consumers in order to assess, plan, implement and evaluate health care
- Advocates for positive changes in the health care delivery system in partnership with the community
- Provides culturally congruent health education to a diverse population

As a manager of care, a baccalaureate nursing graduate will be able to



- manage care of individuals, families, and communities with complex health problems using current, research based nursing practices
- collaborate with other professionals to provide preventive health education and research-based interventions to promote, maintain, and restore health to clients of all age groups and varied cultures
- involve others in meeting the health needs and nursing goals with the leadership and management roles
- foster engagement through community and research activities which develop skills in collaboration, resource management, and program development

As a participant investigator, a baccalaureate nursing graduate will be able to

- integrate theory, knowledge, and experiences gained from general education and nursing courses in refining critical thinking skills
- read, interpret, and evaluate nursing research and begin to apply the knowledge and/or findings to nursing practice
- begin to be involved in research activities, especially within the community

As a member of the profession, a baccalaureate nursing graduate will be able to

- assume personal responsibility for professional growth, such as membership in nursing organizations, attendance at professional meetings, or reading professional literature
- administer nursing care in an ethical and legal manner in accordance with accepted state and national nursing standards
- incorporate leadership skills to effect change to enhance the health of individuals, families, and communities and improve the health care delivery system

As a promoter of transcultural caring, a baccalaureate nursing graduate will be able to

- identify the caring values, beliefs, and practices of health and illness and work with individuals, families, and communities to provide competent culturally congruent health care

## Curricula

- [BSN Program Options](#)
- [Academic Regulations for Nursing](#)
- [B.S. in Nursing Requirements](#)
- [Nursing \(NURS\) Courses](#)

### BSN Program Options

Students have two program options to earn the Bachelor of Science degree in Nursing. Option 1 is for the basic student. Option 2 is for the returning R.N. who wishes to acquire the bachelor's degree.

**Option 1:** Students may enter the Basic B.S.N. program, whereby two years are spent fulfilling UH Hilo [General Education](#) and [Exploratory Health Sciences \(EXHS\)](#) requirements. Nursing courses are introduced in the third year after formal admission into the Nursing program on a competitive basis ([See B.S.N. admissions criteria.](#))

**Option 2:** The RN to BSN program provides the candidate the opportunity for educational and professional advancement. Students may enter the RN to BSN program only if they have been formally admitted into the upper-division nursing program and have a current Hawai'i RN license prior to starting the program courses. Students may elect to complete the program on a part-time or full-time basis. Prior to

starting the RN to BSN program courses, the RN to BSN student must complete the UH Hilo GE requirements and RN to BSN program pre-core courses (see below). Students may elect to complete the RN to BSN co-requisite courses after starting the RN to BSN program (see below), but it is highly recommended that students complete all co-requisites prior to starting the program, especially if the student plans to attend the RN to BSN program full-time. All pre and co-requisite courses must be passed with a C grade or better. NURS 347 Health Assessment (3) , NURS 347L Hlt Assessment Practicum (1) , NURS 350 Transcultural Care & Hlth Prom (3) , NURS 358 Nursing Research (3) , and NURS 362 Nursing Professional Writing (1) are offered during the Fall Semester only. NURS 411 Community & Collaborative Hlt (3) , NURS 411L Community & Collaboration Prac (3) , NURS 457 Ldrshp & Transition to Practic (3) , NURS 457L Ldrshp & Tran to Prac Practicu (2) and NURS 361 BSN Nursing Preview (3) are offered during the Spring Semester only. A NURS elective option is generally offered during the Fall, Spring, and Summer Semesters; however, not every NURS elective listed below is offered each semester. All NURS courses must be passed with a C grade or better. **Regular advisement with faculty is critical for successful completion of requirements for graduation.**

## RN to BSN Program Curriculum (67-68 credits)

### 1. Required Pre-Core Courses (27 credits)

- One course in COM at the 100- or 200-level (3)
- PSY 100 Survey Of Psy (3)
- BIOL 243-243L Human Anatomy & Physiology I (3), Human Anatomy & Physio I Lab (1)
- BIOL 244-244L Human Anatomy & Physiology II (3), Human Anatomy & Physio II Lab (1)
- ANTH 205 Cultural Anthropology (3)
- NURS 203 General Pharmacology (3)
- BIOL 275-275L Fund Microbiology (3), Microbiology Lab (1)
- PSY 320 Developmental Psy (3)

### 2. Required Co-requisite courses (12-13 credits)

- CHEM 141 Surv Organ Chem & Biochem (3)
- Statistics (Choose one course from the following list:)
  - MATH 115 Intro to Stats and Prob (3)
  - PSY 213 Statistical Techniques (4)
  - SOC 280-280L Statistical Reasoning (3), Lab in Statistical Reasoning (1)
  - BIOL 280 Biostatistics (3)
- NURS 348 Human Pathophysiology (3)
- NURS 375 Applied Human Nutrition (3) (see Notes below)

### 3. Required Nursing Courses (28 credits)

Fall Semester (14 credits)

- NURS 347-347L Health Assessment (3), Hlt Assessment Practicum (1)
- NURS 350 Transcultural Care & Hlth Prom (3)
- NURS 358 Nursing Research (3)
- NURS 362 Nursing Professional Writing (1)
- NURS Elective (3) Choose three credits of the following:
  - NURS 370 Transcultural Health Care (3)
  - NURS 371 Health Information Technology (3)
  - NURS 372 Spirituality in Health Care (3)
  - NURS 373 Gerontological Health Care (3)
  - NURS 374 Skills Nursing Leadrshp & Mgmt (3)
  - NURS 394 Special Topics in Subject Matter (To Be Arranged)



- NURS 399 Directed Studies (To Be Arranged)
- NURS 471 Intro Rural-Home Health Care (3)
- NURS 494 Special Topics in Subject Matter (To Be Arranged)
- NURS 499 Directed Studies (To Be Arranged)
- SOC/NURS 360 Health Care Policy (3)
- COM 351 Com in Multicultural Workplace (3)
- PSY 322 Social Psychology (3)
- PSY 360 Cross-Cultural Psy (3)
- PSY 380 Health Psychology (3)

Spring Semester (14 credits)

- NURS 361 BSN Nursing Preview (3)
- NURS 411-411L Community & Collaborative Hlt (3), Community & Collaboration Prac (3)
- NURS 457-457L Ldrshp & Transition to Practic (3), Ldrshp & Tran to Prac Practicu (2)

Total Minimum Semester Hours Required for the B.S. in Nursing, RN to BSN Program

120 credits required.

Notes

1. RN to BSN students must meet the UH Hilo residence requirement of 30 credits from UH Hilo. Thus, it is highly encouraged that students take **NURS 375 Applied Human Nutrition (3)** at UH Hilo to meet this requirement.
2. Students must earn at least a 2.0 GPA in courses required for the major.
3. **MATH 115 Intro to Stats and Prob (3)** meets the Quantitative Reasoning requirement. The Quantitative Reasoning course must be passed with a "C" grade or better.
4. All Natural Science courses must be passed with a "C" grade or better.
5. **NURS 348 Human Pathophysiology (3)** and **NURS 375 Applied Human Nutrition (3)** both must be passed with a "C" grade or better.
6. To earn a Bachelor of Science in Nursing, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the Baccalaureate Degree Requirements in this Catalog.)
7. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
8. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the course listings in this Catalog.
9. To ensure progress toward degree completion, students are urged to meet with an advisor each semester before registering.

### R.N. to B.S.N. Distributed Learning (DL) Program

A Distributed Learning program is being implemented to help R.N. students in distant sites to access the B.S.N. program. This DL program will be expanded according to student needs and resource support. Contact the School of Nursing for more information.

### NLN ACE II Test Requirement for RN's without

### an Associate Degree

Diploma and foreign nursing degree candidates are required to take the National League for Nursing Acceleration Challenge Exam II prior to entering the program. Consult with the Nursing advisor for help in arranging for proctored testing.

### Academic Regulations for Nursing

To earn the B.S.N. degree a student must satisfy the prerequisite, co-requisite, and nursing course requirements for the B.S.N. degree as specified in the UH Hilo Catalog and B.S.N. brochure in effect at the time of the student's initial enrollment in the Nursing program. Once admitted into the upper-division Nursing program, students are expected to complete the Nursing program in two years. Students who do not graduate within this period will be subject to review. The student is directly responsible to assure that all requirements are met for graduation.

### Admissions Policies

Students qualify for admission into the upper division of the Basic Baccalaureate Nursing program after completing prerequisite courses. Admission is on a competitive, space-available basis.

The criteria for admission to the Nursing program are as follows:

1. Timely submission of UH Hilo Common Application Form for newly entering students or "Change of Program" form for continuing students. (Designate NURH for the major.)
2. Timely submission of nursing application form
3. A 3.0 cumulative college grade point average (GPA)
4. A 3.0 minimum cumulative GPA for all courses listed as a Natural Science degree requirement including NURS 203 General Pharmacology (3) and NURS 348 Human Pathophysiology (3) for the BSN program
5. Completion of all college prerequisite courses (Note: Biology, chemistry, NURS 203 General Pharmacology (3) and NURS 348 Human Pathophysiology (3) classes must be passed with a "C" or better grade. Students transferring from outside the UH system must submit course descriptions for all non-nursing courses and course syllabi for nursing courses.)
6. Only 16 credits of nursing prerequisite courses can be outstanding with a maximum of 8 credits in the required sciences by the end of the semester prior to application. The following courses are included under sciences:
  - BIOL 243-243L Human Anatomy & Physiology I (3), Human Anatomy & Physio I Lab (1)
  - BIOL 244-244L Human Anatomy & Physiology II (3), Human Anatomy & Physio II Lab (1)
  - BIOL 275-275L Fund Microbiology (3), Microbiology Lab (1)
  - CHEM 141 Surv Organ Chem & Biochem (3)
  - NURS 348 Human Pathophysiology (3)
  - NURS 203 General Pharmacology (3) .
7. Basic students will take a pre-entry examination, with students expected to meet minimum performance standards set forth by the program. This is not a requirement for RN/BSN students.

Fall admission only: Applications to the Bachelor of Science in Nursing program must be made by November 1st for Fall entry. Contact the School of Nursing for application forms or visit the [SON Website](#)



## Exploratory Health Sciences (EXHS) Status

**Prior to formal admission into the upper-division Nursing program, students following the course of study to qualify for admission will be considered Exploratory Health Sciences students.** Newly entering students should indicate EXHS as the major on their Common Application Form. Continuing UH Hilo students who have not done so should submit a "Change of Program" form to indicate EXHS as the major. There are no special requirements for the EXHS major. Students should seek regular advisement from their assigned nursing faculty adviser regarding academic planning.

## Academic Status and Progression Policies

The nursing faculty of UH Hilo are held responsible to the UH Board of Regents and the Hawai'i State Board of Nursing for the quality of its nursing education. Inherent in this responsibility is the assessment of individual progression based upon academic and professional ethical standards. All UH Hilo policies are in effect and may be found in the academic regulations in the UH Hilo Catalog.

## Dean's List and Honors

School of Nursing (SON) students in the BSN program who have earned 9 or more semester credits in courses providing a **letter grade** at UH Hilo and achieved a GPA of 3.5 or above and a "Credit" grade from all remaining BSN courses in the preceding semester will appear on the Dean's List.

## Undergraduate Honors at Graduation

Honors in the School of Nursing shall be determined in accordance with the cumulative GPA upon graduation in courses taken at UH Hilo in the following manner:

- Honors: UH Hilo GPA of 3.50 to 3.69
- High Honors: UH Hilo GPA of 3.70 to 3.84
- Highest Honors: UH Hilo GPA of 3.85 to 4.00

Only undergraduate students who have earned at least 60 semester hours at UH Hilo, all of which are applicable toward a baccalaureate degree, are eligible for graduation with honors. In addition, at least 35 of the 60 applicable semester hours must be taken for a letter grade. The award of an honors diploma follows the commencement exercise and is subject to the final review of all grades and credits earned.

## Academic Suspension and Dismissal

A student failing to achieve a "C" or 2.0 grade in nursing courses at any point in progression through the program will be dismissed from the program after the review and recommendation of the Nursing Admissions, Progression, and Retention Committee. Students are eligible for re-admission according to the guidelines in the School of Nursing re-admission policy. A student may be re-admitted only once into the BSN nursing program.

A student may be subject to immediate suspension or dismissal from clinical activities, when, in the judgment of the nursing faculty, the welfare of the client, the public, or the University requires such action.

Students have the right to participate in the UH Hilo grievance protocol. Reasonable cause for suspension or dismissal includes but is not limited to the demonstrable behaviors contrary to the Code of Ethics and Standards of Practice of the American Nurses' Association, the

International Council of Nurses, and the rules and regulations of the Hawai'i Board of Nursing (Hawai'i Revised Statutes, Chapter 457). Students are responsible to be knowledgeable regarding these aforementioned codes, rules, and regulations.

## Policy on Nursing Courses

Nursing courses are listed in blocks and are restricted to students admitted to the upper-division Nursing program, with a major designation of NURS. All courses within a block must be taken concurrently. Students may not proceed to the next block until all course requirements for the preceding block have been met. [See Nursing Requirements section.](#) (Students in the R.N. to B.S.N. program take courses within the block as determined by their program of study.) A course with an associated lab must be taken concurrently.

Nursing elective and co-requisite courses do not require admission into the upper-division Nursing program and may be taken with instructor and/or departmental approval, as required.

## Grading

All nursing **didactic courses must be taken for a letter grade.** Only full letter grades will be used (no plus or minus grading). All nursing **practicum courses will be "credit/no credit."**

Students must achieve a passing grade of "C" (2.0) for didactic nursing courses and CR (credit) for practicum nursing courses in order to progress in the program.

## Special Requirements

Students must meet all health and professional requirements for clinical, including the following:

1. T.B. and immunization clearance;
2. Healthcare Provider's CPR (includes CPR for Adults, Children, and Infants) certification;
3. liability insurance;
4. health insurance.

Compliance with supplemental training required by an agency will be the responsibility of the student. Students may need to obtain background checks and drug testing as required by the clinical agencies and in conformance to program expectations.

## Notice to Students

Health care students are required to complete University prescribed academic requirements that involve clinical practice in a University affiliated health care facility setting with no substitution allowable. Failure of a student to complete the prescribed clinical practice shall be deemed as not satisfying academic program requirements. It is the responsibility of the student to satisfactorily complete affiliated health care facility background checks and drug testing requirements in accordance with procedures and timelines as prescribed by the affiliated health care facility.

## B.S. in Nursing Requirements

### Group 1. General Education Foundation,



## Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements](#) and [graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

## Group 2. Major Requirements and Assigned Credits (106-107 credits)

### 1. Required Pre-Core Courses (39-40)

- ANTH 205 Cultural Anthropology (3)
- One course in [COM](#) at the 100- or 200-level (3)
- PSY 100 Survey Of Psy (3)
- BIOL 243-243L Human Anatomy & Physiology I (3), Human Anatomy & Physio I Lab (1)
- BIOL 244-244L Human Anatomy & Physiology II (3), Human Anatomy & Physio II Lab (1)
- BIOL 275-275L Fund Microbiology (3), Microbiology Lab (1)
- CHEM 141 Surv Organ Chem & Biochem (3)
- NURS 203 General Pharmacology (3)
- Statistics (Choose **one course** from the following list:)
  - MATH 115 Intro to Stats and Prob (3)
  - PSY 213 Statistical Techniques (4)
  - SOC 280-280L Statistical Reasoning (3), Lab in Statistical Reasoning (1)
  - BIOL 280 Biostatistics (3)
- PSY 320 Developmental Psy (3)
- NURS 348 Human Pathophysiology (3) (**see Note 4**)
- NURS 375 Applied Human Nutrition (3) (**see Note 4**)

### 2. Required Nursing Courses (64)

- *Block I. (14)*
  - NURS 347-347L Health Assessment (3), Hlt Assessment Practicum (1)
  - NURS 350 Transcultural Care & Hlth Prom (3)
  - NURS 352L Nursing Skills Laboratory (1)
  - NURS 353-353L Nursing Concepts & Skills (3), Nsg Concppts & Skills Practicum (3)
- *Block II. (17)*
  - NURS 351 Professnl Nsg Issues & Trends (3)
  - NURS 355-355L Adult Health Care I (3), Adult Hlt Care I Practicum (5)
  - NURS 357-357L Mental Health Care (3), Mental Hlt Care Practicum (3)
- *Block III. (17)*
  - NURS 358 Nursing Research (3)
  - NURS 455-455L Adult Health Care II (3), Adult Hlt Care II Practicum (5)

- NURS 409-409L Perinatal & Pediatric Health (3), Perinatal & Pediatric Hlt Prac (3)
- *Block IV. (16)*
  - NURS 411-411L Community & Collaborative Hlt (3), Community & Collaboration Prac (3)
  - NURS 457-457L Ldrshp & Transition to Practic (3), Ldrshp & Tran to Prac Practicu (2)
  - NURS 458-458L Nursing Review (3), Nursing Review Practicum (2) (**see Note 5**)

### 3. Required Nursing Electives (Choose 3 credits from the following courses): (3)

- NURS 370 Transcultural Health Care (3)
- NURS 371 Health Information Technology (3)
- NURS 372 Spirituality in Health Care (3)
- NURS 373 Gerontological Health Care (3)
- NURS 374 Skills Nursing Leadrshp & Mgmt (3)
- NURS 394 Special Topics in Subject Matter (To Be Arranged)
- NURS 399 Directed Studies (To Be Arranged)
- NURS 471 Intro Rural-Home Health Care (3)
- NURS 494 Special Topics in Subject Matter (To Be Arranged)
- NURS 499 Directed Studies (To Be Arranged)
- SOC/NURS 360 Health Care Policy (3)
- COM 351 Com in Multicultural Workplace (3)
- PSY 322 Social Psychology (3)
- PSY 360 Cross-Cultural Psy (3)
- PSY 380 Health Psychology (3)

### Total Minimum Semester Hours Required for the B.S. in Nursing

123 credits required.

### Notes

1. Students must earn at least a 2.0 GPA in courses required for the major.
2. MATH 115 Intro to Stats and Prob (3) meets the Quantitative Reasoning requirement. The Quantitative Reasoning course must be passed with a "C" grade or better.
3. All Natural Science courses must be passed with a "C" grade or better.
4. NURS 348 Human Pathophysiology (3) and NURS 375 Applied Human Nutrition (3) both must be passed with a "C" grade or better.
5. Basic students who transfer into the BSN program must complete a minimum of 64 credits of UH Hilo nursing courses. These credits must include:
  - NURS 347-347L Health Assessment (3), Hlt Assessment Practicum (1)
  - NURS 350 Transcultural Care & Hlth Prom (3)
  - NURS 351 Professnl Nsg Issues & Trends (3)
  - NURS 352L Nursing Skills Laboratory (1)
  - NURS 353-353L Nursing Concepts & Skills (3), Nsg Concppts & Skills Practicum (3)
  - NURS 355-355L Adult Health Care I (3), Adult Hlt Care I Practicum (5)
  - NURS 357-357L Mental Health Care (3), Mental Hlt Care Practicum (3)
  - NURS 358 Nursing Research (3)
  - NURS 409-409L Perinatal & Pediatric Health (3), Perinatal & Pediatric Hlt Prac (3)
  - NURS 411-411L Community & Collaborative Hlt (3), Community



- & Collaboration Prac (3)
  - o NURS 455-455L Adult Health Care II (3), Adult Hlt Care II Practicum (5)
  - o NURS 457-457L Ldrshp & Transition to Practic (3), Ldrshp & Tran to Prac Practicu (2)
  - o NURS 458-458L Nursing Review (3), Nursing Review Practicum (2) .
6. To earn a Bachelor of Science in Nursing, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
  7. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
  8. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
  9. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Physics

**Department Co- Chair:** Rene Martin , Ph.D.

**Email:** rpm33@hawaii.edu

**Department Co- Chair:** Marianne Takamiya , Ph.D.

**Email:** takamiya@hawaii.edu

**Website:** phys.uhh.hawaii.edu

### Professor:

- Philippe Binder , Ph.D.
- Marianne Takamiya , Ph.D.

### Associate Professor:

- Kathy Cooksey , Ph.D.
- Rene Martin , Ph.D.

### Assistant Professors:

- Heather Kaluna , Ph.D.

### Instructors:

- Daniel "Dan" O'Connor , Ph.D.

### Technician:

- John Coney , M.Ed.

Physics is the basic science underlying all other sciences. It attempts to describe the fundamental nature of the universe and how it works, striving for the simplest and yet most effective explanations for its diverse behavior. A very few of the things that Physics explains are why the sky is blue, what keeps a satellite in orbit, what the building blocks of atoms are, and why the weather is so difficult to predict.

There is no other field of study available which offers the student greater flexibility in our high-tech society. Whether a student is contemplating a career as a scientist, an engineer, a teacher, a physician, a lawyer, or a businessperson, she or he can have no better grounding in the natural sciences, mathematics, and logical reasoning than is available in a good undergraduate physics program. The intellectual rewards are there, as are the opportunities for a flexible choice of careers at graduation and

beyond.

## Mission

The mission of the UH Hilo physics program is to provide students with a rigorous, high-quality foundation in physics. The primary goal is to prepare students for graduate studies, for work as professional physicists, or for careers in secondary education, engineering and just about any technical or scientific fields. Our program supports the liberal arts mission of the University by providing general education courses for all students and service courses for the natural sciences and pre-health fields. The physics program has, and actively seeks, partnerships with other UH Hilo STEM programs. Although a quality undergraduate education is the focus of our degree, our faculty, together with our students, conduct original research and make substantial contributions to community education and service on the Big Island.

## Program Learning Outcomes

The B.A. program in physics is designed to develop student mastery of concepts and problem-solving skills in:

- Classical mechanics
- Thermal and statistical physics
- Electricity, magnetism, and optics
- Modern physics, relativity, and quantum mechanics
- Other areas such as electronics, astrophysics, and nonlinear science

## Goals for Student Learning in the Major

Graduates are expected to:

- Effectively express scientific ideas in writing
- Use standard mathematical and computational tools to solve problems in physics and astrophysics

We will strive to provide every opportunity for our students to:

- Develop experimental skills appropriate for physics work
- Become proficient at finding and analyzing scientific literature
- Participate in original research projects
- Earn internship and employment opportunities as appropriate

## Special Aspects of the Program

The Department is housed in the campus' Science and Technology Building which provides modern offices, classrooms, introductory and advanced undergraduate labs, and faculty research facilities that offers students with an ideal working environment.

Students can participate in faculty-led research in nonlinear science and high-energy physics and in the Department's international collaborations.

The Space Grant Fellowship Program offers competitive fellowships to students of exceptional promise, usually during their senior year. The fellowships provide a full tuition waiver and a small stipend. Space Grant Fellows conduct a proposed research project under the supervision of a faculty mentor and participate in University-wide Space Grant College symposia. Funding for travel to meetings is available from this program.

Affiliated faculty from the University Technology Park and other facilities offer a rich array of supplemental Special Topics courses which expand opportunities for students.



## Curricula

- B.A. in Physics Requirements
- Physics Minor
- Physics (PHYS) Courses

### B.A. in Physics Requirements

#### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements](#) and [graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

#### Group 2. Major Requirements (72 credits)

Please note any course pre-requisites.

- 1. Required Courses in Physics (34)**
  - PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
  - PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
  - PHYS 260-260L Computational Physics & Astron (3), Computational Phys & Astr Lab (1)
  - PHYS 274 Gen Phys III: Intro Modern Phys (3)
  - PHYS 330 Electromagnetism (3)
  - PHYS 331 Optics (3)
  - PHYS 341 Thermodynamics (3)
  - PHYS 371 Classical Mechanics (3)
  - PHYS 430 Quantum Mechanics I (3)
  - PHYS 495A-495B Seminar (1), Seminar (1)
- 2. Required Courses in Mathematics and Computer Science (23)**
  - MATH 241 Calculus I (4)
  - MATH 242 Calculus II (4)
  - MATH 243 Calculus III (3)
  - MATH 244 Calculus IV (3)
  - MATH 300 Ordinary Diff Equations (3)
  - MATH 311 Intro Linear Algebra (3)
  - CS 150 Intro To Computer Science I (3) **or** CS 172 Python for Data Analysis (3)
- 3. Required Elective Courses in Physics (6)**
  - Choose **6 Credits** from the following courses:
  - PHYS/MATH 360 Mathematical Physics (3)
  - PHYS/MATH 380 Chaos (3)
  - PHYS 431 Quantum Mechanics II (3)
  - PHYS/ASTR 432 Senior Lab/Thesis Project (3)
  - ASTR 350 Stellar Astrophysics (3)
  - ASTR 351 Galactic & Extragal Astrophys (3)
  - ASTR 460 Gravitation & Cosmology (3)

- MARE 440 Physical Oceanography (3)
- 4. Required Natural Science Electives (9)**
    - ASTR 110 General Astronomy (3)
    - ASTR 110L Gen Astronomy Lab (1)
    - ASTR/PHYS 111 Intro to Space Exploration (3)
    - ASTR 150 Life in The Universe (3)
    - ASTR 180 Princ Of Astron I (3)
    - ASTR 181 Princ Of Astron II (3)
    - ASTR 250 Observational Astronomy (3)
    - ASTR 250L Observational Astronomy Lab (2)
    - CHEM 161 General Chemistry I (3)
    - CHEM 161L General Chemistry I Lab (1)
    - CHEM 162 General Chemistry II (3)
    - CHEM 162L General Chemistry II Lab (1)
    - BIOL 101 General Biology (3)
    - BIOL 101L Gen Biol Lab (1)
    - BIOL 171 Introductory Biology I (3) *(Formerly offered as BIOL 175)*
    - BIOL 171L Introductory Biology I Lab (1) *(Formerly offered as BIOL 175L)*
    - BIOL 172 Introductory Biology II (3) *(Formerly offered as BIOL 176)*
    - BIOL 172L Introductory Biology II Lab (1) *(Formerly offered as BIOL 176L)*
    - BIOL 280 Biostatistics (3)
    - BIOL 281 General Ecology (3)
    - CS 151 Intro to Computer Sci II (3)
    - GEOG/PHYS 120 Weather & Climate Hawai'i (3)
    - GEOG 201 Interp Geog Data (3)
    - GEOG 280 Introduction to Geostatistics (3)
    - GEOL 111 Understanding the Earth (3)
    - GEOL 111L Understanding the Earth Lab (1)
    - GEOL 112 Hist of the Earth & Its Life (3)
    - GEOL 112L History of the Earth Lab (1)
    - GEOL 212 Earth Materials I: Minerals (4)
    - GEOL 330 Deformation of the Earth (4)
    - GEOL 450 Geological Remote Sensing (3)
    - PHYS 110 Physics of Contemporary Issues (3)
    - PHYS 111 Intro to Space Exploration (3)
    - PHYS 150 World Models (3)
    - PHYS 151 College Physics I (3)
    - PHYS 152 College Physics II (3)

#### Total Semester Hours Required for the B.A. in Physics

120 credits required.

#### Notes

1. Students must earn at least a 2.0 GPA in courses required for the major and a minimum grade of C in each course required for the major.
2. At least 36 credits must be earned in courses at the 300- or 400-level.
3. Students are encouraged strongly to meet with their advisors regarding Natural Science elective courses appropriate to their career aspirations.
4. To earn a Bachelor of Arts degree in Physics, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
5. Students wishing to make timely progress toward graduation are



urged to pay careful attention to all degree requirements.

- In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
- To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Physics Minor

### Requirements (19 credits):

- PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
- PHYS 272-272L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
- PHYS 274 Gen Phys III: Intro Modern Phy (3)
- And **6 credits** of additional **PHYS** courses at the 300- or 400-level.

## College of Business and Economics (CoBE)

For information, please contact:

### Office of the Dean

COBE Building Room 208

**Tel:** (808) 932-7272; **Fax:** (808) 932-7273

**Email:** [cobeuhh@hawaii.edu](mailto:cobeuhh@hawaii.edu)

**Website:** [business.uhh.hawaii.edu](http://business.uhh.hawaii.edu) or [economics.uhh.hawaii.edu](http://economics.uhh.hawaii.edu)

or

### UH Hilo Admissions Office

Student Services Building, Room 115

**Tel:** (808) 932-7446 or 1-800-897-4456

**Fax:** (808) 932-7459

**Email:** [uhhadm@hawaii.edu](mailto:uhhadm@hawaii.edu)

**Website:** [hilo.hawaii.edu/studentaffairs/admissions/](http://hilo.hawaii.edu/studentaffairs/admissions/)

The College of Business and Economics (COBE) prepares students for leadership in organizations serving Hawai'i and the Asia/Pacific region. The College offers undergraduate degrees in Accounting and Business Administration. Students can major in Accounting or General Business. Accounting majors take a series of accounting core and elective courses to compliment the business core courses. Students choosing General Business may choose electives to specialize in economics, finance, health care management, marketing, or management. Tourism, economics, and information systems electives compliment the Business Administration degree. Students receive a strong managerial foundation in business enterprise functions and objectives, supported by a strong liberal arts foundation.

## Mission

Our mission is to offer business education rooted in the liberal arts tradition. We provide a foundation for students to become confident, competent and ethical business leaders. We achieve this goal through active pedagogy, internships, community outreach and scholarship.

## Instructional Modes

The College employs a variety of instructional methods and provides opportunities to apply new instructional technologies. Small- and medium-size lecture classes allow for maximum student-instructor discourse. Core and elective classes feature group project work to encourage teamwork and applied learning experiences in problem

solving and/or community service settings. Independent study allows students to study a particular area of interest under an instructor's supervision, often relating to research of mutual interest. Internships allow students to apply knowledge and techniques from the classroom and to pursue individualized learning goals in an operating business environment. A unique feature of COBE includes a partnership with the Hawai'i Small Business Development Center Network, providing students with access to special business expertise and learning experiences.

## Accreditation

Business programs in the College of Business and Economics are accredited by AACSB International—The Association to Advance Collegiate Schools of Business. Contact information: 777 South Harbor Island Blvd., Suite 750, Tampa, FL 33602-5730; Tel: (813) 769-6500; Fax: (813) 769-6559; [www.aacsb.edu](http://www.aacsb.edu).

Students may transfer credits to other American or foreign universities on the same basis as course credits are transferred by other accredited American universities. Accreditation documents relating to the University of Hawai'i at Hilo are available to the public at the [Edwin H. Mookini Library](#) and on the [Accreditation website](#).

## Curricula

- Business Administration and Economics
  - BBA in Business Administration (General Business)
  - BBA in Accounting
  - Business Administration Minor
  - Economics Minor
  - Accounting Certificate
  - Business Administration Certificate
  - Business Analytics Certificate
  - Finance Certificate
  - Sustainable Tourism Certificate
  - Accounting (ACC) Courses
  - Business (BUS) Courses
  - Data Science (DATA) Courses
  - Economics (ECON) Courses
  - Finance (FIN) Courses
  - Management (MGT) Courses
  - Marketing (MKT) Courses
  - Quantitative Business Analysis (QBA) Courses
  - Tourism (TOUR) Courses

## Business Administration and Economics

### College of Business and Economics Office :

**Office:** COBE Building, Room 208

**Tel:** (808) 932-7272

**Website:** [business.uhh.hawaii.edu](http://business.uhh.hawaii.edu)

### Professor Emeritus:

- Kelly Burke, Ph.D., Management Information Systems
- Jerry Calton, Ph.D., Management
- David Hammes, Ph.D., Economics
- Hank Hennessey, Ph.D., Business Administration
- Stephen Hora, D.B.A., Management Science and Statistics
- Marcia Sakai, Ph.D., Business Administration and Economics

### Professors:



- Emmeline de Pillis, Ph.D., Management
- Terrance Jalbert, Ph.D., Finance
- Keisuke Nakao, Ph.D., Economics

**Associate Professor:**

- Todd Inouye, Ph.D., Management

**Assistant Professors:**

- Angela Faanunu, Ph.D., Tourism
- Sukhwa Hong, Ph.D., Business Information and Data Sciences
- Amirhossein Mohammadian, Ph.D., Economics
- Andrey Simonov, Ph.D., Accounting
- Sijie Sun, Ph.D., Marketing

**Instructors:**

- Deborah Hughes, M.S., Accounting
- Heng "Helen" Tien, M.A., Management, Marketing
- Benjamin Zenk, Ph.D., Management

The Department of Business Administration offers students the opportunity to receive a Bachelor of Business Administration (BBA) degree that is fully accredited by the Association to Advance Collegiate Schools of Business (AACSB International). The program offers majors in Accounting and in General Business. Within the General Business major, students select a concentration area from Finance, Marketing, General Management, Economics, Healthcare Management, or Professional Studies. The program is divided into three components: General Education, the Pre-Business program, and the Professional Business program. Some General Education requirements may be satisfied with courses from the Pre-Business program. The University also places several graduation requirements on all baccalaureate degree programs, and these must be satisfied by candidates for the BBA (Please see the [Baccalaureate Degree Requirements](#).)

Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered, information that is available for each course in the [Course Listings](#) of this Catalog. To ensure progress toward graduation, **students are strongly encouraged to meet with an advisor each semester before registering.**

**Mission**

To assist individuals in acquiring the knowledge, attitudes and skills needed to be productive and responsible citizens in the global economy. The College serves students and communities primarily from the Island and State of Hawai'i, as well as students from the U.S. mainland and the Asia/Pacific region.

We are committed to:

- Providing a personalized, high-quality baccalaureate business and economics education
- Inspiring the development of ethical values and leadership skills within a context of cultural diversity
- Offering opportunities for hands-on learning
- Offering academic programs responsive to community needs
- Supporting faculty excellence in teaching, research and service, with primary emphasis in teaching

**Goals for Student Learning in the Major****General Business, BBA and Accounting, BBA**

Upon graduating, our students should possess a common core of knowledge and skills that enables them to:

- Demonstrate comprehension of the fundamental principles of essential business functions.
- Express ideas clearly, logically, and persuasively in written communication.
- Demonstrate the ability to identify, analyze, and decide on courses of action to resolve complex, unstructured problems, using appropriate tools and technology.

**Career Prospects for Students**

Students earning the BBA in General Business are prepared to become entry-level managers in a wide variety of private and public sector organizations. The BBA program is also a good choice for students interested in starting their own business upon graduation, since a primary focus is on smaller organizations and entrepreneurship in many of the courses at UH Hilo. Students may focus their elective coursework in specific areas such as finance, marketing, or information technology if they intend to specialize or seek certification in one of those fields upon graduation. The BBA is also an excellent preparation for advanced study in business.

The BBA in Accounting prepares students for professional careers in accounting and auditing, and satisfies the content-specific educational requirements for the CPA designation. The demand for graduates in accounting has continued to grow, and is forecast to remain strong throughout the next decade. This career offers excellent job and earning opportunities.

**Special Aspects of the Program**

Internships with local businesses and organizations are available to qualified students.

The College of Business and Economics sponsors the Lambda Psi chapter of the International Fraternity of Delta Sigma Pi ( $\Delta\Sigma\Pi$ ), which is a professional fraternity organized to foster the study of business in universities; to encourage scholarship, social activity, and the association of students for their mutual advancement by research and practice; to promote closer affiliation between the commercial world and students of commerce; and to further a higher standard of commercial ethics and culture and the civic and commercial welfare of the community. In addition, the College sponsors the Accounting Club, which serves to provide a professional development and community outreach forum for students with interest in accounting as a professional career. Members gain the opportunity to meet and interact with members of the accounting profession from the State and local areas, and to gain first-hand exposure to career possibilities in the area.

The College also sponsors an active chapter of Beta Gamma Sigma ( $B\Gamma\Sigma$ ), the premier honorary society for students of business, which inducts outstanding students from each year's graduating class.

**Requirements for Students in Related Programs or Special Circumstances**

Students pursuing Agribusiness, Recreational Management, or other



major, minor, or certificate program that include some Business Administration courses, as well as other non-business students wishing to register for upper-division (300-400 level) Business Administration courses, must have:

- Completed 50 or more earned semester hours at the 100-level or higher at the time of initial enrollment;
- Successfully completed all course-specific prerequisites;
- Secured permission of the Business Administration department chair, who will consult with the course instructor; and
- Accumulated no more than 30 total credits at any level in courses offered by the Business Administration Department, including any courses for which registration is being requested in the current semester.

## Curriculum

- [BBA in Business Administration \(General Business\)](#)
- [BBA in Accounting](#)
- [Business Administration Minor](#)
- [Economics Minor](#)
- [Accounting Certificate](#)
- [Business Administration Certificate](#)
- [Business Analytics Certificate](#)
- [Finance Certificate](#)
- [Sustainable Tourism Certificate](#)
- [Accounting \(ACC\) Courses](#)
- [Business \(BUS\) Courses](#)
- [Data Science \(DATA\) Courses](#)
- [Economics \(ECON\) Courses](#)
- [Finance \(FIN\) Courses](#)
- [Management \(MGT\) Courses](#)
- [Marketing \(MKT\) Courses](#)
- [Quantitative Business Analysis \(QBA\) Courses](#)
- [Tourism \(TOUR\) Courses](#)

## BBA in Accounting

### General Education Pre-Business Requirements

#### G1. Composition

- ENG 100 Composition I (3) , ENG 100T Composition with Tutorial (3) , ESL 100 Composition/Nonnative Speakers (3) , or ESL 100T Composition/Non-nativeTutorial (3) , with a "C" or better

#### G3. Quantitative Reasoning

- One [MATH](#) course numbered 125 or higher, with "C" or better

#### G6. Social Sciences

- One class from [ANTH](#), [PSY](#), or [SOC](#) with "C" or better

Note: All remaining General Education Requirements must also be met.

### Pre Business Core Requirements

Each Pre-Business core course must be completed with a grade of "C" or better.

- ACC 201 Intro to Financial Accounting (3)
- ACC 202 Intro to Managerial Accounting (3)
- One course from:
  - BUS 110 Freshmen Business Experience (3)

- BUS 100 Intro To Business (3)
- FIN 220 Personal Finance (3)
- COM 251 Public Speaking (3)
- MGT 425 Bus Planning for New Ventures (3)
- BUS 240 Business Law (3)
- BUS 290 Critical Thinking (3)
- ECON 130 Intro To Microeconomics (3)
- ECON 131 Intro To Macroeconomics (3)
- One course from:
  - ECON 300 Inter Macroecon Theory (3)
  - ECON 301 Inter Microecon Theory (3)
  - ECON 302 Managerial Economics (3)
  - ECON 340 Money & Banking (3)
- One course from:
  - ENG 209 Writing for Business (3)
  - ENG 225 Writing for Sci & Technology (3)
  - ENG 287 Introduction to Rhetoric (3)
- QBA 260 Business Statistics (3)

### Professional Business Core Requirements

Each Professional Business core course must be completed with a grade of "C" or better.

- MGT 300 Mgt, Orgs & Human Behavior (3)
- MGT 333 International Business Mgt (3)
- MKT 310 Princ of Marketing (3)
- FIN 320 Prin Bus Finance (3)
- QBA 300 Operations Management (3)
- QBA 362 Business Analytics (3)
- MGT 423 Business & Society (3)
- MGT 490 Strategic Mgt (3)

### Accounting Major Requirements

18 semester hours; each course must be completed with a grade of "C" or better.

The BBA in Accounting requires the successful completion of all core requirements for the BBA degree. Eighteen semester hours in Accounting must be earned in courses at the 300- or 400-level, in place of the 18 semester hours in business electives at the 300- or 400-level required as part of the [BBA in General Business](#) degree.

#### 1. Accounting Core: 15 semester hours as follows

- ACC 350 Intermediate Acc I (3)
- ACC 351 Intermediate Acc II (3)
- ACC 352 Individual & Business Taxation (3)
- ACC 353 Cost Accounting (3)
- ACC 454 Auditing (3)

#### 2. Accounting Electives: 3 semester hours

- Take 3 semester hours of ACC courses at the 300-level or higher.

### Total Semester Hours Required for the B.B.A. in Accounting

121 credits required.



## Notes

1. The State of Hawai'i requires 150 semester hours of college to obtain a permit to practice as a Certified Public Accountant (CPA). Additional semester hours in business earned past the 121 semester hours required for the B.B.A. with Major in Accounting degree will apply towards this requirement.
2. Residence Requirement: B.B.A. candidates must complete at least 24 of the credits used to satisfy upper-division Business core, Accounting core, and Business or Accounting elective requirements while in residence at UH Hilo.

## BBA in Business Administration (General Business)

### General Education Pre-Business Requirements

#### G1. Composition

- ENG 100 Composition I (3) , ENG 100T Composition with Tutorial (3) , ESL 100 Composition/Nonnative Speakers (3) , or ESL 100T Composition/Non-nativeTutorial (3) , with a "C" or better

#### G3. Quantitative Reasoning

- One **MATH** course numbered 125 or higher, with "C" or better

#### G6. Social Sciences

- One class from **ANTH**, **PSY**, or **SOC** with "C" or better

Note: All remaining General Education Requirements must also be met.

### Pre Business Core Requirements (30 credits)

**Each Pre-Business core course must be completed with a grade of "C" or better.**

- ACC 201 Intro to Financial Accounting (3)
- ACC 202 Intro to Managerial Accounting (3)
- One course from:
  - BUS 110 Freshmen Business Experience (3)
  - BUS 100 Intro To Business (3)
  - FIN 220 Personal Finance (3)
  - COM 251 Public Speaking (3)
  - MGT 425 Bus Planning for New Ventures (3)
- BUS 240 Business Law (3)
- BUS 290 Critical Thinking (3)
- ECON 130 Intro To Microeconomics (3)
- ECON 131 Intro To Macroeconomics (3)
- One course from:
  - ECON 300 Inter Macroecon Theory (3)
  - ECON 301 Inter Microecon Theory (3)
  - ECON 302 Managerial Economics (3)
  - ECON 340 Money & Banking (3)
- One course from:
  - ENG 209 Writing for Business (3)
  - ENG 287 Introduction to Rhetoric (3)
  - ENG 225 Writng for Sci & Technology (3)
- QBA 260 Business Statistics (3)

### Professional Business Core Requirements (24 credits)

**Each Professional Business core course must be completed with a grade of "C" or better.**

- MGT 300 Mgt, Orgs & Human Behavior (3)
- MGT 333 International Business Mgt (3)
- MKT 310 Princ of Marketing (3)
- FIN 320 Prin Bus Finance (3)
- QBA 300 Operations Management (3)
- QBA 362 Business Analytics (3)
- MGT 423 Business & Society (3)
- MGT 490 Strategic Mgt (3)

Note: BUS 290 Critical Thinking (3) may be taken concurrently with courses that require it as a prerequisite.

### General Business Major Concentrations (18 credits)

General Business students must select one of the following areas of specialization for the remainder of their business coursework. Each concentration consists of at least eighteen (18) credits. Each course in the concentration must be completed with a "C" or better. The concentrations are:

#### Agricultural Business Concentration (30 credits)

- 6 Upper-Division Business Discipline Credits (ACC, BUS ECON, FIN, MGT, MKT, TOUR, QBA)
- 12 Upper-Division Credits from the College of Agriculture, Forestry, and Natural Resources Management in AG, AGBU, AGECE, AGEN, ANSC, AGRN, AQUA, ENTO, FOR, HORT, SOIL, NRES or PPTH. (12)
- 9 credits Lower-Division CAFNRM courses:
  - AG 230 Sustainable Agriculture (3)
  - HORT 262 Princ Of Hort (3)
  - One of the following: (3)
    - ANSC 141 Intro To An Science (3)
    - AQUA 262 Intro Aquaculture (3)
- 3 credits chemistry requirement, one of:
  - CHEM 141 Surv Organ Chem & Biochem (3)
  - CHEM 151 Elementary Survey of Chemistry (3)
  - CHEM 161 General Chemistry I (3)

#### Applied Economics Concentration (18 credits)

Students should take no more than one course from each area

1. Microeconomic/Macroeconomic Requirement (3): (Choose one of the below)
  - Choose one if ECON 300/340 was taken for the Pre-Business Requirement:
    - ECON 301 Inter Microecon Theory (3)
    - ECON 302 Managerial Economics (3)
    - ECON 414 Global Topics in Game Theory (3)
  - Choose one if ECON 301/302 was taken for the Pre-Business Requirement:
    - ECON 300 Inter Macroecon Theory (3)
    - ECON 340 Money & Banking (3)
2. Quantitative Requirement (3): (Choose one of the below)
  - ECON 390 Econometrics (3)
  - ECON 430 Quantitative Forecasting (3)



- FIN 321 Invest & Secur Analysis (3)
- 3. Global Economic Requirement (3): (Choose one of the below)
  - ECON 310 Economic Development (3)
  - ECON 361 International Finance (3)
- 4. Economic Electives (9)
  - Two ECON Electives (6)
  - One ACC, BUS, ECON, FIN, MGT, MKT, QBA or TOUR Elective (3)

### Finance Concentration (18 credits)

- FIN 321 Invest & Secur Analysis (3)
- FIN 322 Corporate Finance (3)
- FIN Elective (3)
- FIN Elective (3)
- Two ACC, BUS, ECON, FIN, MGT, MKT, QBA, TOUR Electives (6)

### Health Care Management Concentration (18 credits, all with "C" or better; minimum 12 at the 300-400 level)

Students should take no more than two courses from each subject area. Courses to choose from include:

- ANTH 415 Medical Anth (3)
- ANTH 463 Global Health in Evol Perspect (3)
- COM 241 Health, Culture and Diversity (3)
- COM 430 Health Communication (3)
- ECON 417 Health Economics (3)
- NURS 348 Human Pathophysiology (3)
- NURS 350 Transcultural Care & Hlth Prom (3)
- NURS 359 Foundation of Health Promotion (3)
- NURS 370 Transcultural Health Care (3)
- NURS 372 Spirituality in Health Care (3)
- NURS 373 Gerontological Health Care (3)
- NURS 375 Applied Human Nutrition (3)
- SOC 360 Health Care Policy (3)
- PHIL 323 Professional Ethics (3)
- PHIL 327 Bioethics (3)
- PSY 320 Developmental Psy (3)
- PSY 380 Health Psychology (3)

### Management Concentration (18 credits)

- Six courses chosen from **at least three** of the following: ACC, BUS, ECON, FIN, MGT, MKT, QBA, TOUR. No more than two courses from any one of the above disciplines. (18)

### Marketing Concentration (18 credits)

- Three MKT Upper-Division Electives (9)
- One MKT or TOUR Elective (3)
- Two ACC, BUS, ECON, FIN, MGT, MKT, QBA or TOUR Electives (6)

### Professional Studies Concentration (18 credits)

- 6 Business Discipline Credits from ACC, ECON, FIN, MGT, MKT, TOUR, QBA (6)
- 12 Upper-Division Credits from a Non-Business Discipline (12)

### General Electives

Additional courses required to meet the 121 credits required to graduate

## Total Semester Hours Required for the B.B.A. in General Business

121 credits required.

### Notes

1. At least 24 credits of Business Administration coursework at the 300- or 400-level applied to any B.B.A. degree must be earned at UH Hilo.

## Business Administration Minor

### Requirements (18 credits):

Students pursuing non-Business degrees earn a minor in Business Administration by successfully completing 18 semester hours:

- BUS 100 Intro To Business (3) **or** BUS 110 Freshmen Business Experience (3)
- ACC 201 Intro to Financial Accounting (3)
- ECON 130 Intro To Microeconomics (3)
- FIN 320 Prin Bus Finance (3)
- MKT 310 Princ of Marketing (3)
- MGT 425 Bus Planning for New Ventures (3)

**A grade of "C" or better must be earned in these courses.** Course prerequisites will be waived if the student has formally declared Business Administration as a Minor.

## Economics Minor

### Requirements (18 credits):

#### 1. Required (6):

- ECON 130 Intro To Microeconomics (3)
- ECON 131 Intro To Macroeconomics (3)

#### 2. Electives: 12 credits of 300- or 400-level ECON courses which should include one from each block:

- *Block I:*
  - ECON 301 Inter Microecon Theory (3)
  - ECON 302 Managerial Economics (3)
  - ECON 370 Government Finance (3)
  - ECON 482 Natural Resource Env Eco (3)
- *Block II:*
  - ECON 300 Inter Macroecon Theory (3)
  - ECON 310 Economic Development (3)
  - ECON 340 Money & Banking (3)
  - ECON 361 International Finance (3)

## Accounting Certificate

**Contact:** CoBE Office  
**Phone:** (808) 932-7272  
**Email:** [cobeuhh@hawaii.edu](mailto:cobeuhh@hawaii.edu)

The Certificate in Accounting demonstrates competence in the area's of accounting. The certificate is intended to provide students the knowledge and skills for a career in accounting and to prepare them for license and certification exams.

**Requirements (18 credits):**

- **Certificate Core courses (each with a grade of C or better):**
  - ACC 350 Intermediate Acc I (3)
  - ACC 351 Intermediate Acc II (3)
  - ACC 352 Individual & Business Taxation (3)
  - ACC 353 Cost Accounting (3)
  - ACC 454 Auditing (3)
  - And one additional [Finance](#), [Accounting](#) Elective at the 300- or 400-level. (3)

**Business Administration Certificate****Contact:** CoBE Office**Phone:** (808) 932-7272**Email:** [cobeuhh@hawaii.edu](mailto:cobeuhh@hawaii.edu)

The College of Business and Economics offers a Subject Certificate in Business Administration. The coursework allows undeclared majors, and those majoring in non-business programs at UH Hilo, to develop business skills and knowledge. The program is also appropriate for those who have previously earned a bachelor degree. At least 50% of the course work must be completed at UH Hilo.

This certificate is designed for someone already working in business or intending to work in an organizational situation, who would like to gain a well-balanced fundamental perspective on business, while the business minor is designed for current students. However the certificate is available to current students as well. The coursework for the certificate is more advanced than that required by the minor. At least 50% of the coursework must be completed at UH Hilo. All courses are currently available and offered regularly in the Bachelor of Business Administration Degree program.

**Requirements (24 credits):**

- ACC 201 Intro to Financial Accounting (3)
- ACC 202 Intro to Managerial Accounting (3)
- BUS 290 Critical Thinking (3)
- ECON 130 Intro To Microeconomics (3)
- FIN 320 Prin Bus Finance (3)
- MGT 333 International Business Mgt (3)
- MKT 310 Princ of Marketing (3)
- Any business elective at the 300- or 400-level.

BUS 290 Critical Thinking (3) may be taken concurrently with courses that require it as a prerequisite.

**Business Analytics Certificate****Contact:** [Sukhwa Hong](#) , Ph.D**Email:** [sukhwa@hawaii.edu](mailto:sukhwa@hawaii.edu)

The Certificate in Business Analytics allows students to develop skills relating to acquiring and processing business data and extracting insights and knowledge from business structured and unstructured data in its various forms to find solutions to management problems. This curriculum also focuses on equipping students with analytics skills to identify and collate business data, transform data into useful information, and use them to solve management problems by making data-driven business decisions.

**Required Courses (12 credits):**

- QBA 260 Business Statistics (3) or MATH 115 Intro to Stats and Prob (3) or MATH 271 Applied Statistics with R (3)
- QBA 362 Business Analytics (3)
- QBA 465 Social Media Analytics for Bus (3)
- One of Upper-division QBA electives (3)

**Required Electives (6 credits):**

Choose two of the following courses

- QBA 200 Intro to Business Analytics (3)
- QBA 300 Operations Management (3)
- ECON 390 Econometrics (3)
- ECON 430 Quantitative Forecasting (3)
- FIN 320 Prin Bus Finance (3)
- FIN 321 Invest & Secur Analysis (3)
- MKT 318 Internet Marketing (3)
- MKT 319 Market Research (3)

**Notes:**

1. Students must pass each course within the certificate program with a grade of C or better.

**Finance Certificate****Contact:** CoBE Office**Phone:** (808) 932-7272**Email:** [cobeuhh@hawaii.edu](mailto:cobeuhh@hawaii.edu)

The College of Business and Economics offers a Subject Certificate in Finance. The coursework allows undeclared majors, and those majoring in non-business programs at UH Hilo, to develop financial management skills and knowledge. The program is also appropriate for those who have previously earned a bachelor degree. At least 50% of the course work must be completed at UH Hilo. All courses are currently available and offered regularly in the Bachelor of Business Administration Degree program.

**Requirements (18 credits):**

- **Certificate Core courses are (each with a grade of C or better):**
  - ACC 201 Intro to Financial Accounting (3)
  - FIN 320 Prin Bus Finance (3)
  - FIN 321 Invest & Secur Analysis (3)
  - FIN 322 Corporate Finance (3)
  - Two [Finance](#) Elective courses (6) at the 300- or 400-level.

**Sustainable Tourism Certificate****Contact:** [Heng "Helen" Tien](#)**Email:** [htien@hawaii.edu](mailto:htien@hawaii.edu)

The Sustainable Tourism Certificate is intended to familiarize students with international travel and tourism in terms of the tourists themselves, their service providers, and the government policies that can facilitate or create barriers for travel or for tourism development. The Certificate integrates a wide variety of existing courses into a cohesive whole focusing on sustainable tourism issues. An interdisciplinary approach informs consideration of the economic, environmental, social and cultural aspects of international tourism. This option allows students to examine



tourism from a broad policy perspective or from an enterprise perspective. It is useful for students pursuing careers in tourism hospitality businesses or other tourism-related enterprises and in governmental tourism-related organizations. The Certificate is notable for having a capstone seminar study or study abroad feature providing hands-on experience for the student.

## Requirements (18 Credits)

- TOUR 350 Intro to Sustainable Tourism (3)
- One upper-division TOUR course (3)
- One upper-division MKT course (3)
- Select one course from ACC, MGT, MKT, BUS, FIN, QBA, ECON, or TOUR (3 credits)
- Select two courses from the following: (6 credits)
  - HWST 107 Hawai'i: Center of the Pacific (3)
  - HIST 280 Topics in Hawaiian History (3)
  - HIST 284 History of Hawai'i (3)
  - ANTH 300 Cultures of Oceania (3)
  - ANTH 310 Contemp Iss in Hawaiian Anth (3)
  - ANTH 357 Change in The Pacific (3)
  - ANTH 386 Hawaiian Culture Before 1819 (3)
  - ANTH 387 Modern Hawa Cult 1819-Present (3)
  - ANTH 435 Indig Iss Contemporary Pacific (3) /GEOG 435 Senior Seminar Pacific Studies (3) /HIST 415 Senior Seminar Pacific Studies (3)
  - ANTH 323 Cultural & Social Change (3)
  - GEOG 440 Community Planning (3)
  - GEOG 340 Intro to Land Use Planning (3)
  - POLS 335 Envir Politics & Policy (3)
  - ANTH 389 Cultural Resource Management (3)
  - NRES 196 Intro to Natural Resource Mgmt (3)
  - NRES 320 Environ Issues in Asia-Pacific (3)
  - TOUR 320 Tourism Economics (3)
  - TOUR 317 Mkt & Mgt Of Travel & Tourism (3)
  - TOUR 340 Interntl Travel & Tourism Plcy (3)
  - ECON 310 Economic Development (3)
  - ECON 301 Inter Microecon Theory (3)
  - ECON 302 Managerial Economics (3)
  - ECON 482 Natural Resource Env Eco (3)
  - MKT 310 Princ of Marketing (3)
  - MGT 333 International Business Mgt (3)
  - BUS 400 Internship (3)

## Daniel K. Inouye College of Pharmacy (DKICP) Undergraduate Program

Daniel K. Inouye College of Pharmacy (DKICP)

**Email:** [pharmacy@hawaii.edu](mailto:pharmacy@hawaii.edu)

**Tel:** (808) 932-8120

**Fax:** (808) 932-8117

**Website:** <http://pharmacy.uhh.hawaii.edu/admissions/baps-admissions>

## Bachelor of Arts in Pharmacy Studies (BAPS) Program Description

Students earning the Bachelor of Arts in Pharmacy Studies (BAPS) degree attain broad and thorough knowledge in the liberal arts and basic sciences, as well as specialized education in the field of pharmacy, both academic and experiential in nature. The BAPS degree also acknowledges the achievement of students who complete a minimum of four years of college education, including rigorous course work in the basic and pharmacy sciences, on their path to the Doctor of Pharmacy

(Pharm.D.) degree. Students with a BAPS degree are well positioned to take advantage of numerous educational and career opportunities in diverse areas, including positions in pharmacy, health care, or medicine, or may continue on in research, business, and academia. **This degree is not designed to lead to licensure as a professional pharmacist and is available only to students currently enrolled in the Pharm.D. program at the UH Hilo DKICP.**

## Admissions

Students must apply and be accepted to the Doctor of Pharmacy degree program (Pharm.D.) at the University of Hawai'i at Hilo DKICP. In other words, this degree is **only** available to Pharm.D. students. [Complete application instructions for the Pharm.D. program](#) can be found online.

## Curricula

- Pharmacy Studies
  - B.A. in Pharmacy Studies Requirements
  - Pharmaceutical Science (PHPS) Courses
- UH Hilo Pre-Pharmacy

For information on the Daniel K. Inouye College of Pharmacy's graduate programs, visit DKICP's [graduate programs](#) section.

## B.A. in Pharmacy Studies Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

All students should consult with College of Pharmacy's academic advisors to ensure that they complete all requirements for graduation in a timely fashion.

Students entering UH Hilo or the PharmD program prior to Fall 2011 and wishing to earn the Bachelor of Arts in Pharmacy Studies must meet UH Hilo's requirements in effect prior to Fall 2011 for the Basic and Area categories of General Education as well as requirements in Writing Intensive and Hawai'i-Asia-Pacific categories, and all other graduation requirements. A list of these requirements is found on pages 33-37 of the [2010-2011 university catalog](#).

Students entering UH Hilo or the PharmD program in Fall 2011 and thereafter and wishing to earn the Bachelor of Arts in Pharmacy Studies must meet UH Hilo's requirements that go into effect in Fall 2011 for the Basic and Area categories of General Education as well as the Integrative requirements in Writing Intensive, Hawai'i-Pan Pacific, and Global and Community Citizenship, and all other graduation requirements. A list of these requirements is posted on the [General Education website](#).

Effective Fall 2011 the new policy for which requirements the student will follow for GE and graduation requirements are: 1) By default, all students will be admitted under the catalog in force at time entering UH Hilo. 2) Students transferring in to UH Hilo from another UH System Campus are eligible to continue their educational career under the requirements in force in the catalog year in which they entered the UH System, provided there has not been a break in enrollment of more than one semester.

**This degree is available only to students currently enrolled in the PharmD program at UH Hilo DKICP.**



## Group 2. Major Requirements (65 credits)

### 1. First Professional Year: Fall (18)

- PHPS 501 Biochemistry - Biomolecules (2)
- PHPS 503 Pharmaceutical Calculations (2)
- PHPS 504 Pharmaceutical Immunology (3)
- PHPS 505 Pharmaceutics I (3)
- PHPS 540 Drug Action - Part I (2)
- PHPP 501 Intr Pharm Prac Experiential I (1)
- PHPP 510 Pharmacy Self Care I (2)
- PHPP 528 Pharmacy Comm & Culture (3)

### 2. First Professional Year: Spring (17)

- PHPS 502 Biochemistry - Metabolism (2)
- PHPS 506 Pharmaceutics II (3)
- PHPS 509 Applied Pathophysiology (3)
- PHPS 541 Drug Action - Part II (2)
- PHPP 502 Int Pharm Prac Experiential II (1)
- PHPP 508 Intro to Biostatistics (2)
- PHPP 511 Pharmacy Self Care II (2)

### 3. Second Professional Year: Fall (17)

- PHPS 511 Pharmacokinetics (3)
- PHPP 503 Intr Pharm Prac Experien III (1)
- PHPP 506 Int Pharm Prac Exp - Retail (1)
- PHPP 514 Evidence-Based Medicine (3)
- PHPP 515 Integrated Therapeutics I (7)
- PHPP 527 Drug Information (2)

### 4. Second Professional Year: Spring (17)

- PHPP 504 Intr Pharm Prac Experien IV (1)
- PHPP 516 Integrated Therapeutics II (7)
- PHPP 519 Health Care Systems (2)
- PHPP 520 Pharmacy Law and Ethics (3)
- PHPP 523 Wellness & Disease Prevention (2)
- Electives (2)

## Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language

### Undergraduate Programs

**Director:** Keiki Kawai'ae'a , Ph.D.

**Email:** keiki@hawaii.edu

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

#### Professors:

- Scott Saft , Ph.D.
- Glenn Kalena Silva , Ph.D.
- William Pila Wilson , Ph.D.

#### Associate Professors:

- Jason Iota Cabral , Ph.D.
- Kekoa Harman , Ph.D.
- Betty-Joann Noelani Iokepa-Guerrero , Ph.D.
- Kauano'e Kamanā , Ph.D.
- Keiki Kawai'ae'a , Ph.D.

- Larry Kimura , Ph.D.
- Yumiko Ohara , Ph.D.
- Hiapo K. Perreira , Ph.D.

#### Assistant Professors:

- Kananinohea Māka'imoku , M.A.

### Vision and Mission of the College

*'O ka 'ōlelo ke ka'ā o ka maui.*

Language is the fiber that binds us to our cultural identity.

UH Hilo's College of Hawaiian Language, Ka Haka 'Ula O Ke'elikōlani, was established in 1998 as the world's first college through the medium of Hawaiian. The College is named in honor of Ruth Ke'elikōlani Keanolani Kanāhoahoa, the 19th century high chiefess known for her strong advocacy of Hawaiian language and culture.

The mission of the College is to assure the revitalization and continued advancement and growth of the Hawaiian language and maui ola Hawai'i. A thriving Hawaiian language is the means through which the maui ola Hawai'i will once again become commonplace in both traditional and contemporary contexts in Hawai'i. The College joins with other Indigenous peoples in the revitalization of their own languages and cultures. Our collective efforts will ensure the furthering of local, national and international initiatives toward establishing language and cultural vibrancy throughout the world.

### College Learner Outcomes

1. Speak and write with fluency in appropriate contexts. (Casual, Workplace, Formal Ceremony, Undergraduate/Graduate level)
2. Locate and utilize scholarly information as a part of academic research.
3. Demonstrate increased knowledge and use of the Kumu Honua Maui Ola Educational Philosophy.
4. Identify and strategically engage in current issues in revitalizing and maintaining Hawaiian and Indigenous languages and cultures.
5. Exhibit leadership in Hawaiian and Indigenous language and culture revitalization in academic and community environments.

### What does a degree from Ka Haka 'Ula O Ke'elikōlani mean?

A degree from Ka Haka 'Ula O Ke'elikōlani (KH'UOK) signifies students have obtained Hawaiian language proficiency and Hawaiian culture knowledge. All students exiting with degrees from this college have the potential to actively engage and contribute to the revitalization and continued advancement and growth of the Hawaiian language and maui ola Hawai'i. KH'UOK also offers a pathway that produces students with the fundamental skills to analyze the structure of language, its place in the mind, and its role in society to then support language revitalization in general, multilingual education, and Indigenous languages.

KH'UOK was established in 1998 as the world's first college through the medium of Hawaiian emphasizing Hawaiian language, traditional Hawaiian culture, indigenous language and culture revitalization, linguistics and education in a Hawaiian language medium environment including Na Kula Maui Ola, the P-12 laboratory school program.

Mandated by state law (Act 315) to "serve as a focal point for the State's



efforts to revitalize the Hawaiian language through teacher training, undergraduate and graduate study of Hawaiian, community outreach, research and testing, use of technology, national and international cooperation, and the development of liberal education in Hawaiian for future generations of Hawaiian speakers." KH'UOK implements outreach to other indigenous peoples on a national and international basis, and is thus recognized as the leader in indigenous language revitalization in the United States and the North Pacific Basin.

## Academic Division

**Division Chair:** Jason "Iota" Cabral , Ph.D.

**Email:** [jasoncab@hawaii.edu](mailto:jasoncab@hawaii.edu)

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

The Mokuna Papahana Kālai'ike (Academic Programs Division) of Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language emphasizes Hawaiian language, traditional Hawaiian culture, indigenous language and culture revitalization, linguistics and education in a Hawaiian language medium environment. It also includes Nā Kula Maui Ola, the P-12 laboratory school program. The following are the College undergraduate degree and certificate programs.

- B.A. in Hawaiian Studies
  - Minor in Hawaiian Studies
  - Hawaiian Culture Certificate
  - Hawaiian Language Certificate
  - Hawaiian and Indigenous Language Medium Early Education Certificate
  - Multidisciplinary Hawaiian Studies Certificate
- B.A. in Linguistics
  - Minor in Linguistics
  - Contemporary Indigenous Multilingualism Certificate

For information on the College's graduate programs, including the Kahuawaiola Indigenous Teacher Education Program, please see the [graduate section](#) of this catalog.

## Hawaiian Studies

**Department Chair:** Jason Iota Cabral , Ph.D.

**Email:** [jasoncab@hawaii.edu](mailto:jasoncab@hawaii.edu)

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

The **Hawaiian Studies program** is the core program of the College, approved by the BOR in 1982 as a program distinguished by the use of Hawaiian as the medium of instruction. This use of immersion methodology at the tertiary level is highly distinctive, not only for Hawai'i, but on a national level. The growth of the program is closely tied to its leadership role in reestablishing Hawaiian as the medium of education in preschools (1984) and in K-12 education (1986), as well as in establishing a teacher certification program (1998), masters of arts programs (1998), and a doctoral program (2006).

The **Hawaiian Studies program** basically serves:

- Those majoring in Hawaiian Studies;
- Those pursuing a Certificate in Hawaiian Language, Hawaiian Culture, and/or Multidisciplinary Hawaiian Studies;
- Those pursuing a minor in Hawaiian Studies; and
- Those taking courses for their own interest and to fulfill University requirements.

The program provides a unique educational opportunity for students

interested in culture, economics, politics, sociology, linguistics, music, anthropology, biology, geography, history, and dance.

## Hawaiian Studies Program Learner Outcomes

1. Demonstrate oral and written comprehension and grammatically correct use of Hawaiian at the appropriate ACTFL levels in the respective language courses.
2. Apply knowledge of the language to give an effective speech in Hawaiian and to write an effective academic paper in Hawaiian of at least two thousand words on pertinent topics that is organized succinctly with an introduction, body, and conclusion that includes footnotes and citations.
3. Locate and utilize library, on-line and community resources to write a cohesive academic paper, prepare a presentation, or give appropriate diversiform speeches.
4. Identify, explain, and perform traditional practices within respective courses and College-wide activities.
5. Identify and explain aspects of the evolution of the Hawaiian language and its relationship to the current cultural, social, and/or political standing of Hawai'i.
6. Identify and explain Hawaiian cultural concepts within respective courses and College-wide activities.

## Curricula

- B.A. in Hawaiian Studies Requirement
- Hawaiian Studies Minor
- Hawaiian Culture Certificate
- Hawaiian Language Certificate
- Hawaiian and Indigenous Language Medium Early Education Certificate
- Multidisciplinary Hawaiian Studies Certificate
- Hawaiian Language (HAW) Courses
- Hawaiian Studies (HWST) Courses
- Ke'elikōlani Education (KED) Courses
- Ke'elikōlani Hawaiian Language (KHAW) Courses
- Ke'elikōlani Hawaiian Studies (KHWS) Courses
- Ke'elikōlani History (KHIS) Courses
- Ke'elikōlani Indigenous Language (KLAN) Courses
- Ke'elikōlani Indigenous Studies (KIND) Courses
- Ke'elikōlani Psychology (KPSY) Courses
- Ke'elikōlani Sociology (KSOC) Courses

## B.A. in Hawaiian Studies Requirement

The Hawaiian Studies Program is one of the most innovative baccalaureate programs at UH Hilo. The B.A. in Hawaiian Studies provides curriculum and pedagogy through two options.

- The Continuing the Culture option produces fluent Hawaiian language speakers who are committed to revitalizing and perpetuating the Hawaiian language and culture in their lives.
- The Monitoring the Culture option conjointly produces fluent Hawaiian language speakers in broader contexts of Hawaiian language and culture in relationship with natural and social environments of Hawai'i.

## Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

Students may choose to graduate under the [General Education](#)



Foundation, Diversification, Structural and Integrative requirements and graduation requirements in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

## Group 2. Major Requirements and Assigned Credits

### Prerequisite Language Courses (8-24 credits)

1. First Level Hawaiian Language (4-16 credits): Choose one of the following sequences:
  - HAW 101 Elementary Hawaiian I (4) **AND** HAW 102 Elem Hawaiian II (4) **AND** KHAW 103 First Lvl Trans Hawn Immersion (4) **AND** KHAW 104 First Lvl Partial Hawn Immers (4)
  - KHAW 103 First Lvl Trans Hawn Immersion (4) **AND** KHAW 104 First Lvl Partial Hawn Immers (4)
  - KHAW 108 Accel First Lvl Hawn Immersion (8)
  - KHAW 133 First Lvl Hawn for Speakers (4)
  - KHAW 190 Fluency Community Support (1) (Course to be repeated with different sub-letters for a total of 8 credits)
2. Second Level Hawaiian Language (4-16 credits) Choose one of the following sequences
  - KHAW 203 Second Lvl Univ Hawn Immers I (4) **AND** KHAW 204 Second Lvl Univ Hawn Immers II (4)
  - KHAW 208 Accel Sec Lvl Univ Hawn Immers (8)
  - KHAW 233 Second Level Hawn for Speakers (4)

### Option I (Continuing the Culture) (56-74 credits)

#### 1. Prerequisite Language Courses (8-24 credits)

#### 2. Required courses (48-50 credits)

- KHAW 303-304 Third Level Hawaiian I (4), Third Level Hawaiian II (4)
- KHAW 403-404 Fourth Level Hawaiian I (4), Fourth Level Hawaiian II (4)
- KHAW 490 Base-level Fluency Hawn Med Ed (1) **or** KHAW 333 Applied Skills (3)
- KHWS 496 Hawaiian Studies Seminar (3)
- KHWS 381A Ka Nohona Kaulana Mahina (4) **or** KHWS 381E Ka Nohona Kaulana Mahina (4)
- KHWS 466 Mele Ku I ka Wa (3)
- KHWS 475 Na Mele Hula Kahiko (3)
- KHWS 476 Na Mele Hula 'Auana (3)
- KHAW 453 Hawn Phonetics & Phonol (3)
- KHAW 454 Hawn Morphology & Syntax (3)
- KHWS 462 Haku Mele (3)
- KHWS 463 Intro Hawn Narrative Lit (3)
- KHWS 465 Ha'i'olelo Ku'una (3)

### Option II (Monitoring the Culture) (55-73 credits)

#### 1. Prerequisite Language Courses (8-24 credits)

#### 2. Required courses (29-31 credits)

- KHAW 303-304 Third Level Hawaiian I (4), Third Level Hawaiian II (4)
- KHAW 403-404 Fourth Level Hawaiian I (4), Fourth Level Hawaiian II (4)
- KHAW 490 Base-level Fluency Hawn Med Ed (1) **or** KHAW 333 Applied Skills (3)
- HWST 111 Hawaiian 'Ohana (3)
- HWST 205 Hawaiian Music in Action (2)
- KHWS 381A Ka Nohona Kaulana Mahina (4) **or** KHWS 381E Ka Nohona Kaulana Mahina (4)
- KHWS 496 Hawaiian Studies Seminar (3)

#### 3. Electives (18 credits)

- 15 semester hours selected from below, at least 9 of which must be in courses numbered 300 and above. Special topics and other courses pertaining to Native Hawaiians or Hawai'i also may be counted as electives, if previous permission is obtained from the department chair.
  - ANTH 300 Cultures of Oceania (3)
  - ANTH 310 Contemp Iss in Hawaiian Anth (3)
  - ANTH/ENG/LING 347 Pidgins And Creoles (3)
  - ANTH 357 Change in The Pacific (3)
  - ANTH 358 Japanese Immigrants (3)
  - ANTH 385 Hawn & Pacific Prehistory (3)
  - ANTH 386 Hawaiian Culture Before 1819 (3)
  - ANTH 387 Modern Hawn Cult 1819-Present (3)
  - ANTH 389 Cultural Resource Management (3)
  - ANTH 435 Indig Iss Contemporary Pacific (3)
  - ANTH 470 Museology (3)
  - ANTH 484 Stone Tool Analysis (3)
  - ENG 323 The Literature of Hawai'i (3)
  - GEOG/PHYS 120 Weather & Climate Hawai'i (3)
  - GEOG 332 Geog Of Hawaiian Islands (3)
  - GEOL 205 Geology Of Hawaiian Islands (3)
  - HWST 175 Intro Music Of Polynesia (3)
  - HWST 176 Hist & Dev Of Hawn Music (3)
  - HWST 181 Indig Leadership thru Hula I (3)
  - HWST 182 Indig Leadership thru Hula II (3)
  - HWST 211 Hawaiian Ethnobotany (3)
  - HWST 213 Hawaiian Ethnozoology (3)
  - HIST 284 History of Hawai'i (3)
  - HIST 316 19th C. Pacific (3)
  - HIST 317 20th C. Pacific (3)
  - HIST 332 Hawaiian Kingdom (3)
  - HIST 333 Twentieth Century Hawai'i (3)
  - KANT 486 Mo'omeheu Hawai'i Ku'una (3)
  - KED 343 Ma Ka Hana Ka 'Ike I (3)
  - KED 344 Ma Ka Hana Ka 'Ike II (3)
  - KHIS 151 Moaukala Ao Pae I (3)
  - KHIS 152 Moaukala Ao Pae II (3)
  - KHWS 462 Haku Mele (3)
  - KPSY 341 Ulu Ke Keiki (3)
  - KSOC 342 He 'Ohana Lanakila (3)
  - MARE 140 Intro to Hawaiian Coral Reefs (3)
  - MARE 140L Intro Hawaiian Coral Reefs Lab (1)
  - MARE/BIOL 156 Nat Hist & Conservatn Hawn Isl (3)
  - BIOL 156L Nat History Field Trips (1)
  - MARE 171L Marine Biology Laboratory (1)



- MARE 201L Oceanography Lab (2)
- MARE 325 Coral Reef Ecology (3)
- MARE/BIOL 371L Bio Of Marine Invertebrate Lab (1)
- MARE 372 Biology Of Marine Plants (3)
- MARE 372L Biology of Marine Plants Lab (1)
- MARE 488 Kuula: Integrated Science (3)
- POLS 337 Politic of Hawaii: State/Local (3)
- SOC 370 Political Economy of Hawai'i (3)
- **and** 3 semester hours taken from any 300 or 400-level KHAW or KHWS or KED Course

## Total Semester Hours Required for the B.A. in Hawaiian Studies

120 credits required.

### Notes

1. Students must earn credit for KHAW 490 Base-level Fluency Hawn Med Ed (1) and at least a 2.0 GPA in all other courses required for the major.
2. At least 45 credits must be earned in courses at the 300- or 400-level.
3. To earn a Bachelor of Arts degree in Hawaiian Studies, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
4. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
5. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
6. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Hawaiian Studies Minor

**Department Chair:** Jason Iota Cabral , Ph.D.

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

The **Hawaiian Studies Minor** is designed for students pursuing a degree other than Hawaiian Studies who are interested in Hawaiian language and culture.

### Requirements (23 credits):

1. **Required Courses (11)**
  - 8 semester hours taken from any Hawaiian Language course not including HAW 101-102 and HAW 105
  - One of the below courses (3)
    - HWST 111 Hawaiian 'Ohana (3)
    - HWST 176 Hist & Dev Of Hawn Music (3)
    - HWST 211 Hawaiian Ethnobotany (3)
    - HWST 213 Hawaiian Ethnozoology (3)
2. **Electives (12)**
  - 12 credits selected from any 300- or 400-level requirement or any 300- or 400-level elective of the [B.A. in Hawaiian Studies](#) Options I or II

### Notes:

1. Students in the [B.A. in Hawaiian Studies](#) program are not eligible to pursue the minor, since the minor is designed for students in other degree programs.
2. Students pursuing the minor may also pursue certificates offered within Ka Haka 'Ula O Ke'elikōlani.

## Hawaiian Culture Certificate

**Department Chair:** Jason Iota Cabral , Ph.D.

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

The **Certificate of Hawaiian Culture** is designed for those who have had no previous university study of Hawaiian culture or language. The coursework includes a basic background of Hawaiian language and traditional culture from a broad range of courses, most are taught primarily in English. (Changed from Certificate of Basic Hawaiian Culture to Certificate in Hawaiian Culture, Fall 2012)

### Requirements (19 credits):

1. **Required Courses (4)**
  - KHAW 104 First Lvl Partial Hawn Immers (4) **or** any higher level language course equaling 4 credits
2. **Core Electives (3)**
  - 3 credits taken from:
    - HWST 111 Hawaiian 'Ohana (3)
    - HWST 176 Hist & Dev Of Hawn Music (3)
    - HWST 211 Hawaiian Ethnobotany (3)
    - HWST 213 Hawaiian Ethnozoology (3)
3. **Related Electives (12)**
  - 12 credits taken from:
    - ANTH 385 Hawn & Pacific Prehistory (3)
    - ANTH 386 Hawaiian Culture Before 1819 (3)
    - ANTH 387 Modern Hawn Cult 1819-Present (3)
    - HIST 284 History of Hawai'i (3)
    - HWST 205 Hawaiian Music in Action (2)
    - KHWS 462 Haku Mele (3)
    - KHWS 475 Na Mele Hula Kahiko (3)
    - KHWS 476 Na Mele Hula 'Auana (3)
    - other courses from the core elective list.

**Notes:** The Certificate in Hawaiian Culture may be pursued by Hawaiian Studies and other discipline majors and by those pursuing any other certificate or certificates at UH Hilo. Credits may be shared once or more than once between this certificate and other degrees and certificates on campus, but no more than 9 credits can be shared between the Certificate in Hawaiian Culture and any single one of the following: the [Hawaiian Studies B.A.](#), the [Certificate in Hawaiian Language](#), the [Certificate in Multidisciplinary Hawaiian Studies](#).

Upon agreement between Ka Haka 'Ula O Ke'elikōlani and I Ola Hāloa at Hawai'i Community College (Hawai'i CC), up to six semester hours in courses at the 100 level and above taken in the Hawai'i CC Hawai'i Lifestyles Degree Program may be applied. Students should speak to a Hawaiian Studies advisor about the process for receiving permission to apply such courses to this certificate and for enrolling in such courses.



## Hawaiian Language Certificate

**Department Chair:** Jason Iota Cabral, Ph.D.

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

The **Certificate of Hawaiian Language** is designed for those who have already had considerable university study in the Hawaiian language or are fluent speakers. The coursework increases the knowledge of Hawaiian and offers a broad perspective of the Hawaiian language and its revitalization.

### Requirements (23 credits)

#### 1. Required Courses (7)

- KHAW 204 Second Lvl Univ Hawn Immers II (4) **or** KHAW 233 Second Level Hawn for Speakers (4)
- LING 102 Introduction to Linguistics (3)

#### 2. Electives (16)

- 16 credits taken from those below or others approved by the Hawaiian Studies Department Chair with no less than 6 credits through Hawaiian:
  - KHAW/HAW 303-304 Third Level Hawaiian I (4), Third Level Hawaiian II (4)
  - KHAW/HAW 403-404 Fourth Level Hawaiian I (4), Fourth Level Hawaiian II (4)
  - KHAW/HAW 453 Hawn Phonetics & Phonol (3)
  - KHAW/HAW 454 Hawn Morphology & Syntax (3)
  - KHAW/HAW 494 Special Topics in Subject Matter (To Be Arranged)
  - KHAW/HAW 499 Directed Studies (To Be Arranged)
  - KHWS/HWST 462 Haku Mele (3)
  - KHWS/HWST 463 Intro Hawn Narrative Lit (3)
  - KHWS/HWST 465 Ha'i'olelo Ku'una (3)
  - KIND 240 Culture Revitalization Movemnt (3)
  - LING 351 Method Foreign Lang Tchg (3)
  - LING 442 Languages in Hawai'i (3)

**Note:** Students pursuing a **B.A. in Hawaiian Studies** may also pursue the Certificate in Hawaiian Language provided they do not cross count KHAW/HAW 303-304 Third Level Hawaiian I (4), Third Level Hawaiian II (4) and KHAW/HAW 403-404 Fourth Level Hawaiian I (4), Fourth Level Hawaiian II (4). The Certificate in Hawaiian Language may be pursued by Hawaiian Studies and other discipline majors and by those pursuing any other certificate or certificates at UH Hilo. Credits may be shared once or more than once between this certificate and other degrees and certificates on campus, but no more than 9 credits can be shared between the Certificate in Hawaiian Language and any single one of the following: the **Hawaiian Studies B.A.**, the **Certificate in Hawaiian Culture**, the **Certificate in Multidisciplinary Hawaiian Studies**.

## Hawaiian and Indigenous Language Medium Early Education Certificate

**Department Chair:** Jason Iota Cabral, Ph.D.

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

### Program Description

The **Certificate in Hawaiian and Indigenous Language Medium Early Education** is designed to prepare students through the Hawaiian

language to become early childhood educators in maui ola settings.

Core courses provide students with foundations in Hawaiian or Indigenous language as it relates to education, the history and background of the Hawaiian language movement and the Pūnana Leo Hawaiian Medium educational institution, Pūnana Leo early education methodology and curriculum and other educational foundations that affect Hawaiian and Indigenous early education, child development, and teacher responsibilities in Hawaiian and Indigenous medium and Hawaiian immersion settings.

Students who graduate with a Certificate in Hawaiian and Indigenous Medium Early Education will be prepared with the knowledge to work at a Pūnana Leo preschool or a Hawaiian Early Education institution or parallel indigenous language medium preschool.

*The certificate does not culminate in eligibility for a teaching license.*

## Requirements for the Certificate in Hawaiian and Indigenous Language Medium Early Education

### Hawaiian Medium Track Requirements (19 credits)

#### 1. Required Courses (16)

- KHAW 303 Third Level Hawaiian I (4)
- KPSY 341A Ulu Ke Keiki (3)
- KSOC 342A He 'Ohana Lanakila (3)
- KED 343A Ma Ka Hana Ka 'Ike I (3)
- KED 344A Ma Ka Hana Ka 'Ike II (3)

#### 2. Additional Electives (3)

- 3 credits taken from HWST, KHWS or upper division KHAW, LING

### Non-Hawaiian Indigenous Language Medium Track Requirements (18-19 credits)

#### 1. Required Courses (15-16)

- KPSY 341E Ulu Ke Keiki (3)
- KSOC 342E He 'Ohana Lanakila (3)
- KED 343E Ma Ka Hana Ka 'Ike I (3)
- KED 344E Ma Ka Hana Ka 'Ike II (3)
- Choose one of the below options:
  - KIND 441 Advanced Language in Culture I (2) and KIND 442 Advancd Language in Culture II (2)
  - LING 445 Explor Bilingual & Immers Ed (3)
  - KLAN course equivalent to KHAW 303 Third Level Hawaiian I (4)

#### 2. Additional Electives (3)

- 3 credits taken from LING, KLAN, KIND or other applied indigenous language and culture focused courses approved by the Department Chair.

### Notes:

1. Students pursuing this certificate will complete 18-19 credit hours. Students must receive a grade of "C" or better in all courses applied to this certificate program.



2. The Certificate in Hawaiian and Indigenous Language Medium Early Education may be pursued by Hawaiian Studies and other discipline majors and by those pursuing any other certificate or certificates at UH Hilo. Credits may be shared more than once between this certificate and other degrees and certificates on campus.

## Multidisciplinary Hawaiian Studies Certificate

**Department Chair:** Jason Iota Cabral , Ph.D.  
**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

The **Certificate in Multidisciplinary Hawaiian Studies** is designed to allow more students to demonstrate a specialization in Hawai'i and Native Hawaiians through courses available on campus after establishing a base in Hawaiian language and culture.

### Requirements (26 credits):

- Required Courses (8)**
  - HAW 101-102 Elementary Hawaiian I (4), Elem Hawaiian II (4) **or** any higher numbered Hawaiian Language course (8)
- Core Electives (3)**
  - 3 semester hours taken from:
    - HWST 111 Hawaiian 'Ohana (3)
    - HWST 176 Hist & Dev Of Hawn Music (3)
    - HWST 211 Hawaiian Ethnobotany (3)
    - HWST 213 Hawaiian Ethnozoology (3)
- Related Electives (15)**
  - 15 semester hours with no more than 6 semester hours of the same alpha
    - Courses taught through English in the Monitoring the Culture track of the [Hawaiian Studies B.A.](#)
    - Courses pertaining to Native Hawaiians or Hawai'i, including courses taught through Hawaiian, if previous permission is obtained from the Hawaiian Studies department chair

**Note:** The Certificate in Multidisciplinary Hawaiian Studies may be pursued by Hawaiian Studies and other discipline majors and by those pursuing any other certificate or certificates at UH Hilo. Credits may be shared once or more than once between this certificate and other degrees and certificates on campus, but no more than 9 credits can be shared between the Certificate in Multidisciplinary Hawaiian Studies and any single one of the following: the [Hawaiian Studies B.A.](#), the [Certificate in Hawaiian Culture](#), the [Certificate in Hawaiian Language](#).

## Linguistics

**Coordinator:** Scott Saft , Ph.D.  
**Email:** [saft@hawaii.edu](mailto:saft@hawaii.edu)

**Website:** [www.olelo.hawaii.edu/khuok/](http://www.olelo.hawaii.edu/khuok/)

- Yumiko Ohara , Ph.D.
- Scott Saft , Ph.D.
- William Pila Wilson , Ph.D.
- Jason Iota Cabral , Ph.D.
- Kauanoë Kamanā , Ph.D.

The **Linguistics Program** was incorporated into KH'UOK in 2008 to provide assistance with the work of language revitalization at the local, national, and international levels. This program is unique within the United States in being situated within a college administered through an Indigenous language. It plays a prominent role in undergraduate and

graduate education, including the only Ph.D. in the world focusing specifically on language and culture revitalization.

UH Hilo is one of only a few universities in the United States to offer a Bachelor of Arts in Linguistics. Students learn about linguistics in a unique educational environment that is greatly influenced by the cultures and languages of Polynesia, Micronesia, and Asia. The Linguistics Program features a broad range of courses in both theoretical and applied linguistics, including courses related to language learning and teaching. The program also provides interested students with specialized courses in Hawaiian and Japanese linguistics, as well as in the linguistics of indigenous languages in different parts of the world.

Linguistics is the scientific study of language, examining it both as an abstract system and in its psychological and sociocultural contexts. Linguistics focuses on how the human mind structures, processes, and acquires language and on how language is an integral part of the cultural patterns of human interaction. With the central role played by language in the social world, linguistics is situated at the intellectual intersection of the humanities and the sciences, including the social, biological, and behavioral sciences. Accordingly, students receive broad training that cuts across and breaks down traditional boundaries between disciplines.

### Linguistics Program Learner Outcomes

1. Employ one language fluently and at least one additional language competently in a variety of spoken and written contexts.
2. Analyze sets of data from a diverse set of languages in terms of linguistic structure, including phonological, morphological, syntactic, and pragmatic features of those languages.
3. Participate in linguistic field research focusing on languages relevant in the Hawai'i Pan Pacific such as Hawaiian, Japanese, Chinese, English, and Hawai'i Creole.
4. Explain the relationship among language, culture, and society and critically evaluate how language plays a central role in social and political issues such as gender and racial discrimination, immigration attitudes and laws, educational policies, and language revitalization movements.
5. Locate and utilize reliable scholarly information in academic journals and books as a part of engaging in academic linguistic research and write a cohesive research paper of approximately four thousand words on a pertinent linguistic topic that is organized succinctly with at least an introduction, body, and conclusion and that includes foot/endnotes and citations.
6. Employ audiovisual materials and appropriate technology such as PowerPoint as part of a succinctly organized fifteen-minute presentation of linguistic research findings to an audience.

## Curricula

- [B.A. in Linguistics Requirements](#)
- [Linguistics Minor](#)
- [Contemporary Indigenous Multilingualism Certificate](#)
- [Linguistics \(LING\) Courses](#)

## B.A. in Linguistics Requirements

### Group 1. General Education Foundation, Diversification, Structural, and Integrative Requirements in effect Fall 2018

The **B.A. in Linguistics** provides students with the fundamental skills to analyze the structure of language, its place in the mind, and its role in



society. Linguistics supports language revitalization, multilingual education, and Indigenous languages through its courses while promoting international cooperation by encouraging students to study languages in other countries.

Students may choose to graduate under the [General Education Foundation, Diversification, Structural and Integrative requirements](#) and [graduation requirements](#) in force at the time they entered the UH System, when they entered UH Hilo, or when they graduate, provided there is no break in enrollment.

Students should meet with their academic advisor to ensure that they enroll in courses that will enable them to meet these requirements as well as requirements for the major and for graduation. Some courses may meet both General Education requirements and major requirements.

The new GE foundations, diversification, structural and integrative requirements and lists of certified courses are posted on the [General Education website](#).

## Group 2. Major Requirements and Assigned Credits (46 credits)

### 1. Core Courses

- LING 102 Introduction to Linguistics (3)
- LING 311 Phonetics and Phonology (3)
- LING 321 Morphology And Syntax (3)
- LING 490 Res and Methods in Linguistics (3)

2. Select one of the 3 areas below as an area of concentration and take at least 3 courses in that area. From the other 2 areas, take at least 1 course. (15 credits)

#### • Structure/Grammar

- LING 345 Historical & Comparative Ling (3)
- ENG 324 Modern English Grammar & Usage (3)
- LING 410 Semantics & Pragmatics (3)
- JPNS 451 Structure Of Japanese I (3)
- JPNS 452 Structure Of Japanese II (3)
- KHAW 453 Hawn Phonetics & Phonol (3)
- KHAW 454 Hawn Morphology & Syntax (3)

#### • Applied/Sociolinguistics

- LING 347 Pidgins And Creoles (3)
- LING 356 Language and Gender (3)
- LING 412 Discourse Analysis (3)
- LING 432 Critical Applied Linguistics (3)<sup>1</sup>
- LING 442 Languages in Hawai'i (3)<sup>1</sup>
- ANTH 331 Lang in Culture & Society (3)
- ENG 350 Second Lang Acquisition Theory (3)
- JPNS 345 Methods for Teaching Japanese (3)

#### • Language Maintenance, Revitalization, and Policy

- KIND 240 Culture Revitalization Movemnt (3)
- LING 432 Critical Applied Linguistics (3)<sup>1</sup>
- LING 442 Languages in Hawai'i (3)<sup>1</sup>
- LING 434 Indigenous Languages of the US (3)
- LING 445 Explor Bilingual & Immers Ed (3)
- KHWS 496 Hawaiian Studies Seminar (3)

3. **Three** additional semester hours in Linguistics (or other related and approved field) at the 300- or 400-level (3).

4. **16** university credits in second/auxiliary language study, 4 credits of which must be in a different language from the other credits. In certain circumstances, students may substitute demonstrated fluency in a second/auxiliary language in lieu of up to 8 credits. (16)

<sup>1</sup> Note: Courses are listed in two areas but count toward only one.

## Total Semester Hours Required for the B.A. in Linguistics

120 credits required.

### Notes

1. Students must earn at least a 2.0 GPA in courses required for the major.
2. At least 45 credits must be earned in courses at the 300- or 400-level.
3. To earn a Bachelor of Arts degree in Linguistics, students must fulfill the requirements for the major **and** meet all of the University's other baccalaureate degree requirements. (Please see the [Baccalaureate Degree Requirements](#) in this Catalog.)
4. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.
5. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
6. To ensure progress toward degree completion, **students are urged to meet with an advisor each semester before registering.**

## Linguistics Minor

The **Linguistics Minor** is designed for students pursuing a degree other than Linguistics and who are interested in Linguistics.

### Requirements (26 credits):

1. A total of **18 credits** of linguistics courses including:
  - LING 102 Introduction to Linguistics (3)
  - LING 311 Phonetics and Phonology (3) **or** LING 321 Morphology And Syntax (3)
  - And **12 credits** in [LING courses](#), of which **6 credits** must be at the 300- or 400-level.
2. **One year** of college-level foreign language study or the equivalent. (8)

## Contemporary Indigenous Multilingualism Certificate

**Coordinator:** Scott Saft, Ph.D.

**Email:** [saft@hawaii.edu](mailto:saft@hawaii.edu)

The **Certificate in Contemporary Indigenous Multilingualism** is designed to benefit students drawn to Hawaiian and Indigenous language revitalization. It provides diverse linguistic experiences and allows great latitude in interdisciplinary courses.

### Requirements (21-25 credits):

1. **Required Courses (6)**



- o LING 102 Introduction to Linguistics (3)
- o KIND 240 Culture Revitalization Movement (3)

2. **Core Electives (6-8)**, taken from:

- o LING 133 Elem Indig Lang (3)
- o LING 233 Inter Indig Langs (3)
- o KHAW 103 First Lvl Trans Hawn Immersion (4)
- o KHAW 104 First Lvl Partial Hawn Immers (4)
- o KHAW 133 First Lvl Hawn for Speakers (4)
- o KHAW 233 Second Level Hawn for Speakers (4)
- o transfer semester hours in an indigenous language other than Hawaiian (i.e. Lakota, Samoan) from a tribal college or other college

3. **Related Electives (9-11)**, taken from:

- o LING 442 Languages in Hawai'i (3)
- o LING 347 Pidgins And Creoles (3)
- o LING 331 Lang in Culture & Society (3)
- o Courses in indigenous languages other than Hawaiian
- o Courses pertaining to indigenous multilingualism with prior permission from the Hawaiian Studies department chair
- o Hawaiian language courses; however, no more than a total of 8 credits may be applied to this certificate

**Note:** This certificate may be taken by linguistics majors or any other major.

## Center for Community Engagement (CCE)

**Email:** [uhhcce@hawaii.edu](mailto:uhhcce@hawaii.edu)

**Tel:** (808) 932-7830

**Fax:** (808) 932-7831

**Location:** Portable Building 5 (PB-5), Room 2

**Website:** <https://hilo.hawaii.edu/cce/>

The Center for Community Engagement (CCE) at UH Hilo creates and sustains opportunities for community-engaged teaching and learning. Our primary mission is to integrate community-based projects into course curriculum, creating opportunities for students to learn through the application of knowledge to authentic, meaningful and relevant local issues. These activities increase students' sense of purpose, engagement and belonging to UH Hilo and the broader community. By understanding how education and research can be responsive to community needs, the CCE contributes to the university's role in building a healthy, vibrant community for all.

## How to Read Course Descriptions

Courses are described using the following format:

①CRS ②NUM③Title④(cr.)⑤(contact hrs) ⑥Full course description.  
⑦Pre: pre-requisites. ⑧(Same as X-List) ⑨(Attributes: ATTR)

1. Course subject
2. Course number
3. Course title
4. Number of semester hours (credits)
5. Contact hours type(s) if non-lecture
6. Full description of the course.
7. (if applicable) Prerequisites, co-requisites, recommended

8. (if applicable) Cross-listed courses (equivalent courses offered through another subject heading)
9. (if applicable) [General Education](#) Attributes

**Special notations used for credits are as follows:**

- (1-3), for example = the number of semester hours, in this example, may be 1, 2, or 3, as determined by the instructor at the time of offering.
- (Arr.) = the number of semester hours is arranged by the instructor.

**Certain number endings are reserved for particular types of courses:**

- "94" courses are Special Topics Courses.
- "95" courses are Seminars.
- "96" courses are Internship Courses.
- "97" and "98" courses are Experimental Courses offered only for one year on that basis ("97" is usually offered in the Fall and "98" in the Spring).
- "99" courses are Research and Directed Studies Courses.

## Accounting (ACC) Courses

[College of Business and Economics \(COBE\)](#)

**ACC 200 Accounting Internship (3)** Supervised on-the-job experience in the business community in an accounting-related capacity. Comprehensive report by students, meeting with faculty advisor, and performance evaluation from employer required. Pre: Instructor's Consent. (Attributes: GCC)

**ACC 201 Intro to Financial Accounting (3)** An introduction to accounting principles and practices used to record and communicate financial information. Analyze methods for valuing assets, liabilities, and equity of an organization. Pre: 15 or more credits at the college level.

**ACC 202 Intro to Managerial Accounting (3)** An introduction to managerial accounting methods for evaluating performance including cost accounting, budgeting, break-even analysis, standard cost systems and reporting for internal decision making. Pre: ACC 201

**ACC 350 Intermediate Acc I (3)** The accounting process and the application of generally accepted accounting principles to assets and liabilities. Emphasis upon accounting theory. Pre: ACC 202; successful completion of 45 college credits.

**ACC 351 Intermediate Acc II (3)** The application of generally accepted accounting principles to accounting for owner's equity, long-term investments and debt, funds flow, and financial statement analysis. Pre: C or better in ACC 350

**ACC 352 Individual & Business Taxation (3)** Principles and practices involved in the determination of federal income taxation and tax planning as it applies to individuals and businesses including the concept of gross income, exclusions, deductions, credits, property transactions and sole proprietorships. Pre: C or better in ACC 202, ACC 350, and ACC 351.

**ACC 353 Cost Accounting (3)** Cost accounting system output relevant to managerial decision making, planning and control. Topics include job order and process costing, direct and standard cost systems, with



emphasis on application and analysis of cost. Pre: C or better in ACC 202, ACC 350, and ACC 351.

**ACC 354 Business Software (3)** Practical applications of general ledger/bookkeeping for small businesses. Focus will be on basic Accounting Information Systems concepts, internal controls, accounting tasks, and comparative product analysis. Pre: C or better in ACC 202; C or better or concurrent enrollment in ACC 350; successful completion of 45 college credits.

**ACC 355 Advanced Topics in Taxation (3)** Advanced topics in taxation at the discretion of the instructor. Topics might include tax planning for individual and business owners, estate planning, gift taxes, or other current topics in taxation. Pre: C or better ACC 352

**ACC 358 Governmental Accounting (3)** Accounting principles as applied to nonprofit organizations, including government. Emphasis on budgetary control and fund accounting. Pre: C or better in ACC 350.

**ACC 400 Senior Accounting Internship (3) (other)** Supervised, substantive on-the-job experience in an accounting position in business or government agency. Comprehensive report by student, meetings with faculty adviser, and performance appraisal from employer required. Pre: ACC 351; Minimum cumulative GPA of 3.00; compatibility with career interests; pre-approved job placement, internship contract and instructor's consent. (Attributes: ALEX, GCC)

**ACC 450 Advanced Accounting (3)** The application of generally accepted accounting principles to specialized accounting entities: partnerships, branches, affiliated companies, estates and trusts; and to special topics including consolidations. Pre: ACC 351

**ACC 454 Auditing (3)** Auditing concepts including standards, objectives, and ethics for external auditors. Emphasis on reporting standards, internal control, evidence, and statistical sampling. Pre: C or better in ACC 351

**ACC 455 IT Audit (3)** Audits of accounting information systems, including enterprise systems. Generally accepted IT audit standards, frameworks, tools and methods. Includes the study and use of computer-assisted audit tools and techniques (CAATTS). Pre: ACC 454

**ACC 456 Advanced Auditing (3)** This is a case-based auditing course that expands on topics introduced in Audit (ACC 454). The primary focus of this course is Fraud Examination and Forensic Accounting. Students will examine cases involving current and classic frauds as well as learning the requirements for collecting evidence for court. Pre: ACC 454

**ACC x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ACC x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Administration of Justice (AJ) Courses

College of Arts and Sciences (CAS)

**AJ 101 Intro to Admin of Justice (3)** This course focuses on history,

philosophy, and language of the criminal justice system. The role of law enforcement, prosecutor, public defender, courts, and corrections is examined. Social aspects of change and how it affects the criminal justice system also explored. Pre: Placement in ENG 100. Offered in conjunction with Hawai'i Community College. (Attributes: DS)

**AJ 103 Criminal Investigations I (3)** This is an introductory course in criminal investigations. The nature of investigations, fingerprint classification, the role of the laboratory, and specific offense investigation will be explored. The class will also discuss interview and interrogation and search and seizure techniques. Pre: Placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 104 CSI: Violent Crime Forensics (3)** Advanced course work in forensic science (Legal Scientific Investigation), with its contributions to both Crime Scene Investigations and Laboratory Analysis. Specific field and laboratory investigative techniques in violent crimes and other major felonies will be explored. Pre: AJ 103. Offered in conjunction with Hawai'i Community College.

**AJ 150 The Correctional Process (3)** This course examines the history of punishment and corrections. The class discusses laws, records, inmate classification, treatment programs, disciplinary procedures and supervisory techniques. Offered in conjunction with Hawai'i Community College.

**AJ 170 Intro to Private Security (3)** This course surveys the concepts and issues in the administration of security. Defines public versus private security roles for retail business, industry, and governmental agencies. Provides an overview of the functions of various security activities. Pre: placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 180 Intro to Homeland Security (3)** An examination of the history of terrorism, focusing on the terrorists, who they are, and how they operate. Responses to domestic and international terrorism will be discussed along with analyzing future trends. Pre: AJ 101. Offered in conjunction with Hawai'i Community College.

**AJ 208 Criminology (3)** This course explores crime and the body of knowledge regarding it as a social phenomenon. An emphasis is placed on the analysis of crime, crime causation, crime variables, impact on society, and societal reactions to crime. Pre: placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 210 Juvenile Justice (3)** This course focuses on principles and procedures of arrest, detention, petition, summons, records, and adjudication of the juvenile offender. It introduces the organization and function of the police juvenile unit, community diversion practices and organization of the Family court. Pre: placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 220 Constitutional Law (3)** The U.S. Constitution is examined as a basis of arrest, search, seizure, interrogation, use of force and civil rights. U.S. Supreme Court cases and Hawai'i Court cases are examined to illustrate the court's interpretive process. Pre: AJ 101. Offered in conjunction with Hawai'i Community College.

**AJ 221 Criminal Law (3)** Studies history and philosophy of criminal law. Examines United States Constitution, especially the Bill of Rights. Considers nature of law, legal institutions, criminal court procedures, and offenses against persons and property. Includes case briefs. Pre: AJ 101. Offered in conjunction with Hawai'i Community College.

**AJ 233 Police Organization & Mgmt (3)** This course studies the



principles of organization and administration of policing. Overviews of operations and activities of various divisions, bureaus, training and selection procedures, planning, and research are discussed. Pre: placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 234 Police and Community Relations (3)** This course acquaints the student with the role of police in government and the critical importance of effective community relations. The dynamics of race relations and other current social problems that directly relate to the law enforcement community are explored. Pre: placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 250 Practice/Proced in Corrections (3)** This course will provide students with the basic training skills necessary to enhance their opportunities to secure a job in the high demand field of corrections. The course will focus on such areas as the history and philosophy of corrections, the role of the correctional officer, legal aspects of corrections, communication and writing skills, as well as basic security procedures. Pre: AJ 101 and AJ 150. Offered in conjunction with Hawai'i Community College.

**AJ 256 Domestic Violence & Child Abuse (3)** This course focuses on domestic violence and child abuse. The cycle of violence, causes, effects and symptoms of child abuse will be explored. Legal, public policy, criminal justice, health and social services responses and interventions to family, child and intimate partner abuse will be examined. Pre: placement in ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 280 Current Issues (3)** Examination of recent textual materials, government reports, and problems within the criminal justice system and how it affects change within American society and the world. Includes preparation of a formal research essay. Pre: AJ 101 and ENG 100. Offered in conjunction with Hawai'i Community College.

**AJ 285 Narcotics & Organized Crime (3)** The identification of narcotics and dangerous drugs, their manufacture and distribution, effects on society, applicable Federal and state laws. Vice and organized crime investigations, applicable laws, effects on individuals and society. Pre: ENG 100/100T, ESL 100/100T, or concurrent enrollment. Offered in conjunction with Hawai'i Community College.

**AJ 290B AJ Practicum I (3-6)** With the cooperation of public and nonprofit agencies in the community, advanced students are placed in responsible positions where they earn credits for work performed. Pre: AJ 101 and AJ 210 or AJ 256. Coreq: AJ 280 or prior completion. For ADJ Majors only. Offered in conjunction with Hawai'i Community College.

**AJ 290C AJ Practicum II (3-6)** With the cooperation of public and nonprofit agencies in the community, advanced students are placed in responsible positions where they earn credits for work performed. Pre: AJ 290B. Offered in conjunction with Hawai'i Community College.

**AJ 290D AJ Practicum III (3-6)** With the cooperation of public and nonprofit agencies in the community, advanced students are placed in responsible positions where they earn credits for work performed. Pre: AJ 290C. Offered in conjunction with Hawai'i Community College.

**AJ 291 Basic Recruit Training (6-12) (other)** A student majoring in Administration of Justice (ADJ) may receive up to 12 credits for completing Basic Recruit Training in law enforcement, as required by governmental agencies: Minimum of 250 hours training: 6 credits; Minimum of 500 hours training: 9 credits; Minimum of 900 hours training: 12 credits.

**AJ 322 Criminal Justice (3)** An examination of the criminal justice system, its structure and its function, with emphasis on the rights of the accused as exemplified in appellate court decisions. Pre: AJ 101 or POLS 220 or instructor's consent. (Same as POLS 322)

**AJ 323 Criminal Law and Procedure (3)** This course addresses the basics of criminal law and procedure. Topics will include the fundamental principles of criminal law and procedure, how they were established, and how they are commonly practiced. Pre: AJ 101 or POLS 220 (Same as POLS 323)

**AJ 380 Research Methodology for AJ (3)** The logic and techniques of social research as applicable to the field of Administration of Justice. Basic topics and techniques of social research methodology reviewed with an especial emphasis on applied research as suited to the Administration of Justice practice and policy making. Planning and conduct of research to be covered as well as the criteria for evaluating existing research for establishing policies and best practices. Pre: AJ 101 (Attributes: GQ)

**AJ 391 Internship (3-12) (other)** Application of knowledge and skills in a public, private, or government agency/setting. Pre: Instructors consent, pre approved placement, statement of learning objectives, and completed internship contract.

**AJ 470 Seminar in Admin of Justice (3)** Selected topics in administration of justice. Topics vary from semester to semester as announced. Pre: AJ 101

**AJ x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AJ x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Aeronautical Sciences (AERS) Courses

College of Agriculture, Forestry & Natural Resource Management  
(CAFNRM)

**AERS 101 Elem Private Pilot Ops (1)** This course focuses on developing a general understanding of FAA rules and operations, charts and navigation, radio communication and simulator flying. Students will also have an overview of aerodynamics, stall awareness and aeronautical decision making and judgment. Basic simulator maneuvers will be covered. Pre: Instructor's Consent

**AERS 102 Instrument Pilot Ops (1)** Introduction to the basic rules, regulations, and knowledge to operate an aircraft under Instrument conditions. Students will develop competency in the skills necessary to navigate and understand the fundamentals of flying precision and non precision instrument approaches. Students will be introduced to and expected to be able to master take off and landings under instrument minimum conditions. Allowing operations with adverse weather, reduced visibility, including night operations. Pre: AERS 101 or Instructor's Consent.

**AERS 152 Introduction to UAS (3)** Survey of unmanned aircraft systems (UAS) emphasizing the commercial history including sections on



hobby and military applications. Students learn operational principles, laws, and theory.

**AERS 201 Private Pilot I (5)** Introduces the airplane to entry-level student pilots as they prepare for flight training. Stresses airport systems, air traffic control procedures, aviation weather, air navigation, radio communication procedures, and Federal Aviation Regulations. Covers airplane ground and flight operations, take-off and landing, basic flight maneuvers, cross country methods and emergency procedures. Prepares students for the required FAA Private Pilot Airplane Knowledge Test and Private Pilot Airplane Practical Test. To be taught offsite at flight provider. Offered as CR/NC only. Pre: Approval of AERS Program.

**AERS 202 Private Pilot II (5)** Introduces cross-country navigation, emergency operations, takeoffs, landings and go-arounds in solo flight. Prepares students for the FAA Private Pilot Checkride. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 203 Cross Country Single Eng PIC (5)** Covers Air Traffic Control Clearances, GPS Flight Plan Function. Perform straight-and-level flight, constant rate climbs and descents, constant airspeed climbs and descents, standard rate turns. Compliance with departure, en route and arrival procedures. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 220 Elem Multi-Eng Operations (1)** This course focuses on the overview of Multi-Engine Operations, students will continue their aeronautical knowledge training and perform simulation training specific to multi-engine aircraft. Pre: AERS 102

**AERS 221 Elem Multi-Eng Ops II (1)** This course focuses on elementary commercial operations including calculating performance data, common errors, computing takeoff and landing data and computing weight and balance calculations. Pre: AERS 220

**AERS 250 Aviation Safety (3)** Develop an attitude and philosophy for accident prevention and an awareness of major flight security issues. Though the focus is on accident prevention, aircraft accident investigation is illustrated to include: human factors, mechanical considerations, and the nature of accident/error chains. Pre: AERS 102 or Instructor's Consent.

**AERS 251 Aviation Weather (3)** Discusses atmospheric science principles applicable to flight. Students gain a general understanding of meteorological theory and learn how to read applicable charts, graphics, and generated reports. Describes local meteorological phenomenon applicable to air travel. Pre: AERS 102 or Instructor's Consent

**AERS 260 Aircraft Systems & Instruments (3)** This course is comprehensive study of aircraft systems and components at the technical level. Areas of study include aircraft electrical, hydraulic, fuel, propeller and auxiliary systems including theory of operation, calculations, and related Federal Aviation Regulations. Pre: AERS 251, PHYS 151 which may be taken concurrently.

**AERS 310 Instrument Basic (3)** Flight course on basic Instrument flight maneuvers including Instrument turns, stalls, unusual attitude recoveries. Performs basic Instrument flight patterns. Uses VOR and GPS navigation. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 311 Instrument Advanced (3)** Advanced Instrument flight. Perform VOR and localized approaches, GPS approaches, circling approach, DME Arc approach and missed approach procedures. Lost

comms procedures, engine failure in IMC and partial panel covered. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 340 Advanced Simulated Maneuvers (1)** Instruction on Steep turns, Chandelles, Lazy Eights and Eights on Pylons covered. Review of FAA Guidelines. Pre: AERS 221 or Instructor's Consent

**AERS 352 UAS Mission Plans & Simulation (3)** Students gain experience in planning and execution of UAS missions. Computer simulation is leveraged to provide real-time mission experience. Students will practice the roles of pilot in command, payload operator, and mission commander. Pre: AERS 152

**AERS 354 UAS Robotics (3)** The core technologies of unmanned aircraft systems are examined. Students become familiar with UAS at the component level. Working in teams students will build a UAS, choose and retrofit a payload, and program the control software.

**AERS 355 Domestic & International Nav (3)** Domestic and International navigation, planning, procedures, and techniques. Provides basic understanding of IFR domestic and international flights and gives students a fundamental knowledge of international contingency planning and emergency procedures. Pre: AERS 251 and MATH 140 or Instructor's Consent

**AERS 370 Prep for Single/Multi Eng Flt (1)** Pre-departure orientation course for students continuing on to flight school. Review concepts and simulation maneuvers taught in previous courses as well as discuss common issues encountered by students attending flight school and how to mitigate them. Pre: AERS 260

**AERS 387 Crew Resource Management (3)** History and development of current industry CRM training programs is reviewed. Students learn to recognize and capture crew errors and demonstrate ability to mitigate the error consequences. How to function as an effective member of a professional flight crew. Pre: AERS 251

**AERS 388 Crew Resource Mgt & Crew Ops (2)** Concepts in Crew Resource Management relating to responsibility and authority of the Pilot in Charge, crew member roles, conflict management, flight operation procedures, in-flight hazards and emergency procedures. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 420 Commercial Cert Multi-Engine (5)** Flight course covering multi-engine aerodynamics, maneuvering with one engine inoperative. FAA Commercial Pilot Airplane and Flight Instructor Airplane exam, FAA Commercial checkride. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 421 Commercial Single Eng Add-on (2)** Advanced knowledge of single-engine systems and characteristics, aerodynamics. Engine failure operations and procedures. Commercial single-engine checkride. To be taught offsite at flight provider. Offered as CR/NC only. PRE: Approval of AERS Program.

**AERS 452 UAS Flight (3)** This course will guide new pilots to safely operate rotor-wing and fixed-wing unmanned aircraft systems (UAS). This course includes essentials of risk mitigation and accident prevention, teamwork and Crew Resource Management (CRM), and focuses on data recovery. Pre: AERS 354

**AERS 471 Airline Operations (3)** Discusses major air carrier organizational structure and relationships of operations with marketing,



maintenance and safety. Provides students with current airline transport pilot operational policies and procedures and discusses their relationship to other departments within the total airline corporate structure. Pre: AERS 387

**AERS 472 Pilot Professional Development (3)** Develop career goals, objectives, and gain an understanding of the career pilot hiring process. Research the industry and potential employers using available resources. This course will reinforce the prospective graduates skills necessary to develop effective interviewing, letter and resume-writing skills. Pre: AERS 387

**AERS 473 Leadership as a Pilot (3)** Leadership techniques that pilots need to succeed in their careers. Topics covered will include leadership theory and dynamics, problem solving, and communication strategies. Pre: AERS 387

**AERS 495 Professional Seminar (3)** Careers in aeronautical science are not limited to pilots. Pilots should not limit their training to flying alone. This course offers the opportunity for interns to reflect on knowledge gained in volunteer service. Wisdom is shared with other students. Pre: AERS 387 or Instructor's Consent.

**AERS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AERS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Agribusiness (AGBU) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNR)

**AGBU 120 Ag Bus Field Study (1-3)** Agribusiness and agrieconomic functions performed by specialized agricultural agencies with emphasis on physical operating patterns; field trips to production, marketing and finance firms; workshops with agribusiness managers.

**AGBU 291 Agribus Intern/Work Experience (3) (other)** Internship with agribusiness firms in the areas of management, sales, food distribution. National Agri-Marketing Association activities may be used with advisor's approval. (Attributes: ALEX)

**AGBU 320 Agribus Management (3)** Organization forms and management functions of agribusiness firms, management science principles, inventory control, operation research techniques, decision model, and human resources development as they are related to agribusiness firms.

**AGBU 340 Agri-Marketing Research (3)** Primary marketing research including problem, definition, hypothesis formulation, research design, data collection, and results analysis. Mechanics of writing technical reports and oral presentations. Pre: AGEC 201 or ECON 130.

**AGBU x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for

credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AGBU x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Agricultural Economics (AGEC) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNR)

**AGEC 201 Agri Economics (3)** Introduction to agriculture and resource economics and agri-business with application to Hawaiian agriculture (Micro-economics).

**AGEC 221 Ag Acct/Recd Analysis (3) (lecture/lab)** Introduces accounting theory and methods used to record and report financial information for both the business and farm firm. Other topics include business organization, inventories, receivables and payables, depreciation, and computer applications.

**AGEC 322 Marketing Ag Products (3)** Acquaints the student with the economic organization and operation of the food and fiber section of the U.S. and Hawaiian economy. In two general parts, one provides a treatment of agricultural price analysis; the second examines the marketing system for agricultural inputs, farm products, and processing and distribution activities with emphasis on cooperative marketing. Field trips to cooperative and other marketing firms. Future trading. Pre: introductory course in economics or agricultural economics.

**AGEC 330 Farm Management (3) (lecture/lab)** Acquaints the student with both theoretical and applied aspects of farm management. Topics include farm planning, managerial control, and acquiring and managing resources. Emphasis on Hawaiian farming systems. Stress on cost of production and cash flow budgets, capital investment, and linear programming. Computer applications.

**AGEC 360 Tropical Bioeconomy (3)** Introduction to core concepts and technologies of bioeconomy applications in the tropics with comparisons to temperate regions. Emphasis will be placed on the prospects of tropical plant biomass and algae to serve as renewable raw materials for a sustainable economy.

**AGEC 380 Environ Pol & Mgt Hawn Nat Res (3)** Provides the student with an understanding of economic growth, resource scarcity and policy, environmental degradation, economic policy, property right and income distribution, institutional framework, benefit cost analysis and application of natural resource management in Hawai'i.

**AGEC x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AGEC x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Agricultural Engineering (AGEN) Courses

College of Agriculture, Forestry & Natural Resource Management



## (CAFNRM)

**AGEN 231 Intro To Ag Mech (3) (lecture/lab)** Identification, proper use and maintenance of tools used in the shop and farm, plan reading, identification, selection and estimation of materials for agricultural projects. Principles of arc and oxy-acetylene welding, basic engineering concepts involved with layout and leveling, areas and heat flow, simple electrical wiring. Note: Suitable eye protection and shoes are required in all AGEN laboratory classes.

**AGEN 301 Farm Power (3) (lecture/lab)** Management and maintenance of power units used in agriculture. Principles of internal combustion engines. Shop and field practice in adjusting and operating internal combustion engines and associated field equipment. Alternate power options on farm. Pre: College Algebra. A valid driver's license is highly desirable. Note: Suitable eye protection and shoes are required in all AGEN laboratory classes.

**AGEN 302 Farm Structures (3) (lecture/lab)** Farmstead planning, materials, design, construction and maintenance, farm utilities, water-sewage systems and labor-saving conveniences. Pre: College Algebra and AGEN 231. Note: Suitable eye protection and shoes are required by all AGEN laboratory classes.

**AGEN 400 Aquaculture Engineering (4) (other)** Principles of site selection, design and construction of aquaculture systems. Pre: AQUA 262 and consent of instructor. (Same as MARE 400). Note: Suitable eye protection and shoes are required in all AGEN courses.

**AGEN 430 Ag Waste Mgmt & Recycling (3) (lecture/lab)** This course focuses on introducing the principles of modern agricultural waste management and resource conservation and recycling engineering solutions for animal, crop, and garden production.

**AGEN 435 Irrig Prin & Pract (3) (lecture/lab)** Comprehensive study of basic irrigation principles and practices. Basic hydraulics, water supply, conveyance, and measurement. Plant-soil-water relationship, evapotranspiration, and scheduling. Planning and design of irrigation systems. Pumps: types, selection and operation. Pre: College Algebra or consent of instructor. Note: Suitable eye protection and shoes are required in all AGEN laboratory classes.

**AGEN 440 Irrigation and Fertigation (3) (lecture/lab)** To provide students with an understanding of the principles that govern irrigation design, practices, and management in agriculture and landscaping. Topics also include fertilizer and chemical injection systems and modern fertigation sensor technologies.

**AGEN x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AGEN x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Agriculture (AG) Courses

College of Agriculture, Forestry & Natural Resource Management  
(CAFNRM)

**AG 100 Intro to Agricultural Sciences (3)** Introduction to diverse disciplines of agricultural sciences, industry, and contemporary issues in agriculture.

**AG 200 Agro-Environmental Science Com (3)** This writing intensive and communications course will consist of short lectures to demonstrate types of scientific writing and speaking by comparison of types of writing, presentations by invited speakers to demonstrate different speaking styles, and library and online research to develop a coherent, well-written scientific review consisting of a short, five page paper to be handed in and presented in class using Power Point.

**AG 205 Value Ad Prod & Post Harv Hand (3) (lecture/lab)** Principles and practices of harvesting, storing and preparing agricultural products prior to adding value for market. Learning how to add value to agricultural commodities.

**AG 230 Sustainable Agriculture (3) (other)** Evaluation of conventional and alternative farming methods in the U.S., Polynesia, Southeast Asia, Africa and Latin America from a long-term perspective. Analysis of the effects of those practices on environmental quality, agrosystems, and food security. Consideration of conflicting values and resolution.

**AG 263 Composting and Vermicomposting (3) (lecture/lab)** Composting and Vermicomposting will tackle current regulations, basic principles and theories, best management practices of organic wastes handling and practical applications of composts and vermicomposts as soil amendments and agricultural input. (Attributes: GCC)

**AG 291 Directed Work Experience Pgm (3) (other)** Agricultural practice in individual and team projects on independent farms or agricultural employment under supervision and direction during summer vacation or on a part-time basis during regular school period. Permission of instructor required. Only for CAFNRM students and offered only on a CR/NC basis. Credits earned not included in maximum allowed.

**AG 304 Applied Microbiology (3)** An overview of the production aspects of microbiology, including fermentation biology, mushroom cultivation, and biotechnology. Pre: BIOL 171 or instructor consent.

**AG 375 Intro To Genetic Analysis (3)** An introduction to the principles and methods of genetic studies. The principles are first covered, especially with regard to crop improvement. This is followed by an overview of the structure and function of DNA and RNA, and an introduction to the tools and applications of molecular biology. Pre: BIOL 171

**AG 403 Ag Biotechnology for Educators (3)** This course is an overview of modern agricultural biotechnology with an emphasis on contemporary case studies. It is geared toward students, teachers, and extension personnel with an interest in this field. Thus, it will include instructional methods and alignment to state DOE standards. A firm grasp of biology and some understanding of genetics is assumed. Pre: BIOL 171 or instructor consent.

**AG 405 Agricultural Biotechnology (3)** This course will provide basic information about agricultural biotechnology, with examples of its uses. Topics will include overviews of gene and genome analysis, transgenic technology, and bioinformatics, with an emphasis on crop improvement. Pre: at least 1 biology course.

**AG 496 Senior Seminar in Agriculture (1)** Guided research into current problems. Topics may vary according to interest of students and instructor. CR/NC only.



**AG x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AG x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Agronomy (AGRN) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**AGRN 310 Agronom Crop Prod Tropics (3) (lecture/lab)** Current agricultural practices in production of food, feed, and fiber crops in the tropics. Pre: HORT 262 or instructor's consent.

**AGRN 410 Soil-Plant Herbivore Interactn (3)** The principles of plant competition and succession during the establishment and maintenance of herbaceous species and communities are related to soil, biotic, and microclimate factors and their interactions. Ecological and nutritional principles embodying plant and animal factors in the utilization of herbaceous plants by livestock are established. Research methodology in grassland systems also is presented. Pre: ANSC 141, BIOL 171 or HORT 262, or instructor's consent.

**AGRN x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AGRN x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Animal Science (ANSC) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**ANSC 133 Fundamentals of Riding I (3) (lecture/lab)** Introduction to basic horse care, assessment for riding purposes, safety on both the ground and mounted, tacking and untacking, transition and gaits, and controlled walk, trot, canter in both english and western styles. Pre: ANSC 141 or instructor's consent.

**ANSC 141 Intro To An Science (3)** Introductory material related to animal science and livestock production including topics such as terms, body parts, wholesale cuts, breeds, digestion, feeding, reproduction, industry, and livestock breeding. (Attributes: DB)

**ANSC 163 Intro Equine Sports & Careers (3)** Overview of equine sports including english, western, rodeo, driving, and racing. Within each sport, potential career paths and their educational requirements will be reviewed.

**ANSC 175 Animal Behavior and Handling (3) (lecture/lab)** Introduction to the basic principles and processes regarding domestic

animal behavior including communication, social structure, sexual behavior, learning and common behavioral disorders.

**ANSC 193 Horse Handling & Pract Skills (3) (lecture/lab)** Introduction to gaits and movement, tack and equipment, herd dynamics and horse behavior, basic handling skills and training theory. Pre: ANSC 141 or instructor's consent.

**ANSC 223 Intro to Wildlife Science (3) (lecture/lab)** Principles of managing wildlife populations and the interrelationships between wildlife and domestic livestock.

**ANSC 233 Fundamentals of Riding II (3) (lecture/lab)** Refinement and improvement of walk, trot, canter. Further focus on rider balance and controlling movements of the horse on both the ground and mounted in english and western styles. Pre: ANSC 133 or instructor's consent.

**ANSC 254 Fundamentals of Nutrition (3)** Comparative animal digestive systems and metabolism. Essential nutrients, their functions, mechanisms of action and interrelationships. (Same as BIOL 254)

**ANSC 350 Anatomy/Physiol Of Farm Animal (3) (lecture/lab)** Structure and function of the animal body. A general study of anatomy, but emphasis placed on understanding the physiology. (Same as BIOL 323)

**ANSC 351 Swine Production (3) (lecture/lab)** Principles of efficient pork production including breeds, crossbreeding, feeding, herd health, housing, management, selection and waste management. Pre: ANSC 141 or instructor's consent.

**ANSC 353 Horse Production (3) (lecture/lab)** Origin of species, breeds, feeding, lameness evaluation, reproductive considerations, and health issues of light horses. Limited enrollment. Pre: ANSC 141 or instructor's consent.

**ANSC 357 Ruminant Production Systems (3) (lecture/lab)** Principles of cattle and small ruminant production including crossbreeding, feeding, handling, health, reproduction and management. Within each topic, species specific considerations will be addressed along with principles that can be applied to all ruminants. Pre: ANSC 141 or instructor's consent.

**ANSC 421 Intro to Veterinary Pharmacol (3)** Introduction to the basic principles of veterinary pharmacology and major drug classes. Recommended: CHEM 241 and 242. Pre: CHEM 141 or higher

**ANSC 450 Physiology Reproduction (3) (lecture/lab)** Livestock reproductive anatomy and physiology. Pre: ANSC 141. Recommended: ANSC 350 (Same as BIOL 450)

**ANSC 453 Anim Disease & Parasites (3) (lecture/lab)** Principles and practices used for the prevention, diagnosis, and treatment of diseases and parasites in livestock. ANSC 453 and 454 do not have to be taken in sequential order. Pre: ANSC 141 or instructor's consent.

**ANSC 476 Wildlife Population Ecology (3) (lecture/lab)** Principles of applied wildlife population ecology and the interrelationships between population dynamics and agriculture, conservation, forestry, and natural resource management. Recommended preparation is an introductory biology course. This course is dual listed with CBES 676.

**ANSC 490 Animal Science Internship (3) (other)** Practical animal experience (employed or voluntary) at farms, ranches, veterinary clinics, zoos and other animal operations. Pre: ANSC 141 and two of the



following: ANSC 342, 351, 353 and 355 and permission of the instructor. (Attributes: ALEX)

**ANSC x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ANSC x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Anthropology (ANTH) Courses

College of Arts and Sciences (CAS)

**ANTH 112 Box Office Archaeology (3)** This course is an introductory level film-based consideration of archaeology and archaeologists. Various films, ranging from the 1930s to the present, are viewed, discussed and critiqued. The foci of inquiry are on how archaeology is portrayed in visual media through time, and how media have affected archaeology, the human past and popular culture. The romanticized image of archaeology will be compared with scientific realities, specifically the nature of archaeological data, theory, field methods and analytical techniques.

**ANTH 150 Humankind Emerging (3)** Our 4-field approach toward integrating various aspects of the human condition includes 1) biological, 2) cultural, 3) linguistics, and 4) archaeological. We view the world using this dynamic introduction to anthropological methods, theories, ethics, and by analyzing past populations, our close primate relatives, language and communication, sexuality, spirits and the supernatural, and contemporary issues. We make this course relevant to you by examining gender and cultural diversity, the meaning of family, food sustainability, and globalization. (Attributes: FGC)

**ANTH 200 Cult Of World: Regional Survey (3)** The traditional cultures of various geographic areas of the world. Specific regions to be announced each semester: (b) Oceania, (c) East Asia, (d) South East Asia, (e) South Asia, (f) North America, (g) Africa, (h) South America, (i) Other. (May be repeated for credit if subletters are different) (Attributes: GAHP)

**ANTH 205 Cultural Anthropology (3)** The course will provide you with a multicultural perspective on the world, and deepen your understanding from a global perspective by highlighting cultural and gender diversity, kinship patterns, and economic and political systems. (Previously ANTH 100) (Attributes: FGB)

**ANTH 210 Archaeology (3)** Prehistoric archaeology; methods and techniques of excavation and analysis; brief survey of human's cultural growth in prehistoric times. Previously offered as ANTH 110. (Attributes: DS)

**ANTH 215 Human Evolution (3)** The evolution of humans and their position among the primates. Human adaptation to the environment both in the past and present. Human variation and biomedical anthropology and explored. (Attributes: DB)

**ANTH 221 Intro to Language (3)** Linguistically oriented approaches to human behavior, including ethnolinguistics, sociolinguistics, and psycholinguistics. The way language functions in culture, society, and the

cognitive processes. (Same as LING 221)

**ANTH 295 Pacific: Brown Bag Seminar Ser (1) (other)** Weekly one hour seminars will cover a broad range of topics, current research and topical issues that are of relevance to contemporary ways of life in the Pacific. Seminars will also explore the application of Pacific Studies to the workforce. Credit is gained by weekly attendance and the submission of short summaries of the weekly seminars. (Same as GEOG 295).

**ANTH 300 Cultures of Oceania (3)** This course studies the societies of Polynesia, Micronesia and Melanesia. It introduces students to the culture and people of these Pacific regions, the impact of contact with the West and the struggle to balance tradition and modernity in contemporary times. (ANTH 357, Change in the Pacific, concentrates more on contemporary social and political issues). (Attributes: GAHP)

**ANTH 310 Contemp Iss in Hawaiian Anth (3)** An examination of the social and political context in which Hawaiian archaeology is practiced. Topics include indigenous anthropology, descendant communities, critical theory, and the politics of the past. (Attributes: GAHP)

**ANTH 315 Ecological Anthropology (3)** Relationship of humans to their natural environment, particularly emphasizing the role of culture as a dynamic component in ecological systems. Pre: ANTH 150 or 215, or instructor's consent.

**ANTH 320 Cross-Cultural Study Of Women (3)** Comparative analysis of women's roles and women's lives in different societies. Topics include women's status, life stages, gender roles, images of women and power. (Same as WS 320) (Attributes: DS)

**ANTH 321 Morphology And Syntax (3)** Introduction to grammatical analysis and theory; practical experience in solving problems in morphology and syntax, using data drawn from a wide variety of languages. Pre: LING 102 or consent of instructor. Recommended: LING 311. (Same as ENG 321, LING 321)

**ANTH 323 Cultural & Social Change (3)** Various approaches to cultural and social change in non-literate and modern societies; evolution, diffusion, acculturation, adaptation, revolution.

**ANTH 324 Culture, Sex And Gender (3)** A cross-cultural examination of the development of gender systems and gender roles. Consideration of sex roles and activities as part of the larger gender system. Pre: ANTH 150 or 205 or instructor's consent. (Same as WS 324) (Attributes: DS)

**ANTH 331 Lang in Culture & Society (3)** An examination of the articulation of language in social and cultural context, including topics relevant to sociolinguistics and ethnolinguistics. Pre: ANTH/LING 221 or LING 102 or consent of instructor. (Same as LING 331)

**ANTH 347 Pidgins And Creoles (3)** A study of the world's pidgins and creoles; the origin and nature of pidgins and creoles; the relationship of Hawaiian Creole English to other Creoles in the world; the link between the developments of a Creole and language acquisition. Recommended: LING 102 or 121. (Same as ENG 347, LING 347) (Attributes: GAHP)

**ANTH 354 Filipino Culture (3)** Introduction to peoples and cultures of the Philippines. Topics include cultural origins, linguistics and cultural diversity, values, social structure, and overseas Filipino adaptations.

**ANTH 356 Japan (3)** Culture origins and development with emphasis on contemporary Japanese culture. (Same as JPST 356) (Attributes: GAHP)

**ANTH 357 Change in The Pacific (3)** Peoples of the Pacific Islands with emphasis on contemporary cultures and social and political



problems. Pre: consent of instructor. (Attributes: GAHP, HPP)

**ANTH 358 Japanese Immigrants (3)** Examination of social and cultural adaptations of Japanese immigrant populations, with foci on Hawai'i and Brazil. Topics include the role of the Japanese government and emigration companies, the factors of generation, kinship, ethnicity, and contemporary Japanese migrants. (Same as JPST 358) (Attributes: DS, GAHP, HPP)

**ANTH 359 Cross-Cultural Cosmology (3)** The anthropological approach to the study of religion asks the questions: What is religion cross-culturally and for particular societies? What behaviors and attitudes characterize religion in different culture areas? How can particular religions be related to societies that espouse them? Topics include indigenous and adopted religions of Hawai'i, Japan and China.

**ANTH 370 Hist of Anth Theory (3)** Theory and method in anthropology; emphasis on cultural/social anthropology. Pre: ANTH 150 and junior or senior standing, or consent of instructor.

**ANTH 372 Culture through Film (3)** Critical examination of ethnographic films (documentaries that describe a culture). Film construction and film-maker's intentions. Development of approaches to ethnographic film-making. Cultural representation in film. Relationship of film to written ethnography. Pre: ANTH 150 or ANTH 205. (Attributes: DS)

**ANTH 373 Performance Across Cultures (3)** This course explores the cultural expressions and traditions through the performance traditions from Asia, Africa, Europe and the Americas, using the transhistorical approach. Under the themes of the body and culture, ritual, performing, cultural literacy and tourism and globalization, the course introduces students to the performance forms across cultures. (Same as JPNS/JPST 373) (Attributes: FGC)

**ANTH 374 Dance and Music of Oceania (3) (lecture/lab)** This course is designed to introduce students to the world of music and dance in Oceania. Pacific music and dance has transformed and continues to with the influence of colonization, Christianity, modernization, commercialization, commodification, and migration.

**ANTH 375 Human Biological Variation (3)** Human genetic and physical variation; latitudinal, longitudinal and altitudinal variation across human variation. Pre: ANTH 250 or ANTH 215 or consent of instructor.

**ANTH 380 Origins of Agriculture (3)** This course is a seminar that reviews the history of thought and debate concerning the development of prehistoric agriculture and the processes of plant cultivation and domestication. Emphasized are recent interdisciplinary developments in ethnobotany and archaeobotany that allow detailed, complex scientific evidence to be considered.

**ANTH 384 Primatology (3)** Evolutionary approach to the nonhuman primates. Biological and behavioral adaptations of primates to their ecological setting. Implications of primate adaptations for understanding human biology and behavior. Pre: ANTH 215, or BIOL 172. (Same as BIOL 384, ENSC 384)

**ANTH 385 Hawn & Pacific Prehistory (3)** Archaeological overview of the cultures of the Pacific before European contact with an emphasis on Polynesia and Hawai'i. (Attributes: DS, GAHP, HPP)

**ANTH 386 Hawaiian Culture Before 1819 (3)** Hawaiian culture before the 1819 overthrow of the native Hawaiian religion: fishing and farming, political-economic organization and religion. Emphasis on early Hawaiian writers-Malo, Kamakau and 'I'i. Pre: ANTH 150 or ANTH 205

HWST 111 or instructor's consent. (Attributes: GAHP)

**ANTH 387 Modern Hawn Cult 1819-Present (3)** Change and continuity in Hawaiian culture from 1819 to the present, in the context of interaction with non-Hawaiians. Major cultural transformations of the nineteenth century. Hawaiian culture in the early and later twentieth century. Pre: ANTH 150 or ANTH 205 or HWST 111 or instructor's consent. (Attributes: GAHP)

**ANTH 388 Pots, Bottles, and Shipwrecks (3)** Historical archaeology as an integral aspect of anthropological inquiry into culture-contact and culture change. Topics include research designs, field methods, laboratory methods, and generating "anthropological histories". North American historical archaeology is reviewed with an emphasis on the potential applications of historical archaeology in Oceania. Pre: ANTH 210.

**ANTH 389 Cultural Resource Management (3)** Covering issues pertaining to the identification, evaluation, and conservation of cultural resources, with an emphasis on archaeological sites. Central topics include the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, Hawai'i State legislation regarding cultural resources, and the implementation of these laws in Hawai'i by government and private organizations.

**ANTH 415 Medical Anth (3)** Approaches to health, disease and medicine in both Western and non-Western cultures including ecological, evolutionary and anthropological perspectives. Pre: 9 credits in either anthropology or biology. (Attributes: DS)

**ANTH 435 Indig Iss Contemporary Pacific (3) (other)** A reading and research seminar under the supervision of faculty from Anthropology, Geography, and/or History on indigenous issues in contemporary Oceania. Topics include indigeneity, sovereignty, climate change and sea-level rise, militarism, and ethnic tensions and violence. Pre: Junior or Senior standing. (Same as GEOG 435, HIST 415) (Attributes: GAHP, HPP)

**ANTH 445 Ethnographic Field Tech (3)** Techniques of anthropological field research; ethnographic literature and work with informants. Pre: ANTH 150 or ANTH 205 or consent of instructor. May be repeated for credit if topics are different, up to a maximum of six (6) credit hours.

**ANTH 447 Marine Anth:Fishers in Oceania (3) (lecture/other)** The anthropological study of fishing communities with a focus on Oceania; fishing practices and technology; common property resources; fisheries management options; recent problems in world fisheries including consequences for the human participants in a fishery. Students will also learn qualitative research techniques and participate in a local fieldwork exercise.

**ANTH 450 Physical Anth Lab (4)** Human biology of living and skeletal populations. Methods and techniques of quantitative and qualitative analysis of human anatomical, physiological and biochemical variation under field conditions. Pre: ANTH 215 and consent of instructor.

**ANTH 463 Global Health in Evol Perspect (3)** Overview of global health issues from the perspective of evolutionary medicine. Topics include the co-evolution of humans and their pathogens; modernization and the health transition to chronic diseases. Pre: ANTH 150, ANTH 215, or consent of instructor.

**ANTH 470 Museology (3)** Museum training, including museum activities, exhibits, administration, custodial problems and interpretation. At least one field trip to Lyman House Museum. Pre: ANTH 150 or ANTH 210, or consent of instructor.



**ANTH 481 Archaeometry (3)** Covering a broad range of analytical techniques in archaeological research, emphasizing the relationships of archaeology to the natural sciences. Mini-sections of the course involve hands-on laboratory experience, covering geoarchaeology, zooarchaeology, archaeobotany, identification of raw materials and resources, and dating techniques.

**ANTH 482 Archaeological Research Meth (4-6)** Archaeological methods including research design and field methods such as survey, mapping and excavation, and laboratory methods. Normally taught as a summer session course. Credit varies depending on length of field projects (4-6 weeks, 8/hrs./day). Pre: ANTH 210 or permission of instructor. May be repeated for credit up to maximum of 12 credit hours.

**ANTH 484 Stone Tool Analysis (3) (other)** Analytical techniques related to stone artifacts (lithics) from archaeological sites, with an emphasis on lithic technology, or understanding the processes by which stone tools were manufactured, used, and eventually discarded. Identification of lithic "debitage" geochemical characterization, use-wear, and applications to Hawaiian flaked, pecked, and ground tools.

**ANTH 485 Applied Anthropology (3)** Anthropological methods, concepts, and theories as they apply to the solution of contemporary human problems. Exploration of the use of anthropology in various occupational areas. Pre: ANTH 150 and junior or senior standing, or consent of the instructor. (Attributes: GCC)

**ANTH 490 Internship in Archaeology (3-6)** Placement and experience in public, private, and/or government agencies involved in archaeological research plus completion of related research projects. Pre: ANTH 210 and instructor and department approval. May be repeated for credit if topics are different, up to a maximum of 12 credits. (Attributes: ALEX)

**ANTH 492 Dynamic World of Anthropology (3)** This course is a culminating experience of your anthropology education. You will strengthen your competence in the four subdisciplines of anthropology and hone your skills for future professional activities and personal development. Career opportunities related to various subfields, including cultural resource management, health care and forensics, are identified, in addition to opportunities in non-profits. Pre: Senior Standing or Instructor's Consent

**ANTH 495 Proseminar (3) (other)** Selected problems in current research: (b) archaeology, (c) linguistics, (d) social and cultural anthropology, (e) applied anthropology, (f) psychological anthropology, (g) physical anthropology, or (h) other areas of interest. Limited to anthropology majors or students with at least 9 semester hours of anthropology courses above 100-level. (May be repeated for credit if topics are different)

**ANTH x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ANTH x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [ANTH graduate-level courses](#).

## Aquaculture (AQUA) Courses

College of Agriculture, Forestry & Natural Resource Management  
(CAFNRM)

**AQUA 254 Nutrition of Aquatic Organisms (3)** Principles in digestive physiology, feeding habits and nutrients role and requirements. Identify the importance of diet quality, formulation and feeding practices in optimizing animal performance and product quality under farming and natural conditions. (Attributes: DB)

**AQUA 262 Intro Aquaculture (3)** Discussion of the biological, physiochemical and economic aspects of aquaculture, including a survey of the culture techniques of cultured species of finfish, shellfish, lower invertebrates and algae. (Attributes: ALEX)

**AQUA 352 Aquaculture of Fishes (3)** Theory and practice of aquaculture techniques for a wide variety of fishes including identification, reproduction, hatchery and nursery operations, grow-out, health management, harvest, processing and marketing. Pre: AQUA 262 or aquatic ecology or consent of instructor.

**AQUA 352L Aquaculture of Fishes Lab (1) (lab)** Hands-on experience in hatchery, nursery and grow-out of wide variety of fishes. Pre: AQUA 352 or concurrent enrollment.

**AQUA 353 Invertebrate & Algae Culture (3)** Theory and practice of aquaculture techniques for invertebrates and plants including identification, reproduction, hatchery and nursery operations, grow-out, health management, harvest, processing and marketing. Pre: AQUA 262 or aquatic ecology or consent of instructor.

**AQUA 353L Cultures of Invertebrates Lab (1) (lab)** Hands-on experience in hatchery, nursery and grow-out of aquatic invertebrates and algae. Pre: AQUA 353 or concurrent enrollment.

**AQUA 425 Water Qual & Aquatic Product (3)** Study of water quality and aquatic productivity as it relates to aquaculture and fisheries. Pre: CHEM 161 or instructor's consent. (Same as BIOL 425).

**AQUA 425L Water Qual & Aquatic Prod Lab (1) (lab)** Hands-on education in the monitoring and management of water quality and algal populations in ponds and other aquatic systems. Pre: AQUA 425 or concurrent enrollment, or instructor's consent.

**AQUA 466 Fisheries Science (3)** General characteristics of fisheries, harvesting methods; principles and techniques to derive data and analyze fished population. Pre: background in fish biology and aquatic ecology or consent of instructor.

**AQUA x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**AQUA x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Art (ART) Courses

College of Arts and Sciences (CAS)



**ART 100 Intro Studio Seminar (3)** An introductory studio exploration in a variety of media including mixed media. Presentations, critiques, and assigned readings for the purpose of comparative study and discussion.

**ART 101 Intro To Visual Arts (3)** Slide/lecture course and introduction to the visual arts in their various forms and expressions.

**ART 109 Intro To Drawing & Painting (3) (other)** Studio experiences for non-majors. Emphasis on formal concepts in drawing and painting. The course incorporates various drawing and painting media into exercises, projects, and lectures to develop personal expression.

**ART 112 Introduction to Digital Media (3)** A foundation level introduction to methods of two dimensional digital image making and manipulation using industry standard software. Emphasis will be placed on technical and compositional skill development in a fine arts context. (Attributes: DA)

**ART 121 FP Studio: Beg Drawing (3) (other)** Foundation Program Studio. Basic drawing concepts with studio investigations into line, shape, form, light and value, and space. Explorations of principles of visual organization and basic drawing media of pencil, charcoal, crayon, pen and ink, and brush and ink. Discussion of perceptual relationships of light and space. (Attributes: DA)

**ART 122 FP Studio: Beginning Painting (3) (other)** Foundation Program Studio. Introduction to painting; exploration of color theory and its applications; and investigation of perceptual relationships of light, color, and space. Studio exploration of the principles of visual organization through applications of color concepts and fundamental materials and techniques of painting. Pre: ART 121.

**ART 123 FP Studio: 2-D Design (3) (other)** Foundation Program Studio. Investigations of two-dimensional design concepts and the elements and principles of visual organization. Inquiry into perceptual and visual relationships of design principles. Discussion of relationships of visual elements and time and space.

**ART 124 FP Studio: 3-D Design (3)** Foundation Program Studio. Investigation of the principles and elements of design in three-dimensional concepts. Tactile exploration of forms, environments, and expressions. Explorations into perceptual relationships of time, light, and space in three-dimensional visualizations.

**ART 175 Survey of World Art I (3)** A survey of world art from prehistoric times in Europe, Asia, Africa, Pacific Islands and the Americas up to approximately 1500 C.E. A study of the inter-related influences and exchanges in art creation and visual communication between various world cultures. (Attributes: FGA)

**ART 176 Survey of World Art II (3)** A survey of world art from approximately 1500 C.E. to the present time. A study of the inter-related influences and exchanges in art creation and visual communication between various world cultures. (Attributes: FGB)

**ART 207 Photography Studio I (3)** Basic techniques of photography; camera as tool for communication and self-expression. Assumes no previous knowledge of photography. Student must have camera with adjustable shutter speed and aperture settings, light meter. Pre: Art 123 or consent of instructor.

**ART 215 Printmaking: Intaglio (3) (other)** Basic intaglio techniques of etching, engraving, drypoint, and aqua-tint; perceptual and conceptual exercises in composition and pictorial structure. Pre: ART 121, 123.

**ART 216 Printmaking: Lithography (3)** Basic lithographic techniques; development of concepts. Pre: ART 215.

**ART 221 Intermediate Drawing (3) (other)** Life drawing and study of the human figure; studio drawing concepts and application of drawing materials. Explorations of anatomy, gesture, contour, form, light, and space in relation to figure studies. Pre: ART 121. Repeatable for a total of 9 semester hours.

**ART 222 Intermediate Painting (3) (other)** Intermediate painting studio. Development and explorations of painting materials and concepts and the visual relationships of subject matter, content, and composition. Pre: ART 121, 122.

**ART 235 Introduction to Papermaking (3)** A studio course focusing on the techniques involved with creating handmade paper. Students will learn, practice, and apply the fundamentals of the papermaking process, which will include pulp preparation, basic sheet formation, sizing, pressing, and drying. Studies will concentrate on Western applications. This course is not repeatable.

**ART 280 Aspects Of Asian Art (3)** The history of form and content in various Asian cultures, with emphasis on the art and architecture of India and southeast Asia, and the expansion of Buddhist arts to China and Japan.

**ART 300 Intermed Studio Seminar (3)** Studio explorations in a variety of media including mixed media. Presentations, critiques, and assigned readings for the purpose of comparative study and discussion. Pre: Foundation Program Studios (ART 121, 122, 123, 124) and completion of two semesters of 200-level art studios. May be retaken for a total of 9 credits.

**ART 301 Digital Video and Installation (3)** This course explores ways of implementing video as a medium for creating engaging interactive physical sculpture and environments. Focus is on taking video off the screen and into three-dimensional space in the form of video sculpture and site-specific art installations. Projects may include: projected video and audio displays, performance actions and using the internet as a method of creative distribution. May be repeated one time for credit.

**ART 308 Creative Digital Photography (3)** This course is designed to develop and expand ideas about photographic representation by expanding students' range of interests and uses of the medium. Both digital imaging techniques and silver-based materials are explored with an eye toward expansion and experimentation. Projects include invented persona writing, pinhole pictures, the body and expressive gesture, cross-media appropriation, and an independent project. May be repeated for up to 9 credits. Pre: ART 123.

**ART 312 3D Modeling & Virtual Reality (3) (lecture/lab)** Exploration of 3D modeling and printing as well as rendering forms in virtual reality. The course will emphasize 3D forms and space and how spatial perceptions shift across various media. Repeatable one time for a maximum of 6 credits. Pre: ART 112.

**ART 315 Adv Printmkg: Intaglio (3)** Advanced intaglio techniques involving more complex development of individual projects. Pre: ART 215. Repeatable for a total of 9 semester hours.

**ART 316 Adv Printmaking Seminar (3) (lecture/other)** Advanced Studio practice in independent projects. Pre: ART 216 or 315. Repeatable for a total of 9 semester hours.

**ART 317 Cyanotype (3)** Studio study of the cyanotype, an early 19th



century light-sensitive photo process used to create fine art prints. Studio work will include similarly related processes, such as chrysotype, gum dichromate and kallitype. Pre: Foundation program studios (ART 121, 122, 123, 124) and completion of 2 semesters of 200-level art studios. Repeatable for a total of 9 semester hours.

**ART 320 Art of Ancient Civilizations (3)** Exploration of the arts of ancient world civilizations with an emphasis on Egypt, Mesopotamia, Indus Valley, Bronze Age China, Ancient Greece, Rome and Persia. Also includes comparisons with Mayan, Aztec and ancient cultures of Africa. Pre: junior or senior standing or instructor's consent.

**ART 321 Advanced Drawing (3) (other)** Studio practice of advanced and individual problems in drawing. Pre: ART 221. Repeatable for a total of 9 semester hours.

**ART 322 Advanced Painting (3) (other)** Studio practice of advanced and individual problems in painting. Pre: ART 221, 222. Repeatable for a total of 9 semester hours.

**ART 335 Papermaking (3)** This studio course will focus on the techniques involved with creating handmade paper. Students will learn, practice, and apply the fundamentals of the papermaking process, which will include pulp preparation; basic sheet information; watermarking; laminating; embedding; coloring; sizing; and pressing and drying. Studies will concentrate on Eastern and Western applications, as well as traditional and contemporary approaches. Individuals creativity and experimentation with handmade paper as an artmaking medium will be encouraged. Pre: Art 121,122,123,124 and completion of two semesters of 200-level art studio courses. Repeatable for a total of 9 semester hours.

**ART 360 Renaissance and Baroque Art (3)** The historical development of European art, beginning with the transition from the late Middle Ages, and concluding with the transition into the Neoclassical period; features the motivating religious, philosophical and aesthetic values. Pre: junior or senior standing, or instructor's consent. (Attributes: DH)

**ART 370 Modern Art Seminar (3)** The study of visual arts theory based upon the movements in mainstream art from the late 19th through the 20th century in Europe and America. Pre: ART 270 or ART 176 or consent of instructor.

**ART 374 Art of the 19th Century (3)** An in-depth study of the art of the nineteenth century in Europe from NeoClassicism to PostImpressionism. The focus of the course will be on France and Western Europe, but some time will be spent comparing the art of other countries and discussing their influences on Western European art. Geographic, philosophical, religious and political influences on the arts of the times will be explored. (Attributes: DH)

**ART 375 Christianity & The Arts (3)** Relationships of the arts to Christian beliefs and ritual from early Christian era to the present; role of the artist, church, and patron. Pre: junior or senior standing, or instructor's consent.

**ART 380 Art Of China (3)** Chinese art from the Neolithic period to the Qing Dynasty, with emphasis on the Song and later periods. Pre: Only one of the following is required: ART 175 or ART 176 or junior/ senior standing or instructor's consent. (Attributes: DH, HPP)

**ART 381 Art Of Japan (3)** The history of art in Japan with emphasis on Buddhist art, the relationships between Chinese and Japanese arts. Pre: ART 175 or ART 176 or JPST course or instructor's consent. (Same as JPST

381) (Attributes: DH, HPP)

**ART 385 Religious Arts Of East Asia (3)** Interrelationships of the arts and religion in various Asian cultures, with emphasis on Buddhism, Hinduism, Confucianism, Daoism, and Shinto. Pre: junior or senior standing, or instructor's consent. (Attributes: GAHP)

**ART 390 Seminar Contemporary Art (3) (other)** Focuses on the issues raised by contemporary art and traces historical/aesthetic developments from the beginning of the Modern period to the present. Assigned readings and lecture/discussion. Pre: ART 270, 280 or instructor's consent.

**ART 392 History of Art and Technology (3)** An analytical study of the history of the international art and technology movement from the early 1950's to today. The content of the course includes avant-garde experimentation with technology leading to digital exploration in the arts, the cross-over between art and science in the late 20th century, and changes in the conceptual development of the 21st century. Pre: ART 270 or 176. (Attributes: DH)

**ART 475 Data Visualization (3)** This team-taught course provides an interdisciplinary framework for learning cutting-edge data visualization techniques. The class enables students from varied disciplines to work together and develop collaborative projects. Students are taught hands-on-skills for creating effective data visualization products and tools that can be applied to a broad range of scientific disciplines. Pre: Junior or Senior standing and one of the following: CS 150, ART 112, or a prior course in ASTR, BIOL, CHEM, ENSC, GEOL, MARE or PHYS. Co-Req: CS/ART/NSCI 475L (Same as CS/NSCI 475)

**ART 475L Data Visualization Lab (1) (lab)** Hands-on training with the various software tools used throughout CS/ART/NSCI 475. Course is repeatable twice for a total of 3 credits. Co-Req: CS/ART/NSCI 475 or Instructor's Consent (Same as CS/NSCI 475L)

**ART x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ART x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Astronomy (ASTR) Courses

College of Natural and Health Sciences (CNHS)

**ASTR 110 General Astronomy (3)** A survey of modern astronomy intended for non-science majors; the structure and evolution of the solar system, stars, stellar systems, and the Universe. If students desire to take ASTR 110, 180, and 181, they may receive credit for ASTR 110 only if it is taken prior to taking ASTR 180 and ASTR 181. (Attributes: DP)

**ASTR 110L Gen Astronomy Lab (1) (lab)** Demonstration of astronomical principles through laboratory observations and analysis of astronomical data. Not required for ASTR 110. Pre: ASTR 110, ASTR 150, ASTR 180 or ASTR 181, any of which may be taken concurrently. (Attributes: DY)

**ASTR 111 Intro to Space Exploration (3)** Survey of applied science,



social, cultural and engineering topics in space science, focusing on exploration. Past, present and future aspects of space exploration. Relationship to Hawaiian views of cosmology and Hawaiian traditions such as Wayfaring and relationship to the land. (Same as PHYS 111)

**ASTR 130 Intro To Space Science (3)** An introduction to space science and related subjects. Topics discussed are the contents of the solar system and of near-Earth space, history, and physical principles of space flight, remote sensing of the Earth from space, space habitats and manned missions to the planets, the sociological impact of space exploration, and the prospects for life elsewhere in the Universe.

**ASTR 150 Life in The Universe (3)** The possibility that life might exist elsewhere in the universe has fascinated human beings ever since our ancestors first gazed into the starry sky. In this course, the question for extraterrestrial life is considered from astronomical, biological, and sociological perspectives. Topics include planets, stars and galaxies, the Big Bang, the origin and evolution of life on Earth, searches for extraterrestrial life, and more. A non-mathematical course for non-science majors who want to explore astronomy. (Attributes: DB)

**ASTR 180 Princ Of Astron I (3)** A survey of modern solar system astronomy, with emphasis on the underlying physical principles. Topics discussed include the celestial sphere and aspects of the night sky, the structure and evolution of the Sun's planetary system, comparative planetology, and theories of the formation of planetary systems. Intended for science majors and prospective science teachers. The student should have a good operational familiarity with high school algebra. If students desire to take ASTR 110, 180 and 181, they may receive credit for ASTR 110 only if it is taken prior to taking ASTR 180 and ASTR 181. (Attributes: GQ)

**ASTR 181 Princ Of Astron II (3)** A survey of modern stellar, galactic, and extragalactic astronomy, with emphasis on the underlying physical principles. Topics covered include stellar structure, interstellar environments and the formation of stars, stellar evolution and death, the structures of galaxies, and cosmology. Intended for science majors and prospective science teachers. The student should have a good operational familiarity with high school algebra. If students desire to take ASTR 110, 180 and 181, they may receive credit for ASTR 110 only if it is taken prior to taking ASTR 180 and 181. Pre: ASTR 180. (Attributes: GQ)

**ASTR 224 Spaceflight (3)** All aspects of manned and unmanned spaceflight, with emphasis on actual technologies and procedures used in space exploration. For students interested in Astronomy, Physics, Planetary Sciences, Aerospace Engineering or with a general interest in spaceflight. Pre: any one of the following PHYS 151 or higher; CHEM 151 or higher; MATH 140X or higher. Students lacking these pre-requisites who believe they have sufficient science background may be admitted with the instructor's permission. (Same as PHYS 224)

**ASTR 230 Applied Electronics I (4) (lecture/lab)** Theory and applications of circuit design and analysis with an emphasis on analog devices. AC and DC series and parallel RLC circuits, diodes, transistors and operational amplifiers. Laboratory will consist of construction and analysis of representative circuits. Pre: PHYS 272 and PHYS 272L. (Same as PHYS 230).

**ASTR 250 Observational Astronomy (3)** An introduction to the tools and techniques of observational astronomy: astronomical time and coordinate systems, photometric systems and magnitudes, principles of telescopes and their operation, introduction to modern astronomical instruments, analysis of astronomical data. Coursework includes observations with small telescopes, and tours of the observatories on Mauna Kea. Pre: ASTR 180, 181, MATH 241 and PHYS 272.

**ASTR 250L Observational Astronomy Lab (2) (lab)** A lab course in observational astronomy where students use and characterize astronomical instruments (telescopes, detectors, spectrographs). Astronomical observations such as imaging or spectroscopic data will be acquired, processed, and analyzed. Applications to stellar and astrophysics will be examined. Pre: ASTR 181 or equivalent, and ASTR 250 (which can be taken concurrently).

**ASTR 260 Computational Physics & Astron (3)** Computational techniques in physics and astronomy, with an emphasis on fundamental algorithms and development of code in high-level languages. Topics include least squares, interpolation, random number generators and numerical integration of differential equations. Pre: CS 150 or CS 172 and MATH 242 and PHYS 272 (PHYS 272 may be taken concurrently). (Same as PHYS 260)

**ASTR 260L Computational Phys & Astr Lab (1) (lab)** Will offer an introduction to unix command language and programming skills relevant to Astronomy. Emphasis on writing algorithms and code programming in Python, C ++, or Fortran. Some elements of IDL and IRAF are covered. Problems will come from physics and astrophysics that will be solved using numerical methods and mathematical algorithms presents in the PHYS 260 lecture. Topics covered are integration methods, interpolation, error estimation, eigenvalues and eigenvectors, linear and non-linear equations, Fourier methods, random numbers and Monte Carlo methods. Pre: CS 150 or CS 172 and MATH 242 and PHYS 272 (PHYS 272 may be taken concurrently) and PHYS/ASTR 260 (PHYS/ASTR 260 may be taken concurrently). (Same as PHYS 260L)

**ASTR 275 Akamai Internship (1-3)** Uses data collection and analysis techniques to articulate foundational principles behind Hawai'i observatory operations and remote-sensing based technologies. Create and communicate engineering solutions to Hawai'i observatory and tech industry use cases. Includes laboratory exercises and inquiries to build teamwork, presentation skills and practical experiences of the technical workplace. Utilizes technologies and analysis techniques relevant to the Hawai'i high-tech industry. Summers only. Pre: Instructor Consent, Repeatable up to 3 times. Offered on a CR/NC basis only. (Attributes: ALEX)

**ASTR 350 Stellar Astrophysics (3)** An introduction to the physical concepts dictating the formation, structure, and evolution of stars, and the interstellar medium. Astrophysical concepts and observational data are combined to provide a unified treatment of stellar astrophysics. Concepts of Jeans instabilities, hydrostatic equilibrium, radiative transfer in stars, stellar atmospheres, stellar nucleosynthesis, and stellar remnants are covered. Pre: ASTR 181 and PHYS 274 and CS 150 or CS 172 or PHYS/ASTR 260 or PHYS/ASTR 260L and PHYS 341 (PHYS 341 can be taken concurrently).

**ASTR 350L Stellar Astrophysics Lab (2) (lab)** A laboratory course in experimental astrophysics where students obtain data of stars, star clusters, and star-forming regions with small, portable telescopes and UH Hilo telescope on Maunakea. Data acquisition takes place throughout the semester whereby students learn how to troubleshoot equipment and develop technical skills. Weekly laboratory projects use data obtained with telescopes, cameras, and spectrographs and solidify theoretical concepts presented in ASTR 350 Stellar Astrophysics. Pre: ASTR 250, ASTR 250L, and ASTR 350 which can be taken concurrently.

**ASTR 351 Galactic & Extragal Astrophys (3)** A course in extragalactic astronomy and cosmology, covering topics on the structure and formation of the Milky Way, normal galaxies, active galactic nuclei, clusters, interstellar and intergalactic media, large scale structure, cosmological models, and spacetime metrics. Pre: ASTR 181 and ASTR



350 and PHYS 274, and CS 150 or CS 172 or ASTR/PHYS 260 or ASTR/PHYS 260L.

**ASTR 351L Galactic & Extragal Astr Lab (2) (lab)** A laboratory course in experimental astrophysics where students obtain data of galactic components, nearby and distant galaxies, galaxies of different morphological types, and extragalactic star-forming regions active galactic nuclei, lensed galaxies, and cluster of galaxies using the 0.7m UH Hilo telescope and the 2.2m telescope. Data acquisition takes place throughout the semester whereby students further improve their observational techniques and technical skills learning how to acquire faint and extended sources. Weekly laboratory projects use data obtained with a wide range of telescopes, cameras, and spectrographs and solidify theoretical concepts presented in ASTR 351 Galactic & Extragal Astrophysics. Pre: ASTR 350L; and ASTR 351 which can be taken concurrently.

**ASTR 352 Planets and Exoplanets (3)** Study of the geology and geophysics of Earth-like planets and satellites in the Solar System, with emphasis on understanding terrestrial geology in a border, astronomical context and applications to exoplanet research. Study of the atmospheres of Solar System planets and satellites, and also the formation and evolution of the Solar System and extrasolar planetary systems. Pre: GEOL 111, ASTR 180, PHYS 151 or PHYS 170. (Same as GEOL 352).

**ASTR 375 Literature Review Practicum (1) (other)** A guided course for writing a literature survey on a topic in physics or astronomy. This course can be repeated if a different writing topic is approved. Credits earned in this course may NOT be counted as upper-division physics or astronomy electives needed for the BA in Physics or the BS in Astronomy degrees. Pre: 9 credit hours in Physics or Astronomy courses at the 200 level or above AND permission of the instructor.

**ASTR 381 Cosmos and Culture (3) (lecture/other)** Selected topics on the historical, intellectual, social, and cultural context of astronomical discovery. Interdisciplinary skills and knowledge for understanding the place of Astronomy in a multi-cultural society. (Attributes: GCC, HPP)

**ASTR 385 Software Systems for Astronomy (3)** The course provides basic instruction in the design and implementation of software for telescope control systems, instrument control systems (cameras and spectrographs); as well as the web-based tools used to plan observations. The course also covers the analysis and archiving of astronomical data. Students learn about existing software tools and packages, develop their own software tools, and analyze datasets from today's leading observatories. The course is open to both astronomy students with a strong interest in computer science, and to computer science students with a strong interest in astronomy. Pre: ASTR 110 or ASTR 180; CS 150 or instructor approval. (Attributes: GCC)

**ASTR 400 Observatory Internship (1-6)** Cooperative education experience with student employed in an astronomical observatory or research facility on the Island of Hawai'i. One credit is granted for each full-time working month, or equivalent thereof, to a limit of 6 credits (such credits may not be counted as upper-division astronomy electives for the purpose of fulfilling that requirement for the B.S. degree in Astronomy). Pre: consent of Department. (Attributes: ALEX)

**ASTR 432 Senior Lab/Thesis Project (3) (lab)** Individual research projects conducted in the college laboratory, library, or observatory; or at an external research facility; under the direct guidance of a member of the physics and astronomy faculty or an affiliated faculty member. Students must propose and complete a research project, and present a final report to the department. May be repeated once for a maximum of

6 credits. Pre: permission of the department is required. (Same as PHYS 432)

**ASTR 450 Instruments & Techniques (3)** A course in current astronomy observational instruments and techniques, with emphasis on "hands-on" use of instruments to acquire data with research telescopes on Mauna Kea. Topics covered include optical and infrared photometric instruments, CCD and IRCCD cameras, astronomical spectrographs and interferometers, advanced data analysis. Pre: ASTR 250, PHYS 331, PHYS/ASTR 260.

**ASTR 460 Gravitation & Cosmology (3)** An introduction to Einstein's General Theory of Relativity, with emphasis on astronomical applications: the curvature of space-time and the principle of equivalence; gravitational collapse and black holes; the large-scale structure of the Universe; modern cosmology. Pre: PHYS 274, MATH 244.

**ASTR 495A Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC; in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior standing or instructor's consent. (Same as CHEM 495A, GEOL 495A, MATH 495A, and PHYS 495A.)

**ASTR 495B Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. Students are required to present a seminar for a letter grade. Pre: senior standing, or instructor's consent. (Same as CHEM 495B, GEOL 495B, MATH 495B, and PHYS 495B).

**ASTR 496 Space Studies Seminar (1)** Seminar presentations of topics related to space exploration by invited speakers, faculty, and enrolled students. Students are required to prepare and submit reaction papers/essays.

**ASTR x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ASTR x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Biology (BIOL) Courses

College of Natural and Health Sciences (CNHS)

**BIOL 101 General Biology (3)** A one-semester introductory biology course for non-majors. (Attributes: DB)

**BIOL 101L Gen Biol Lab (1) (lab)** Laboratory for General Biology. (Optional but recommended)

**BIOL 125 Intro Cell & Molecular Biol (3)** Introduction to cell and molecular biology for majors in the natural and health sciences. Cell structure and function, the molecular basis of life, metabolic pathways, classical and molecular genetics, the molecular and biological evolution of the universe. Pre: high school biology (or BIOL 101), high school chemistry (or CHEM 151).

**BIOL 156 Nat Hist & Conservatn Hawn Isl (3)** The formation of the



Hawaiian Islands, establishment of their native terrestrial and marine flora and fauna, and human impacts and conservation. (Same as MARE 156). (Attributes: DB, GAHP, HPP)

**BIOL 156L Nat History Field Trips (1) (lab)** Field trips for Natural History and Conservation of the Hawaiian Islands. (Same as MARE 156L). (Attributes: GAHP)

**BIOL 171 Introductory Biology I (3)** Principles of cell structure, replication, and metabolism. Classical and molecular genetics, and evolution. Biodiversity of prokaryotes, viruses, fungi, and plants. Plant structure and function. Biology 171 and 172 are offered both semesters, and students may enroll in either (but not both) during the fall or spring semester. (Previously offered as BIOL 175)

**BIOL 171L Introductory Biology I Lab (1) (lab)** Laboratory for Introductory Biology I. Laboratory exercises covering cell structure, replication, and metabolism; classical and molecular genetics; evolution; and biodiversity of prokaryotes, viruses, fungi, and plants. (Previously offered as BIOL 175L)

**BIOL 172 Introductory Biology II (3)** Principles of natural selection and evolution. Explore a range of animal biodiversity including sponges, flatworms, reptiles, and mammals. Basic vertebrate anatomy and physiology. Essentials of ecology, conservation biology, and climate change. BIOL 171 and 172 are each taught both semesters, and students may enroll in either course during either fall or spring semester. (Previously offered as BIOL 176)

**BIOL 172L Introductory Biology II Lab (1) (lab)** Laboratory for Introductory Biology II. Laboratory exercises covering structure, function, and natural history of animal-like protists, invertebrates and vertebrates; structure and function of animal tissues; reproduction and development; and community ecology. (Previously offered as BIOL 176L)

**BIOL 190 Hawn Marine Field Experience (2)** Provides a unique opportunity for students to experience the marine environment of the Big Island. Course consists of field trips to coastal and underwater sites around the island. Some swimming and snorkeling involved but not required. (Same as MARE 190). (Attributes: GAHP)

**BIOL 205 Gen Entomology (3)** Structure, classification and identification of insects. Pre: BIOL 171 or 172 or consent of instructor. (Same as ENTO 304).

**BIOL 243 Human Anatomy & Physiology I (3)** Basic structure and function of human tissue and organ systems, including skeletal, integumentary, muscular, respiratory, circulatory, and immune systems.

**BIOL 243L Human Anatomy & Physio I Lab (1) (lab)** Laboratory experience with the tissue and organ systems covered in BIOL 243 lecture. Hands-on training in tissue dissection, microscopy, physiological measurement, and safe lab technique. Pre: Concurrent enrollment in, or previous completion of BIOL 243 lecture.

**BIOL 244 Human Anatomy & Physiology II (3)** Basic structure and function of human tissue and organ systems, including digestive, urinary, nervous, endocrine, and reproductive systems. Pre: BIOL 243 or equivalent, or instructor's consent.

**BIOL 244L Human Anatomy & Physio II Lab (1) (lab)** Laboratory experience with the tissue and organ systems covered in BIOL 244 lecture. Hands-on training in tissue dissection, microscopy, physiological measurement, and safe lab technique. Pre: Concurrent enrollment in, or previous completion of BIOL 244, or instructor's consent.

**BIOL 254 Fundamentals of Nutrition (3)** Comparative animal digestive systems and metabolism. Essential nutrients, their functions, mechanisms of action and interrelationships. (Same as ANSC 254).

**BIOL 270 Intermed Cell & Molecular Biol (3)** Integrated cell and molecular biology for the science majors. Modern advances in recombinant DNA technology. Pre: BIOL 171, BIOL 172, and CHEM 162 or instructor's consent. Recommended: CHEM 242 which may be taken concurrently.

**BIOL 270L Inter Cell & Molecular Bio Lab (1) (lab)** Laboratory exercises in cell and molecular biology with an emphasis on the use of modern methods of DNA analysis. Pre: BIOL 171-171L, BIOL 172-172L, CHEM 162L and BIOL 270 or concurrent enrollment, or instructor's consent. Recommended: CHEM 242L which may be taken concurrently.

**BIOL 275 Fund Microbiology (3)** A survey of microbiology with emphasis on bacteria, viruses, infectious diseases and their control. Pre: one semester of college chemistry. Recommended: at least one semester of BIOL 101, 175 or 176. (Attributes: ALEX, DB)

**BIOL 275L Microbiology Lab (1) (lab)** Required laboratory for Fundamentals of Microbiology. (Attributes: DY)

**BIOL 280 Biostatistics (3)** Statistical analysis as applied to research in the Biological Sciences. Theory and applications of statistics; experimental design; basic statistical concepts; hypothesis testing; parametric and non-parametric analyses. Group and independent projects, computer analysis of data.

**BIOL 281 General Ecology (3)** General ecological and evolutionary principles. Relationship of plants and animals to their environments. Processes regulating growth and evolution of populations. Community structure and ecosystem function. Pre: BIOL 171 or BIOL 172. Recommended: Completion of both BIOL 171 and BIOL 172, and high school algebra or equivalent.

**BIOL 281L General Ecology Lab (2) (lab)** Laboratory supporting BIOL 281. Field trips to view and sample representative ecosystems, instruction in basic field biology, identification of Hawaiian organisms, laboratory demonstrations. Basics of experimental design and hypothesis testing and use of simple statistics, culminating in written laboratory reports in scientific paper format. Pre: BIOL 171L and BIOL 172L.

**BIOL 309 Biogeography (3)** Basic evolutionary and ecological principles underlying the dynamics of plant and animal populations. Mechanisms of isolation, speciation, dispersal, migration, and competition as they affect past and present world distribution patterns. Island biogeography. Pre: GEOG 101; BIOL 101 or 175 or 176; or instructor's consent. (Same as GEOG 309). (Attributes: GAHP)

**BIOL 323 Mammal Physiology (3)** Structure and function of the animal body. A general study of anatomy, but emphasis placed on understanding the physiology. (Same as ANSC 350)

**BIOL 340 Cellular Neurobiology (3)** Cellular and molecular mechanisms in the form and function of the nervous system. Topics include electrophysiology, synaptic integration and plasticity, sensory and motor systems, neuromodulation, and molecular neuropathology. Prerequisite: BIOL 270, equivalent, or instructor permission.

**BIOL 340L Cellular Neurobiology Lab (2) (lab)** The goal of this laboratory course is to further explore concepts introduced in the associated lecture course (BIOL 340, Cellular Neurobiology). In this laboratory course, we will utilize a combination of computer simulations,



hand-on electrophysiology experiments, and histological techniques to demonstrate various aspects of nervous system functions. Pre: BIOL 270 and 270L and BIOL 340 (which may be taken concurrently).

**BIOL 357 Evolution (3)** Organic evolution as a unifying theory of biology. Topics include the history of ideas of evolution, adaptation of populations, genetic drift, molecular evolution and the neutral theory, quantitative genetics, speciation and phylogeny, biogeography and macro-evolutionary trends, and mass extinctions. Pre: BIOL 125 or 175 or 176.

**BIOL 357L Evolutionary Genetics Lab (1) (lab)** A laboratory and field course to be taken in conjunction with BIOL 357 lecture. Laboratory exercises will introduce students to the techniques in evolutionary genetics with special reference to Hawaiian plants and animals. Topics to be covered include: quantitative genetics, natural selection molecular genetics analysis of populations and species, ecological genetics and adaptation, and conservation genetics. Pre: BIOL 270, BIOL 270L and BIOL 280.

**BIOL 360 Marine Resources (3)** A survey of human use of the marine environment including physical and biological resources. Topics covered include: fisheries, mariculture, marine mineral and energy resources, chemical resources of sea water, the use of coastal lands and waste disposal in the sea. Pre: MARE 201 or BIOL/MARE 171, or consent of instructor. (Same as MARE 360).

**BIOL 366 Trop Marine Rsrch Investigatn (3)** Research projects on marine-related problems. Students will do a literature search; develop experimental design; collect, reduce and analyze data; do a written final report; and present findings at a symposium. Projects will be selected from a list of topics or can be original with the consent of the instructor. Pre: consent of instructor. (Same as MARE 366).

**BIOL 371 Biology Of Marine Invertebrate (3)** A survey of the major groups of invertebrates focusing on those dominant in the marine environment. Students will learn methods used to identify and classify invertebrates and will survey the anatomy, physiology, and natural history of the major groups. Pre: MARE 265 or BIOL 172 or their equivalent, concurrent enrollment in BIOL/MARE 371L. (Same as MARE 371)

**BIOL 371L Bio Of Marine Invertebrate Lab (1) (lab)** Direct exposure to the major groups of invertebrates in marine environment, focusing on those present in Hawai'i. Students will learn to identify and classify invertebrates and will survey the anatomy and natural history of the major groups. Pre: BIOL/MARE 371 or concurrent enrollment. (Same as MARE 371L).

**BIOL 375 Biology of Microorganisms (3)** Fundamental principles of microbiology combined with recent developments in and applications to microbial evolution, ecology, molecular genetics and immunology. Pre: BIOL 270 and 270L.

**BIOL 375L Biology of Microorganisms Lab (1) (lab)** Required laboratory for BIOL 375 covering fundamental principles of microbiology (culturing and identification). Supplemental components include specific labs in microbial ecology, molecular immunology, and genetics. Pre: BIOL 270 and 270L.

**BIOL 376 Genetics (3)** Classical, molecular, and population genetics. Pre: BIOL 270.

**BIOL 376L Genetics Lab (2) (lab)** Classical genetics usually including crosses with flies, worms and yeast. Molecular genetics usually including

DNA gel analysis, construction of recombinant DNA molecules and their expression in transgenic organisms, and Polymerase Chain Reaction amplification of DNA. Optional laboratory for genetics. Pre: concurrent enrollment in BIOL 376 and completion of BIOL 270L or consent of the instructor.

**BIOL 381 Conservation Biology (3)** Principles of conservation biology and their applications to the maintenance and enhancement of biodiversity. Philosophical basis for conservation, scientific theories and research methods used by conservation biologists, and case studies of studies of scientific and socio-political interactions in conservation problems. Pre: BIOL 281 or MARE 265 or instructor's consent.

**BIOL 384 Primatology (3)** Evolutionary approach to the nonhuman primates. Biological and behavioral adaptations of primates to their ecological setting. Implications of primate adaptations for understanding human biology and behavior. Pre: ANTH 215 or BIOL 172. (Same as ANTH, ENSC 384)

**BIOL 392 Biology & Philosophy (3)** Philosophical examination of the implications of modern biology for how we understand ourselves and our relations to the natural world. Evolutionary, genetic, developmental, and ecological topics will be discussed. Pre: previous work in Philosophy or Biology, or consent of instructor. (Same as PHIL 392).

**BIOL 410 Biochemistry (3)** Basic compositions and functions of biological matter, metabolic interconversions and transformations; the bioenergetics involved and the levels of control over these processes. Pre: BIOL 270 and CHEM 242.

**BIOL 410L Biochemistry Lab (2) (lab)** Electrometric titration and chromatographic analysis of amino acids, advanced quantitative assay of proteins, advanced quantitative assay, purification and kinetic analysis of enzymes. Required laboratory for Biochemistry. Pre: BIOL 410 (may be taken concurrently) and completion of BIOL 270L and CHEM 242L.

**BIOL 415 Cell Biology (3)** Structure, function and behavior of cells, including gene expression, cellular transport, cell signaling, cytoskeleton and cell cycle. Pre: BIOL 270, BIOL 410.

**BIOL 415L Cell Biology Lab (2) (lab)** Light and electron microscopy of selected cells. Optional laboratory for Cell Biology. Pre: concurrent enrollment in BIOL 415 and completion of BIOL 270L or consent of instructor.

**BIOL 425 Water Qual & Aquatic Product (3) (other)** Study of water quality and aquatic productivity as it relates to aquaculture and fisheries. Pre: CHEM 161 or consent of instructor. (Same as AQUA 425).

**BIOL 436 Animal Cognition (3) (lecture/other)** A survey of the historical and contemporary scientific literature on animal cognition using a wide variety of species. The course covers a broad array of topics that may include concept formation, memory processes, numerical competence, social learning and imitation, self-awareness, theory of mind, referential communication and grammatical skills. Pre: PSY 213, PSY 214, and PSY 314 or 350 or instructor's consent. (Same as PSY 436)

**BIOL 437 Marine Mammal Behavior (3)** An introduction to marine mammals with emphasis on the behavior of marine mammals. Special attention given to those species found in Hawaiian waters. Individual species are examined within a comparative framework. Topics include: behavioral ecology, social behavior, cetacean societies, mating systems, communication, sensory perception, and cognition. Pre: PSY 213, PSY 214, and PSY 314 or PSY 435 or instructor's consent. (Same as PSY 437)



**BIOL 442 Comm. Science in K-12 Settings (2)** For undergraduate students interested in improving their ability to communicate their scientific knowledge to K-12 learners. The course combines inquiry-based science education methods with teaching experience in a local school classroom or community event. Pre: At least 6 credits of 100 level science courses or instructor consent. This course is dual listed with CBES 642.

**BIOL 443 Ecological Animal Physiology (3)** Study of the physiological adaptations of animals to environmental variation. The focus will be on how physiological responses to environmental factors determine the geographic distribution of animals. The course will cover the physiological and biochemical mechanisms that permit animals to adapt to potentially stressful environmental conditions, and topics will include food acquisition and digestion, energy allocation, thermal energetics, respiratory gas exchange, activity metabolism, and osmoregulation. Pre: course in basic cell biology: BIOL 125, BIOL 270, or MARE 172; or consent of instructor.

**BIOL 445 Behavioral Ecology & Evolution (3)** Principles of behavioral ecology and evolution with a focus on conservation biology. Research techniques in behavioral ecology related to analyzing populations in geographically and age-structured populations. The importance of reproductive strategies, habitat selection, foraging behavior, parental care, social organizations, and the importance of migration and movement patterns on the regulation of population sizes and evolution. Population and quantitative genetics as it relates to evolution, speciation, and biodiversity. Pre: BIOL 281 and BIOL 357 or permission of instructor.

**BIOL 450 Physiology Reproduction (3)** Livestock reproductive anatomy and physiology. Pre: ANSC 141. Recommended: ANSC 350. (Same as ANSC 450).

**BIOL 455 Plant Ecology (3)** Interactions between plants and the environment at the physiological, population, community, ecosystem scales. Discussion of factors affecting plant distribution and abundance from local to global scales. Plant and people interactions will be noted in the context of our changing planet. Key theories, quantitative measurements, experimentation, and critical analysis will be emphasized through a discussion of primary scientific literature. Pre: BIOL 281 or permission of instructor.

**BIOL 457 Vegetation of the Hawaiian Isl (3)** This course explores the major types of vegetation in Hawai'i with respect to physical environments and important species. Basic concepts in plant taxonomy and identification are emphasized. Coursework includes field excursions at various sites around the island of Hawai'i to develop methods in surveying and monitoring vegetation. This course also examines major human impacts and conservation challenges. Pre: BIOL 156 or BIOL 281. (Same as ENSC 457). This course is dual listed with GEOG CBES 657.

**BIOL 460 Plant Diversity & Evolution (3)** The evolution of land plants from mosses to flowering plants in the context of broad-scale environmental changes since the Silurian Period. Origins and diversification of the major lineages of extant and fossil land plants, including transitions in morphology, physiology, and life-cycles associated with adaptive radiations. Hawai'i's spectacular plant radiations, and molecular and phylogenetic methods used in reconstructing the evolutionary history of land plants emphasized. Pre: BIOL 357 or permission of instructor.

**BIOL 461 Immunology (3)** The innate and adaptive immunity, structure and function of antibodies and antigens, synthesis of B and T lymphocytes, and the role immunology plays in the biological and medical sciences. Pre: BIOL 375 or BIOL 172 or instructor's consent.

Recommended: BIOL 270

**BIOL 467 Ecological Genetics (3)** The class focuses on the genetics of whole populations and species. We will examine barriers to gene flow that influence the population structure and distribution of species. The goal of the class is to investigate how genetics informs understanding of the evolution of ecosystems and the dynamics of genetic interactions. Pre: BIOL 376

**BIOL 477 Avian Biology (3)** The biology of birds, including evolution, diversity, systematics, morphology, physiology, behavior, and ecology. This course has a global perspective, but uses examples from Hawai'i wherever appropriate. Pre: BIOL 281 or instructor's consent.

**BIOL 477L Field Ornithology (2)** This course covers a range of topics and techniques, including: mist-netting, distance sampling, bioacoustic recording, and habitat sampling. It uses birds as a model organism to familiarize students with methods that are important to the field ecologist. This course is highly relevant to students that plan to pursue ecology at the graduate level, and who are interested in careers in wildlife conservation and management. Pre: BIOL 280. Recommended: completion of BIOL 477.

**BIOL 481 Trop Island Ecology & Evol (3)** The major subdisciplines of ecology and evolutionary biology, with emphasis on the models and methodologies in areas of active research, especially as they relate to tropical islands. Taught using examples of published research. Pre: BIOL 280, 281-281L and BIOL 357.

**BIOL 481L Trop Island Ecology & Evol Lab (2) (lab)** Intensive field-laboratory supporting BIOL 481. Research topics selected from current fields of active research within tropical island ecology and evolution. Develop research hypotheses, gather data from field sites, analyze and interpret data and write reports in the style of scientific papers. Pre: concurrent enrollment in BIOL 481 required.

**BIOL 482H Honors Appl Of Ecol & Evol (3)** Practical experience in performing research projects in Ecology, Evolution and Conservation Biology. Students will submit project proposals for evaluation and approval, do a thorough literature review, develop an experimental design, and collect and analyze data. Students will also prepare a final written report and give a 15-minute seminar presentation on their projects. Pre: BIOL 443L, BIOL 481 and 481L; 3.5 GPA or consent of instructor with departmental approval.

**BIOL 484 Biology Of Fishes (3)** The biology of marine and freshwater fishes. Topics covered include: general anatomy, locomotion, respiration, osmoregulation, sensory systems, reproduction, electrosensitive and electrogenic fishes, coloration and bioluminescence in fishes, genetic interrelationships. Students are encouraged to enroll in MARE/BIOL 484L, the corresponding lab course when offered. Pre: C- or better in MARE 171 or BIOL 172 or their equivalent; C- or better in MARE 265 or equivalent; or instructor's consent. (Same as MARE 484)

**BIOL 484L Biology Of Fishes Laboratory (1) (lab)** Anatomy of jawless, cartilaginous and bony fishes. Review of common local reef fishes. Laboratory and field trips for Biology of Fishes. Co-req: BIOL 484. (Same as MARE 484L).

**BIOL 490 Senior Thesis Report (1)** Practical experience in designing and communicating a biology-related project. Support from faculty and peers to develop a submission-ready manuscript and prepare for a public poster and or conference presentation. Course may be repeated one time for a total of 2 credits. Course is offered Credit, No Credit only.



**BIOL 495A Biology Seminar (1) (other)** Lectures, discussions and research reports of topics in biology presented by faculty, students, and visiting scholars. Students attend seminars and receive CR/NC grade for the course.

**BIOL 495B Biology Seminar (1) (other)** Lectures, discussions, and research reports of topics in biology presented by faculty, students and visiting scholars. Each student must attend seminars and present a talk to receive a CR/NC grade for the course.

**BIOL 496 Tchg Asstance & Tutorg in Biol (1-3) (lab)** Practice in individual tutoring, and in the preparation and presentation of selected topics in Biology lecture or laboratory courses, under direct instructional supervision. This course may be repeated for a maximum of 6 credits and may not be used to replace any specific course requirements of the Biology major other than elective units. Statements of planned teaching assistance and tutoring activities required. Pre: consent of the supervising instructor and the department chair.

**BIOL x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**BIOL x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Business (BUS) Courses

College of Business and Economics (COBE)

**BUS 100 Intro To Business (3)** A study of business functions, methods of business operation, types of business ownership, and the role of business organizations in contemporary society. (Attributes: DS)

**BUS 110 Freshmen Business Experience (3) (lecture/lab/other)** BUS 110 is designed to introduce students to the world of business in an integrated, experiential way. Students will be introduced to basic business disciplines and terminology as well as strategies for creative and critical thinking, effective communication, teamwork, and leadership. The course is also designed to help students to identify potential career fields in the realm of business administration, welcome them into the major, and address challenges that first semester university students typically deal with.

**BUS 200 Business Internship (3)** Supervised on-the-job experience in the business community. Comprehensive report by students, meeting with faculty advisor, and performance evaluation from employer required. Pre: Instructor's Consent (Attributes: GCC)

**BUS 240 Business Law (3)** The law of contracts, agency and employment, and the elements of property and government regulation. Law of business organizations, with emphasis on partnerships and corporations and law of sales and commercial paper.

**BUS 290 Critical Thinking (3)** This course guides students in thinking more clearly, insightfully and effectively. Concrete examples from students' experience and contemporary issues drawn from forums like YouTube, TV, popular magazines, court cases, the internet, political speeches, etc. help students develop the abilities to solve problems, analyze issues, and make informed decisions in their academic, career,

and personal lives. Attention is given to the identification and management of the perception process, use of evidence, use of assumptions, emotional influences, and language in various forms of business and social communication. Pre: 15 or more college credits

**BUS 400 Internship (3)** Supervised, substantive, on-the-job experience in the business community. Comprehensive report by students, meeting with faculty advisor, and performance evaluation from employer required. Pre: Minimum cumulative GPA of 3.00; compatibility with career interests; pre-approved job placement and internship contract and instructor's consent. (Attributes: ALEX, GCC)

**BUS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**BUS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Chemistry (CHEM) Courses

College of Natural and Health Sciences (CNHS)

**CHEM 100 Chemistry and Society (3)** Introductory lecture on chemistry for non-science majors. A basic principles course designed for students in the humanities and social sciences. Current issues and the factors affecting them are presented from a simplified chemical viewpoint. Not repeatable for credit. Previously offered as CHEM 111. (Attributes: ALEX, DP, GQ)

**CHEM 100L Chemistry and Society Lab (1) (lab)** Laboratory principles and techniques presented from the non-science major viewpoint. When possible, experiments will involve everyday phenomena. Not repeatable for credit. Previously offered as CHEM 111L

**CHEM 141 Surv Organ Chem & Biochem (3)** Brief introduction to organic chemistry and selected topics in biochemistry. (Attributes: DP)

**CHEM 151 Elementary Survey of Chemistry (3)** Introduction to basic chemical principles associated with elements, molecules, energy, chemical reactions, and chemical bonding. The student should have competence in high school algebra prior to enrolling in this course. (Previously offered as CHEM 114) (Attributes: DP)

**CHEM 151L Elementary Survey of Chem Lab (1) (lab)** Introduction to basic chemical laboratory principles and techniques. Pre: CHEM 151, which may be taken concurrently. Previously offered as CHEM 114L (Attributes: DY)

**CHEM 161 General Chemistry I (3)** A mathematically rigorous introduction to chemistry designed for majors in the natural sciences. Topics covered include measurement and problem solving, structure of atoms, molecules, and compounds; chemical equations, chemical quantities and aqueous reactions; behavior of gases; thermochemistry; quantum-mechanical model of the atom; periodic property of the elements; chemical bonding. Pre: Placement into MATH 140 or higher based on the Math Placement Test, or a C or better in MATH 125 or higher excluding MATH 271, MATH X99, and MATH 496. (Previously Offered as CHEM 124) (Attributes: DP)



**CHEM 161L General Chemistry I Lab (1) (lab)** Experiments illustrating the fundamental principles and techniques of chemistry. Pre: CHEM 161, which may be taken concurrently. Previously offered as CHEM 124L (Attributes: DY)

**CHEM 162 General Chemistry II (3)** A mathematically rigorous continuation of CHEM 161. Topics covered include liquids, solids and intermolecular forces; properties of solutions; chemical kinetics and equilibrium; acids and bases; aqueous ionic equilibrium; free energy and thermodynamics; electrochemistry. Pre: a grade of "C" (not "C-") or better in CHEM 161. Previously offered as CHEM 125 (Attributes: DP)

**CHEM 162L General Chemistry II Lab (1) (lab)** Experiments illustrating the fundamental principles and techniques of chemistry. Pre: concurrent enrollment in CHEM 162 or prior credit in CHEM 162. Previously offered as CHEM 125L (Attributes: DY)

**CHEM 241 Organic Chem I (3)** The study of carbon compounds. Topics include molecular structure, stereochemistry, molecular spectroscopy, reactions and methods of preparation of principal classes of organic compounds. Reaction mechanisms. Pre: CHEM 162 and 162L or instructor's consent.

**CHEM 241L Organic Chem I Lab (1) (lab)** Techniques of organic chemistry, including synthesis and qualitative analysis. Applications include spectroscopy and chromatography. Pre: CHEM 241, which can be taken concurrently, and CHEM 162L.

**CHEM 242 Organic Chem II (3)** The study of carbon compounds. Topics include molecular structure, stereochemistry, molecular spectroscopy, reactions and methods of preparation of principal classes of organic compounds. Reaction mechanisms. Pre: CHEM 241 and 241L or instructor's consent.

**CHEM 242L Organic Chem II Lab (1) (lab)** Techniques of organic chemistry, including synthesis and qualitative analysis. Applications include spectroscopy and chromatography. Pre: CHEM 242, which can be taken concurrently, and CHEM 241L.

**CHEM 274 Principles of Analytical Chem (3)** Principles of data analysis and calibration of electroanalytical, spectroscopic, chromatographic, gravimetric, and volumetric methods. Pre: C or better in CHEM 162 and 162L.

**CHEM 274L Princ Analytical Chem Lab (2) (lab)** Principles of data analysis and calibration of electroanalytical, spectroscopic, chromatographic, gravimetric, and volumetric methods. Pre: C or better in CHEM 162L.

**CHEM 320 Descriptive Inorganic Chem (3)** The classification of inorganic compounds, their properties and fundamental theories. This course is followed by CHEM 421. Pre: CHEM 161 and 162.

**CHEM 341 Qualitative Org Analysis (2)** Identification and characterization of organic compounds and mixtures by chemical and spectroscopic techniques. Pre: CHEM 242 and 242L or instructor's consent.

**CHEM 341L Qualitative Org Ana Lab (2) (lab)** Identification and characterization of organic compounds and mixtures by chemical and spectroscopic techniques. Pre: CHEM 242 and 242L or instructor's consent.

**CHEM 350 Phys Chem for Life Sci (3)** Principles and theories of Physical Chemistry as applied to the life sciences. For chemistry majors and other natural science majors. Pre: CHEM 242, MATH 241 or consent

of instructor.

**CHEM 350L Phys Chem for Life Sci Lab (2) (lab)** Laboratory techniques in Physical Chemistry with emphasis in the life sciences. Pre: CHEM 162L and CHEM 350 which may be taken concurrently.

**CHEM 351 Physical Chemistry I (3)** Principles and theories of physical chemistry at the macroscopic level such as thermodynamics, equilibria, states of matter and kinetic and molecular theory. For chemistry majors and other physical science majors. May be taken before or after CHEM 352. Pre: CHEM 242, MATH 231, PHYS 170.

**CHEM 351L Physical Chem I Lab (1) (lab)** Laboratory techniques in physical chemistry at macroscopic level. Pre: CHEM 351, which may be taken concurrently.

**CHEM 352 Physical Chemistry II (3)** Principles and theories of physical chemistry at the microscopic level such as kinetics and quantum mechanics; intended primarily for chemistry majors. May be taken before or after CHEM 351. Pre: CHEM 242, PHYS 272, MATH 243.

**CHEM 352L Physical Chem II Lab (1) (lab)** Laboratory techniques in physical chemistry at the microscopic level. Pre: CHEM 352, which may be taken concurrently.

**CHEM 360 Environmental Chemistry (3)** Will include the use of chemical concepts and principles to explore and understand the environment. Natural and anthropogenic aspects of environmental chemistry will be addressed including chemical cycles and systems, pollution, 'green chemistry', and how chemical events can affect local and global processes. Pre: CHEM 162 with C or better grade.

**CHEM 415 Chemistry of Biotechnology (3)** This course will focus on the fundamentals of biotechnology beginning with the history and foundation of the field followed by detailed chemical and biochemical basis of well established applications of biotechnology in agriculture and the manufacture of pharmaceuticals. Pre: BIOL 410.

**CHEM 415L Biotechnology Laboratory (2) (lab)** Students will systematically develop skills and understanding of the basic laboratory methods used by biotechnologists. Students will gain experience in biological separation methods, enzyme and protein assays, recombinant DNA techniques, and growth of bacteria and mammalian cells. Pre or coreq: CHEM 415.

**CHEM 421 Inter Inorganic Chem (3)** The classification of inorganic compounds, description and fundamental theories. Course includes molecular orbital consideration. Pre: CHEM 352, which may be taken concurrently. Recommended: MATH 242

**CHEM 431 Instrumental Analysis (2)** Introductory instrumental analysis for chemistry majors but recommended for other natural science majors. Pre: CHEM 274 with C or better grade, or instructor's consent.

**CHEM 431L Instrumental Analysis Lab (2) (lab)** Introductory instrumental analysis for chemistry majors but recommended for other natural science majors. Pre: CHEM 274L with C or better grade or instructor's consent.

**CHEM 441 Inter Organic Chem (3)** The study of more advanced topics in organic chemistry, such as physical organic chemistry, natural products, advanced synthesis, macromolecules, and molecular spectroscopy. Pre: CHEM 242.

**CHEM 451 Inter Physical Chem (3)** Advanced topics in Physical Chemistry such as chemical kinetics, molecular spectroscopy,



electrochemistry, thermodynamics and statistical thermodynamics, surface chemistry, and crystallography. Pre: CHEM 352 or instructor's consent.

**CHEM 487 Environmental Toxicology (3)** Biochemical basis for toxicity. Chemical distribution and fate in the body; molecular mechanisms and effects of toxic action. Emphasis on environmental toxicants. Pre: upper-division courses in biochemistry and physiology or instructor's consent.

**CHEM 495A Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. Must be taken CR/NC. Pre: senior standing or instructor's consent. (Same as ASTR 495A, PHYS 495A, GEOL 495A, and MATH 495A)

**CHEM 495B Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. Students are required to take course for a letter grade. Pre: senior standing or instructor's consent. (Same as ASTR 495B, PHYS 495B, GEOL 495B, and MATH 495B)

**CHEM x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**CHEM x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Chinese (CHNS) Courses

College of Arts and Sciences (CAS) , Languages

**CHNS 101 Elementary Chinese I (4)** Development of listening, speaking, reading and writing Mandarin Chinese. Structural points introduced inductively. Laboratory drill. (Attributes: DH, GAHP, GL, HPP)

**CHNS 102 Elementary Chinese II (4)** Development of listening, speaking, reading and writing Mandarin Chinese. Structural points introduced inductively. Laboratory drill. Pre: CHNS 101 or equivalent. (Attributes: DH, GAHP, GL, HPP)

**CHNS 107 Accelerated Elementary Chinese (8)** Contents of CHNS 101-102 covered in one semester. Meets two hours daily, Monday through Friday. Language laboratory required. Development of four skills - speaking, listening, reading and writing - and an adequate knowledge at the beginning level of Chinese language. A variety of classroom activities: dialogues, role plays, individual and group presentations, grammar exercises, individualized laboratory work and A/V-aided activities, and reading and writing practice in the basic scripts ("pinyin" and "hanzi" characters).

**CHNS 200 Conversational CHNS Business (3)** This course is intended for students who have gained some basic knowledge of Chinese language but would like to improve their fluency, especially for business situations. Over this course, students practice conversational skill through a variety of topics, such as greetings and self-introduction, formal meetings, business negotiations, trade or financial transactions, and in any other situations that may be appropriate for an international business situation. Pre: CHNS 102 or 107.

**CHNS 201 Intermediate Chinese I (4)** Second-level training in listening, speaking, reading and writing skills. Pre: CHNS 102 or equivalent. (Attributes: DH, GAHP, GL, HPP)

**CHNS 202 Intermediate Chinese II (4)** Second-level training in listening, speaking, reading and writing skills. Pre: CHNS 201 or equivalent.

**CHNS 280 Introduction to CHNS Culture (3)** A general introduction to traditional Chinese culture through various topics, including its early civilization, cosmology, philosophy, religions, language, literature, art, music, dramas, scientific and technological inventions, medicines, martial arts, fengshui, and folk customs. Prominent historical figures (e.g. philosophers, writers, artists, scientists) and their contributions to Chinese civilization are discussed. Through a broad survey of essential aspects of Chinese culture, this multidisciplinary course lays a foundation for Chinese studies. (Attributes: DH, HPP)

**CHNS 320 CHNS Festivals & Food Culture (3)** This course discusses traditional Chinese festivals and food as important aspects of Chinese culture. It investigates the most important festivals and related customs, what food people cook and eat during the festivals, and why. It also explores popular styles of cooking in different areas and how they have shaped the diversity of Chinese people. Students will interact with local Chinese restaurants or families for the cultural tradition of Chinese cuisine. (Attributes: DH, HPP, GCC)

**CHNS 330 CH Culture via Classical Music (3)** This course introduces classical Chinese music as an essential part of Chinese cultural heritage. It reviews ten most famous pieces of classical Chinese music in the history and explores their significant social and cultural connotations. Students will learn how to appreciate classical Chinese music in connection with ancient Chinese aesthetics and perceptions of history, society, heroes, nobility, joy and bitterness, nature, and life. (Attributes: DH, HPP)

**CHNS 350 Chinese Folklore and Symbolism (3)** This course explores ancient Chinese folktales and symbolism that are significantly connected with Chinese cultural tradition, social life and customs, as well as distinctive aesthetics. Interesting and important stories are selected from mythology, legends, and fables, covering various themes such as the creation of the universe, enlightenment of virtues and ethics, philosophy of life, tragedies and praises for loyal love, as well as women heroes. Moreover, auspicious symbols in Chinese life are discussed in their historical and cultural context and with regard to their impact on Chinese society, customs, and aesthetics. (Attributes: DH, HPP)

**CHNS 360 Chinese Culture through Film (3)** This course introduces Chinese culture, history, society, people, customs, and major civilizations through a selection of 14 films. Students need to respond to some specific questions after watching each film and participate in the online forum on Laulima. Knowledge of Chinese language is not needed. (Attributes: DH, HPP)

**CHNS 364 Chns Lit in Eng-Modern (3)** Survey of major Chinese writings from 1919 to the present. Knowledge of Chinese is not required. (Same as ENG 364)

**CHNS 381 Chns Cult thru Arch & Garden (3)** This course introduces Chinese architecture and gardens as an important part of traditional Chinese culture. It emphasizes distinctive cultural implications in the architecture and its decorative arts, especially symbolism of architectural design (such as layout, size, form, elements, color). It also explores the artistic theories and cultural factors in the craft of imperial and private gardens. (Attributes: DH, HPP)



**CHNS 385 Chinese Archaeology (3)** This course adopts an archaeological approach to explore Chinese civilization in ancient times. Archaeological findings, including various cultural remains and unearthed cultural relics, are used as powerful physical evidence and study materials of the evolution of Chinese civilization from the Neolithic times to the late imperial periods. Students will learn how to employ and scrutinize archaeological data effectively in studying ancient Chinese society, culture, and people. (Attributes: DH, HPP)

**CHNS 387 CHNS Zen Temple Gardens in JPN (3)** This course discusses cultural exchange between ancient China and Japan from a perspective of religious, artistic, and architectural traditions in Zen temples and gardens. It introduces how Chinese Zen temple tradition was transmitted into Japan around Kamakura period (12th-14th centuries) and influenced the creative design of Japanese Zen temples and gardens that represented Japanese cultural identity. It also explores the intriguing cultural interactions of Chinese-style Zen temples in the 17th-century Japan. (Attributes: DH, HPP)

**CHNS 410 History of Chinese Characters (3)** This course introduces Chinese civilization and history through an investigation of the evolution of Chinese script and the socio-cultural factors related to it. Archaeological and historical materials are used in introducing its various forms in history: from tortoise shell script to seal and clerical scripts as well as regular script. Historical and cultural setting of creating and using the specific script are examined. The transformation of Chinese script into Japanese "kanji" and cultural exchange between Asian countries are also discussed. Pre: one of the following: CHNS 101, CHNS 107, JPNS 101, JPNS 101S, or JPNS 107. (Same as LANG/JPST 410) (Attributes: GAHP)

**CHNS 430 Cultural Exchange on Silk Road (3)** This course is focused on the cultural exchanges on the ancient Silk Road, which connected the East and the West from the second century BCE to the eighteenth century. It explores the essential role of the Silk Road, both the land route and the maritime route, in the economic, political, religious, and cultural interactions between China and Japan, Korea, Southeast Asia, South Asia, West Asia (Persia, the Arabian Peninsula), East Africa, and Southern Europe during the above historical times. Through a series of thematic topics, this course is aimed at an understanding of the diversity of Asian culture and its important contributions to the world civilization. (Attributes: DH, HPP)

**CHNS 440 Asian Architecture and Culture (3)** This course explores traditional Asian culture through its architectural heritage in various areas, especially in East Asia, South Asia, and Southeast Asia. Focused on the architectural traditions of China, Japan, Korea, India, Cambodia, Indonesia, Myanmar, and Thailand, it discusses the major artistic characteristics of their classical architecture in close connection with their social and cultural contexts. It also analyzes the distinctive cultural factors that contributed to the making of a diverse architectural tradition across Asia. (Attributes: DH, HPP)

**CHNS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**CHNS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Civil Engineering (CE) Courses

College of Natural and Health Sciences (CNHS)

**CE 270 Applied Mechanics I (3)** Equilibrium of particles, rigid bodies, frames and machines; vectors, centroids, friction, and moments of inertia. Pre: PHYS 170 and MATH 242.

**CE 271 Applied Mechanics II (3)** Dynamics of particles and rigid bodies: force-acceleration; impulse-momentum; work-energy. Pre: CE 270 and Math 243.

**CE x94 Special Topics in Subject Matter (Arr.) (10)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**CE x99 Directed Studies (Arr.) (10)** Statement of planned reading or research required. Pre: instructor's consent.

## Communication (COM) Courses

College of Arts and Sciences (CAS)

**COM 100 Human Comm in Diverse Society (3)** The role of human communication in meeting the task and social needs of a multicultural society. Emphasis on communication concepts, principles, and cultural issues in interpersonal, small group, organizational, public, mediated, and global contexts.

**COM 200 Interpersonal Comm (3)** The fundamental concepts of interpersonal communication: verbal and nonverbal communication in face-to-face encounters.

**COM 207 Gender and Communication (3)** This course is an introduction to gender research in communication, studying ways in which language, interpersonal communication, the media, and various social institutions influence conceptions of gender. (Same as WS 210).

**COM 240 Professional Communication (3)** An overview of the various approaches to organizations, communication, public relations, leadership, and interviewing. Professional presentation, writing, small group problem solving and consulting skills are developed. Also addressed are diversity, technology, and globalization issues.

**COM 241 Health, Culture and Diversity (3)** This course is an overview of the study of health communication. It is aimed to provide exposure to concepts and principles in the field, focusing on advocacy and individual awareness in current events. Topics will include the dynamics shared between health care providers and patients, the role of mass media, promotion of public health campaigns and culturally diverse approaches to health care.

**COM 251 Public Speaking (3)** Analysis, preparation and delivery of speeches. Emphasis on content, organization and style.

**COM 260 Media and Culture (3)** Historical and contemporary overview of television, radio, film, and the press in American culture.

**COM 270 Intro to Theories of Human Com (3)** Examination of the



theoretical foundations of the human communication discipline. Coverage of traditional and contemporary theories in such areas as interpersonal, small group, organizational, intercultural, public and mass communication. (Attributes: DS)

**COM 273 Radio Drama (3)** A survey and production course in Radio Drama with emphasis on the actual production of radio drama(s) for public broadcast. Pre: DRAM 170, COM260 or instructor's consent. (Same as DRAM 273)

**COM 285 Intro to News Writing & Report (3)** Prepares students to write for newspapers, the internet, and other journalistic outlets. Includes coverage of news conferences, county council meetings, trials, sports, and writing feature stories. (Same as ENG 285) (Attributes: DH, GL)

**COM 287 Media Writing Practicum (3) (lecture/lab/other)** Further preparation for the media profession through critical analysis of online and print media. Emphasis on encouraging applied learning experiences through responsible submission to publications and portfolio development. Pre: ENG 100, 100T, ESL 100, 100T or instructor's consent.

**COM 340 Interviewing (3)** This course focuses on the interview process as a collaborative dialogue. Emphasis is placed on framing the interview, listening ethics, cultural diversity, and the development of interviewing skills. Pre: COM 200 or consent of instructor.

**COM 344 Sustainability, Com & Culture (3) (lecture/other)** Diverse theories and perspectives related to sustainability, communication and culture are examined. Sustainability is related to global and local cultures, the development of healthy individuals, relationships, organizations, communities. The ways that rhetoric, media, and new technologies may be used to promote sustainability are examined. (Attributes: ALEX)

**COM 350 Intro Human Commun Research (3)** An introduction to basic communication research approaches, reviewing the literature, and reporting research.

**COM 351 Com in Multicultural Workplace (3)** This course provides intercultural insights into organizational communication and addresses leadership and membership, decision-making and conflict resolution in the multicultural workplace.

**COM 352 Comm in Small Groups (3)** Discussion processes in small groups. Effects of variables such as group organization, leadership, membership, goals on how a group attempts to achieve its purpose.

**COM 354 Comm in Innovation (3)** The role of communication as a change agent in society. Communication strategies in diffusion of information.

**COM 358 International Communication (3)** This course surveys major topics in international communication, international and national policies on media, comparative media systems, and issues of development.

**COM 359 Intercultural Communication (3)** Linguistics and nonverbal variables that influence the effectiveness of cross-cultural communication. (Attributes: ALEX, GAHP, GCC, HPP)

**COM 360 Impact Of Mass Media (3)** Analysis of some of the major effects of the mass media on the individual and society.

**COM 361 Media Ethics and Law (3)** Media Ethics and Law is an introduction to the ethical and legal issues related to communication and speech. It also gives students a better understanding of the U.S.

Constitution and its role in our legal system. Students are provided tangible guidelines within which to communicate. They will understand how and why speech is protected and when that speech crosses the line into becoming unprotected speech.

**COM 362 Broadcast Comm Practicum (3) (other)** Field experience in basic principles of broadcast production and communication requiring a minimum of ten hours each week in an assigned broadcast communication setting. Pre: instructor's consent required. May be repeated once for credit.

**COM 365 Modern American Cinema (3)** The study of American film since WWII, drawing from such film genres as the detective-hero, the musical, the western, comedy, social realism, and melodrama.

**COM 366 Asian Cinema and Television (3)** Examines Asian film and television industries. It surveys the production, distribution, and consumption process of television programs and movies in China, Hong Kong, India, Japan, South Korea, Taiwan, and the Middle East.

**COM 368 Communication & Social Change (3)** This course introduces students to theories and practices of social change from a communication perspective and explores the historic and contemporary role of communication in local, national, and international social movements.

**COM 370 Persuasion (3)** Inquiry into the nature of persuasion or attitude change with focus on the message as a major determinant of the effects of persuasion on receivers.

**COM 371 Communication Ethics (3)** This course examines ethical standards in evaluating communication acts and events and discusses ethical issues and challenges in communicating in different contexts

**COM 375 Nonverbal Communication (3)** The nonverbal dimensions of human communication.

**COM 385 Advanced Media Writing (3) (lecture/lab/other)** A hands-on class that prepares students for the communication field. An advanced media writing course that includes a final in-depth, investigative news article. Students will build their portfolios by developing articles and submitting them for publication as well as for class credit. Pre: ENG 100/100T, ESL 100/100T, COM 285, or instructor's consent.

**COM 387 Performance Education (3)** In this course, students are guided through the process of researching, writing, rehearsing and performing a series of educational and entertaining presentations that deal with science and Hawaiian culture. Presentations will be shared with the general public in a museum theater setting at Imiloa Astronomy Center of Hawai'i. Course may be repeated once for credit. Pre: COM 251 or DRAM 171 or DRAM 221 or instructor's consent. (Same as DRAM 387) (Attributes: GCC, HPP)

**COM 391 General Semantics (3)** Understanding language, verbal meaning and implication, roles of perception and assumption (inference and judgment) in human relationships.

**COM 400 Seminar in Human Dialogue (3)** An exploration of the writings of those who contemplate "dialogue," generally considered to be the highest quality form of human communication. Pre: COM 200 and 251 or instructor's consent.

**COM 420 Family Communication (3)** Foundational concepts and theories are introduced. Communication dynamics within families are explored. Narrative, functional, interpretive, and systems approaches to



family communication are included. Cultural influences are examined. Conditions necessary for optimal family functioning are addressed. (same as WS 420)

**COM 430 Health Communication (3)** Survey of health communication research including doctor- patient interactions, social support, culture and diversity issues in healthcare, and public health campaigns. Special attention will be given to the role of technology in health communication. Cultural influences on health beliefs and practices are examined.

**COM 440 Organizational Communication (3)** Organizational communication is an intensive consideration of the role of human communication in organizational effectiveness. The course emphasizes both theory and practice and focuses on historical and contemporary trends affecting organizations. Pre: COM 200 and 251 or instructor's consent.

**COM 441 Leadership & Communication (3)** Relationships between communication and leadership including a consideration of relevant theories, concepts, tools, and skills. Leadership and communication are examined in relation to organizational culture, change, diversity, technology, and decision making. Pre: COM 200 and 251 or instructor's consent.

**COM 442 Communication & Conflict (3)** Relationship between human communication and conflict. The relationship among personal history, culture, gender, power, communication, and conflict is considered. Students gain experience in assessing and intervening in conflict situations in both professional and personal contexts. Western, Eastern, and Hawaiian approaches to conflict management are included. Pre: COM 251 or instructor's consent.

**COM 444 Public Relations (3)** An overview of the practice of public relations in business, educational institutions, non-profit organizations, and government. Students will learn how to interact with public relations professionals, the media, write press releases, and design and evaluate campaigns. Pre: COM 251 or instructor's consent.

**COM 450 Human Communication Theory (3)** Examination of traditional and contemporary theories in the study of human communication.

**COM 451 Communication and Ethnography (3)** Study of ethnography as a qualitative research method. Opportunities to collect data in the field by participating and observing (writing field notes, videotaping, and/or audio taping), interviewing (videotaping or audio taping), and investigating texts (documents, diaries, photographs, films, etc.) are provided. New ethnographic form such as autoethnography, co-constructive narrative, interactive interviewing, creative non-fiction, poetry, fiction and performance are introduced.

**COM 455 Com & Culture Asian Americans (3)** Examination of communication patterns of the major Asian American ethnic groups. Particular emphasis will be placed on the influence of ethnic-cultural identities, cultural variability, immigration patterns, and other relevant issues on the communication behavior of Asian Americans.

**COM 456 Asian Perspectives on Commun (3)** This course surveys indigenous concepts and theories of Asian cultures and communication and compares Eastern and Western perspectives on humans communicating. (Attributes: GAHP)

**COM 457 Japanese Culture & Commun (3)** This course explores aspects of Japanese communication from cross-cultural perspectives and examines problems in intercultural interactions between Japanese and

non-Japanese. (Same as JPST 457). (Attributes: GAHP)

**COM 460 Mass Media Analysis (3)** Advanced study in mass communication theory, analysis, and criticism, with emphasis upon the electronic mass media. Pre: Com 260 or 360 recommended.

**COM 461 Race and Gender in Media (3)** This course explores the dynamic interactions between race, gender and the mass media. Specifically, it examines media representations of race and gender and their cultural, sociological, and psychological effects in the society. Pre: COM 260, 360 or instructor's consent. (Same as WS 461). (Attributes: GCC)

**COM 475 Seminar in Listening (3) (other)** Exploration of effective and ineffective listening behaviors in everyday life is the primary course topic. Research and scholarship on the topic of listening will be surveyed. An effort will also be made to refine students' actual listening skills. Pre: COM 200.

**COM 485 Communication and Love (3)** Theory, practice, and interrelationship of the arts of the arts of communication and love.

**COM 488 Seminar in Social Media (3)** Research seminar examining the effects of social media on identity, relationships, information seeking, communities, news production, and civic engagement. Social media analytics tools are introduced.

**COM x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**COM x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Computer Science (CS) Courses

### College of Natural and Health Sciences (CNHS)

**CS 100 Prin Of Computer Sci (3)** General survey of the entire field of computer science. Principles of machine architecture, human/machine interface, data organization, and their interrelationship. (Attributes: GQ)

**CS 101 Digital Tools for Info World (3)** Hands-on computer class with emphasis on producing professional-level documents, spreadsheets, presentations. Also involves data organization and filtering, relational databases and web page development for problem-solving. Includes mathematical, logical, statistical and financial analysis calculation concepts. (Attributes: GQ)

**CS 130 Beg Graphics, Game Programg (3)** Introduction to two-dimensional graphics and game programming: graphic elements, layers and simple animation; principles of game design and implementation; emphasis on Flash and Action Script programming; game physics; simple AI techniques. Previous programming experience helpful but not required.

**CS 132 Intro to Health Informatics (3)** This introductory course will cover a broad range of topics relating to the area of health informatics and health care technology with a focus on standard and current software tools.



**CS 135 Animation Programming (3)** A gentle introduction to programming with user-friendly software. Students will use storyboarding design strategies to create animations and designs with objects in virtual worlds. These animations and designs promote an understanding of basic programming constructs including control structures and object-oriented programming. Projects based on Hawaiian and Pacific themes will be emphasized. Open to all students; especially intended for those with no programming experience. Computer science majors may take this course to prepare for CS 150. (Attributes: GQ, HPP)

**CS 137 Digital Media with Flash (3)** Use digital images, sounds, and video to create slide shows, animation, podcasts, tutorials, demonstrations, e-portfolios, etc. Save to DVD and web pages. Learn Flash and other software. Students may use existing content such as research project photos. Pre: any prior CS course or instructor's consent.

**CS 138 Intro to Computing with Robots (3)** A gentle introduction to computer programming using robot kits and a high level programming language. Students will learn how to control and communicate with robots and at the same time gain an understanding of basic programming constructs, including control structures and object-oriented programming. Student projects will include use of robots to simulate space exploration as well as other tasks suited to robots. Computer science majors may take this course to prepare for CS 150.

**CS 140 Multimedia Programming (3)** An introduction to computer programming in the context of multimedia. Introduces students to some of the principles of computer science. Students will learn how to write computer programs (in Python) for creating and manipulating three types of media: pictures, sounds, and movies. Computer science majors may take this course to prepare for CS 150.

**CS 141 Discrete Math for Comp Sci I (3)** Includes logic, sets, functions, matrices, algorithmic concepts, mathematical reasoning, recursion, counting techniques, probability theory. Not open to students with credit in Math 310. Pre: MATH 140x, or MATH 135T and MATH 140, or MATH 135 and MATH 140.

**CS 150 Intro To Computer Science I (3)** Intended for Computer Science majors and all others interested in the first course in programming. An overview of the fundamentals of computer science emphasizing problem solving, algorithm development, implementation, and debugging/testing using an object-oriented programming language. Pre: MATH 135T or higher, or placement into MATH 135 or higher. (Attributes: GQ)

**CS 151 Intro to Computer Sci II (3)** Reinforces and strengthens problem solving skills using more advanced features of programming languages and algorithms such as recursion, pointers, and memory management. Emphasizes the use of data structures such as arrays, lists, stacks, and queues. Pre: CS 150.

**CS 171 Data Science Fundamentals in R (3) (lecture/lab)** Introduction to the field of data science. Focus on communicating narratives regarding the underlying patterns in the data, i.e. storytelling with data. Topics include R programming fundamentals, data properties, visualization, importing, cleaning, and transforming data. No prior programming experience required. Pre: C or better in MATH 135T or higher, or placement into MATH 140 or higher. (Same as DATA 171) (Attributes: GQ)

**CS 172 Python for Data Analysis (3) (lecture/lab)** Fundamentals of Python programming for the analysis of real-world datasets. Topics include writing scripts and programs in Python and tools for cleaning, manipulating, and visualizing data. Introduction to intelligent analysis

techniques. Properties of domain-specific datasets. No prior programming experience required. Pre: C or better in MATH 135T or higher, or placement into MATH 140 or higher. (Same as DATA 172) (Attributes: GQ)

**CS 200 Web Technology I (3)** Introductory web page authoring. Creation of client-side web pages using web authoring language and style sheets. Consideration of graphical design elements, validation, browser compatibility, and accessibility. Use of scripting language to add dynamic elements to web pages. (Attributes: GL)

**CS 201 Web Technology II (3)** Intermediate web page authoring. Creation of web pages that present data from XML sources and use XSLT transformations. Development of an e-commerce web site that uses a standard browser to accept user input, processes the user input with business logic, and connects to a back-end SQL database. Publication of web site to a web server. Pre: CS 200 or instructor's consent.

**CS 205 PC Hardware (3)** An introduction to the hardware components and assembly of personal computers and their connectivity to networks. Includes laboratory and hands-on assembly.

**CS 235 Comp Forensic & Investigation (3)** Students will learn how to examine digital devices in a forensically professional manner with the aim of identifying, preserving, recovering, analyzing and presenting facts and opinions about the digital information in the courtroom. Students will learn the basic artifacts of operating systems, file systems, recovery process of deleted data, Cybersecurity attacks, email tracking, mobile forensics, image file forensics, etc.

**CS 241 Discrete Math for Comp Sci II (3)** Includes functions, matrices, graph theory, trees and their applications, Boolean algebra, introduction to formal languages and automata theory. Pre: CS 141 and MATH 241.

**CS 266 Comp Org & Assembly Lang (3)** Organization of computers; assembly language; instruction sets: CPU; memory; input/output; interrupts; DMA. Pre: CS 150.

**CS 272 Machine Learning for Data Sci (3)** How to use data to automatically understand the world, make complex decisions, and even predict the future. Focuses on helping students do more with data by understanding and using a wide variety of machine learning tools. Taught in Python. Pre: CS/DATA 172 and MATH 241, which may be taken concurrently. (Same as DATA 272)

**CS 282 Practical Comp for Sci & Engg (3)** Create scientific and engineering computation spreadsheets emphasizing equations, references, mathematical functions, and charts. Use MS Excel to show trends, solve what if scenarios, filter information, and summarize information. Design and create MS Access tables, relationships, forms, queries, and reports to analyze scientific data. This class primarily focuses on advanced features and functions of MS Excel and MS Access and creates applications to solve scientific and engineering problems. Pre: MATH 140X (may be taken concurrently).

**CS 300 Web Site Management (3)** Advanced topics in web site administration. Issues covered include: site management (operating system, web server and database installation and administration); security (cryptography, authentication, digital certificates); and content (site design, ethical and business considerations). Pre: CS 200 or instructor's consent.

**CS 315 Board Game Analysis & Design (3)** This course focuses on the design and analysis of modern board games, card games, and other



table-top games. Through game play, design, and writing assignments, students will develop critical thinking, problem solving, research and technical writing skills.

**CS 321 Data Structures (3)** Basic concepts of space/time efficiencies Algorithms and data structures for searching (binary search trees, AVL trees, hash tables) and sorting. Graph algorithms. Data compression using Huffman codes. Pre: CS 151 and 241, or instructor's consent.

**CS 340 Graphical User Interfaces (3)** Study of the graphical user interface as applied to computer software. Examination of history, human factors, design, technology and implementation of graphical user interfaces. Pre: CS 151.

**CS 350 Systems Programming (3)** Introduction to systems programming in the UNIX environment. Topics include the UNIX command shells and scripting, the C programming language, UNIX programming tools and system calls, processes and process management, file and console I/O, and other selected topics. Designed for students interested in scientific, engineering or systems programming, systems administration or graduate education in computer science. Pre: CS 151.

**CS 370 Data Management (3)** Fundamentals of relational database usage and management from a data science perspective. Topics include properties of multi-table data, the entity- relationship data model, SQL for single and multiple table queries and updates, and communicating with databases using R. Pre: C or better in CS/DATA 171. (Same as DATA 370)

**CS 373 Data Security & Privacy (3)** This course studies the numerous privacy and security issues that arise when gathering, storing, analyzing, and distributing data. This course will teach students about the fundamental underpinnings of security & privacy as well as give practical, hands-on experience designed to help data scientists identify and resolve real-world issues. Topics include differential privacy, database security, server security, data ethics, machine learning safety, and data integrity. Primarily taught in Python. Pre: C or better in CS/DATA 172. (Same as DATA 373)

**CS 407 Intro To Numerical Analysis I (3)** Solutions of equations in one variable, direct and iterative methods for systems of linear equations, the algebraic eigenvalue problem, interpolation and polynomial approximation, error analysis and convergence for specific methods. Offered spring semester. Pre: C in MATH 242 and MATH 311 and programming experience. (Same as MATH 407).

**CS 408 Intro To Numerical Analysis II (3)** A continuation of CS 407. Topics will include approximation theory, numerical integration and differentiation, solution of systems of nonlinear equations, numerical solutions to differential equations. Pre: C in CS 407. (Same as MATH 408).

**CS 410 Elemts Computer Architec (3) (lecture/lab)** Basic Machine Architecture, Cache Memory, Computer Arithmetic, RISC, Instructional-level Parallelism, Superscalar Processors, Microprogrammed Control, Parallel Processing. Performance Evaluation. Pre: CS 266 and 321.

**CS 420 Database Internals (3)** Concepts and methods for managing persistent data. Study of stream, sequential, relative and indexed organizations. Implementation techniques and performance. Introduction to SQL. XML as a data transport and storage mechanism. Pre: CS 321.

**CS 421 Database Systems Design (3)** Data models: hierarchical, network, relational, object oriented. Relational database management systems. Database design. Client/server systems. Web access to

databases. Database administration and security. Transaction management. Database programming. Pre: CS 420.

**CS 422 Database Analytics (3)** Further study of database design. Administrative and user capabilities of a modern database management system. Database security. Transaction management. Database programming: client and server. Two and three-tier client server systems. Web services and mobile applications. Data transformation. XML as a data transport, and storage mechanism. Pre: CS 421.

**CS 430 Operating Systems (3)** Covers the concepts, issues and design of modern operating systems. Topics include processes and state, concurrency, resource management algorithms for memory, processors and I/O devices, protection and security. Case studies of popular workstation, server and mainframe operating systems. Laboratory projects teach concurrent programming and OS implementation techniques. Pre: CS 266, CS 321.

**CS 431 Networks & Data Commun (3)** Thorough survey course covering major networking concepts such as Link-level Flow, Error Control, Congestive Control and QOS. Modern network protocols such as TCP/IP, ATM, Frame Relay, Ethernet, Fiber Channel and Wireless LANs will be compared and contrasted. Pre: CS 321.

**CS 435 Ethical Hacking (3)** "To beat a hacker, you need to think like a hacker". This course will provide hands-on training to students to become information security professionals while learning tools and techniques used by attackers. Students will get training to become ethical hackers to defend against cyber-attacks through the five phases of Ethical Hacking: Reconnaissance, Gaining Access, Enumeration, Maintaining Access, and Covering Tracks. Pre: CS 150

**CS 440 Artificial Intelligence (3)** Fundamental concepts of artificial intelligence including problem solving, heuristic search and knowledge representation. Discussion of applications such as game playing, theorem proving, and knowledge based expert system. Pre: CS 321.

**CS 450 Org Of Programming Lang (3)** Advanced introduction to the concepts and issues in the design of computer programming languages. Topics include classification of languages, types, semantics, special forms parameter passing, closures, object-orientation, continuations, concurrency, exceptions, interpreters and garbage collection. Laboratory projects highlight design decisions and teach interpreter implementation techniques. Pre: CS 321.

**CS 451 Compiler Theory (3)** Study of LL, LR, LALR grammars and compiler techniques suitable for programming languages for use in constructing scanners, parsers, code generators, code optimizers for a compiler. Use of compiler construction tools such as lex and yacc to develop a compiler for a block structured programming language. Pre: CS 321.

**CS 460 Software Engineering I (3)** Emphasizes planning, analysis, and design phases of the Software Development Life Cycle with one model of the SDLC covered. Goal is to learn tools and techniques for sound requirement assessment and, working as a team, produce a verified design of a real software product. Pre: CS 321, One Writing Intensive Course. (Attributes: ALEX, GCC)

**CS 461 Software Engineering II (3)** Emphasizes implementation, installation and maintenance phases of the SDLC covered in CS 460. Goals are to learn specific techniques and tools for product development testing, measurement and documentation. Team will complete product. Pre: C or better in CS 460. (Attributes: ALEX, GCC)



**CS 470 Theory Of Computing (3)** Study of various models of computation and their relation to formal languages: finite automata, push-down automata, Turing machines, regular, context-free, and recursively enumerable languages. Unsolvability, NP completeness. Pre: CS 321.

**CS 475 Data Visualization (3)** This team-taught course provides an interdisciplinary framework for learning cutting-edge data visualization techniques. The class enables students from varied disciplines to work together and develop collaborative projects. Students are taught hands-on skills for creating effective data visualization products and tools that can be applied to a broad range of scientific disciplines. Pre: Junior or Senior standing and one of the following: CS 150, ART 112, or a prior course in ASTR, BIOL, CHEM, ENSC, GEOL, MARE or PHYS. Co-Req: CS/ART/NSCI 475L (Same as ART/NSCI 475)

**CS 475L Data Visualization Lab (1) (lab)** Hands-on training with the various software tools used throughout CS/ART/NSCI 475. Course is repeatable twice for a total of 3 credits. Co-Req: CS/ART/NSCI 475 or Instructor's Consent (Same as ART/NSCI 475L)

**CS 480 Digital Image Processing (3)** This course provides introduces digital image processing fundamentals and the software principles used in their implementation. Topics include intensity transformations, spatial filtering, compression, geometric transforms, registration, wavelets, segmentation, and edge detection. This course reinforces theory through a hands-on programming approach. Prerequisite: CS 321

**CS 485 Social Network Analysis (3)** Covers the six degrees of separation, models of the small world, page rank, network effects, P2P networks, network evolution, spectral graph theory, virus/news propagation, core-periphery, link prediction, power-laws, scale free networks, network communities, hubs and authorities, bipartite cores, information cascades, influence maximization Pre: CS 151

**CS 495 CS Professional Seminar (1) (other)** Computer science and software engineering are careers demanding technological and ethical application of computer hardware, software, and human resources. Course emphasis is on entry into and growth in these careers showing the balancing of needs amongst technology, employee, employer, and society. Repeatable up to two times for a total of three credits. Pre: CS 321

**CS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**CS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Dance (DNCE) Courses

College of Arts and Sciences (CAS) , Performing Arts Department

**DNCE 110 Pilates Beginning Matwork (1)** Body conditioning program in Pilates method. Emphasis on fundamentals and beginning mat exercises.

**DNCE 150 Intro To Dance (3)** History, scope, and theory of human movement. Study of the correlation of dance, music, and visual

expression. Not a performance course. (Previously offered as DNCE 251) (Attributes: DA)

**DNCE 151 Dance Techniques (2)** Study of the basic vocabulary of dance and the collaborative contributions of choreographers, dancers and musicians. Experiential work in the development of basic stage movement, including understanding of period demands. May be taken concurrently with music and drama technique courses. Required for all Performing Arts majors.

**DNCE 160 Ballet I (3)** Introduction to classical ballet. Movements, techniques and appreciation of ballet. Previous experience not required. May be repeated once for credit. (Attributes: DA)

**DNCE 180 Jazz Dance I (3)** Introductory course in jazz dance style and techniques. May be repeated once for credit. (Attributes: DA)

**DNCE 190 Modern Dance I (3)** Basic techniques of Modern Dance as an art form. May be repeated once for credit. (Attributes: DA)

**DNCE 210 Pilates Intermediate Matwork (1)** Continuation of DNCE 110. Emphasis on additional strength and stamina skills. Pre: DNCE 110 or instructor's consent.

**DNCE 260 Ballet II (3)** Continuation of Ballet I. Movements, techniques, and appreciation of ballet. Emphasis on developing strength, flexibility, and control in classical balletic style. May be repeated once for credit. Pre: DNCE 160 or consent of instructor. (Attributes: DA)

**DNCE 280 Jazz Dance II (3)** A continuation of Jazz Dance I. May be repeated once for credit. Pre: DNCE 180 or consent of instructor. (Attributes: DA)

**DNCE 290 Modern Dance II (3)** Second level Modern Dance. Designed to develop physical flexibility, body control, and a more acute rhythmic sense. May be repeated once for credit. Pre: DNCE 190 or consent of instructor. (Attributes: DA)

**DNCE 360 Ballet III (3)** This course will emphasize intermediate ballet techniques for the dancer with previous training. It will begin the study of pointe work for qualified females and jumps and turns specifically for males. May be repeated once for credit. Pre: DNCE 160, DNCE 260, or instructor's consent. (Attributes: DA)

**DNCE 371 Choreography (3)** An introduction to the basic techniques of creating dance. Public performance required. May be repeated once for credit. Pre: DNCE 180 or DNCE 190, or instructor's consent. (Attributes: DA, GCC)

**DNCE 401 Dance Ensemble (3)** Preparation and performance of techniques and repertoire at the advanced level. Public performance required. May be repeated for credit. Pre: audition. (Attributes: GCC)

**DNCE 419 Dance In Education (3)** Dance activities for young people. Appropriate for teachers, group workers, recreation majors, and others working with children. Supervised field activities. (Attributes: ALEX, GCC)

**DNCE 450 History of Dance (3)** Development of Western theatrical dance from Ancient Greece through 19th century ballet to the present, including modern dance, contemporary ballet, and dance forms of musical theater and film. Pre: Performing Arts Core, upper division standing or consent of instructor.

**DNCE 459 Topics in Dance (1-3)** Topics in movement styles and experience. Repeatable, if topic changes, unlimited times. (Attributes: DA)



**DNCE 460 Ballet IV (3)** Intermediate/advanced ballet technique with the continuation of pointe work for qualified females. Introduction to classical partnering work. May be repeated once for credit. Pre: DNCE 360 and audition. (Attributes: DA)

**DNCE x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**DNCE x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Data Science (DATA) Courses

College of Natural and Health Sciences (CNHS)

**DATA 171 Data Science Fundamentals in R (3) (lecture/lab)** Introduction to the field of data science. Focus on communicating narratives regarding the underlying patterns in the data, i.e. storytelling with data. Topics include R programming fundamentals, data properties, visualization, importing, cleaning, and transforming data. No prior programming experience required. Pre: C or better in MATH 135T or higher, or placement into MATH 140 or higher. (Same as CS 171)

**DATA 172 Python for Data Analysis (3) (lecture/lab)** Fundamentals of Python programming for the analysis of real-world datasets. Topics include writing scripts and programs in Python and tools for cleaning, manipulating, and visualizing data. Introduction to intelligent analysis techniques. Properties of domain-specific datasets. No prior programming experience required. Pre: C or better in MATH 135T or higher, or placement into MATH 140 or higher. (Same as CS 172)

**DATA 200 Intro to Business Analytics (3)** An introduction to quantitative modeling and data-driven decision-making used in Business Analytics. Includes the basic concepts and mathematical tools to understand the role of quantitative analytics in organizations; application of analysis tools and interpretations of model outputs for effective communication. (Same as QBA 200)

**DATA 271 Applied Statistics with R (3)** Introduction to probability and statistics, with an emphasis on applied use of the R statistical computing system. Topics include categorical and quantitative random variables, probability distributions, descriptive statistics estimation, hypothesis testing, and linear regression. Pre: C or better in MATH 135T or higher, or placement into MATH 140 or higher. Recommended: C or better in CS 171 or computer programming experience. (Same as MATH 271)

**DATA 272 Machine Learning for Data Sci (3)** How to use data to automatically understand the world, make complex decisions, and even predict the future. Focuses on helping students do more with data by understanding and using a wide variety of machine learning tools. Taught in Python. Pre: CS/DATA 172 and MATH 241, which may be taken concurrently. (Same as CS 272)

**DATA 362 Business Analytics (3)** Fundamentals of Business Analytics. This course aims to teach students to analyze, formulate, and solve managerial decision-making problems using quantitative models and techniques. Pre: C or better in QBA 200 or QBA 260. (Same as QBA 362)

**DATA 370 Data Management (3)** Fundamentals of relational database usage and management from a data science perspective. Topics include properties of multi-table data, the entity-relationship data model, SQL for single and multiple table queries and updates, and communicating with databases using R. Pre: C or better in CS/DATA 171. (Same as CS 370)

**DATA 371 Multivariate Modeling with R (3)** Multivariate statistical methods and model selection using R. Topics include the multivariate normal distribution and covariances, multiple regression, analysis of variance, principal component analysis, logistic regression, and decision trees. The course will emphasize model selection and techniques such as validation sets to address the problem of overfitting. Pre: C or better in MATH 271. (Same as MATH 371)

**DATA 373 Data Security & Privacy (3)** This course studies the numerous privacy and security issues that arise when gathering, storing, analyzing, and distributing data. This course will teach students about the fundamental underpinnings of security & privacy as well as give practical, hands-on experience designed to help data scientists identify and resolve real-world issues. Topics include differential privacy, database security, server security, data ethics, machine learning safety, and data integrity. Primarily taught in Python. Pre: C or better in CS/DATA 172. (Same as CS 373)

**DATA 375 Applied Informatics (3)** Introduction to the theory and application of informatics tools used in Marine and Natural Sciences. Students will learn the fundamentals of data management, data analytics, ecoinformatics, bioinformatics, and data visualization. Pre: C or better in CS 171 or CS 172, C or better in MATH 271 or MARE 250 or Instructor's Consent.

**DATA 465 Social Media Analytics for Bus (3)** Fundamentals of Social Media and Text Analytics. Provides the concepts to understand the role of Social Media/Text Analytics for business decision-making. Pre: C or better in QBA/DATA 200, QBA/DATA 362, CS/DATA 172 or instructor's consent. (Same as QBA 465)

## Drama (DRAM) Courses

College of Arts and Sciences (CAS), Performing Arts Department

**DRAM 101 Introduction to Theatre (3)** Theatre history and play analysis from the standpoint of production. Lab work in three aspects of play production: acting, directing, design. Previously offered as DRAM 271. (Attributes: FGC)

**DRAM 171 Stage Techniques (2)** Required for all Performing Arts majors. Study of the basic vocabulary of the stage and the collaborative contributions of directors, actors, technicians, and house personnel. Experiential work in the development of stage presence and etiquette. May be taken concurrently with music and dance technique courses.

**DRAM 221 Beginning Acting I (3)** Individual exercises and group activities that emphasize voice, movement, and relaxation through in-class improvisation and performance of monologues and two-person scenes. Beginning play analysis. (Attributes: DA)

**DRAM 222 Beginning Acting II (3)** Continuation of DRAM 221, with emphasis on building the ensemble, basic character work, refining vocal production, and expanding movement vocabulary. Performance of group scenes from modern and contemporary plays. Play analysis based on method acting theory. Pre: DRAM 221. (Attributes: DA)



**DRAM 243 Drama of Hawai'i & the Pacific (3)** Embedded in a discourse of coloniality and indigenous perspective, this course provides an introduction to a representative range of plays written by, for, and about the people of Hawai'i and other Pacific islands. (Same as SOC 243) (Attributes: DH, HPP)

**DRAM 280 Basic Stagecraft (3)** Introduction to beginning concepts of design and construction of scenery for the stage. Overview of the development of scenography from Greek theatre to the modern proscenium stage. Study will include two- and three-dimensional scenery, properties, and finishing techniques. Pre: concurrent registration with DRAM 280L. (Attributes: DA)

**DRAM 280L Basic Stagecraft Laboratory (1) (lab)** Supervised work in stagecraft, lighting and sound. Pre: concurrent registration with DRAM 280.

**DRAM 318 Playwriting (3)** Basic course in writing for the stage. Development of theme, action, and characterization for the one-act play form. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T; or consent of instructor (Same as Eng 318) (Attributes: DA, GL)

**DRAM 321 Styles Of Acting (3)** Advanced study for actors who have completed Beginning Acting. Concentrated scene work, script analysis, character development, and style study. Comparative exercises in acting for the stage and camera. Performance of workshop material. Pre: DRAM 221, or Instructor Consent. (Attributes: DA)

**DRAM 322 Acting Shakespeare (3)** In-depth study of Shakespearean texts from the standpoint of production and acting style. Historical study of Renaissance production techniques. Performance of scenes resulting from work on vocal production, period movement, and text analysis. Pre: DRAM 221, or consent of instructor (Attributes: DA)

**DRAM 330 Stage Management (3)** Study of the responsibilities of a production stage manager, from rehearsals through mounting a show, as coordinator of a production team. Development of the prompt book and forms needed to organize the technical elements of a production. Pre: DRAM 101 or DRAM 221 or DRAM 280 or Instructor's Consent. (Attributes: DA)

**DRAM 340 Stage Makeup (3)** Studio work in design and application of stage makeup. Study and development of character, corrective, and three-dimensional makeup. Required work on major production. Pre: DRAM 101 or 221, or previous stage makeup experience, and instructor's consent.

**DRAM 350 Stage Costume (3)** Study of costume design, theory, and practice. Survey of historical and modern costume. Practical experience in design and construction including required work on major production. Pre: DRAM 101 or 221, or consent of instructor.

**DRAM 350L Stage Costume Laboratory (1) (lab)** Basic instruction in the use of sewing machines, patterns and hand-sewing techniques for costume building. Includes understanding of fabrics and specific skills related to garment construction. Required for students in DRAM 350 who do not have previous sewing experience. Pre: Concurrent enrollment in DRAM 350 and permission of the instructor.

**DRAM 364 Advanced Theatre Practicum (1-4) (other)** Supervised work for the advanced student in one or more of the following areas: stagecraft/construction, properties, lighting, costuming, sound, makeup, publicity, arts administration, box office techniques. May be repeated for a total of 8 semester hours. Pre: DRAM 280, or DRAM 340, or DRAM 350; and consent of the instructor.

**DRAM 380 Theatre Design (3)** Study of elements of scenic and lighting design for the stage. Production of renderings, models, elevations, and plots. Work on mainstage and/or studio production. Pre: DRAM 264, and art & physics courses required for PARTS degree in Technical Theatre.

**DRAM 383 Japanese Theatre & Performance (3)** This course introduces the performance traditions in Japan, ranging from rituals to dance and theatre-traditional art forms such as noh/kyogen, kabuki, bunraku, to modern theatre. Students examine the Japanese art forms from the anthropological and sociological perspectives. (Same as JPNS/JPST 383) (Attributes: DH, GAHP, HPP)

**DRAM 387 Performance Education (3)** In this course, the students are guided through the process researching, writing, rehearsing and performing a series of educational and entertaining presentations that deal with science and Hawaiian culture. Presentations will be shared with the general public in a museum theater setting at Imiloa Astronomy Center of Hawai'i. Course may be repeated once for credit. Pre: COM 251 or DRAM 171 or DRAM 221 or instructor's consent. (Same as COM 387) (Attributes: GCC, HPP)

**DRAM 390 Survey Of Drama Literature (3)** Analysis and discussion of plays from the canon of Western dramatic literature, focusing on dramatic action, character relationships, play structure, staging, and thematic considerations. (Attributes: DL)

**DRAM 419 Drama in Education (3)** Study of the theory and application of creative dramatics, developmental theatre, and curriculum-centered drama activities in educational settings serving children and youth. Opportunities for field work will be incorporated into class activities. (Attributes: ALEX, GCC)

**DRAM 421 Acting Troupe (3)** Rehearsal and performance of works from Western literature and ethnic non-Western sources, including period drama, avant-garde theatre, and the contemporary drama of Hawai'i and the Pacific. Emphasis on ensemble performance. Refinement of individual skill and group interactions acquired in acting classes. Public performance required. May be repeated twice for a total of 6 semester hours. Pre: DRAM 221 or DRAM 321 or DRAM 322 or consent of instructor. (Attributes: DA, GCC)

**DRAM 430 Directing (3)** Basic practical course in how to direct a play. Students direct one-act plays or scenes from full length plays. Pre: DRAM 101; and DRAM 221 or DRAM 280; or consent of instructor. (Attributes: DA, GCC)

**DRAM 445 Lighting Design (3) (other)** A seminar in theatrical lighting design and presentation. Development of the lighting plot and paperwork used in implementing designs. Study of lighting technology. Pre: DRAM 280, 380, or consent of instructor.

**DRAM 483 Modern/Contemporary Drama (3)** A study of works which have established or refined major traditions in modern and contemporary theater, with some reading in critical theory. Pre: ENG 100T, 100, ESL 100, or 100T and 200-level coursework in literature. (Same as ENG 483) (Attributes: DL)

**DRAM 490 Lyric Theatre (3)** Extensive study of history, theory, and techniques that shaped the American Musical Theatre genre, with emphasis on major composers, choreographers, and performers. Lab work in singing, dancing, costuming, makeup, and technical requirements, leading to a final performance project. Pre: DRAM 101; and 221 or 321 or 322; or instructor's consent. (Attributes: DA)



**DRAM 490L Lyric Theatre Lab (1) (lab)** Experiential study of notable choreographers, directors, and actors through complete scenes, songs and dances that are representative of the major periods and styles within musical comedy from the 1920s to the present. Emphasizes in-class performance derived from training in voice, dance and acting.

**DRAM x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**DRAM x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Economics (ECON) Courses

College of Business and Economics (COBE)

**ECON 100 Intro To Economics (3)** Economic principles for non-majors. Emphasis on the applications of theory to problem solving. (Not more than 3 credits may be granted for completion of both ECON 100 and ECON 150 at Hawai'i Community College.) (Attributes: DS)

**ECON 130 Intro To Microeconomics (3)** How individual prices are determined. Efficient consumer-producer decision making. Pre: MATH 135 or MATH 125 or MATH 241 or higher (any one of which can be taken concurrently); or instructor's consent. (Attributes: DS)

**ECON 131 Intro To Macroeconomics (3)** The functioning of economic systems with emphasis on the forces determining levels of, and changes in, national income, employment and the price level. (Attributes: DS, GQ)

**ECON 300 Inter Macroecon Theory (3)** Determination of income, employment, price levels; fiscal and monetary policies. Pre: ECON 131.

**ECON 301 Inter Microecon Theory (3)** Price determination under monopoly, oligopoly, and competition. Analysis of demand and cost. Pre: ECON 130, MATH 125 or MATH 241.

**ECON 302 Managerial Economics (3)** Application of economic and statistical concepts for business decisions. Subjects cover projection of demand and production, case analysis, problems of forecasting, multifactors and multiproducts, technological change: capital budgeting, input-output analysis, and programming techniques. Pre: ECON 130.

**ECON 310 Economic Development (3)** Analysis of growth, structural change, development patterns, foreign investment, foreign trade, and development policies and strategies; emphasis on Far East and South Pacific Islands. Pre: ECON 130, 131. (Attributes: GAHP)

**ECON 340 Money & Banking (3)** Relation of monetary system to price level, employment and income; nature and functions of money and banking; role of money in international trade and inflation. Pre: ECON 131. (Attributes: GQ)

**ECON 361 International Finance (3)** Balance of payments, foreign exchange rate policies, and their impact on domestic employment, inflation, internal and external balances, and other related topics. Pre: ECON 130, 131.

**ECON 370 Government Finance (3)** An explicit introduction to the behavior and objectives of government in the economic system. Analysis

focuses on the rationale of nonmarket institutions and on the two groups of agents that operate government, the politicians and the bureaucrats, as these agents allocate expenditures for government activities.

**ECON 390 Econometrics (3)** Use of mathematical and statistical techniques to model and test the reality of economic theory, tests of hypotheses and forecasting. Pre: MATH 115 or QBA 260.

**ECON 414 Global Topics in Game Theory (3)** Game theory is a mathematical tool used in a variety of fields such as economics, political science, law, sociology, biology, and computer science. The purpose of this course is to introduce to game theory and to explore its applications. Topics include but not limited to, deterrence, crisis bargaining, people, war, and terrorism. Pre: ECON 130

**ECON 417 Health Economics (3)** This course applies economic theory to examine the production of health. Issues such as asymmetric information, externalities, and indirect or third party payment are examined. The use of cost/benefit analysis, and reimbursement of expenses on healthcare organizations will be discussed. Pre: ECON 130

**ECON 430 Quantitative Forecasting (3)** Introductory level of forecasting for business and economics with an emphasis on Hilo and Hawai'i economies and businesses. Topics include time series techniques, linear regression forecasts, several miscellaneous forecasting models, and forecasting evaluation. Pre: QBA 260 or MATH 115 or instructor's consent.

**ECON 482 Natural Resource Env Eco (3)** An analytical framework for examining the relationships among environmental quality, natural resource use, and economic and political systems; analysis of circumstances that give rise to environmental problems, resource use conflicts, and possible policy solutions to these problems and conflicts. The course will emphasize issues pertaining to Hawai'i, especially sustainable development and climate change. This course is dual listed with CBES 682.

**ECON x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ECON x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Education (ED) Courses

College of Arts and Sciences (CAS)

**ED 110 Exploration in Education (3) (lecture/other)** Introductory course for individuals considering careers as educators. Exploration of schools and educational community resources with a focus on teachers and effective teaching. Includes a practicum field experience component in schools. Pre: Instructor's Consent

**ED 210 Introduction to Teaching (3)** This course is an introduction to education with an emphasis on the following topics: the teaching profession, the analysis of reasons for entering teaching and factors that influence these reasons; the characteristics of the present teaching force; complexities of teaching; the current trends and issues in education; and the role of the school within the community. Student will



be provided an opportunity for voluntary field experience totaling 10 hours. (Attributes: ALEX, DS, GCC)

**ED 243 Intro to Math for Elem Tch (3)** Introduction to Mathematics for Elementary Teachers is a hands-on, problem based course designed to help the elementary teacher develop a basic understanding of content area skills as well as process and thinking related to mathematical problem-solving, sets, numbers and operations, number theory, statistics and probability. This course lays a solid foundation for ED 343.

**ED 310 Foundations of Education (3)** Introduction to the practice of thinking and the development of intelligence within the complexities of a diverse and transforming society. Historic aspects of education are explored along with philosophical and political movements so students understand education's potential. Critical thinking skills are developed to help students think seriously about education as a potential career. Must be taken for grade. Pre: GPA of 2.5 and junior standing, or instructor's consent.

**ED 314 Educational Technology (3)** Introduction to the theory and application of multimedia educational technology principles in 21st century learning environments. Course is contextualized in project-based and place-based learning. Special emphasis on Hawaiian and Pan Pacific history and culture. Must be taken for a grade. Pre: junior standing or instructor's consent. (Attributes: GAHP)

**ED 341 Literacy Dev in Elem School (4)** This course is designed to provide participants with basic knowledge and skills which can be used to teach and assess reading and writing to foster literacy development in the elementary school. The content of this course emphasizes foundational knowledge of reading and writing processes (K-6). Field experience: Practical application of literacy theories, methods and strategies in local schools. Supervised observation and teaching with emphasis on reading and writing instruction. Pre: GPA of 2.5 and junior standing, or instructor's consent

**ED 342 Science for Elem Schl Teachers (3)** Science for Elementary teachers is a hands-on inquiry course designed to help the elementary teacher develop a basic understanding of the process and thinking that relate to scientific inquiry, habits of mind, safety and science and technology in society. In a supportive classroom environment, using place-based education as a model, teacher candidates will build scientific foundation through exploration of science concepts and processes. Must be taken for a grade. Pre: CS 100, GPA of 2.5 and junior standing or instructor's consent.

**ED 343 Math for Elem School Teachers (3)** Math for Elementary teachers is a hands-on, problem based course designed to help the Elementary teacher develop a basic understanding of the ten NCTM (National Council for Teachers of Mathematics) standards, including content area skills as well as process and thinking that relate to mathematic problem-solving, reasoning, connections, communication and representation. Content topics include fractions, algebraic reasoning, and geometry. It is assumed that students have a solid understanding of sets, numbers and operations, and number theory. Must be taken for letter grade. Pre: GPA of 2.5 and junior standing or instructor's consent.

**ED 344 Soc Studies for Elem Teachers (3)** An inquiry based course designed to help the Elementary teacher develop a basic understanding of the ten Social Studies themes identified by the National Council of Teachers of Social Studies. Must be taken for a letter grade Pre: CS 100, GPA of 2.5 and junior standing or instructor's consent.

**ED 346 Teaching Children's Literature (3)** This course focuses on children's literature and its impact on social, emotional and intellectual

development for elementary school children. Aesthetic appreciation and creative development will be explored by examining theory and practice about the use of literature with children. Must be taken for a grade. Pre: GPA of 2.5 and junior standing or consent of instructor.

**ED 347 Intgr Sci/Soc Stud Elem School (3) (lecture/lab)** This course is designed to strengthen prospective elementary teacher content knowledge in science and social studies. Students will gain content knowledge by practicing various methods of teaching integrated science/social studies and develop authentic applications in real world situations. The fundamental science content topics covered will include: the inquiry process, physical, life, earth/space, and technology. The fundamental social studies content topics covered will include: geography, world history, UH history, political science, economics, anthropology, sociology and psychology. Teaching and learning of these content areas will center on place based education with the local environment as the integrating context. Required for admission into the MAT Program. Must be taken for grade. Pre: GPA of 2.5 and junior standing or instructor's consent.

**ED 350 Developmntl Concepts Of Learnng (3)** Theories of development focusing on the integration of physical, social, emotional and cognitive development during the school-aged years, children (grades K-6) and adolescents (grades 7-12). Systematic observation and analysis of behavior of school-aged children at home, in the community and at school. Must be taken for grade. Pre: GPA of 2.5 and junior standing or instructor's consent.

**ED 355 Sec ELA I:Lit as Exploration (3)** What is the relationship between a story and each person who receives it? This course provides an introduction to literature as exploration and reader response theory. An experiential course, students explore how readers engage with story by examining their own reading experiences within a community of learners. Students will further reflect upon their own learning as they imagine how they may teach in the future. The course is designed for anyone who may be considering becoming teachers or would like to deepen their engagement in storytelling and the texts that they read. While the focus is on students interested in middle and high school language arts or the humanities, students thinking about teaching at any level or discipline are welcome.

**ED 358 Intro to Adol Writing in Disc (3)** This course focuses on exploring the writing skills of adolescents, defined as students in the 6th through 12th grade, and targets pre-MAT students who are interested in becoming secondary teachers. The course will introduce writing curriculum standards and explore instructional strategies that can be used to prepare students in grades 6-12 for writing in college and the workforce. Must be taken for grade. Pre: GPA of 2.5 and junior standing, or instructor's consent.

**ED 442 Comm Sci in HI Island Schools (3)** For undergraduate and graduate students interested in improving their ability to communicate their scientific knowledge or research by designing and implementing lesson plans in Hawai'i Island schools including formal and informal educational experiences. The course provides the knowledge, skills and dispositions needed to use phenomena in NGSS designed lessons grounded in the uniqueness of Hawai'i. Students will observe phenomena that occur in Hawai'i's natural environment and create hands-on, inquiry-based activities to enhance science content knowledge in K-8 learners. Through place-based exploration and experiences student will develop a deeper understanding of the unique values and qualities of Hawai'i's environment, language, values, and culture. Pre: At least 6 credits of 100 level or higher BIOL, CHEM, GEOL, NSCI, PHYS, or MARE courses or instructor approval. This course is dual listed with CBES 642. (Attributes:



HPP)

**ED 444 Place-Based SEL (3)** First part of a two-course sequence on Place-based Social- Emotional Learning (PBSEL). Utilizing project-based authentic learning opportunities, students will gain a greater understanding of PBSEL and valuable skills they can use to support schools and community organizations on Hawai'i Island. Recommended: ED 350 or PSY 320.

**ED 445 Community-Based Research (3)** Second part of a two-course sequence on Place-based Social Emotional Learning (PBSEL). Students will gain learn and conduct community-based action research by conducting a study at their internship site that supports schools and community organizations on Hawai'i Island. Pre: ED 444 or instructor's consent.

**ED 447 Robotics in K-12 Schools (3)** provides hands on experience with the tools and techniques used to teach robotics and computer programming in K-12 learning environments. There are no prerequisites for this course.

**ED 460 Children of Migration (3)** This course uses interdisciplinary multiple lenses to construct practical, grounded, and equity-based approaches to gain understanding of how migration impacts children and youth and the critical role of the education on their adaptation.

**ED x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ED x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [ED graduate-level courses](#).

### Engineering (ENGR) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**ENGR 102 Engineering the Future I (1)** Overview of the engineering discipline, art and profession, impact on society and the environment, and strategies for studying engineering. CR/NC only.

**ENGR 103 Engineering the Future II (1)** Continuation of the overview of the engineering discipline, art and profession, impact on society and the environment, and strategies for studying engineering. CR/NC only

**ENGR 200 Introduction to Energy Science (3)** This course studies the relationship between human societies and the global energy system. Topics will include energy in everyday life, the geography, politics and economics of energy. Case studies will be studied.

**ENGR 240 Conventional Energies (3)** Fundamentals of thermal physics and fluid mechanics. Chemical Bonds, Energy from fossil fuels. Hydropower. Nuclear power. Energy storage. Pre: 6 credits in Natural Science courses.

**ENGR 250 Alternative Energies (3)** Wind, solar, geothermal, tide and wave power. Brief survey of bioenergy, energy distribution and microgrids. Pre: 6 credits in Natural Science courses.

**ENGR 310 Energy Policy Analysis (3)** An introduction to how the production and consumption of energy in the United States are regulated at the Federal, Federal, state and local levels. Stakeholders will be identified, and their roles analyzed. Historical and international dimensions of this topic will also be explored. Hawai'i energy policies will be studied in detail. Pre: ENGR 200 or ENGR 240 or ENGR 241.

**ENGR 340 Sustainable Biofuels (3)** This course provides an introductory overview of the relevance of bioenergy production for the global energy supply, bioenergy conversion technologies and feedstocks, and critically evaluates sustainability issues involved with bioenergy production.

**ENGR 361 Energy Laboratory (3) (lecture/lab)** Desktop experiments on several of the following: energy content and products of combustion, solar cells, biofuel reactors, heat engines, fuel cells and hydroelectric power. Emphasis will be on quantitative energy balances. Co-req: Either ENGR 240 or ENGR 250, or ENGR 200 with permission of instructor.

**ENGR 400 Biochemical Energy Conversion (3)** A course on anaerobic digestion and fermentation with application to animal, municipal and industrial wastes, and to the production of synthetic gas and bioethanol. Pre: BIOL 101 or BIOL 125 or BIOL 171, and CHEM 161.

**ENGR x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ENGR x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

### English (ENG) Courses

College of Arts and Sciences (CAS)

**ENG 100 Composition I (3)** Instruction and practice in writing clear, effective university-level essays and research paper. Attention to all stages of the process: generating ideas, drafting, revising, and editing. Pre: ENG 100 on Writing Placement Examination. (Attributes: FW)

**ENG 100T Composition with Tutorial (3)** Instruction and practice in writing clear, effective university-level essays and research paper. Attention to all stages of the process: generating ideas, drafting, revising, and editing. Attending regular sessions is required. Equivalent to ENG 100 or ESL 100. Pre: ENG 100T on Writing Placement Examination. (Attributes: FW)

**ENG 200 Intro to Literary Genres (3)** An introduction to major genres in literature. The course will be offered at various times with different focuses: (A) Short Story and Novel; (B) Drama; (C) Poetry; (D) Popular Fiction; (E) Mythology and Folklore; (F) Autobiography; (G) Introduction to Graphic Novels and Comics. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T.

**ENG 201 Global Cinema (3)** A course that offers students a critical examination of worldwide cinema. The course will cover film theory and



film making techniques from countries such as Germany, Mexico, China, Senegal, Iran, and India. Students will undertake a critical study of various schools of film as they pertain to these national cinemas as well as explore the cultural and socio-political controversies surrounding cinematography. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 201) (Attributes: DL)

**ENG 202 Literature of Human Rights (3)** This course will explore narratives from a human rights perspective, beginning in the era shortly before the adoption of the Universal Declaration of Human Rights in 1948 and extending into the 21st century. Students will focus on geopolitical conditions that contribute to the suppression of human rights in areas around the globe, including, but not limited to, Chile, India, Nigeria, Iran, the Palestinian Territories, and the United States. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 202) (Attributes: DL, GCC)

**ENG 204 Intr Race/Gender Film Studies (3)** This course will focus on how race and gender historically shape individual and cultural experiences in America, as expressed in film. Key works that offer portrayals by and about various groups (i.e. gays/lesbian, immigrants, indigenous communities, mixed-race populations, etc.) will be critically compared and examined. Students will also discuss and address evolving audience responses to these works. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 204) (Attributes: DL, GL)

**ENG 205 Hawai'i on Screen (3)** A critical look at the development of film in and on Hawai'i. The course will cover a number of silent era films as well as the development of the musical and the war story as popular genres in the Islands. The class will also focus on the problems of cultural, racial and gendered representation in mainstream cinematic depictions of Hawai'i as well as the contemporary emergence of local and indigenous filmmaking. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 205) (Attributes: DL, GAHP, GL, HPP)

**ENG 206 Intro to Popular Culture (3)** This course offers an introductory study of mainstream manifestations of culture. Students will critically assess the production, distribution, and consumption of various popular cultural genres, such as advertising, talk shows, sports programs, music videos and gossip magazines and websites, among many others. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 206) (Attributes: DL, GL)

**ENG 209 Writing for Business (3)** Working from logical and rhetorical principles, this course prepares students to write in the informative, analytical, and persuasive modes required for their major field and in their careers. Intended for students majoring in Business and related fields. Includes a formal research project and report. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T.

**ENG 225 Writing for Sci & Technology (3)** Working from logical and rhetorical principles, this course prepares students to write about science and technology in their academic disciplines and careers. Assignments include synthesis, process analysis, and argumentation. Intended for students majoring in the applied and natural sciences. Includes a formal research project and report. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T.

**ENG 257 Multicultural Literature (3)** This is a course designed for students who want to engage literature from various ethnic groups in the U.S. The course includes historical context regarding the production of these literatures, providing an overview of how these groups have developed their own literary techniques, genres, and canons. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 257) (Attributes: DL, GL)

**ENG 275 Literature of the Earth (3)** Study of how people from a variety of eras and cultures have shaped their responses in poetry, fiction, drama and essays to changes in the natural world. This class will examine issues of globalization and environmental sustainability, with opportunities for research on connections between local and global environmental problems. Pre: ENG 100, ENG 100T, ESL 100, or ESL 100T. (Attributes: ALEX, DL)

**ENG 285 Intro to News Writing & Report (3)** Prepares students to write for newspapers, the internet, and other journalistic outlets. Includes coverage of news conferences, county council meetings, trials, sports, and writing feature stories. Pre: ENG 100, ENG 100T, ESL 100, or ESL 100T. (Same as COM 285). (Attributes: DH, GL)

**ENG 286 Intro to Creative Writing (3)** Introduction to the theoretical, practical and artistic concerns of writing vivid and compelling prose fiction, poetry, and creative non-fiction. Students will be exposed to a range of critical and primary creative writing texts as they produce their own works in each genre. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T.

**ENG 286A Intro to Fiction Writing (3)** An introduction to the theoretical, practical and artistic concerns of writing vivid and compelling prose fiction. Students will be exposed to a range of critical and primary creative writing texts as they produce their own works. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Attributes: DA, GL)

**ENG 286B Intro to Poetry Writing (3)** An introduction to composing poetic verse. The course will introduce students to basic metrical patterns, rhyme schemes, and forms (including the sonnet, the cinquain, and the villanelle). Students will also undertake a study of key debates in the history of poetry, from both a western and non-western perspective. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Attributes: DA, GL)

**ENG 287 Introduction to Rhetoric (3)** Survey of rhetorical history, studies and practices from classical to contemporary. Discussion of social, political, legal and ethical aspects of rhetoric and rhetorical theory. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T. (Attributes: DH, GL)

**ENG 289 The Rhetoric of Food (3)** A course designed for students interested in learning how and why food plays a central role in cultures around the world. Attention will be paid to how food affects political, religious, economic, social and cultural activities and decision-making in various countries/regions. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Attributes: DH)

**ENG 290 Literature and Medicine (3)** English 290 provides students with the opportunity to study writers, poets, and artists confronting timeless issues dealing with the human body. The class will look at how and why novels, short stories, poems, plays and film cover the wide range of biological human conditions, from disease to sexuality to mortality. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T.

**ENG 300 Intro to Literary Studies (3)** Introduces majors to the methods of research, analysis, close reading and argumentation that are essential to the successful reading of and writing about literature. Included is a comprehensive survey of literary terms, key concepts, literary forms and genres. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T, and ENG 200 (A-F) and one additional 200-level writing or literature class (with exception of ENG 209 and ENG 225) or instructor's consent.

**ENG 302 Studies in Myth and Folklore (3)** A critical, comparative



study of myth and folklore, which provides students with knowledge and analytical perspectives on the way various oral traditions inform English literature, past and present. Pre: C or better in ENG 300 or instructor's consent.

**ENG 304 Survey of British Lit I (3)** Survey of British Literature, Middle Ages to Enlightenment. Pre: C or better in ENG 300.

**ENG 305 Survey of British Lit II (3)** Survey of British Literature, Romantics to the Present. Pre: C or better in ENG 300.

**ENG 314 Advanced Multimedia Journalism (3)** An advanced media writing class with focus on technology-driven multimedia. Applied learning methods are used to examine and apply the principles of journalism while exploring various approaches of digital communication. Pre: ENG 100, 100T, ESL 100 or 100T, or instructor's consent (Attributes: DH, GL)

**ENG 318 Playwriting (3)** Basic course in writing for the stage. Development of theme, action, and characterization for the one-act play form. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T; or consent of instructor (Same as DRAM 318)(Attributes: DA, GL)

**ENG 321 Morphology And Syntax (3)** Introduction to grammatical analysis and theory; practical experience in solving problems in morphology and syntax, using data drawn from a wide variety of languages. Pre: LING 102 or instructor's consent. (Same as ANTH 321, LING 321).

**ENG 323 The Literature of Hawai'i (3)** A critical analysis of the history of literature in the Hawaiian Islands. Study will touch upon the politicization of the Hawaiian language, the insider/outsider debate, the emergence of local literature, and ethnic/racial divides in contemporary discussions of literary craft and study. Class will include oral narratives (chants, hula), expatriate literature (Bingham, London, Michener), and a wide range of local texts. Pre: C or better in ENG 300 or instructor's consent (Attributes: ALEX, GAHP, GCC, HPP)

**ENG 324 Modern English Grammar & Usage (3)** The fundamentals of English grammar and syntax, conventions of written and spoken English, and rhetorical choices at the sentence level. Pre: C or better in ENG 100, ENG 100T, ESL 100, ESL 100T, HAW 201, KHAW 201, JPNS 201, FIL 201, CHNS 201, or SPAN 201. (Same as LING 324)

**ENG 345 Children & Literature (3)** Literature in English for and by children, with special emphasis on the ways in which literature promotes social, emotional, and intellectual development. Pre: C or better in ENG 100, ENG 100T, ESL 100, ESL 100T or instructor's consent. (Attributes: DL)

**ENG 347 Pidgins And Creoles (3)** A study of the world's pidgins and creoles with special reference to the Pacific region; the origin and nature of pidgins and creoles; the relationship between Hawai'i Creole English to other Creoles in the world. The link between the development of a Creole and language acquisition. Recommended: LING 102 or 121. (Same as ANTH/LING 347) (Attributes: GAHP)

**ENG 350 Second Lang Acquisition Theory (3)** Current research and theories of learning a second or additional language from social, psychological and linguistic perspectives. Topics include the attainment of communicative competence, the critical period hypothesis, focus on form, individual learning styles, and learner autonomy. The emphasis is on how the knowledge of second language acquisition theory helps improve the quality of classroom language teaching. Pre: C or better in ENG 100, ENG 100T or ESL 100, ESL 100T and LING 102 or instructor's

consent. (Same as LING 350) (Attributes: DH, GL)

**ENG 351 Amer Lit: to the Civil War (3)** American literature to the Civil War. Pre: C or better in ENG 300 or instructor's consent.

**ENG 352 Amer Lit: Civil War-Pres (3)** American literature from the Civil War to the present. Pre: C or better in ENG 300 or instructor's consent.

**ENG 355 Women in Modern Lit & Film (3)** Literature and film by and about women from 1900 to the present. Feminist literary theory. Pre: C or better in in ENG 300 or instructor's consent. (Same as WS 355) (Attributes: DL)

**ENG 356 Language and Gender (3)** Students engage in the analysis of gender as it relates to language and society. Provides students with analytic resources for thinking critically about the relationship between language and social practice. Students gather and analyze data based on current theories. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T and LING 102, or instructor's consent. (Same as LING/WS 356)

**ENG 364 Chnse Lit in Eng-Modern (3)** Survey of major Chinese writings from 1919 to the present. Knowledge of Chinese is not required. Pre: ENG 100, 100T, ESL 100, or 100T or instructor's consent. (Same as CHNS 364).

**ENG 365 Japanese Lit in English (3)** Survey of major works from earliest times to the present. Knowledge of Japanese is not required. (Same as JPST 365) (Attributes: DL, GL)

**ENG 366 Utopia in Literature (3)** A study of the "Utopian" theme in literature, from Plato's Republic to the modern science fiction novel. Pre: ENG 100, 100T, ESL 100, or 100T and a 200-level literature course, or instructor's consent.

**ENG 370 Advanced Film Studies (3)** Students undertake a study of film/editing techniques, genres, and critical theories that influence the production and analyses of film and film-making. This course builds upon 200-level film classes in English. Pre: C or better in ENG 300 or instructor's consent. Recommended: ENG 201, 204, 205, or 206.

**ENG 371 Topics in Contemporary Lit (3)** The development of contemporary fiction, poetry and drama concentrating upon representative works from 1945 to the present. This course may be taken twice provided that different topics are studied. The letter suffix indicates the topic. Pre: C or better in ENG 300 or instructor's consent.

**ENG 387 Lit of the Environment (3)** A study of modern nature writing and environmental issues in several genres. Students will explore how humans negotiate their place in a variety of physical environments. Pre: C or better in ENG/ESL 100/T and one 200-level ENG course or consent of instructor. (Same as GEOG 387)

**ENG 388 Global Englishes (3)** The course explores the expanding role of English as a global language and its increasing importance in intercultural and global communication. It traces how English has changed over the years and how culture, history, and politics influence the development of varieties of English. The course will raise students' awareness and understanding of the varieties of English and their function as a global language in the 21st century. It will also enhance the students' communicative competence in written and spoken discourses to a variety of users of Global Englishes around the world. Pre: ENG 100 or ENG100T or ESL 100 or ESL 100T. (Attributes: DH)

**ENG 400 Topics in Classical Literature (3)** Studies in Greek and Roman literature from various perspectives (historical, cultural, social).



May be offered by genre or theme. May be repeated for credit provided a different topic is studied. Pre: C or better in ENG 300 or instructor's consent.

**ENG 418 American Women Writers (3)** This course will acquaint students with a variety of writings by women in the Americas. In addition to literary analysis, texts will be viewed in cultural, historical and theoretical contexts. Pre: C or better in ENG 300 or instructor's consent.

**ENG 419 Adv Topics in American Lit (3)** A course which involves critical analysis of key periods and/or themes in American Literature, ranging from the Transcendentalists to the Beats. The course may also explore major ethnic canons, such as Native American, Chicano/a, Asian American, and African American. The course may be repeated, provided that different topics are studied. Pre: C or better in ENG 300 or instructor's consent.

**ENG 422 ESL Teaching Practicum (3)** A course requiring students to engage in supervised teaching in an authentic classroom setting with actual learners of ESL. Provides the student with opportunities to observe, describe, interpret and understand the classroom environment and to reflect on the personal and professional attributes required for success in teaching. Students design and implement their own lesson plans and analyze and reflect on the classroom environment in relation to current research. Pre: LING 102, 221 or 331, ENG/LING 324, 350, ENG 484.

**ENG 423 Post-Colonial Literature (3)** A critical analysis of the development of contemporary world literature in the wake of the fall of European empires. This class is designed to address the importance of writing in an age of changing national identities, shifting alliances, and volatile conflicts. Texts from Africa, Latin America, the Middle East, the Caribbean, and Hawai'i will be featured. Pre: C or better in ENG 300 or instructor's consent. (Same as WS 423). (Attributes: DL, GL)

**ENG 430 Pacific Islands Literature (3)** A study of a representative range of contemporary poems, short stories, novels, and plays written in English by Pacific Islanders from Polynesia, Micronesia, and Melanesia. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T and a 200-level literature course, or instructor's consent. (Same as WS 431) (Attributes: DL, GAHP, HPP)

**ENG 431 Fiction Writing (3)** Advanced study and writing seminar in fiction. Students may repeat for credit (maximum 6 credits). Pre: C or better in ENG 100/100T or ESL 100/100T, 3 credits from ENG 200A-F, and 3 credits from ENG 286A/286B or instructor's consent.

**ENG 432 Non-Fiction Writing (3)** Advanced study and writing seminar in non-fiction. Students may repeat for credit (maximum 6 credits). Pre: C or better in ENG 100/100T or ESL 100/100T, 3 credits from ENG 200A-F, and 3 credits from ENG 286A/286B or instructor's consent.

**ENG 433 Poetry Writing (3)** Advanced study and writing seminar in poetry. Repeatable one time for a maximum of 6 credits. Pre: C or better in ENG 100/100T or ESL 100/100T, 3 credits from ENG 200A-F, and 3 credits from ENG 286A/286B or instructor's consent.

**ENG 434 Portfolio Seminar (3)** Creative Writing Certificate capstone course. A small cadre of students work with a faculty mentor to perform applied learning activities: teaching a creative writing class, publishing a literary journal, organizing visiting writer events and public readings of their own work, and curating their own creative collections. Pre: Instructor approval.

**ENG 436 Flash Fiction Writing (3)** Advanced study and writing

seminar in flash fiction: short short stories from micro to sudden fiction. Pre: C or better in ENG 100/100T or ESL 100/100T and ENG 286A, or instructor's consent.

**ENG 442 Romantic Literature (3)** Poetry and prose from 1780 to 1832. Pre: C or better in ENG 300 or instructor's consent. (Same as WS 422).

**ENG 445 Victorian Literature (3)** Poetry and prose from 1832 to 1900. Pre: C or better in ENG 300 or instructor's consent.

**ENG 448 Graphic Novels and Comics (3)** Advanced study of major developments, schools and styles in contemporary graphic novels and comics. Emphasis on literary theory and analysis. Pre: C or better in ENG 300 or instructor's consent. (Same as WS 448). (Attributes: DL, GL)

**ENG 461 Shakespeare (3)** Selected histories, comedies, and tragedies. Pre: C or better in ENG 300 or instructor's consent.

**ENG 464 Modern Literature (3)** British and American literature from 1900 to WWII with emphasis on the development of Literary Modernism. Pre: C or better in ENG 300 or instructor's consent.

**ENG 465 Post-Modern Literature (3)** A study of literature (including theoretical essays, plays, film, and poetry) following WWII. The course will address contemporary responses to and against the Modernist Period and may cover movements such as Literature/Theatre of the Absurd, Magical Realism, the San Francisco Renaissance, the Black Mountain Poets, and the Angry Young Men's Movement. Pre: C or better in ENG 300 or instructor's consent.

**ENG 466 The Contemporary Fairy Tale (3)** A study of a representative range of contemporary fairy tales in English, which incorporates current theories and analytical approaches to literary fairy tales and the politics of interpretation. Pre: C or better in ENG 300 or instructor's consent.

**ENG 469 Advanced Topics in Film (3)** A course that analyzes advanced theoretical approaches to film and/or stage. The course may explore themes, such as film noir or 3rd Cinema. The course may be repeated, provided that different topics are studied. Pre: C or better in ENG 300 or instructor's consent.

**ENG 475 Topics in Literary Criticism (3)** Advanced analyses of literature via specific schools of theoretical criticism, such as Psychoanalysis, Deconstruction, Marxism and New Criticism. The course may be repeated for credit, provided that a different topic is chosen. Pre: C or better in ENG 300 or instructor's consent.

**ENG 480 Women and Rhetoric (3)** Survey of key female figures that have figured (or not figured) into the rhetorical canon. Analysis of women's use of rhetoric in everyday life and at historic moments and consideration of methodological and theoretical issues intersecting women, rhetoric and historical research. Pre: C or better in ENG 300 or instructor's consent. (Same as WS 480).

**ENG 482 Teaching Composition (3)** Overview of current theory and research informing contemporary English composition instruction at elementary, secondary, and college levels with methods for application to teaching or writing at any level or within any discipline. Pre: C or better in ENG 300 or instructor's consent.

**ENG 483 Modern/Contemporary Drama (3)** A study of works which have established or refined major traditions in modern theater, with some reading in critical theory. Pre: C or better in ENG 100, ENG 100T or ESL 100, ESL 100T and 200-level coursework in literature. (Same as



DRAM 483). (Attributes: DL)

**ENG 484 ESL Materials & Methods (3)** Overview of current theory and practice in the teaching of English as a Second Language. In addition to studying and evaluating various theoretical approaches to ESL teaching and second-language learning, students will gain experience developing and using their own teaching materials. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T and ENG/LING 350, or instructor's consent. (Attributes: DH, GL)

**ENG 488A Single Author Pre-1700 (3)** A semester long consideration of the literary output of a single author selected by the instructor. May be repeated for credit provided that a different topic is studied. Credit may be earned in each different period A) Pre-1700; B) Post-1700. Pre: C or better in ENG 300 or instructor's consent.

**ENG 488B Single Author Post-1700 (3)** A semester-long consideration of the literary output of a single author selected by the instructor. May be repeated for credit provided that a different topic is studied. Credit may be earned in each different period: (A) Pre-1700; (B) Post-1700. Pre: C or better in ENG 300 or instructor's consent.

**ENG 489 Major Literary Movements (3)** Advanced senior-level studies of schools and movements not covered by the Department's current British Literature offerings or by ENG 419. Possible topics include Realism and Naturalism, the Bengali Renaissance, Avant-Garde and the Era of the Decadents, the Celtic Revival, and Magic Realism. The course may be repeated, provided that different topics are studied. Pre: C or better in ENG 300 or instructor's consent.

**ENG 492 Teaching Literature (3)** A course that covers the praxis of teaching literature as well as the theory surrounding literary studies. Students will learn to create creative and analytical exercises and critically evaluate and utilize a wide range of resources for the teaching of poetry and prose at the secondary and post-secondary level. Pre: C or better in ENG 300 or instructor's consent.

**ENG x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ENG x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## English Language Institute (ELI) Courses

[English Language Institute \(ELI\)](#)

**ELI 091 Listening & Speaking, Int (4)** This course is designed for non-native English speakers to gain practice in listening comprehension, conversational skills, discussion skills, and understanding cultural differences. This course does not count towards graduation from UH Hilo. Pre: Placement into ELI 091 on the English Language Placement Assessment. (Previously offered as ESL 061)

**ELI 093 Academic Reading, Intermediate (4)** This course is designed for non-native English speakers to prepare them for academic reading with work in vocabulary, understanding complex sentence structure, reading strategies, and writing in relation to reading. This course does not count towards graduation from UH Hilo. Pre: Placement into ELI 093

on the English Language Placement Assessment. (Previously offered as ESL 063)

**ELI 101 Academic Oral Communication 1 (4)** This course is designed for multilingual learners to improve listening comprehension, critical thinking, and communicating ideas in English and meeting American expectations. Native-speaker lectures and speech practice accelerate the learning skills needed for university work. Focus is on taking effective and well-organized notes on lectures, participating in discussions and giving both formal and informal presentations. Pre: Placement into ELI 101 on the English Language Placement Assessment or successful completion (CR) of ELI 091 or successful completion (CR) or ESL 061.

**ELI 103 Academic Reading Strategies 1 (4)** Designed for non-native English speakers to strengthen academic reading skills. Focus is on building vocabulary, annotating, articulating stated and inferred ideas, distinguishing between fact and opinion, summarizing and responding thoughtfully to academic texts. Pre: Placement into ELI 103 on the English Language Placement Assessment or successful completion (CR) of ELI 093 or successful completion (CR) of ESL 063.

**ELI 104 Rhetorical Writing Styles 1 (4)** Designed for non-native English speakers to practice writing coherent, well-developed paragraphs and essays in a variety of rhetorical styles. Pre: Placement into ELI 104 on the Writing Placement Assessment or successful completion (CR) of ELI 094, or successful completion (CR) or ESL 064.

**ELI 125 Academic Reading Strategies 2 (4)** Designed for multilingual learners to develop effective reading approaches to university-level texts as well as the critical reading skills necessary to comprehend, analyze, conduct research, summarize, synthesize and respond thoughtfully in both writing and speaking to authentic texts. Emphasis is on vocabulary development, main ideas and specific details, and drawing inferences. Pre: ESL 073 or ELI 125 placement on the English Language Placement Assessment. Previously Offered as ESL 083.

**ELI 201 Academic Oral Communication 2 (4)** Designed for non-native English speakers to practice comprehending authentic American lecture discourse, spoken discourse and cross-cultural communication. Emphasizes effective note-taking, using the information for discussions and debate, giving well-organized and clearly expressed formal and informal presentations, and developing successful strategies for small group communication and collaboration. Pre: Placement into ELI 201 on the English Language Placement Assessment or a C or higher in ELI 101 or Credit (CR) in ESL 071. (Attributes: DH, GL)

**ELI 203 Academic Reading Strategies 2 (4)** Designed for non-native English speakers to develop an effective reading approach to university-level texts as well as the critical reading skills necessary to comprehend, analyze, conduct research, summarize, synthesize and respond thoughtfully in both writing and speaking to authentic texts. Pre: Placement into ELI 203 on the English Language Placement Assessment or a C or higher in ELI 103 or successful completion (CR) in ESL 073. (Attributes: DH, GL)

**ELI 204 Rhetorical Writing Styles 2 (4)** Designed for non-native English speakers to practice writing expository essays, with an emphasis on the development of critical thinking skills, organization and support in argumentation. Attention is given to various stages of the writing process and on identifying and editing grammatical errors. Pre: Placement into ELI 204 on the Writing Placement Assessment or a C or higher in ELI 104 or successful completion (CR) in ESL 074. (Attributes: DH, GL)



**ELI x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ELI x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## English as a Second Language (ESL) Courses

English Language Institute (ELI) , Center for Community Engagement (CCE), formerly CCECS

*ELI courses, while carrying administrative credit, do not count toward graduation from UH Hilo. All courses listed below are ELI courses, except ESL 100 Composition/Nonnative Speakers (3) and ESL 100T Composition/Non-nativeTutorial (3) . For tuition and immigration purposes, the courses count as three semester credit hours each.*

**ESL 061 Listening & Speaking, Int (4)** This course is designed for non-native English speakers to gain practice in listening comprehension, conversational skills, discussion skills, and understanding cultural differences. This course does not count towards graduation from UHH. Entry requirement: ESL 061 placement on the English Language Placement Assessment.

**ESL 062 English Grammar, Intermediate (3)** This course is designed for non-native English speakers to provide them with practice of the rules of noun and verb forms, connecting words and other forms as they are used in English writing and speaking. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 062 placement in the English Language Placement Assessment.

**ESL 063 Academic Reading, Intermediate (4)** This course is designed for non-native English speakers to prepare them for college-level academic reading with work in vocabulary, understanding complex sentence structures, reading strategies, and writing in relation to reading. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 063 placement on the English Language Placement Assessment.

**ESL 064 Academic Writing, Intermediate (4)** This course is designed for non-native English speakers to prepare them for academic writing with work in sentence structure and the development of paragraph skills in a range of rhetorical styles. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 064 placement on the Writing Placement Assessment.

**ESL 071 Listening & Speaking, High Int (4)** Designed for non-native English speakers to improve listening comprehension, thinking, and communicating ideas in English. Native-speaker lectures and speech practice accelerate the learning skills needed for college work. Focus is on taking effective and well-organized notes on high-intermediate level lectures, participating in discussions and giving both formal and informal presentations. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 071 placement on the English Language Placement Assessment or successful completion of ESL 061.

**ESL 072 English Grammar, High Int (3)** Designed for non-native English speakers to develop their grammatical accuracy in writing and speaking. Focus is on verb tenses, subject/verb agreement, passive voice, connectives; adjective, noun and adverb clauses; gerunds and

infinitives, prepositions and using the conditional. This course does not count towards graduation at UH Hilo. Entry requirement: ESL 072 placement on the English Language Placement Assessment or successful completion of ESL 062.

**ESL 073 Academic Reading, High Int (4)** Designed for non-native English speakers to build and strengthen academic reading skills. Focus is on building vocabulary, previewing and predicting, skimming and scanning, finding main ideas and details, annotating, articulating stated and inferred ideas, distinguishing between fact and opinion, summarizing and responding thoughtfully to academic texts. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 073 placement on the English Language Placement Assessment or successful completion of ESL 063.

**ESL 074 Academic Writing, High Int (4)** Introduction and practice in writing coherent, well-organized, well-developed paragraphs and multi-paragraph essays in a variety of rhetorical styles. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 074 placement on the Writing Placement Assessment or successful completion of ESL 064.

**ESL 081 Listening & Speaking, Advanced (4)** Designed for non-native English speakers to practice authentic listening comprehension and notetaking, use the information for discussions and debate, and give well-organized and clearly expressed formal and informal presentations, thinking, and communicating ideas in English requisite for college study. Authentic lectures and formal speech practice expose students to the language used and required in academic coursework. This course does not count towards graduation from UH Hilo. Entry Requirement: ESL 081 placement on the English Language Placement Assessment or successful completion of ESL 071.

**ESL 082 English Grammar, Advanced (3) (lecture/lab)** Designed for non-native English speakers, this is an overview and practice of advanced grammatical structures that are used in university-level speaking and writing. Emphasis is on identifying grammar problems and developing editing skills for academic writing. This course does not count towards graduation from UH Hilo. Entry Requirements: ESL 082 placement on the English Language Placement Assessment or successful completion of ESL 072.

**ESL 083 Academic Reading, Advanced (4)** Designed for non-native English speakers to develop an effective reading approach to university-level texts as well as the critical reading skills necessary to comprehend, analyze, conduct research, summarize, synthesize and respond thoughtfully in both writing and speaking to authentic texts. Emphasis on vocabulary development, finding main ideas and specific details, and drawing inferences. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 083 placement on the English Language Placement Assessment or successful completion of ESL 073.

**ESL 084 Academic Writing, Advanced (4)** Designed for non-native English speakers to practice writing expository essays, with an emphasis on the development of critical thinking skills, organization and support in argumentation. Attention is given to various stages of the writing process: generating ideas, drafting, peer review, and revision. Special emphasis and on identifying and editing of grammatical errors. This course does not count towards graduation from UH Hilo. Entry requirement: ESL 084 placement on the Writing Placement Assessment or successful completion of ESL 074.

**ESL 085 American English Pronunciation (2) (other)** Designed for non-native speakers to improve their Standard American English (SAE) pronunciation. Emphasis is on making speech intelligible. Students will



focus on vowel and consonant sounds, word-, phrase-, and sentence-stress, intonation, and rhythm. During class, students will practice differentiating speech sounds in both listening and production. Outside of class, student will use technology to practice. This course does not count towards graduation from UH Hilo. No Prerequisites. Repeatable once for credit.

**ESL 086 American Culture & Community (2)** This multi-level course for non-native English speakers explores American culture through hands-on learning about topics such as treatment of the elderly, the environment, people with disabilities, addiction, homelessness, education, immigration and the treatment of animals. Topics will change each semester and a culminating project designed by students completes the course. Transportation to each on-site activity will be provided. This course does not count towards graduation from UH Hilo. CR/NC. Repeatable one time for credit. No prerequisites.

**ESL 087 American Culture through Film (2)** This multi-level course for non-native speakers of English explores American culture through films about topics such as independence, civil disobedience, gender roles, race relations, individuality, overcoming odds, freedom, equality, education and immigration. Films will change each semester and a culminating project designed by students completes the course. This course does not count towards graduation from UH Hilo. No prerequisites. Repeatable one time for credit.

**ESL 100 Composition/Nonnative Speakers (3)** Instruction in writing clear, effective university-level essays and research paper. Attention to all stages of the process: generating ideas, drafting, revising, and editing. Entry requirements: ESL 100 recommendation on the Writing Placement Examination and completion, exit by test, or concurrent enrollment in ESL 083. Once enrolled concurrently in ESL 100, a student may not drop the required ESL 083 class without dropping ESL 100 as well.

**ESL 100T Composition/Non-native Tutorial (3)** Instruction and practice in writing clear, effective university-level essays and research paper. Fulfills expository writing (ENG 100) requirement for non-native speakers of English only. Entry requirements: ESL 100T recommendation on Writing Placement Exam and completion, exit by test, or concurrent enrollment in ESL 083. Once enrolled concurrently in ESL 100T, a student may not drop the required ESL 083 class without dropping ESL 100T as well.

**ESL x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ESL x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Entomology (ENTO) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**ENTO 262 Intro Beekeeping (3) (lecture/lab)** Biology, behavior, and management of honeybees for honey production. Limited enrollment. Pre: instructor's consent. (Attributes: ALEX)

**ENTO 304 General Entomology (3)** Structure, classification and identification of insects. Pre: BIOL 171 or 172 or instructor's consent. (Same as BIOL 205)

**ENTO 350 Advanced Beekeeping (3) (lecture/lab)** Advanced beekeeping practices designed to improve hive quality such as queen rearing, artificial insemination, and queening, as well as the utilization of products from the hive. Limited enrollment. Repeatable once for a maximum of 6 credits. Pre: ENTO 262 or instructor's consent.

**ENTO 374 Insect Pest Control (3) (lecture/lab)** Destructive and beneficial insects; principles of cultural, mechanical, legislative, biological, and chemical control. Pre: ENTO 304 or instructor's consent.

**ENTO x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ENTO x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Environmental Studies/Science (ENSC) Courses

College of Arts and Sciences (CAS)

**ENSC 100 Intro to Environmental Science (3)** Introductory course linking the human and physical/ chemical/biological world. Emphasis on current global and local issues related to pollution, biodiversity, ecosystem services, climate change, resource consumption and sustainability. Focus on critical thinking and the integration of both natural and social science perspectives in understanding and addressing environmental issues.

**ENSC 301 Global Warming/Climate Change (3)** Concepts and processes of global warming and climate change: electromagnetic radiation and energy balance, greenhouse effects, past climates, and local and global impacts and mitigation strategies. We will read and analyze classic and current journal articles and gain experience working with simple climate models. Pre: ENSC 100 or GEOG 101. (Same as GEOG 301)

**ENSC 384 Primatology (3)** Evolutionary approach to the nonhuman primates. Biological and behavioral adaptations of primates to their ecological setting. Implications of primate adaptations for understanding human biology and behavior. Pre: ANTH 215, or BIOL 172. (Same as ANTH, BIOL 384)

**ENSC 385 Field Meth in Geog & Environ Sci (3)** Geographic field methods for assessment and monitoring the physical/biological/anthropogenic environment. Instrumentation, data collection, and analysis; planning and land management applications. Pre: Junior or senior status and consent of instructor. (Same as GEOG 385) (Attributes: GAHP)

**ENSC 436 Environ Politics in Pacific (3)** This course will examine the ways that government policies, economic development and globalization affect the environment in the Pacific region as well as the ways that environmental problems affect political debates and actions. Utilizing the research approach of political ecology this course for advanced students



will explore contemporary viewpoints on climate change, environmental preservation, population growth, land degradation, marine and terrestrial resource management, environmental contamination, and other environmental issues across Polynesia, Melanesia and Micronesia. Pre: Junior or Senior standing and completion of one of the following: ENSC 100, GEOG 335, other upper-level Pacific Islands Studies course, or instructor's (Same as GEOG 436) (Attributes: GAHP)

**ENSC 441 Environmental Impact Assessment (3)** Introduction to the theory and methods of environmental impact assessment (EIA). Emphasis on the biophysical, cultural, social, economic and legal foundations of the federal and state EIA process as well as strategies to mitigate the negative environmental impacts of development. Students engage in critical evaluation and preparation of an EIA. Pre: junior or senior standing or consent of instructor. (Same as GEOG 441).

**ENSC 457 Vegetation of the Hawaiian Isl (3)** This course explores the major types of vegetation in Hawai'i with respect to physical environments and important species. Basic concepts in taxonomy and identification are emphasized. Coursework includes field excursions at various sites around the island of Hawai'i to develop methods in surveying and monitoring vegetation. This course also examines major human impacts and conservation challenges. Pre: BIOL 156 or BIOL 281. (Same as BIOL 457). This course is dual listed with CBES 657.

**ENSC 495 Senior Seminar Environ Science (3) (other)** Capstone course for Geography, Environmental Studies and Environmental Science majors, integrating previous coursework into disciplinary framework. Seminar focuses on research, writing and discussion of themes in contemporary geography and environmental studies and science. Pre: Major in Geography, Environmental Studies or Environmental Science, junior or senior standing. Offered spring semester only. (Same as GEOG 495).

**ENSC x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ENSC x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Filipino (FIL) Courses

College of Arts and Sciences (CAS) , Languages

**FIL 101 Elementary Filipino I (4) (lecture/lab)** This course involves an introduction to the Filipino language as a tool for communication in simple social situations. Emphases are on developing the four language skills: Speaking, Listening, Reading and Writing. However, the course will focus on Speaking and Listening skills as foundation in the beginner's program. The course will pay close attention to the sounds of the Filipino language, including intonation and stress, as well as vocabulary and simple grammatical structures. The course will present different social situations, which involves the turntaking skills, courtesies, and initiating and ending a communication exchange.

**FIL 102 Elementary Filipino II (4)** This is a continuation of FIL 101. Emphases are on developing the four language skills: Speaking, Listening, Reading, and Writing. The course will focus on speaking and listening as foundational skills. The course will pay close attention to the

sounds of the Filipino (Tagalog) language, including intonation and stress, as well as vocabulary and grammatical structures of the elementary level. The course will present different social situations, which involve turntaking skills, courtesies, and initiating and ending a communication exchange. Pre: FIL 101.

**FIL 200 Inter Conversational Filipino (3)** Students will be given an introduction to Tagalog, one of the most widely used and understood languages in the Philippines and overseas Filipino communities. Attention will be given to developing language skills in four areas: Speaking, Listening, Reading and Writing. However, this course will focus on speaking and listening skills to establish a foundation at an intermediate level. Students will learn how to apply the skills learned in common social situations through various hands-on activities. Reading material and other sources will be utilized to supplement course learning. Pre or Coreq: FIL 102 or instructor's consent.

**FIL 330 Filipino Films (3)** This is a survey course on Philippine cinema presented in in Filipino with English subtitles. In this course students will be taught how to watch and listen to films; then identify and analyze various issues within Philippine socio-political contexts. Through lectures, discussions, and various classroom activities, students will develop critical thinking skills necessary for investigating ethical issues in Philippine films.

**FIL 331 Lang, Cul, & Soc in the Phils (3)** This course is an introduction to the language, culture, and society in the Philippines. Central to every human activity is language that is used in expressing, defining, relating, and interpreting human behavior, experience, and existence in society.

**FIL 333 Filipinos in Hawaii (3)** This upper-division and interdisciplinary course will provide an overview of the historical and contemporary experiences of Filipinos in Hawaii, focusing primarily on issues related to race, ethnicity, migration, gender, culture, power, representation, and globalization.

**FIL 354 Filipino Culture (3)** This course is an introduction to peoples and cultures of the Philippines. Topics include cultural origins, linguistic and cultural diversity, values, social structure and overseas Filipino adaptation. This course is cross-listed with ANTH 354. (Attributes: ALEX)

**FIL 430 Cont Fil Soc & Cultr in Film (3)** This upper division course deals with the contemporary Filipino society and culture in film. Students are introduced to the concepts, structures, and dynamics of culture, society, migration, and diaspora of the Filipinos in the modern period from the year 2000 CE.

**FIL 431 Phils and the Malay World (3)** This course focuses on the Philippines as part of the greater Malay World. This course introduces the students to the sociopolitical, economic, historical, linguistic, and cultural aspects related to the Filipinos as integral part of the Nusantara or the Maritime Southeast Asia. (Attributes: DH, HPP)

**FIL 432 Spanish Heritage in the Phils (3)** This course deals with the study of Spanish heritage in the Philippines. It aims to provide the students an introduction to Hispanism and the influence of Spain in the Philippines. It focuses on the Spanish colonial history, language, culture, literature, education, religion, and other institutions of the Philippines.

**FIL x94 Special Topics in Subject Matter (Arr.) (IO)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements



may apply depending on subject and topic.

**FIL x99 Directed Studies (Arr.) (IO)** Statement of planned reading or research required. Pre: instructor's consent.

## Finance (FIN) Courses

College of Business and Economics (COBE)

**FIN 220 Personal Finance (3)** A managerial concept is applied to personal financial affairs; traditional life-cycle approach is structured in terms of a personal balance sheet model; begins with various tools and techniques of planning and ends with the ultimate disposition of the estate; brief case problems are used for illustration. Pre: sophomore standing. (Attributes: DS, GCC, GQ)

**FIN 320 Prin Bus Finance (3)** Introduction to concepts and techniques of business finance. Topics include organizational forms, agency relationships, financial analysis and planning, the capital formation process and capital markets, risk and return, time value of money, stock and bond valuation, and capital budgeting. Pre: C or better in ACC 201; C or better, or concurrent enrollment, in Bus 290; C or better, or concurrent enrollment, in any of the following: MATH 125, MATH 135, MATH 241 or higher.

**FIN 321 Invest & Secur Analysis (3)** Fundamentals of the securities market; development of skills needed to analyze current portfolios and potential investments. Topics include risk reduction, investment analysis, security valuation, portfolio management and option/futures speculation. Pre: C or better in FIN 320; successful completion of 45 college credits.

**FIN 322 Corporate Finance (3)** Development of tools to help managers analyze and solve financial problems. Topics include capital budgeting, capital structure, dividend policy, lease financing, short and long term asset and liability management, options and futures contracts, merger/take-over analysis and bankruptcy analysis. Pre: C or better in FIN 320; C or better in ACC 202.

**FIN 325 Small Bus Finance (3)** Application of financial principles to small business firms. Topics include planning, valuation, investment decision making (fixed and working capital investments) and procurement of funds. Pre: C or better in FIN 320 and successful completion of 45 college credits.

**FIN 370 Prin Real Estate (3)** Real estate principles including legal, physical, and economic elements, as well as concepts of valuation, market analysis, and finance. Examined are public and private externalities affecting the allocation and utilization of real estate resources. Pre: FIN 320 and junior standing.

**FIN 371 Real Estate Invest & Fin (3)** Application of the investment process to produce the optimal decision for the investor in choosing among alternatives. Topics include market research, forecasting cash flows, tax considerations, measuring investment performance, and the risk element. Pre: Fin 370 and Junior standing.

**FIN 412 Options & Other Derivatives (3)** Detailed coverage of derivative securities including options, swaps, forwards and futures. Pricing, arbitrage relationships, use and trading strategies of derivatives are discussed. Contemporary issues in financial engineering. Special emphasis is placed on the use of derivatives by smaller businesses. Pre: C or better in FIN 320.

**FIN x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**FIN x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Forestry (FOR) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**FOR 202 Forestry & Natural Resources (3) (lecture/lab)** Development of forestry and agroforestry, forest biology, soils, ecology, conservation, management, and products. Field trips to various forestry operations.

**FOR 340 Remote Sensing GIS in Forestry (3)** Application of remote sensing and GIS in forestry. Spatial data structures, map projection, global positioning system. How to create spatial data sets through GPS survey. Utilization of GIS software and performance of basic spatial analyses.

**FOR 350 Tropical Silviculture (3) (lecture/lab)** Sustainable methods and techniques for manipulation of tropical forest ecosystems to meet management objective; artificial and natural regeneration; site preparation and harvest methods; soil and water resources management; silviculture and the gene pool; intermediate stand tending and maintenance of forest health.

**FOR 360 Urban Forestry (3)** Conservation, management and restoration of trees, forests and related natural resources are core topics including the evolution of today's public and private urban forestry programs. Primary focus is urban forestry from ecological, economic, socio-cultural and economic perspectives. Changing demographics of urban areas, urban development and sprawl, resultant impacts and the political landscape are also topics. Sustaining urban forest systems through understanding or organization, structure, function and processes in a stressed environment are emphasized.

**FOR 440 Forest Ecosyst Restoration/Mgt (3) (lecture/lab)** The course gives the students an introduction to basic knowledge on the interdependent disciplines, restoration ecology and ecological restoration, with specific emphasis on forests. Planning and restoration strategies for natural systems in the tropical regions; assessing the condition and threats to native and planted forests and developing plans for their management; introducing tools used by restoration ecologists to solve practical problems; discussing scope and success of actual restoration projects.

**FOR x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**FOR x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.



## French (FR) Courses

College of Arts and Sciences (CAS) , Languages

**FR 101 Elementary French I (4)** Conversation, laboratory drill, grammar, reading, using film strips, interactive software, slides and tapes.

**FR 102 Elementary French II (4)** Conversation, laboratory drill, grammar, reading, using film strips, interactive software, slides and tapes. Pre: FR 101 or equivalent.

**FR 201 Intermediate French I (4)** Reading, conversation, laboratory drill, composition, using film strips, interactive software, slides and tapes. Pre: FR 102 or equivalent.

**FR 202 Intermediate French II (4)** Reading, conversation, laboratory drill, composition, using film strips, interactive software, slides and tapes. Pre: FR 201 or equivalent.

**FR 312 Adv Conver & Composition (3)** Major emphasis on strengthening oral and written language skills through reading and discussion of current French-language periodicals, writing informal essays, grammar review, and laboratory drills. Video tapes, movies, interactive software, and film strips also will be used. Pre: FR 311 or equivalent.

**FR x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**FR x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Geography (GEOG) Courses

College of Arts and Sciences (CAS)

*Field trips are sometimes conducted outside of class hours.*

**GEOG 101 Geog & Nat Environ (3)** Survey of the earth's physical environment, including distribution and associations between energy, climate, vegetation, and landforms. Human interrelationships with the physical landscape. (Attributes: DP)

**GEOG 102 World Regional Geography (3)** Geographic survey of the world's major cultural regions. Processes of spatial integration and differentiation of economic, geo-political, and cultural landscapes. Natural resource distribution and the contrasts and linkages between the developed and under-developed world. (Attributes: FGB)

**GEOG 103 Geog And Contemp Soc (3)** Examines aspects of culture such as population, agriculture, industry, and religion. Focus on the relationships between people and their environment and resulting regional contrasts.

**GEOG 105 Geography Of United States (3)** Major features of the United States. Emphasis on what gives character or distinctiveness to various places.

**GEOG 107 Hawai'i in the Pacific (3) (lecture/other)** Introduction to the geographies of Hawai'i and the Pacific Islands region, emphasizing indigenous world views. Through lecture, discussion, and web based learning, the course focuses on the historical and contemporary links between Hawai'i and Oceania and provides a context for understanding the people, cultures, and environments of the region.

**GEOG 120 Weather & Climate Hawai'i (3)** For non-science majors and prospective science teachers. Basic meteorology, sun-earth-ocean-atmosphere interrelationships, weather types, seasonal changes, trade winds, clouds, rainfall, with examples drawn from the local weather and climate. (Same as PHYS 120) (Attributes: ALEX, DP, GAHP, HPP)

**GEOG 201 Interp Geog Data (3)** Introduction to methods of analysis and display of a variety of geographical data. Introduction to geographical methods, basic computer programs, concepts of computer cartography, map interpretation and design, and more advanced techniques including GIS, GPS, and remote sensing. (Attributes: GQ)

**GEOG 280 Introduction to Geostatistics (3)** Application of statistical and mathematical models in a geographic context. The use of multivariate techniques in assessing spatial relationships. This course will cover basic theory, methods, and techniques for the statistical analysis of spatial data. Students will learn and employ elementary techniques for describing, modeling, and analyzing spatial data using Excel, ArcGIS, and/or MATLAB. Pre: GEOG 102 or GEOG 103 or GEOG 101 or ENSC 100.

**GEOG 295 Pacific: Brown Bag Seminar Ser (1) (other)** Weekly one hour seminars will cover a broad range of topics, current research and topical issues that are of relevance to contemporary ways of life in the Pacific. Seminars will also explore the application of Pacific Studies to the workforce. Credit is gained by weekly attendance and the submission of short summaries of the weekly seminars. (Same as ANTH 295).

**GEOG 300 Climatology (3)** Elements and controls of climate. Dynamic processes of atmospheric circulation: the distribution patterns of solar radiation, temperature, precipitation, and evaporation. Energy and water balance concepts, climate classification. Pre: GEOG 101 or consent of instructor.

**GEOG 301 Global Warming/Climate Change (3)** Concepts and processes of global warming and climate change: electromagnetic radiation and energy balance, greenhouse effect, past climates, and local and global impacts and migration strategies. We will read and analyze classic and current journal articles and gain experience working with simple climate models. Pre: ENSC 100 or GEOG 101. (Same as ENSC 301).

**GEOG 305A Themes in Regnl Geog: Asia (3)** Surveys regional landscapes of East, Southeast, and South Asia; focuses on historical and contemporary influences of physical, cultural, and economic landscapes. Pre: junior or senior status, or consent of instructor.

**GEOG 305B Themes in Regnl Geog: Mid East (3)** Surveys regional landscapes of the Middle East, including North Africa; focuses on historical and contemporary influences of physical, cultural, and economic landscapes. Pre: junior or senior status, or consent of instructor.

**GEOG 305C Themes in Regnl Geog: N Amer (3)** Surveys regional landscapes of North America; focuses on historical and contemporary influences of physical, cultural, and economic landscapes. Pre: junior or senior status, or consent of instructor.

**GEOG 309 Biogeography (3)** Basic evolutionary and ecological



principles underlying the dynamics of plant and animal population. Mechanisms of isolation, speciation, dispersal, migration, and competition as they affect past and present world distribution patterns. Island biogeography. Pre: GEOG 101; BIOL 101 or 175 or 176; or consent of instructor. (Same as BIOL 309) (Attributes: GAHP)

**GEOG 319 Nat Hazards/Disasters (3)** Survey of origins, processes, distributions, and effects of hazardous physical forces: hurricanes, tornadoes, drought, floods, earthquakes, volcanism, landslides, erosion, and beach degradation. Hazard perception and adjustment by humans also considered. Pre: GEOG 101 or consent of instructor.

**GEOG 320 Earth Surface Processes (3)** Processes of landform development at large and small scales. Theoretical and applied aspects, including human environment considerations. Field excursions may be required. Pre: GEOG 101 or GEOL 111 or equivalent. (Same as GEOL 342)

**GEOG 321 Geog Of Economic Activity (3)** Factors influencing the distribution of economic activities at different spatial scales: world, national, local. Consideration of general theories of decision making for urban and industrial locations. Pre: GEOG 103.

**GEOG 325 Legal Geography (3)** In this course, we will explore and examine a variety of places that upon first consideration, do not seem either legal or political. We will investigate a variety of types of places and spaces that carry legal and political weight in our everyday lives. Themes of consumption, expression, access, accommodation, culture, sex, race, living, national identity, community, discipline, and property will guide our inquiry into the relationship between law, politics, and spatial habitation. (Same as POLS 325). (Attributes: ALEX, DS, GCC)

**GEOG 326 Natural Resources (3)** Philosophy and history of the conservation movement in the United States. Ecological considerations in the management of renewable and nonrenewable resources. Current conservation issues in Hawai'i. Pre: GEOG 101 or instructor's consent. (Attributes: GAHP)

**GEOG 328 Cultural Geography (3)** Key concepts in cultural geography and introduction to qualitative research methods in geography. Topics include: histories of cultural geography; landscapes; nature-society relations; critical cultural geographies. Pre: one introductory geography course.

**GEOG 329 Development Geographies (3)** Major theoretical approaches to economic development will be examined. The environmental and cultural sustainability of these approaches along with emerging alternative development (green) perspectives will be highlighted through specific case studies. Pre: any introductory course in geography, anthropology, economics, biology, or agriculture.

**GEOG 331 Tourism Geographies (3)** Survey of tourism geographies, addressing a wide-range of topics: tourism representations, tourism development strategies, indigenous tourism development, planning for "sustainable" tourism, and tourism's environmental impacts. Pre: junior or senior standing or instructor's consent.

**GEOG 332 Geog Of Hawaiian Islands (3)** Introduction to the physical and human geography of Hawai'i. Development of island ecosystems. Polynesian pre-history, post-contact resource exploitation and environmental transformation. History of land tenure and management. Spatial aspects of agriculture, urbanization, and tourism. Pre: GEOG 101 or 103, or consent of instructor. (Attributes: GAHP)

**GEOG 335 Geog Of Oceania (3)** Physical and human geography of the Pacific Islands region including Australia and New Zealand (excluding

Hawai'i). Topics include: regional marine and terrestrial resources; human settlement and landscape transformation; population political geography; economic development, and resource management and environmental issues. (Attributes: GAHP, HPP)

**GEOG 336 Political Ecology (3)** We will use political ecology to examine how societies shape, and are shaped by, nature, with a focus on the powers and limits of capitalism and the state to transform, manage and produce nature. Pre: GEOG 101, GEOG 102, GEOG 103 or GEOG 107 or consent of instructor.

**GEOG 340 Intro to Land Use Planning (3)** Land use planning and relationship of geographic concepts to urban, regional, and environmental planning. Emphasis on examples from Hawai'i. Pre: Junior or senior standing.

**GEOG 382 Qualitative Research (3)** Introduction to the ethics, methodologies, and practice of research in human geography, particularly standpoint epistemologies and associated methodologies. Combines lectures, workshops, and assignments. Students will conduct and report upon their own research. Pre: GEOG 103 or 102 or WS 151 or instructor's consent. (Same as WS 382)

**GEOG 385 Fld Meth in Geog & Environ Sci (3)** Geographic field methods for assessment and monitoring of the physical/biological/anthropogenic environment. Instrumentation, data collection, and analysis; planning and land management applications. Pre: GEOG 201 or instructor's consent. (Same as ENSC 385). (Attributes: GAHP)

**GEOG 387 Lit of the Environment (3)** A study of modern nature writing and environmental issues in several genres. Students will explore how humans negotiate their place in variety of physical environments. Pre: C or better in ENG/ESL 100/T and one 200-level ENG course or consent of instructor. (Same as ENG 387)

**GEOG 409 Principles of Landscape Ecology (3)** Introduction to landscape ecology as a framework for landscape research, analysis and management. Emphasis on spatial patterning - the causes, development, importance of ecological processes, and the spatial interactions of dynamic processes. Focus on concepts, methods and applications of landscape ecology through reading classic and contemporary literature. Pre: GEOG 101 or GEOG 201 or GEOG 309 or BIOL 281 or consent of instructor. Some familiarity with geographic information systems (GIS) and statistics desirable.

**GEOG 430 Gender, Place and Environment (3)** Survey of trends in geography of gender related to place, space and the environment. Addresses spatial interactions of gendered bodies of different ages, class and ethnicities. Pre: junior or senior standing or instructor's consent. (Same as WS 430). (Attributes: ALEX, DS, GCC, GS)

**GEOG 435 Senior Seminar Pacific Studies (3) (other)** A reading and research seminar under the supervision of faculty from Anthropology, Geography, and/or History on indigenous issues in contemporary Oceania. Topics include indigeneity, sovereignty, climate change and sea-level rise, militarism, and ethnic tensions and violence. Pre: Junior or Senior standing. (Same as ANTH 435, HIST 415) (Attributes: GAHP, HPP)

**GEOG 436 Environ Politics in Pacific (3)** This course will examine the ways that government policies, economic development and globalization affect the environment in the Pacific region as well as the ways that environmental problems affect political debates and actions. Utilizing the research approach or political ecology this course for advanced students will explore contemporary viewpoints on terrestrial resource



management, preservation, population growth, land degradation, marine and terrestrial resource management, environmental contamination, and other environmental issues across Polynesia, Melanesia and Micronesia. Pre: Junior or Senior standing and completion of one of the following: ENSC 100, GEOG 335, other upper-level Pacific Island Studies course, or instructor's consent. (Same as ENSC 436) (Attributes: GAHP)

**GEOG 440 Community Planning (3)** An introduction to comprehensive planning in Hawai'i with emphasis on the environmental, infrastructure, social, economic and other issues underlying good land use plans. Examples from General Plans and Community Development Plans. Pre: GEOG 340 or instructor's consent.

**GEOG 441 Environmental Impact Assessment (3)** Introduction to the theory and methods of environmental impact assessment (EIA). Emphasis on the physical environmental, cultural, social and legal foundations of the federal and state EIA process as well as how to minimize negative impacts on economic development. Students engage in critical evaluation and preparation of EIS. Pre: junior or senior standing or consent of instructor. (Same as ENSC 441).

**GEOG 470 Remote Sensing/Air Photo (3)** Analysis of film and digital images of the Earth's surface collected from cameras and sensors aboard aircraft and satellites. Applications to resource planning, forestry, hydrology and geology. Pre: GEOG 201 or consent of instructor.

**GEOG 480 Geog Info Sys & Visualization (3) (lecture/lab)** Introduction to basic concepts and skills for using Geographic Information Systems (GIS) to analyze and visualize geospatial data. Topics covered include: computer representation of geographic information, construction of GIS databases, geospatial analysis and applications. Additional focus on visualization skills including cartographic principles and techniques. Pre: GEOG 201 or instructor's consent.

**GEOG 481 Advance Geo-Spatial Techniques (3)** GEOG 481 is an advanced course in spatial analysis and modeling specific to Geospatial Information Science. This course will emphasize the application of Geospatial software tools along with the underlying theories and practices to analyze, model and visualize data. A focus on concepts and techniques utilized in GIS provides numerous opportunities for applied learning in terrain modeling, suitability modeling, predictive ecosystem mapping and data visualization. Further knowledge and skills will be developed by customization of GIS applications through interface. This course is dual listed with CBES 681.

**GEOG 488 Advanced Geostatistics (3)** This class is about understanding the uncertainty inherent in predictions made from spatial data. Probability theory, spatial analysis, variogram analysis, kriging, and stochastic simulations (conditional and unconditional). Our focus will be on the theory and application of geostatistical interpolation techniques to address real geographic and environmental problems using real data. Pre: GEOG 280, GEOG 480

**GEOG 490 Senior Thesis (3) (lecture/other)** Independent research on a significant topic related to the student's area of interest under the supervision of one or more faculty members in Geography and Environmental Science/Studies. Pre: Instructor's consent.

**GEOG 495 Senior Seminar in Geography (3) (other)** Capstone course for Geography, Environmental Studies and Environmental Science majors, integrating previous coursework into disciplinary framework. Seminar focuses on research, writing and discussion of themes in contemporary geography and environmental studies and science. Pre: Major in Geography, Environmental Studies or Environmental Science,

junior or senior standing. Offered spring semester only. (Same as GEOG 495).

**GEOG 496 Planning Internship (3) (other)** Juniors and seniors majoring in geography may undertake in-service training in government or private agencies. Pre: junior standing and consent of instructor. (Attributes: ALEX, GAHP)

**GEOG x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**GEOG x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Geology (GEOL) Courses

College of Natural and Health Sciences (CNHS)

*Field trips are sometimes conducted outside of class hours.*

**GEOL 100 Environmental Earth Science (3)** Introduction to geology for non-science majors with an emphasis on the interaction between the Earth and its human population. The focus is on the solid Earth, natural hazards, natural resources, and pollution. Note: Geology students with an interest in environmental geology are encouraged to take GEOL 300. (Attributes: ALEX, DP, GCC)

**GEOL 100L Environmental Earth Sci Lab (1) (lab)** Application of basic geological principles toward the understanding of man's relationship with the environment. Laboratory experiences in hazards mapping and assessment, environmental pollution, global change, and management of our geological resources. Develops skills in interpreting maps and remote sensing images. Pre: GEOL 100 or GEOL 300, which may be taken concurrently.

**GEOL 111 Understanding the Earth (3)** The study of the Earth, with emphasis placed on the materials, surface features, structures, various erosional and depositional processes, and the role of plate tectonics. Prepares students for further studies in geology. (Attributes: DP)

**GEOL 111L Understanding the Earth Lab (1) (lab)** Investigation of geological processes using observational techniques. Covers plate tectonics, identification and classification of earth materials, analysis of geological hazards, evaluation of natural resources, and development of map interpretation skills. Field trips highlighting Hawaiian geology. Pre: Concurrent or previous enrollment in either GEOL 100 or GEOL 111, or instructor's consent. (Attributes: DY)

**GEOL 112 Hist of the Earth & Its Life (3)** The evolution of the earth from the origin of the solar system to the present. Emphasis on plate tectonics, the history of life, and techniques used to reconstruct past events from geologic evidence. Pre: GEOL 111 or consent. (Attributes: DB)

**GEOL 112L History of the Earth Lab (1) (lab)** Includes topics on fossils and fossilization, measurement of geologic time, stratigraphy, biostratigraphy, geotectonics, paleoecology, sedimentology, and the interpretation of geologic maps. Recommended: GEOL 111L. Pre: GEOL 112, which may be taken concurrently.



**GEOL 170 Volcanoes and Earthquakes (3)** Systematic study of volcanic eruptions and damaging earthquakes. Applications of the scientific method to understanding their underlying causes. Case studies illustrate how catastrophic eruptions and earthquakes impact climate, the environment and society. (Attributes: DP, GQ)

**GEOL 195 Introductory Field Experience (1) (other)** Pre- or post-semester field trip (1-2 weeks) to exceptional geologic localities. During the semester students will become familiar with the geologic formations, structure, and history of the area to be visited. Pre: GEOL 112. CR/NC grade. Repeatable for credit. Offered in Spring semester only, alternate years.

**GEOL 205 Geology Of Hawaiian Islands (3)** A survey of the geological phenomena particular to the Hawaiian Islands, including volcanism, rock and mineral occurrences, landform development, and water resources. (Attributes: DP, GAHP, HPP)

**GEOL 212 Earth Materials I: Minerals (4) (lecture/lab)** A systematic study of the common minerals involving crystallography, optical properties, crystal chemistry, and occurrence. Laboratory work stresses identification of minerals in hand specimen and using the petrographic microscope. Pre: GEOL 111 and either CHEM 151 or 161, or instructor's consent.

**GEOL 300 Adv Environmental Earth Sci (3)** In-depth study of the interactions between the human population and our planet. Natural resources, pollution and natural hazards, current issues such as the food supply and the energy crisis. Community concerns such as waste, natural hazards and environmental legislation. Pre: upper division standing and GEOL 100 or GEOL 111 or GEOL 170 or GEOG 101 or ENSC 100 or MARE 201. (Attributes: ALEX, GCC)

**GEOL 320 Erth Mat II: Igneous/Meta Rock (4) (lecture/lab)** An introduction to the study of rocks, including their origin, occurrence, composition and classification. Laboratory work involves the identification of rocks in hand specimen and thin section by means of composition and texture. Emphasis on igneous and metamorphic rocks. Pre: GEOL 212 or consent of instructor.

**GEOL 330 Deformation of the Earth (4) (lecture/lab)** Effects and mechanics of deformation of the earth's crust, involving the description, classification, and origin of geologic structures. Aspects of geotectonics are considered. Pre: GEOL 112 and prerequisites listed for MATH 241, or consent of instructor.

**GEOL 340 Sedimentary Processes (4) (lecture/lab)** Emphasis on sedimentary processes, properties of sediments and sedimentary rocks, environmental interpretation, and stratigraphic principles and nomenclature. Required field trips. Pre: GEOL 112

**GEOL 342 Earth Surface Processes (3)** Processes of landform development at large and small scales. Theoretical and applied aspects including human environment considerations. Pre: GEOG 101 or GEOL 111 or equivalent. (Same as GEOG 320)

**GEOL 344 Coastal Geology (3)** Systematic study of coastal processes and the structure and morphology of the world's coastlines. Topics include tectonic, oceanographic, biologic and anthropogenic influences, hazards, and current issues. Required weekend field trips. Pre: GEOL 111 or MARE 201 or GEOG 101 or instructor's consent.

**GEOL 352 Planets and Exoplanets (3)** Study of the geology and geophysics of Earth-like planets and satellites in the Solar System, with emphasis on understanding terrestrial geology in a border, astronomical

context and applications to exoplanet research. Study of the atmospheres of Solar System planets and satellites, and also the formation and evolution of the Solar System and extrasolar planetary systems. Pre: GEOL 111, ASTR 180, PHYS 151, PHYS 170. (Same as ASTR 352)

**GEOL 360 Surface Water (3)** Introduction to surface hydrology. Topics include streamflow hydraulics, flooding, soil moisture, evapotranspiration, and stream water quality. Introduction to measurement technique, quantitative descriptions of hydraulic phenomenon and practical applications. Pre: GEOL 111 and competence in algebra or instructor's consent.

**GEOL 370 Field Methods (3) (lecture/lab)** Familiarization with field instrumentation and techniques. The study of methods used to collect, graphically represent, and interpret geological field data. For the last third of the class, students choose between a post-semester geological mapping project in California, or a geologic mapping project in Hawai'i. Pre: GEOL 330 or consent of instructor. (Attributes: ALEX)

**GEOL 431 Geology Of North America (3)** Survey of the structure, stratigraphy, and tectonic evolution of the North American continent from Precambrian to recent. Pre: GEOL 112 or instructor's consent.

**GEOL 432 Plate Tectonics (3)** Theory and working principles of plate tectonics. Includes quantitative solutions of plate velocities and rotations on a sphere and reconstructions of past plate movements. Pre: GEOL 111.

**GEOL 445 GIS for Geology (3) (lecture/lab)** Introduction to the use of Geographical Information Systems for storing, displaying, and analyzing geospatial data. Theories, applications in earth and environmental sciences, databases, and data analysis. Pre: GEOL 111 and upper division standing or consent of instructor. Basic computer skills are strongly recommended.

**GEOL 450 Geological Remote Sensing (3) (lecture/lab)** Application of remote sensing to volcanic hazards, global change, and geologic mapping. Exploration of both satellite and airborne sensor imagery with laboratory exercises focused on modern remote sensing visualization tools and interpretation of optical, thermal and thematic data suites. Pre: any lower division geology class.

**GEOL 460 Groundwater (3)** Introduction to groundwater hydrology. Topics include: aquifer properties, principles of groundwater flow, quantity and quality of groundwater resources, water chemistry, groundwater contamination and the role of groundwater in geologic processes. Quantitative focus. Pre: GEOL 111, 111L, prior course in chemistry at the high school or college level, and MATH 125 or 241 or instructor's consent.

**GEOL 470 Volcanology (3) (lecture/lab)** In-depth study of volcanic processes, products and phenomena, including the classification of volcanic eruptions, evaluation of volcanic hazards, and an introduction to eruption monitoring. Pre: GEOL 320 or instructor's consent.

**GEOL 471 Volcano Monitoring (3)** Survey of deformation, seismological, geochemical, and field mapping methods of monitoring active volcanoes, and their use in forecasting eruptions. Emphasis on field applications. Pre: Previous college credit in geology, mathematics, and other physical sciences, or consent of the instructor.

**GEOL 472 Volcano Seismology & Geodesy (3)** Investigation of seismotectonic processes of active volcanoes including sources of earthquakes, volcanic tremor, seismic tomography, and seismic methods



for volcanic monitoring. Geodetic Investigations of volcanic processes including both earth and space-based methods, data analysis and modeling. Pre: GEOL 111, 111L and MATH 125 or MATH 241 or consent of instructor. Field trips are sometimes conducted outside of class hours.

**GEOL 485 Advanced Field Mapping (1) (other)** An elective course consisting of 10-14 days of intensive field mapping in selected regions of the United States. Students construct a finished geologic map, including a cross-section, explanation, and a summary of geologic history. Additional fees apply. Pre: GEOL 330.

**GEOL 495A Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC; in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior standing or instructor's consent. (Same as ASTR 495A-495B, PHYS 495A-495B and MATH 495A-495B).

**GEOL 495B Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC; in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior standing or consent of instructor. (Same as ASTR 495A-495B, CHEM 495A-495B, PHYS 495A-495B and MATH 495A-495B).

**GEOL 496 Tchg Assist & Tutoring Geology (1)** Please contact the department or division office for more information about this course.

**GEOL x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**GEOL x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Hawaiian Language (HAW) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**HAW 100 Hawn Language in Action (2)** A beginning immersion experience in Hawaiian focusing on the spoken use of the language. (A) usage referring to locations and relationships, (E) usage referring to processes and actors, (I) other. May be repeated for credit if subletters are different. Meets two times weekly. No prerequisites. (Attributes: GAHP)

**HAW 101 Elementary Hawaiian I (4)** Development of listening, speaking, reading and writing and analytical skills at the elementary level of auxiliary language. Taught within the context of the contemporary culture of the Hawaiian people. (Attributes: DH, GAHP, GL, HPP)

**HAW 102 Elem Hawaiian II (4)** Continuation of HAW 101. Pre: HAW 101 or placement exam. (Attributes: DH, GAHP, GL, HPP)

**HAW x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HAW x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [HAW graduate-level courses](#).

## Hawaiian Studies (HWST) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**HWST 107 Hawai'i:Center of the Pacific (3)** An introduction to the unique aspects of the native point of view in Hawai'i and the larger Pacific with regards to origins, language, religion, land, art, history and modern issues.

**HWST 111 Hawaiian 'Ohana (3)** The culture of the Hawaiian people as expressed in the home and family. The position of the family as the basis of the larger Hawaiian society and culture. Both ancient and modern aspects covered; extensive use of Hawaiian terminology. (Attributes: DS, GAHP, HPP)

**HWST 175 Intro Music Of Polynesia (3)** A general survey of the indigenous and acculturated music of eight major Polynesian island groups: Tonga, Samoa, New Zealand, Cook Islands, Society Islands, Marquesas Islands, Easter Island and Hawai'i. Music is viewed as both an organization of sound and as a product of culture and people. (Same as MUS 175). (Attributes: DH, GAHP, HPP)

**HWST 176 Hist & Dev Of Hawn Music (3)** A general survey of the interrelationships of indigenous and acculturated Hawaiian music. Vocal music genres to be discussed include: chant; Christian hymn singing; secular choral singing; male and female falsetto singing; Chalalang; Hapa Haole; and contemporary. Instrumental music genres include: Pre-European instrumental styles; slack key guitar; 'ukulele; and steel guitar. (Same as MUS 176) (Attributes: DH, HPP)

**HWST 181 Indig Leadership thru Hula I (3)** Positions hula, folk dance of Hawai'i, as vibrant cultural-academic platform to investigate, develop, exercise, and assess traditional components of indigenous leadership in a 21st century indigenous world context. A whole body hula experience that relies on multiple intelligence and interdisciplinary approaches to build awareness and actions in indigenous leadership for personal, familial, and community well-being. Community performance of learning is integral. No previous experience in hula and Hawaiian language



required. (A) Hā'ulelauhau (E) Kupulau. May be repeated for credit if subletters are different.

**HWST 182 Indig Leadership thru Hula II (3)** Positions the ho'opa'a of hula, instrumentalist of folk dance of Hawai'i, as vibrant cultural-academic platform to investigate, develop, exercise, and assess traditional components of indigenous leadership in a 21st century indigenous world context. A whole body hula experience that relies on multiple intelligence and interdisciplinary approaches to build awareness and actions in indigenous leadership for personal, familial, and community well-being. Community performance of learning is integral. No previous experience in hula and Hawaiian language required. (A) Hā'ulelauhau (E) Kupulau. May be repeated for credit if subletters are different. Pre: Completion of both HWST 181A and HWST 181E; or instructor's approval.

**HWST 205A Hawn Music in Actn: Mele 'Āina (2)** Learning Hawaiian songs as a means of strengthening knowledge of language, poetry and culture A) mele 'āina, E) mele pili kanaka, I) other. May be repeated for credit if subletters are different. Conducted in Hawaiian. Pre: Haw 101 or higher. (Attributes: GAHP)

**HWST 211 Hawaiian Ethnobotany (3)** Hawaiian herbs and plants: their identification, their place in the heritage of the Hawaiian people, their medicinal properties, and other practical uses; extensive use of Hawaiian terminology. (Attributes: DH, GAHP, HPP)

**HWST 213 Hawaiian Ethnozoology (3)** Hawaiian fishes, birds, and other creatures: their identification, their place in the heritage of the Hawaiian people, methods of capture, their practical uses; extensive use of Hawaiian terminology. (Attributes: DH, GAHP, HPP)

**HWST x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HWST x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [HWST graduate-level courses](#).

## History (HIST) Courses

College of Arts and Sciences (CAS)

**HIST 151 World History to 1500 (3)** A global and historical survey focusing on human societies and cross-cultural interactions to 1500 C.E. (Attributes: FGA)

**HIST 152 World History since 1500 (3)** A global and historical survey focusing on human societies and cross-cultural interactions since 1500 C.E. (Attributes: FGB)

**HIST 280 Topics in Hawaiian History (3)** Through various topics this course offers a survey of the history of the Hawai'i, tracing the impact of major events and historical figures upon Hawaiian society while also considering Hawaiian responses to these changes. May be repeated for credit once if topic changes. (Attributes: HPP)

**HIST 284 History of Hawai'i (3)** A survey course in the history of the Hawaiian Islands from Polynesian origins to contemporary multi-cultural society. Traces the impact of major events and historical figures upon Hawaiian society and also considers the Hawaiian response to these changes. (Attributes: DS, GAHP, HPP)

**HIST 300 Historical Methods (3)** Methods of conducting historical research, including library, Internet, and archival research, in addition to an introduction to issues of professional historiography. Students will complete a wide variety of exercises designed to prepare them for historical work of the major. Pre: sophomore standing or instructor's consent.

**HIST 301 Professional Practice (3)** Examination of academic careers, internships, and professional opportunities for History majors and minors. Topics covered include: building a CV, professionalism, ethics, internships, job market/interview process, and graduate school. Pre: sophomore standing or instructor's consent.

**HIST 308 Asian American History (3)** This course surveys the histories of Asians in the United States from 1850 to the present. After briefly discussing the earliest Asians in America, the course examines the experiences of Chinese, Japanese, Korean, Southern Asian, Filipino, and Southeast Asian immigrants. Students will also use the Asian American perspectives to explore such topics as diaspora, migration, exclusion, assimilation, race, labor, war, nationalism, transnationalism, and so on.

**HIST 309 History of Asian Religions (3)** The historical development of Asian religious traditions from their origins to the present, with an emphasis on the major traditions of India, China, and Japan. (Attributes: GAHP)

**HIST 310 Hist of Japan I: Early Japan (3)** Japanese history and culture from prehistory to the mid-seventeenth century. Topics include: origins of Japanese people and culture; the Imperial state; contacts with China and Korea; aristocratic culture, particularly the role of women; the samurai class and the Shogunates; Buddhism and Shinto; late medieval disorder and development; unification and pacification. Pre: sophomore standing or instructor's consent. (Same as JPST 310) (Attributes: GAHP)

**HIST 311 Hist Japan II: Tokugawa to Meiji (3)** Japanese history and culture from the seventeenth through nineteenth centuries. Topics include: samurai and the class system, political change, economic growth and social tensions; urban and rural evolution; popular culture and literature; Japan's isolation and reopening; collapse of the Tokugawa system; the Meiji Restoration; dissolution of the samurai class; social reorganization and rapid modernization; the Meiji Constitution and new Imperial state. Pre: sophomore standing or instructor's consent. (Same as JPST 311) (Attributes: GAHP)

**HIST 312 Hist of China I: Early China (3)** Chinese history and culture from prehistory through the Ming dynasty. Topics include: Chinese philosophy, culture, religion and literature; the Imperial State; family institutions; China's relationship with border societies; dynastic cycles and creative disorder; technology and economic change; education and the state examination system; Mongol invasion and empire; China's role in world trade. Pre: sophomore standing or instructor's consent. (Attributes: GAHP)

**HIST 313 History Of China II: Qing (3)** Chinese history and culture from the seventeenth century through the fall of the Qing in 1912. Topics include: fall of the Ming and establishment of the Qing Dynasty; Manchu-Han relations; economic growth and world trade; opium; international relations; reformers, reform movements and uprisings; adapting Western ideas and technology; collapse of the Qing. Pre: sophomore standing or



instructor's consent. (Attributes: GAHP)

**HIST 314 Hist of Jpn III: 20th Cent-Pre (3)** Japanese history and culture from 1890 to present. Topics include: Meiji and 1947 constitutions; democracy and leadership; militarism and pacifism; evolving Imperial institution; economic growth and social change; tradition and modernity in Japanese culture; Japan's place in world systems and world culture. (Same as JPST 314) (Attributes: DS, GAHP, HPP)

**HIST 316 19th C. Pacific (3)** This is a survey course in the history of Oceania, up to and including the 19th C. Topics include migration and settlement of the Pacific, development of complex societies of Oceania, encounters with Euro-Americans, cultural exchange, and colonization. Pre: Sophomore standing or instructor's consent. (Attributes: DS, GAHP, HPP)

**HIST 317 20th C. Pacific (3)** This is a survey course in the history of Oceania, from 1900 to the present. Topics include: colonial exploitation, Pacific involvement in World War I and World War II, nuclear testing, decolonization efforts, cultural revitalization and the search for identity in the contemporary world. Pre: Sophomore standing or instructor's consent. (Attributes: DS, GAHP, HPP)

**HIST 318 Hist China III: 20th Cent-Pres (3)** Chinese history and culture from 1900 to present. Topics include: Fall of the Qing dynasty; Republic of China; warlordism; imperialism and Chinese resistance; Civil War, Communist reunification of the mainland; People's Republic under Mao Zedong; post-Mao Chinese economic reforms and leadership; Nationalist Taiwan's economic growth and slow democratization; international relations including overseas Chinese. Pre: sophomore standing or instructor's consent. (Attributes: DS, GAHP, HPP)

**HIST 319 European Women's History (3)** Study of European women from pre-history to the twentieth century with emphasis on women's social and cultural roles in western history. Current feminist theory is also studied. Pre: sophomore standing or instructor's consent. (Same as WS 319)

**HIST 321 Hist of Australia & N Zealand (3)** Both Australia and New Zealand are part of the broader Pacific region, had colonies in the Pacific and continue to have significant influence in the islands. This course examines the origin and nature of their indigenous populations, the evolving nature of their settler communities with Great Britain in the nineteenth century and their development as independent nations in the twentieth century. Offered in Spring Semester only. Pre: sophomore standing or instructor's consent. (Attributes: GAHP)

**HIST 322 The Bible and History (3)** Selected books of the Old and New Testaments with reference to their historical and cultural background. Pre: sophomore standing or instructor's consent.

**HIST 323 Ancient Greece (3)** Political, social, and cultural history of ancient Greece from the Minoan to Hellenistic periods.

**HIST 324 Militarization in the Pacific (3)** This course examines the role of militarization in the Pacific Islands and the Pacific Rim from the late 18th century to present day. Diligent attention will be paid to WWII in the Pacific, but the course will also consider social, political, and military history in Oceania as an extension of colonialism, as well as the subsequent reactions to that militarization. Pre: sophomore standing or instructor's consent. (Attributes: DS, HPP)

**HIST 327 Environmental History--Pacific (3)** This course in Pacific Islands history analyzes how changes in the environment affected the

daily lives of the people of/in Oceania, and how the actions of the people of/in Oceania affected environmental changes, with an emphasis on 19th and 20th century history. Pre: sophomore standing or instructor's consent. (Attributes: DS, HPP)

**HIST 332 Hawaiian Kingdom (3)** History of Hawai'i from early migrations and settlement to the 1890's with emphasis on political and social history; formation of the Kingdom of Hawai'i, changes in land tenure, disease and depopulation issues, the 1893 overthrow of the monarchy, and annexation. (Attributes: DS, GAHP, HPP)

**HIST 333 Twentieth Century Hawai'i (3)** History of Hawai'i since the overthrow of the monarchy in 1893, covering the Republic of Hawai'i and the period under United States control - immigration, World War II, the labor movement and the red scare, Hawaiian renaissance and the sovereignty movement. Pre: sophomore standing or instructor's consent. (Attributes: GAHP)

**HIST 336 Epidemics in Hawai'i (3)** With a focus on the nineteenth century, this course considers the role of health, disease and medicine in Hawai'i from the pre-kingdom era to contemporary times by bringing together the approaches of history and medical anthropology, with the understandings of (bio)medicine. Perceptions of health, the role of medicine, and the impact of epidemic diseases on Hawai'i's cultural, social and political history from both Native Hawaiian and Western perspectives are examined. (Attributes: GAHP)

**HIST 339 Athletics & Health in Hawai'i (3)** This survey course examines the role of fitness/athletics and health-related activities in Hawaiian lifestyles, prior to foreign arrivals through to the late 20th century. The course also examines the consequences of political, economic, and cultural change on Native Hawaiian health-related activities and practices. (Same as KES 339)

**HIST 340 History of Religion in America (3)** A historical and thematic study of the growth of religion in America from the seventeenth century to the present. Pre: sophomore standing or instructor's consent.

**HIST 341 Ancient Rome (3)** Political, cultural, and social history of ancient Rome from the Etruscans to 476 C. E. Pre: sophomore standing or instructor's consent.

**HIST 352 History of Britain to 1776 (3)** Political, social and cultural history of Britain from its origins in prehistory and Roman Britannia to the year 1776.

**HIST 353 English History & Shakespeare (3)** This course explores the relationship between the events of fourteenth, fifteenth, and sixteenth century English history and Shakespeare's history plays. Pre: sophomore standing or instructor's consent.

**HIST 354 Intro to Islamic History (3)** A history of the growth and development of Islam from the time of Muhammad to the present. Special attention is given to the relationship of Islam to the history and religious traditions of Europe. Pre: sophomore standing or instructor's consent.

**HIST 356 Medieval Europe (3)** A survey of the social, intellectual, cultural, and political development of Europe from the fall of the Roman Empire to the late seventeenth century. Topics covered include feudalism, religion, the crusades, trade, epidemic disease, warfare, the Renaissance, Reformation, and the Scientific Revolution. Pre: sophomore standing or instructor's consent.

**HIST 357 Renaissance & Reformation (3)** Political, social,



intellectual, religious, and artistic development of the Renaissance and the Protestant and Catholic Reformations. Pre: sophomore standing or instructor's consent.

**HIST 358 Women in Christianity (3)** Examines issues relating to sex and gender throughout the history of Christianity. Emphasizing primary texts, the course will explore writings by Christian women and Christian writings about women. Pre: sophomore standing or instructor's consent. (Same as WS 358)

**HIST 359 Christianity & Western Tradition (3)** An introduction to the history and spirituality of Christianity and its relationship to "The Western Tradition" from its origins to the present. Pre: sophomore standing or instructor's consent.

**HIST 360 American Women's History (3)** Study of American women from the seventeenth to the twentieth centuries. Special emphasis will be on women's social and cultural roles. Current feminist theory is also studied. Pre: sophomore standing or instructor's consent. (Same as WS 360)

**HIST 361 History of Sport (3)** A history of sport from the ancient world to the present. Special attention to the history of sport in Europe and the Americas (Same as KES 361)

**HIST 365 War & Empire in 18th Cent Eur (3)** A survey of the social, intellectual, cultural, and political development of Europe from the War of the Spanish Succession to the advent of the Napoleonic era. Topics covered include absolutism, Enlightenment, mercantilism, military conflict, and revolution. Pre: Sophomore standing or instructor's consent.

**HIST 375 Europe in The 19th Century (3)** A survey of the social, intellectual, cultural, and political development of Europe from the Napoleonic era to the outbreak of the First World War. Topics covered include industrialization nationalism, socialism, liberalism, imperialism, warfare, and revolution. Pre: sophomore standing or instructor's consent.

**HIST 380 United States: 1620-1789 (3)** The political, social, and intellectual history of North America from the time of European contact until 1789. Topics include: Native American settlement and polity; European settlement; colonial America; causes and course of the American revolution; development of republican government; constitutional convention; ratification of the federal Constitution. Pre: sophomore standing or instructor's consent.

**HIST 381 United States: 1790-1865 (3)** The political, social, and intellectual history of the United States from the Early National Period through the Civil War. Topics include: Marshall Court, market revolution and early industrialization, immigration, Jacksonian democracy, social reform movements, sectionalism, Mexican War, Civil War, emancipation. Pre: sophomore standing or instructor's consent.

**HIST 382 United States: 1866-1929 (3)** The political, social and intellectual history of the United States from Reconstruction through the Stock Market Crash of 1929. Topics include: key Supreme Court issues, Reconstruction, industrialization, immigration, racial tension, US imperialism, Progressivism, World War I, economic change. Pre: sophomore standing or instructor's consent.

**HIST 383 United States: 1930 - 1980 (3)** The political, social and intellectual history of the United States from the Great Depression through the Carter Presidency. Topics include: FDR's New Deal, World War II, Civil Rights Movement, Cold War, Kennedy's New Frontier, US involvement in Vietnam, the Watergate Crisis. Pre: sophomore standing or instructor's consent.

**HIST 385 Europe in Era Of World War I (3)** A survey of the social, intellectual, cultural, and political development of Europe from the late nineteenth century to the interwar period. Topics covered include nationalism, imperialism, art, trade, culture and warfare. Special emphasis on World War I and its effect upon modern European development. Pre: sophomore standing or instructor's consent.

**HIST 386 Pre 20th Century US History (3)** An examination of pre 20th Century US history focusing on primary sources and the public spaces that interpret the evolving ideals of American styled freedom. Pre: Instructor's consent only.

**HIST 389 Oral History Methods (3)** This course emphasizes the theories, methods, and debates surrounding oral history. Students will become familiar with the practical aspects of oral history and develop an appreciation for the tools available to historians and other scholars, as well as the necessary skills to begin an oral history project. Pre: One 300-level history course.

**HIST 390 Public History in Hawai'i (3)** Within the context of the history of Hawai'i, this course examines the role of the historian in representing the historical narrative to the general public. Through exposure to the scholarship, issues, and debates surrounding public history we explore this new and developing field. Along with field-trips to various sites on our island, this course also includes a significant service-learning component. Pre: HIST 284 or instructor's consent. (Attributes: GAHP, GCC, HPP)

**HIST 391 Internship (3) (other)** The internship is intended to allow students the opportunity to apply their knowledge and skills in public history in a public, private, or government agency/setting. May be taken for a total of six credits. Pre: HIST 390, instructor's consent, and pre-approved placement. (Attributes: ALEX)

**HIST 392 Japanese Women (3)** History of women in Japan from the earliest historical eras, including the Heian aristocracy and evolving samurai culture, through the present. Topics include: property rights, family structures, the influence of religion and secular philosophies, effects of political and legal changes, women's role in the economy and its effect on their status and lives, and women's activism. Pre: sophomore standing or instructor's consent. (Same as JPST 392 and WS 392). (Attributes: GAHP)

**HIST 393 Hist Preservation & Archives (3)** Introduction to and survey of historic preservation and archives. Topics covered include: preservation movement, legality, properties, sustainability, and planning. Additionally topics of archival theory, organization, and management will be covered. Pre: HIST 390 or instructor's consent.

**HIST 395 Europe in Era Of World War II (3)** A survey of the social, intellectual, cultural and political development of Europe from the interwar period through the cold war. Topics covered include: the Depression, Fascism, Totalitarianism, the Holocaust, the Cold War, and decolonization. Special emphasis on World War II and its effect upon modern European development. Pre: sophomore standing or instructor's consent

**HIST 401 Women in Hawaiian History (3) (lecture/other)** This course examines the lives and contributions of women in the history of Hawai'i. It considers how events such as the arrival of foreigners, dismantling of the kapu system, the mahele, epidemics, political changes, world wars, etc., affected the social and cultural lives of women, men, children, and families. Course materials seek to understand how those gendered as "feminine" negotiated, accommodated, and resisted these changes over the last two centuries.



(Same as WS 401). (Attributes: GAHP)

**HIST 403 Hawaiian Historiography (3)** How have events in Hawai'i's past been remembered, recorded, documented, analyzed, and understood? By examining many of the major works in Hawaiian history this course explores significant trends in the re-constructions of Hawai'i's past with an emphasis on content, context, and analysis. Pre: HIST 332 or HIST 333 or instructor's consent.

**HIST 411 Family & Gender in Oceania (3) (lecture/other)** With a focus on the 19th and 20th centuries, this course examines how historical changes affected the social and cultural lives of women, men, children, and families in Oceania. Throughout the course we will endeavor to explore gendered reconstructions of particular events in the history of the Pacific: historiography, exploration, disease & depopulation, missionization, education, imperialism, colonization and de-colonization in general. (Same as WS 411). (Attributes: GAHP)

**HIST 415 Senior Seminar Pacific Studies (3)** A reading and research seminar under the supervision of the Pacific Island Studies faculty aimed at demonstrating competence in research and writing on issues related to Pacific Island environments, culture, society, and economy. Pre: instructor's consent for students near completion of Pacific Islands Studies Certificate coursework. (Same as ANTH 435 and GEOG 435)

**HIST 420 Mao (3)** An in-depth investigation into the life, career and legacy of Mao Zedong, China's dominant twentieth century figure. Competing political and historical interpretations will be examined using biography, primary sources in translation and secondary scholarship. Pre: junior standing and previous coursework on Asian history or instructor's consent. Fall semester only. (Attributes: GAHP)

**HIST 425 History Of Russia To 1700 (3)** Development of Russian thought, institutions, society, and culture. Warfare, dynastic consolidation, and territorial expansion to 1700. Pre: one 300-level European survey course, or instructor's consent.

**HIST 435 Russia Since Peter The Great (3)** The development of Russian thought, society, government and institutions from 1700 to the Second World War. Special emphasis on Russian westernization and reform as they were encouraged or abandoned during the reigns of Russian leaders from Peter the Great through Stalin. Pre: one 300-level European survey course or instructor's consent. (Attributes: HPP)

**HIST 445 European Imperialism (3)** The origins and development of European imperialism and its political, social, and environmental impact on the world. Special emphasis on the period from 1850 to the First World War. Pre: one 300-level European survey course or instructor's consent.

**HIST 455 Euro Intellect Hist Since 1789 (3)** Intellectual and cultural development of Europe since 1789. Ideas in the arts, philosophy, science, literature, and politics as they have affected Europe. Pre: one 300-level European survey course or instructor's consent.

**HIST 459 Germany Since Frederick The Grt (3)** Development of Germany since 1740 in political, social, and economic fields. Special emphasis on the growth of the Prussian state, German unification, the two World Wars and the rise of totalitarianism. Pre: one 300-level European survey course or instructor's consent.

**HIST 470 US in the World 1865-2003 (3)** U. S. expansion, imperialism, diplomacy and foreign relations from 1865. Pre: one 300-level U. S. survey course or instructor's consent.

**HIST 471 US Constitutional History (3)** U. S. Constitutional History including discussions of constitutional development, state sovereignty, civil liberties, freedom of contract, affirmative action, and the modern presidency. Pre: one 300-level U. S. history survey course or instructor's consent.

**HIST 481 Land & Sovereignty in Pacific (3)** Land is fundamental to traditional Pacific Island societies. Colonial rule meant a loss of both political sovereignty and, in many cases, significant amounts of land through private alienation and government acquisition. Using case studies, this course will investigate the historical relationship between land and sovereignty as Pacific people have sought to regain and maintain their independence. (Attributes: GAHP)

**HIST 485 Seminar in World History (3) (other)** Investigation and discussion of major issues and events in world history. May be applied to any track, depending on area of research. This course is repeatable one time for a total of 6.0 credits. Pre: One 300-level history course or instructor's consent.

**HIST 486 Women in Ancient European Civi (3)** Study of European women up to the year 800, with primary focus on the Mediterranean Basin. Themes encompass religion, social customs and economic activities. Pre: one of the following courses: HIST 319, 323, 341, 356, 360, or instructor's consent. (Same as WS 486)

**HIST 490 Historiography & Resrch Mthds (3)** Course focuses on historiography and research methods in history, resulting in a research paper in the student's area of emphasis for the Senior Thesis. Required of all history majors. Pre: senior standing and HIST 300, or instructor's consent.

**HIST 491 Senior Thesis (3)** Course focuses on the writing of a thesis paper on a topic in the student's area of emphasis. Required of history majors selecting the Thesis option. Recommended for students planning to enter graduate programs. Pre: HIST 490.

**HIST x94 Special Topics in Subject Matter (Arr.) (IO)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HIST x99 Directed Studies (Arr.) (IO)** Statement of planned reading or research required. Pre: instructor's consent.

## Honors (HON) Courses

College of Arts and Sciences (CAS)

**HON 100 Opening Colloquium (3)** An intensive course in reading, writing, and thinking about major issues with emphasis placed upon interdisciplinary approaches. Students introduced to a representative group of faculty. The colloquium uses a seminar format and will encourage the development of a community of scholars. Pre: Honors student or consent of instructor.

**HON 495 Honors Research Symposium (1) (other)** This course is a research seminar. With the instructions and guidance provided by the faculty advisor each STEM Honor student will prepare a formal research proposal, write a manuscript on their study and findings, and report them in a 20-minute presentation at the Honors Research Symposium. The



research reported can be part of the faculty advisor's research program or of the student's own proposing. The research can be original work of the author(s) or original applications of previous research done by others. Pre: Senior standing and admission to Honors program.

**HON x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HON x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Horticulture (HORT) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**HORT 262 Princ Of Hort (3) (lecture/lab)** Introduction to the various divisions of horticulture and the relationship of plants to environment; Plant structure and function with opportunities for observation and practice of various horticultural technologies. Students are required to participate in a garden project. (Attributes: ALEX, DB, GCC)

**HORT 263 Hydroponics and Vegetables (3) (lecture/lab)** Introduction to circulating and non-circulating hydroponic methods and olericulture. In this course, students are required to participate in the construction and maintenance of a hydroponic system and field-based vegetable production. Pre: HORT 262.

**HORT 352 Orchard & Horticultural Crops (3) (lecture/lab)** History, botanical relationships, climatic relationships, culture, management, and marketing. Excursions to various fruit orchards. Pre: HORT 262 or instructor's consent.

**HORT 353 Organic Crop Production (3) (lecture/lab)** This course will cover the cultural practices (crop rotations, cover crops, pest management, etc.) and biological processes (composting, soil food web, plant and animal health, etc.) that form the basis for organic production of plant and animal products (fruit, nuts, vegetables, grain, forage, pasture, milk, meat, and eggs) and land stewardship. The course will provide an overview of organic agriculture history, philosophy, and sociology in addition to organic production practices and the USDA National Organic Program. Several course topics will be presented as invited guest lectures.

**HORT 450 Adv Plant Tissue Cult (3) (lecture/lab)** Provides the student with hands-on experience in plant tissue culture techniques. Evaluative and diagnostic skills will be emphasized. Students will design and test techniques most appropriate for tissue culturing plant(s) of interest. Limited enrollment. Repeatable for a maximum of six credit hours. Pre: HORT 303.

**HORT 451 Plant Improvement (3) (lecture/lab)** Application of plant breeding techniques and methods of improving crops with special emphasis on Hawaiian plants.

**HORT 471 Post Harvest Handling (3) (lecture/lab)** Methods of handling, storing, and shipping of fresh horticultural commodities with emphasis on Hawaiian fruits, vegetables, and ornamental plants. Pre: CHEM 151 or CHEM 161 or equivalent, and HORT 262.

**HORT 481 Weed Science (3) (lecture/lab)** Classification, identification, and adaptation of weeds. Principles of weed control, including properties, use, and action of herbicides. Pre: HORT 262 or BIOL 171 and one year of chemistry. (Attributes: GCC, HPP)

**HORT x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HORT x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Interdisciplinary Studies (IS) Courses

College of Arts and Sciences (CAS)

**IS 110 Exploring the Health Sciences (1)** The purpose of Exploring the Health Sciences is to introduce students to the diverse health science programs that UH Hilo has to offer. This course also helps students plan out their educational requirements while at UH Hilo, as well as prepare them for applying to UH Hilo's BSN program, graduate school, and/or careers in the health field.

**IS 201 Pre-Pharmacy Orientation (2)** This course is a requisite for the Pre-Pharmacy Program at UH Hilo. It will familiarize the student with the academic requirements of the Pre-Pharmacy Program and the Doctorate of Pharmacy degree. Individual lectures will cover the clinical, technical and ethical responsibilities of a Pharmacist in the 21st century, and allow students to become familiar with job opportunities for pharmacists. This course will provide interactions with local pharmacists and doctoral pharmacy students through mentor partnerships. Offered on a CR/NC basis only.

**IS 393 Foreign Field Experience (1-15) (other)** Academic coursework, research, or internship in foreign locations which may transfer into specific disciplines after completion. (D) Denmark, (E) England, (F) France, (H) Hong Kong, (J) Japan, (K) Korea, (P) People's Republic of China, (R) Republic of China (Taiwan), (T) Thailand. Foreign field experiences are not limited to the countries listed. May be repeated for credit.

**IS 480 Research Foundation and Ethics (1)** Overview of scientific research that will set a strong foundation for SHARP students scholarly and scientific research endeavors, and delve into some critical issues in research practices and ethics. Basic knowledge of the history of scientific research will be examined from a cross-cultural perspective. This course is intended for students in the SHARP program. Pre: Instructor's Consent

**IS 481 SHARP Research Seminar (1)** Continuing exploration of research and research ethics, while weaving in practical tools for your development toward the Ph.D. and further professionalization in your field. This course is intended for students in the SHARP program. Pre: Instructor's Consent.

**IS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.



**IS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Japanese (JPNS) Courses

College of Arts and Sciences (CAS) , Languages

**JPNS 101 Elementary Japanese I (4) (lecture/lab)** Development of listening, speaking, reading, writing. Structural points introduced inductively. Laboratory drill. (Same as JPST 101) (Attributes: DH, GAHP, GL)

**JPNS 101S Elementary Japanese I, Special (3)** Specially designed for students with some language background of Japanese. Same material as JPNS 101 more quickly covered. Development of four skills - speaking, listening, reading and writing - and an adequate entry-level knowledge of Japanese. A variety of classroom activities such as dialogue role-play, presentations, grammar exercises and individualized laboratory work. After reviewing Hiragana and Katakana, the course focuses on strengthening the skill of reading and writing Kanji characters at the beginning level. Pre: Department Approval. (Same as JPST 101S) (Attributes: DH, GL)

**JPNS 102 Elementary Japanese II (4) (lecture/lab)** Development of listening, speaking, reading, writing. Structural points introduced inductively. Laboratory drill. (Same as JPST 102) (Attributes: DH, GAHP, GL)

**JPNS 102S Elementary Japanese II Special (3)** Japanese 102S, a continuation of 101S (for students with some language background of Japanese), covers the same material as JPNS 102 more quickly. 102S is one of the language core courses required for non-native speakers of Japanese majoring in Japanese Studies. The course is designed to provide students with instruction on elementary level spoken and written Japanese. Pre: JPNS 101S or Instructor's approval. (Same as JPST 102S) (Attributes: DH, GL)

**JPNS 107 Accelerated Element Japanese (8)** Contents of JPNS 101-102 covered in one semester. Meets two hours daily, Monday through Friday. Language laboratory required. Development of four skills - speaking, listening, reading and writing - and an adequate knowledge at the beginning level of Japanese language. A variety of classroom activities, such as dialogue role-play, individual and group presentations, grammar exercises, individualized laboratory work, and reading/writing practice in the basic scripts (Hiragana, Katakana and Kanji Characters). (Same as JPST 107)

**JPNS 201 Intermediate Japanese I (4) (lecture/lab)** Continuation of JPNS 102. More advanced colloquial structures and additional kanji. Pre: JPNS 102 or equivalent. (Same as JPST 201) (Attributes: DH, GAHP, GL)

**JPNS 202 Intermediate Japanese II (4) (lecture/lab)** Continuation of JPNS 201. More advanced colloquial structures and additional kanji. Pre: JPNS 201 or equivalent. (Same as JPST 202) (Attributes: DH, GAHP, GL)

**JPNS 280 Introduction to Japan (3)** A general introduction to Japan, past and present. The course examines the socio-historical and cultural development of Japan and the Japanese diaspora in the local and global community using a multidisciplinary approach. (Attributes: DH, HPP)

**JPNS 301 Third-Year Japanese I (3)** Study of modern spoken and written Japanese involving advanced structures, expressions, and kanji. Pre: JPNS 202 or equivalent. (Same as JPST 301) (Attributes: DH, GL)

**JPNS 302 Third-Year Japanese II (3)** Study of modern spoken and written Japanese involving advanced structures, expressions, and kanji. Pre: JPNS 301 or equivalent. (Same as JPST 302) (Attributes: DH, GL)

**JPNS 340 Japanese Composition (3)** Writing compositions employing designated patterns, kanji, and themes. Pre: JPNS 202 or equivalent. (Same as JPST 340). (Attributes: DA)

**JPNS 345 Methods for Teaching Japanese (3)** Japanese language teaching and learning from the perspectives of theory and practice. The application of modern applied linguistics and methodologies to specific problems confronting the Japanese language teacher and other foreign language teachers. Pre: JPNS 202. (Same as JPST 345) (Attributes: DS)

**JPNS 359 Japanese in Hawai'i (3)** An examination of the process by which second generation Japanese people in Hawai'i become bilingual and bicultural. Historical and Linguistic contexts for becoming bilingual and bicultural are presented. Topics include Japanese culture and the role of first generation immigrants in Hawai'i. (Same as JPST 359) (Attributes: DH, GCC)

**JPNS 361 Girls and Women in Japan (3)** A survey of the life of Japanese girls and women focusing on Japan's changing aspects from the ancient to the contemporary periods. The course questions the current prevalent image of the subservient Japanese woman and articulates the role of Japanese girls and women in Japanese society. (Same as JPNS 361 and WS 361) (Attributes: DH, HPP)

**JPNS 365 Japanese Lit in English (3)** Survey of major works from earliest times to the present. Knowledge of Japanese is not required. (Same as JPST 365, ENG 365). (Attributes: DL, GL)

**JPNS 370 Lang, Cul & Identity of Japan (3)** Relationship of Japanese language to social structure, interpersonal relationships, and way of thinking. Application of general linguistics to social phenomena such as dialects, identity, bilingualism, acculturation. Pre: JPNS 101 or consent of instructor. (Same as JPST 370) (Attributes: DH, HPP)

**JPNS 373 Performance Across Cultures (3)** This course explores the cultural expressions and traditions through the performance traditions from Asia, Africa, Europe and the Americas, using the transhistorical approach. Under the themes of the body and culture, ritual, performing, cultural literacy and tourism and globalization, the course introduces students to the performance forms across cultures. (Same as ANTH/JPST 373) (Attributes: FGC)

**JPNS 380 Japanese Mythology in Film (3)** Interdisciplinary approaches to the study of Japanese myths and legends through contemporary films; mythological contexts related to Taoism, Buddhism, Shintoism as well as superstitions and legends are examined in relation with selected films from Japan. (Same as JPST 380) (Attributes: DH, GAHP, HPP)

**JPNS 382 Gender & Disability in Manga (3)** Examination of gender and disability issues using several Japanese comic stories, or manga, which have been translated into English. Analysis of the selected comic stories is based on a trove of scholarly writings about historical as well as contemporary issues concerning gender nonconforming individuals and people with disabilities as marginalized groups in Japanese society. Discussion topics include the influences of manga on the awareness of both the transgender community and differently-abled people in Japan as well as manga's contribution to the destigmatization of these minorities from the 1960s to the present. Class work does not require the ability to read original Japanese texts. (Same as JPST 382.) (Attributes: DH, GAHP, HPP)



**JPNS 383 Japanese Theatre & Performance (3)** This course introduces the performance traditions in Japan, ranging from rituals to dance and theatre-traditional art forms such as noh/kyogen, kabuki, bunraku, to modern theatre. Students examine the Japanese art forms from the anthropological and sociological perspectives. (Same as JPNS/JPST 383) (Attributes: DH, GAHP, HPP)

**JPNS 384 Gender & Japanese Performance (3)** This course views how gender is represented in Japanese performance from rituals to dance, music, theatre and everyday performance. Through readings and visual materials, students observe the historical development of Japanese theatre and performance and examine relationship between gender, sexuality and the Japanese cultural forms from the performance studies as well as gender and feminism studies perspectives. (Same as JPST/WS 384) (Attributes: DH, HPP)

**JPNS 385 Postwar Japn through Film (3)** This course introduces students to Japanese society and culture with emphasis on 1945 to the present, as reflected in film and literature. Students learn about essential issues of Japanese postwar society, including class, family, gender, work, education, and minorities, and examine the change and development of Japanese society after World War II, paying attention to the struggles between traditional cultural values and Americanization/Modernization of society. This semester students will view fourteen films by fourteen leading Japanese directors and read an essay and a novel written by Japanese authors and a variety of articles on film. Pre: ENG 100, 100T, ESL 100 or ESL 100T. (Same as JPST 385) (Attributes: DS, GAHP, HPP)

**JPNS 401 Fourth-Yr Japanese I (3)** Study of modern spoken and written Japanese involving advanced structures, expressions and additional kanji. Pre: JPNS 302 or equivalent. (Same as JPST 401). (Attributes: GAHP)

**JPNS 402 Fourth-Year Japanese II (3)** This is an advanced course in conversation and composition covering cultural topics. It develops listening and speaking skills to communicate orally in authentic Japanese and expands spoken and written vocabulary knowledge. Students will practice presenting their ideas in speech and composition effectively. Pre: JPNS 302 or instructor's consent. (Same as JPST 402) (Attributes: GAHP)

**JPNS 422 Japanese Teaching Practicum (3) (lecture/lab)** This course is designed for students to engage in supervised teaching in a classroom setting with real-life learners of the Japanese language. It provides students with opportunities to develop syllabi, lesson plans, and teaching materials as well as to make class observations and gain some teaching experience in a classroom environment under the guidance of experienced teachers. Students are also required to write a report analyzing observational notes and reflecting on their teaching experience. Pre: JPNS/JPST 301 and JPNS/JPST 302, or instructor's consent. (Same as JPST 422) (Attributes: DH, HPP)

**JPNS 425 Translation Workshop (3)** Theory and practice of translation of Japanese materials into English. Emphasis on literary translation, but non-literary texts may also be considered. Pre: JPNS 302 or consent of instructor. May be repeated once for credit. (Same as JPST 425) (Attributes: DL, GL)

**JPNS 451 Structure Of Japanese I (3)** Phonology, morphology, syntax of modern colloquial grammar. Pre: LING 102 and JPNS 202, or instructor's consent. (Same as LING 451, JPST 451) (Attributes: DH, GAHP, HPP)

**JPNS 452 Structure Of Japanese II (3)** Phonology, morphology, syntax of modern colloquial grammar. Pre: LING 102 and JPNS 202, or

instructor's consent. (Same as LING 452, JPST 452). (Attributes: GAHP)

**JPNS 481 Rdgs in Modern Japanese Lit I (3)** Reading and discussion in Japanese of selected works of fiction, poetry, and drama. Pre: JPNS 302 or consent of instructor. May be repeated once for credit. (Same as JPST 481) (Attributes: GAHP)

**JPNS 495 Japanese Studies Seminar (3)** The course examines Japanese experiments with the idea of the modern and postmodern, focusing on issues such as modernization/westernization, change in gender roles, urbanization, the power of the state, and nationalism and personal identity. In the course, mainly taught in Japanese students learn how to read and discuss in Japanese, and translate Japanese texts into English. The course introduces a variety of materials written between the end of Russo-Japanese War in 1905 and the current period. Pre: JPNS 302 or instructor's consent. (Same as JPST 495) (Attributes: GAHP)

**JPNS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**JPNS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Japanese Studies (JPST) Courses

College of Arts and Sciences (CAS), Languages

**JPST 101 Elementary Japanese I (4) (lecture/lab)** Development of listening, speaking, reading, writing. Structural points introduced inductively. Laboratory drill. (Same as JPNS 101) (Attributes: DH, GAHP, GL)

**JPST 101S Elementary Japanese I, Special (3)** Specially designed for students with some language background of Japanese. Same material as JPNS 101 more quickly covered. Development of four skills - speaking, listening, reading and writing - and an adequate entry-level knowledge of Japanese. A variety of classroom activities such as dialogue role-play, presentations, grammar exercises and individualized laboratory work. After reviewing Hiragana and Katakana, the course focuses on strengthening the skill of reading and writing Kanji characters at the beginning level. Pre: Department Approval. (Same as JPNS 101S) (Attributes: DH, GL)

**JPST 102 Elementary Japanese II (4) (lecture/lab)** Development of listening, speaking, reading, writing. Structural points introduced inductively. Laboratory drill. Pre: JPNS 101 or equivalent. (Same as JPNS 102) (Attributes: DH, GAHP, GL)

**JPST 107 Accelerated Element Japanese (8)** Contents of JPNS 101-102 covered in one semester. Meets two hours daily, Monday through Friday. Language laboratory required. Development of four skills - speaking, listening, reading and writing - and an adequate knowledge at the beginning level of Japanese language. A variety of classroom activities, such as dialogue role-play, individual and group presentations, grammar exercises, individualized laboratory work, and reading/writing practice in the basic scripts (Hiragana, Katakana and Kanji characters). (Same as JPNS 107)

**JPST 200 Intro to Jpns & Chns Studies (3)** This course studies the



two regions of East Asia (Japan and China) with emphasis on philosophical, religious and cultural traditions, and patterns of social, economic and political change. Students will gain a general understanding of each region through a broad survey of important cultural movements and historical events that have made Japan and China what it is today. (Same as LANG 200) (Attributes: GCC)

**JPST 201 Intermediate Japanese I (4) (lecture/lab)** Continuation of JPNS 102. More advanced colloquial structures and kanji. Pre: JPNS 102 or equivalent. (Same as JPNS 201) (Attributes: DH, GAHP, GL)

**JPST 202 Intermediate Japanese II (4) (lecture/lab)** Continuation of JPST 201. More advanced colloquial structures and additional kanji. Pre: JPNS 201 or equivalent. (Same as JPNS 202) (Attributes: DH, GAHP, GL)

**JPST 280 Introduction to Japan (3)** A general introduction to Japan, past and present. The course examines the socio-historical and cultural development of Japan and the Japanese diaspora in the local and global community using a multidisciplinary approach. (Attributes: DH, HPP)

**JPST 301 Third-Year Japanese I (3)** Study of modern spoken and written Japanese involving advanced structures, expressions, patterns, kanji. Pre: JPNS 202 or equivalent. (Same as JPNS 301) (Attributes: DH, GL)

**JPST 302 Third-Year Japanese II (3)** Study of modern spoken and written Japanese involving advanced structures, expressions, patterns, kanji. Pre: JPNS 301 or equivalent. (Same as JPNS 302) (Attributes: DH, GL)

**JPST 310 Hist of Japan I: Early Japan (3)** Japanese history and culture from prehistory to the mid-17th century. Topics include: origins of Japanese people and culture; the Imperial state; contacts with China and Korea; aristocratic culture, particularly the role of women; the samurai class and the Shogunates; Buddhism and Shinto; late medieval disorder and development; unification and pacification. (Same as HIST 310) (Attributes: GAHP)

**JPST 311 Hist Japan II: Tokugawa to Mei (3)** Japanese history and culture from the 17th through 19th centuries. Topics include: samurai and the class system; political change, economic growth and social tensions; urban and rural evolution; popular culture and literature; Japan's isolation and reopening; collapse of the Tokugawa system; the Meiji Restoration; dissolution of the samurai class; social reorganization and rapid modernization; the Meiji Constitution and new Imperial state. (Same as HIST 311) (Attributes: GAHP)

**JPST 314 Hist of Jpn III: 20th Cent-Pre (3)** Japanese history and culture from 1890 to present. Topics include: Meiji and 1947 constitutions; democracy and leadership; militarism and pacifism; evolving Imperial institution; economic growth and social change; tradition and modernity in Japanese culture; Japan's place in world systems and world culture. (Same as HIST 314) (Attributes: DS, GAHP, HPP)

**JPST 315 East Asian Religions (3)** The development of Buddhism, Confucianism, Taoism, Shinto and folk religion in China, Korea and Japan. Pre: junior standing or instructor's consent. (Attributes: GAHP)

**JPST 340 Japanese Composition (3)** Writing compositions employing designated patterns, kanji, and themes. Pre: JPNS 202 or equivalent. (Same as JPNS 340). (Attributes: DA)

**JPST 345 Methods for Teaching Japanese (3)** Japanese language teaching and learning from the perspectives of theory and practice. The

application of modern applied linguistics and methodologies to specific problems confronting the Japanese language teacher and other foreign language teachers. Pre: JPNS 202. (Same as JPNS 345) (Attributes: DS)

**JPST 353 Politics Of Japan (3)** Aspects of Japanese politics, emphasizing the post-1945 period. Topics include: political development and change, the political economy of Japan, major political institutions and organizations, policy-making processes, and controversial political issues. (Same as POLS 353). (Attributes: DS, GAHP, HPP)

**JPST 356 Japan (3)** Culture origins and development with emphasis on contemporary Japanese culture. (Same as ANTH 356) (Attributes: GAHP)

**JPST 358 Japanese Immigrants (3)** Examination of social and cultural adaptations of Japanese immigrant populations, with foci on Hawai'i and Brazil. Topics include the role of the Japanese government and emigration companies, the factors of generation, kinship, ethnicity, and contemporary Japanese migrants. (Same as ANTH 358) (Attributes: DS, GAHP, HPP)

**JPST 359 Japanese in Hawai'i (3)** An examination of the process by which second generation Japanese people in Hawai'i become bilingual and bicultural. Historical and Linguistic contexts for becoming bilingual and bicultural are presented. Topics include Japanese culture and the role of first generation immigrants in Hawai'i. (Same as JPNS 359) (Attributes: DH, GCC)

**JPST 361 Girls and Women in Japan (3)** A survey of the life of Japanese girls and women focusing on Japan's changing aspects from the ancient to the contemporary periods. The course questions the current prevalent image of the subservient Japanese woman and articulates the role of Japanese girls and women in Japanese society. (Same as JPNS 361 and WS 361) (Attributes: DH, HPP)

**JPST 365 Japanese Lit in English (3)** Survey of major works from earliest times to the present. Knowledge of Japanese is not required. (Same as JPNS 365, ENG 365). (Attributes: DL, GL)

**JPST 370 Lang, Cul & Identity of Japan (3)** Relationship of Japanese language to social structure, interpersonal relationships, and way of thinking. Application of general linguistics to social phenomena such as dialects, identity, bilingualism, acculturation. Pre: JPNS 101 or consent of instructor. (Same as JPNS 370) (Attributes: DH, HPP)

**JPST 373 Performance Across Cultures (3)** This course explores the cultural expressions and traditions through the performance traditions from Asia, Africa, Europe and the Americas, using the transhistorical approach. Under the themes of the body and culture, ritual, performing, cultural literacy and tourism and globalization, the course introduces students to the performance forms across cultures. (Same as ANTH/JPNS 373) (Attributes: FGC)

**JPST 375 Japanese Music (3)** Historical survey of traditional, contemporary, and Western-influenced music of Japan and study of major genres. No previous musical knowledge is required. Pre: junior standing or instructor's consent. (Same as MUS 375). (Attributes: GAHP)

**JPST 380 Japanese Mythology in Film (3)** Interdisciplinary approaches to the study of Japanese myths and legends through contemporary films; mythological contexts related to Taoism, Buddhism, Shintoism as well as superstitions and legends are examined in relation with selected films from Japan. (Same as JPNS 380). (Attributes: DH, GAHP, HPP)

**JPST 381 Art of Japan (3)** The history of art in Japan with emphasis on



Buddhist art, the relationships between Chinese and Japanese arts. Pre: ART 175 or ART 176 or JPST course or instructor's consent. (Same as ART 381) (Attributes: GAHP, HPP)

**JPST 382 Gender & Disability in Manga (3)** Examination of gender and disability issues using several Japanese comic stories, or manga, which have been translated into English. Analysis of the selected comic stories is based on a trove of scholarly writings about historical as well as contemporary issues concerning gender nonconforming individuals and people with disabilities as marginalized groups in Japanese society. Discussion topics include the influences of manga on the awareness of both the transgender community and differently-abled people in Japan as well as manga's contribution to the destigmatization of these minorities from the 1960s to the present. Class work does not require the ability to read original Japanese texts. (Same as JPNS 382) (Attributes: DH, GAHP, HPP)

**JPST 383 Japanese Theatre & Performance (3)** This course introduces the performance traditions in Japan, ranging from rituals to dance and theatre-traditional art forms such as noh/kyogen, kabuki, bunraku, to modern theatre. Students examine the Japanese art forms from the anthropological and sociological perspectives. (Same as JPNS/JPST 383) (Attributes: DH, GAHP, HPP)

**JPST 384 Gender & Japanese Performance (3)** This course views how gender is represented in Japanese performance from rituals to dance, music, theatre and everyday performance. Through readings and visual materials, students observe the historical development of Japanese theatre and performance and examine relationship between gender, sexuality and the Japanese cultural forms from the performance studies as well as gender and feminism studies perspectives. (Same as JPNS/WS 384) (Attributes: DH, HPP)

**JPST 385 Postwar Japn through Film (3)** This course introduces students to Japanese society and culture with emphasis on 1945 to the present, as reflected in film and literature. Students learn about essential issues of Japanese postwar society, including class, family, gender, work, education, and minorities, and examine the change and development of Japanese society after World War II, paying attention to the struggles between traditional cultural values and Americanization/modernization of society. This semester students will view fourteen films by fourteen leading Japanese directors and read an essay and a novel written by Japanese authors and a variety of articles on film. Pre: ENG 100, 100T, ESL 100, or ESL 100T. (Same as JPNS 385) (Attributes: DS, GAHP, HPP)

**JPST 401 Fourth-Year Japanese I (3)** Study of modern spoken and written Japanese involving advanced structures, expressions and additional kanji. Pre: JPNS 302 or equivalent. (Same as JPNS 401). (Attributes: GAHP)

**JPST 402 Fourth-Year Japanese II (3)** This is an advanced course in conversation and composition covering cultural topics. It develops listening and speaking skills to communicate orally in authentic Japanese and expands spoken and written vocabulary knowledge. Students will practice presenting their ideas in speech and composition effectively. Pre: JPNS 302 or instructor's consent. (Same as JPNS 402) (Attributes: GAHP)

**JPST 410 History of Chinese Characters (3)** This course introduces Chinese civilization and history through an investigation of the evolution of Chinesescript and the socio-cultural factors related to it. Archaeological and historical materials are used in introducing its various forms in history: from tortoiseshellsript to seal and clericalscripts as well as regularscript. Historical and cultural setting of creating and using the specificscript are examined. The transformation of Chinesescript into

Japanese "kanji" and cultural exchange between Asian countries are also discussed. Pre: one of the following: CHNS 101, CHNS 107, JPNS 101, JPNS 101S, or JPNS 107. (Same as LANG/CHNS 410) (Attributes: GAHP)

**JPST 422 Japanese Teaching Practicum (3) (lecture/lab)** This course is designed for students to engage in supervised teaching in a classroom setting with real-life learners of the Japanese language. It provides students with opportunities to develop syllabi, lesson plans, and teaching materials as well as to make class observations and gain some teaching experience in a classroom environment under the guidance of experienced teachers. Students are also required to write a report analyzing observational notes and reflecting on their teaching experience. Pre: JPNS/JPST 301 and JPNS/JPST 302, or instructor's consent. (Same as JPNS 422) (Attributes: DH, HPP)

**JPST 425 Translation Workshop (3)** Theory and practice of translation of Japanese materials into English. Emphasis on literary translation, but non-literary texts may also be considered. Pre: JPNS 302 or consent of instructor. May be repeated once for credit. (Same as JPNS 425) (Attributes: DL, GL)

**JPST 430 Philosophy of Zen (3)** Chief philosophical teachings of Zen, its methods and cultural influences. Comparative study of Zen and Western thought. Pre: previous work in philosophy or religious studies, or consent of instructor. Recommended: PHIL 302. (Same as PHIL 430) (Attributes: DH, GAHP, HPP)

**JPST 450 Mahayana Buddhist Phil (3)** Important tenets and major schools of Mahayana Buddhist philosophy in India, China, Japan, Tibet, and Hawai'i. Comparative study of Mahayana and Western philosophy. Pre: previous work in philosophy, religious studies, or instructor's consent. Recommended: PHIL 302. (Same as PHIL 450) (Attributes: GAHP)

**JPST 451 Structure Of Japanese I (3)** Phonology, morphology, syntax of modern colloquial grammar. Pre: LING 102 and JPNS 202, or instructor's consent. (Same as LING 451, JPNS 451) (Attributes: DH, GAHP, HPP)

**JPST 452 Structure Of Japanese II (3)** Phonology, morphology, syntax of modern colloquial grammar. Pre: LING 102 and JPNS 202, or instructor's consent. (Same as LING 452, JPNS 452). (Attributes: GAHP)

**JPST 457 Japanese Culture & Commun (3)** This course explores aspects of Japanese communication from cross-cultural perspectives and examines problems in intercultural interactions between Japanese and non-Japanese. (Same as COM 457) (Attributes: GAHP)

**JPST 481 Rdgs in Modern Japanese Lit I (3)** Reading and discussion in Japanese of selected works of fiction, poetry, and drama. Pre: JPNS 302 or consent of instructor. May be repeated once for credit. (Same as JPNS 481) (Attributes: GAHP)

**JPST 495 Japanese Studies Seminar (3)** The course examines Japanese experiments with the idea of the modern and postmodern, focusing on issues such as modernization/westernization, change in gender roles, urbanization, the power of the state, and nationalism and personal identity. In the course, mainly taught in Japanese students learn how to read and discuss in Japanese, and translate Japanese texts into English. The course introduces a variety of materials written between the end of Russo-Japanese War in 1905 and the current period. Pre: JPNS 302 or instructor's consent. (Same as JPNS 495) (Attributes: GAHP)



**JPST x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**JPST x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Ke'elikōlani Education (KED) Courses

Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language (KHUOK)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KED 343 Ma Ka Hana Ka 'Ike I (3)** Examine the curriculum and pedagogy of the Punana Leo Indigenous language medium early childhood education. Learn the main components of the Punana Leo curriculum including scope and sequence, daily routines, and classroom learning centers---particularly the makau ola and makau lonoa centers and lessons. (A) Hawaiian, (E) Other. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204.

**KED 344 Ma Ka Hana Ka 'Ike II (3)** Examine the curriculum and pedagogy of the Punana Leo Indigenous language medium early childhood education. Learn Punana Leo curriculum scope and sequence, daily routines, focusing on makau makemakika and makau 'olelo learning centers and lessons. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204.

**KED 462 Enrichg Holistic Lrng Maui Ola (1)** Continuation of KED 461. Advanced level for increasing teacher effectiveness through culturally appropriate classroom practices and curriculum development. Course work focuses on improving culture-based instruction through evaluation and revision of a unit plan. Must be taken CR/NC. Conducted in Hawaiian. Pre: KED 361 and KED 461; minimum of 3 years college-level Hawaiian language course work, and permission from the College.

**KED 463 Substitute Tcher Sem in Maui (1)** Preparation to teach in an Hawaiian medium environment as a substitute teacher. Content includes the completion of Hawai'i State requirements for substitute teacher certification, basic classroom management, lesson design and delivery, learning and implementation of policies and procedures to be employed as a substitute in Hawai'i DOE schools. Must be taken as CR/NC. Conducted in Hawaiian.

**KED 481 Fdtns Tching in Hwn/Indig Med (1-3)** Development and delivery of Indigenous language and culture-based based curriculum and instructional practices for learning and teaching in the Hawaiian/Indigenous medium-immersion classroom. (A) Introductory Level Content, Hawaiian; (E) Foundational Level Content, Hawaiian; (I) Intermediate Level Content, Hawaiian; (O) Introductory Level Content, Other Language (U) Foundational Level Content, Other Language; (H) Intermediate Level Content, Other Language. May be repeated for credit if subletters are different. Pre: KHAW 303 or equivalent; or approval from Division Chair.

**KED 483 Sub Tch Sem Haw & Indig Med Ed (2)** Preparation to teach in a Hawaiian/Indigenous medium education environment as a substitute teacher. Content includes the completion of Hawai'i State requirements for substitute teacher certification, basic classroom management, lesson design and delivery, learning and implementation of policies and procedures to be employed as a substitute in Hawai'i DOE schools. Must be taken as CR/NC. (A) Hawaiian, (E) Other Language. Conducted in Hawaiian/Indigenous language. Pre: KHAW 303 or equivalent; or approval from Division Chair.

**KED x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KED x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KED graduate-level courses](#).

## Ke'elikōlani Hawaiian Language (KHAW) Courses

Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language (KHUOK)

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**KHAW 103 First Lvl Trans Hawn Immersion (4)** Development of analytical skills to improve existing listening, speaking, reading and writing skills at the first level. Taught partially in Hawaiian from a Kumu Honua Maui Ola philosophical base. This course is designed primarily for students with previous high school/beginning college level Hawaiian. (Attributes: DH, GL, HPP)

**KHAW 104 First Lvl Partial Hawn Immers (4)** Strengthens and increases analytical skills as well as listening, speaking, reading and writing skills from KHAW 103 or HAW 102 or 105. Taught primarily in Hawaiian from a Kumu Honua Maui Ola philosophical base. Pre: KHAW 103, or HAW 102 or 105 or placement exam. (Attributes: DH, GL, HPP)

**KHAW 108 Accel First Lvl Hawn Immersion (8)** Contents of KHAW 103-104 covered in one semester. Development and strengthening of analytical skills to improve existing listening, speaking, reading and writing skills at the first level. Taught partially in Hawaiian from a Kumu Honua Maui Ola philosophical base. This course is designed primarily for student with previous high school/ beginning college level Hawaiian. Meets two hours daily, Monday through Friday. (Attributes: DH, GL, HPP)

**KHAW 133 First Lvl Hawn for Speakers (4)** Focus on strengthening skills in language analysis, vocabulary development, and writing at a university level Hawaiian. This course is designed primarily for students educated through the medium of Hawaiian, first language speakers of



Hawaiians and native speakers. Pre: Placement exam. (Attributes: DH, GL, HPP)

**KHAW 190 Fluency Community Support (1)** Fluency needed as a supporter of Hawaiian Revitalization. Stages/Subletters parallel units of structure and vocabulary topics in KHAW 103 & KHAW 104 as follows: (A) Nā Pepeke Kumu; (E) Heluna, 'Awe, Wā; (I) Nono'a, 'Ohana; (O) Kuana'ike, Ho'ohālikelike; (U) Wae'anona; (H) Alohuli (K) Pāku'i Pepeke (M) Kālele, Kino 'Okō'a. May be repeated if subletters are different. Pre: Permission of the Department Chair.

**KHAW 203 Second Lvl Univ Hawn Immers I (4)** Second year skills in Hawaiian developed from KHAW 104 base or higher. Focus on accurate personal communicative use and connections to oral Hawaiian of earlier generations. Pre: C or better in KHAW 104, 108 or 133 or HAW 202 or 205 or placement exam or equivalent approved by dept chair. (Attributes: DH, GL, HPP)

**KHAW 204 Second Lvl Univ Hawn Immers II (4)** Continuation and expansion of KHAW 203. Pre: C or better in KHAW 203 or equivalent as approved by Dept chair. (Attributes: DH, GL, HPP)

**KHAW 208 Accel Sec Lvl Univ Hawn Immers (8)** Contents of KHAW 203 and 204 covered in one semester. Second year skills in Hawaiian developed from KHAW 104 base or higher. Focus on accurate personal communicative use and connections to oral Hawaiian of earlier generations. Meets 2 hours daily, Monday through Friday. Pre: C or higher in KHAW 104 or KHAW 108 or KHAW 133 or equivalent. (Attributes: DH, HPP)

**KHAW 233 Second Level Hawn for Speakers (4)** Continuation of HAW 133. Pre: B or better in HAW 133 or equivalent as approved by dept chair. (Attributes: DH, GL, HPP)

**KHAW 303 Third Level Hawaiian I (4)** Continuation of KHAW 204 and KHAW 208 and KHAW 233. Focus on analysis as the key to strong community use as a modeled in 19th and 20th century native speaker produced writings and tapes. Pre: C or better in KHAW 204 or KHAW 208 or KHAW 233 or equivalent as approved by dept chair.

**KHAW 304 Third Level Hawaiian II (4)** Continuation of KHAW 303. Leadership development of informal use of Hawaiian among students from HAW 104-303. Pre: C or better in KHAW 303 or equivalent as approved by department chair.

**KHAW 333 Applied Skills (3)** Practice skills developed in KHAW 304. Pre: Previous or simultaneous enrollment in KHAW 304.

**KHAW 403 Fourth Level Hawaiian I (4)** Continuation of KHAW 304. Advanced structures, expressions and patterns. Conducted in Hawaiian. Pre: C or better in KHAW 304 or permission of the instructor.

**KHAW 404 Fourth Level Hawaiian II (4)** Continuation of KHAW 403. Advanced structures, expressions and patterns. Conducted in Hawaiian. Language laboratory required. Pre: C or better in KHAW 403 or permission of the instructor.

**KHAW 453 Hawn Phonetics & Phonol (3)** Sound system of the Hawaiian language. Stylistic and regional variation. Interaction of the Hawaiian sound system with the sound system of other languages, especially that of English. Conducted in Hawaiian. Pre: KHAW 204 or equivalent, which, with permission, may be taken concurrently. Recommended: LING 102, LING 111, LING 311.

**KHAW 454 Hawn Morphology & Syntax (3)** Grammatical system of the Hawaiian language. Conducted in Hawaiian. Pre: KHAW 204 or

equivalent, which, with permission, may be taken concurrently. Recommended: LING 102.

**KHAW 490 Base-level Fluency Hawn Med Ed (1)** A review and strengthening of Hawaiian language fluency skills with focus on the applicability to Hawaiian medium education. Must be taken CR/NC. Conducted in Hawaiian. Pre: KHAW 303 or simultaneous enrollment.

**KHAW x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KHAW x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KHAW graduate-level courses](#).

## Ke'elikōlani Hawaiian Studies (KHWS) Courses

**Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language (KHUOK)**

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**KHWS 381 Ka Nohona Kaulana Mahina (4) (lecture/other)** Examine traditional Hawaiian relationships relative to temporal and spatial time. (A) Hā'ulelau (E) Kupulau. May be repeated for credit if subletters are different. Instruction through the medium of Hawaiian. Pre: KHAW 204 or equivalent which, with permission, may be taken concurrently.

**KHWS 462 Haku Mele (3)** Hawaiian poetry with emphasis on sample of traditional literature and geographical sites of cultural importance of Hawai'i Island. Examine a variety of traditional and modern Hawaiian poetry and discover what inspired the composers relative to that time period. Focus on composing poetry in Hawaiian. Conducted in Hawaiian. Pre: KHAW 304, which may be taken concurrently, or instructor's consent. Recommended: KHWS/HWST 461.

**KHWS 463 Intro Hawn Narrative Lit (3)** Introduction to Hawaiian narrative literature both oral and written. Traditional stories, excerpts from longer forms, comparison of narrative literature with poetry and conversation event recordings. Pre: KHAW 303, which, with permission, may be taken concurrently.

**KHWS 465 Ha'i'ōlelo Ku'una (3)** This course will develop a foundational understanding and practice in classical Hawaiian speech making. Through the Kumu Honua Maui Ola Philosophy of Hawaiian Being, this course will focus on reading comprehension of classical Hawaiian literature, mainly to analyze ethno-literary devices and lexical items. Pre: KHAW 403 or equivalent, may be taken concurrently with permission. Same as HWST 465.



**KHWS 466 Mele Kū I ka Wā (3)** An analysis of the poetic compositions of Na Lani 'Eha, the royal four siblings Kalakaua, Lili'uokalani, Leleiohoku, and Likelike. Includes examination of royal genealogies, song contexts in political and personal relations, and the performance of their songs in friendly competition. Pre: KHAW 303, which, with permission may be taken concurrently.

**KHWS 473 Oli/Mele Kahiko (3)** Hawaiian musical forms initiated previous to 1778 (e.g. chanted lamentations, chanted greeting, dance chants, etc.) Traditions concerning their sources and history. Some attention given to performance. Conducted in Hawaiian. Pre: KHAW 204 or equivalent, which with permission, may be taken concurrently. Recommended: KHWS/HWST 461. KHWS/HWST 462, KHWS/HWST 471.

**KHWS 475 Nā Mele Hula Kahiko (3)** Traditional dance and musical forms within the traditional halau hula continued until the present. Traditions concerning their sources and history. Emphasis is placed on performance of these traditional forms of dance and music. Conducted in Hawaiian. Pre: KHAW 204 or equivalent, which, with permission may be taken concurrently. (Attributes: GCC, HPP)

**KHWS 476 Na Mele Hula 'Auana (3)** Hawaiian Dance forms initiated since 1778. Traditions concerning their sources and history. Emphasis is placed on performance of contemporary Hawaiian dance forms. Conducted in Hawaiian. Pre: KHAW 204 or equivalent, which, with permission, may be taken concurrently.

**KHWS 496 Hawaiian Studies Seminar (3)** Readings, research and field work on the traditional and contemporary Hawaiian community. Conducted in Hawaiian. Pre: KHAW 303 and senior standing, or instructor's consent. (Attributes: GCC, HPP)

**KHAW x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KHAW x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KHWS graduate-level courses](#).

## Ke'elikōlani History (KHIS) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KHIS 151 Moaukala Ao Pae I (3)** Taught through the medium of Hawaiian language. A study of the history of humanity upon the face of the earth from initial beginnings until the spread of Europeans into the lands of indigenous peoples. A study of the breadth of that history focusing on aspects that have being integrated into contemporary living

Native Hawaiian culture and identity as well as those areas with parallels in the specific history of Hawai'i. Students learn to develop a historical perspective and research skills using primary resources. Prereq: KHAW 303 or with permission from instructor. (Attributes: FGA)

**KHIS 152 Moaukala Ao Pae II (3)** Taught through the medium of Hawaiian language. A study of the history of humanity upon the face of the earth from the initial spread of Europeans into the lands of indigenous peoples (approximately 1500 C.E) until the present. A study of the breadth of that history focusing on aspects that have been integrated into contemporary living Native Hawaiian culture and identity as well as those areas with parallels in the specific history of Hawai'i. Students learn to develop a historical perspective and research skills using primary resources. Pre: KHAW 303 or with permission from instructor. (Attributes: FGB)

**KHIS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KHIS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Ke'elikōlani Indigenous Language (KLAN) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KLAN 441 Advanced Structures I (2)** First semester advanced level study of an indigenous or lesser studied language focusing on structure, e.g. Blackfeet, Rapanui. May be repeated if the topic is different. Alpha varies according to the language. Pre- requisite or concurrent enrollment in KIND 441; consent of department and of instructor.

**KLAN 442 Advanced Structures II (2)** Second semester advanced level study of an indigenous or lesser studied language focusing on structure, e.g. Blackfeet, Rapanui. Alpha varies according to the language. May be repeated if the content if different. Pre: KIND 441, KLAN 441, concurrent enrollment in KIND 442; consent of department; consent of instructor.

**KLAN x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KLAN x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.



## Additional Courses

Also see the [KLAN graduate-level courses](#).

### Ke'elikōlani Indigenous Studies (KIND) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KIND 240 Culture Revitalization Movement (3)** Efforts throughout the world to preserve the linguistic and cultural distinctiveness of indigenous and regional minorities. The interrelationship of such efforts with political, cultural, educational, and economic structures. Focus on comparison of other movements with that of Hawai'i. (When followed by H, taught through Hawaiian.) (Attributes: FGC)

**KIND 441 Advanced Language in Culture I (2)** First semester advanced level study of an indigenous language focusing on the use of the language in its cultural context. Alpha varies according to the language, e.g. Blackfeet, Rapanui. May be repeated if the content is different. Prerequisite or concurrent enrollment in KLAN 441; consent of department and of instructor.

**KIND 442 Advanced Language in Culture II (2)** Second semester advanced level study of an indigenous language focusing on the use of the language in its cultural context. Alpha varies according to the language, e.g. Blackfeet, Rapanui. May be repeated if the content is different. Pre: KIND 441 and KLAN 441, concurrent enrollment in KLAN 442; consent of department and of the instructor.

**KIND x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KIND x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KIND graduate-level courses](#).

### Ke'elikōlani Psychology (KPSY) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT*

*(Anthropology), ED (Education), etc.*

**KPSY 341 Ulu Ke Keiki (3)** Examine child development from a Hawaiian or other Indigenous people's perspective. Hawaiian principles and philosophy of child development, current child development research and studies, and appropriate curriculum, pedagogy and evaluation aligned with child growth and development. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204. (Attributes: DH, HPP)

**KPSY 341A Ulu Ke Keiki (3)** Examine child development from a Hawaiian or other Indigenous people's perspective. Hawaiian principles and philosophy of child development, current child development research and studies, and appropriate curriculum, pedagogy and evaluation aligned with child growth and development. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204. (Attributes: DH, HPP)

**KPSY 341E Ulu Ke Keiki (3)** Examine child development from a Hawaiian or other Indigenous people's perspective. Hawaiian principles and philosophy of child development, current child development research and studies, and appropriate curriculum, pedagogy and evaluation aligned with child growth and development. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204. (Attributes: DH, HPP)

**KPSY x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KPSY x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

### Ke'elikōlani Sociology (KSOC) Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KSOC 342 He 'Ohana Lanakila (3)** Examine concept of 'ohana as it relates to Indigenous Hawaiian education or other indigenous people's education from a macro to micro perspective and the Hawaiian language movement, e.g., family and community; the school family and community; and working with families. History of Indigenous education and the Punana Leo's place as the early childhood education component in this history. Further examine the role and responsibilities of the teacher in a specific Indigenous language medium early childhood education program. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204. (Attributes: DS, HPP)



**KSOC 342A He 'Ohana Lanakila (3)** Examine the concept of 'ohana as it relates to Indigenous Hawaiian education or other indigenous people's education from a macro to micro perspective and the Hawaiian language movement, e.g., family and community; the school family and community; and working with families. History of Indigenous education and the Punana Leo's place as the early childhood education component in this history. Further examine the role and responsibilities of the teacher in a specific Indigenous language medium early childhood education program. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204.

**KSOC 342E He 'Ohana Lanakila (3)** Examine concept of 'ohana as it relates to Indigenous Hawaiian education or other indigenous people's education from a macro to micro perspective and the Hawaiian language movement, e.g., family and community; the school family and community; and working with families. History of Indigenous education and the Punana Leo's place as the early childhood education component in this history. Further examine the role and responsibilities of the teacher in a specific Indigenous language medium early childhood education program. (A) Hawaiian, (E) Other Language. Pre: KHAW 204 or equivalent, which with permission may be taken concurrently; or Indigenous language equivalent to KHAW 204.

**KSOC x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KSOC x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Korean (KOR) Courses

College of Arts and Sciences (CAS) , Languages

**KOR 101 Elementary Korean I (4)** A course designed to teach the linguistic fundamentals of the language and the culture of Korea. Emphasis is placed on the reading and writing of Hangul, speaking and listening, and developing oral conversational skills.

**KOR 102 Elementary Korean II (4)** Korean 102 Further builds on the basic foundation established by KOR 101 that will enable students to acquire and develop language skills in listening, speaking, reading, and writing in Korean in a linguistically and culturally appropriate manner. Emphasis is also given to understanding the linguistic ties between Korean and Chinese and Japanese. Pre: C or better in KOR 101.

**KOR x94 Special Topics in Subject Matter (Arr.) (IO)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KOR x99 Directed Studies (Arr.) (IO)** Statement of planned reading or research required. Pre: instructor's consent.

## Kinesiology and Exercise Sciences (KES) Courses

College of Natural and Health Sciences (CNHS)

**KES 101 Physical Fitness (1)** Conditioning exercises and activities to develop and maintain physical efficiency. Motor fitness tests administered to measure status and progress.

**KES 103 Swimming: Beginning (1)** Adjusting to water, immersing in water, floating, sculling, correct arm stroke, leg kick, breathing techniques and their coordination.

**KES 104 Swimming: Intermediate (1)** Perfecting and integrating basic strokes with added emphasis on swimming for distance and speed.

**KES 107 Tennis: Beginning (1)** Rules, etiquette, grip, forehand and backhand strokes, serving, volleying, singles and doubles play.

**KES 108 Tennis: Advanced (1)** Improving the serve, forehand and backhand strokes, volleying, chop strokes, competitive strategy, problems in rules.

**KES 110 Golf: Beginning (1)** Rules, etiquette, and skill (grip, stance, stroke) in using the irons, woods, and putter. Driving range and play on golf course require additional fees.

**KES 117 Mountain Biking (1)** Basic knowledge and skills of mountain biking. Emphasis will be placed on the safe operation and maintenance of the bike for recreational purposes. Uses such as commuting and racing will be discussed.

**KES 120 Badminton (1)** Rules, etiquette, grip, forehand and backhand strokes, serving, smash, drive, netplay, offensive and defensive strategy in singles and doubles play.

**KES 121 Advanced Badminton (1)** Competitive singles and doubles strategy, rules and etiquette. Perfecting fundamental strokes: smash, clear, drops, net, and drive shots.

**KES 123 Yoga (1)** This course provides a foundation for exploring classical yoga postures as well as the history and philosophy of yoga. Each class includes stretching, strengthening, relaxation techniques, pre- and post-flexibility evaluation, proper alignment, focus and breathing techniques.

**KES 124 Intermediate Yoga (1)** This course enhances the basic yoga poses and fundamentals covered in KES 123 (or equivalent yoga experience). Pre: KES 123.

**KES 128 Table Tennis (1)** This is an introductory course teaching the fundamental skills of table tennis including, basic strokes, grip and serve styles and positioning.

**KES 134 Volleyball: Beginning (1)** Rules, fundamental skills of passing, setting, hitting, blocking, digging, and team strategies.

**KES 136 Team Sports (1)** Skills, knowledge, attitudes and appreciation. Combination of soccer and softball.

**KES 138 Basketball: Beginning (1)** Rules, etiquette, skills in footwork, body balance, passing, shooting, dribbling, rebounding, individual and team strategies, and plays.

**KES 139 Basketball: Advanced (1)** Improving fundamental skills,



advanced strategies, ball control and shooting skills, offensive and defensive tactics, and officiating.

**KES 142 SUP - Stand Up Paddle Boarding (1)** Explore and connect with the spiritual and traditional aspects of our Hawaiian culture through the physical application of the ancient and contemporary sport of stand up paddle boarding.

**KES 143 Canoe Paddling (1) (lab)** Explore and connect with the spiritual and traditional aspects of our Hawaiian culture through the physical application of the ancient and contemporary sport of canoe paddling.

**KES 144 Ocean Safety (1) (lab)** Gain an appreciation and awareness of the ocean habitat within the District of Hilo as well as develop general ocean safety skills.

**KES 145 Surfing (1) (lab)** Explore and connect with the spiritual and traditional aspects of our Hawaiian culture through the physical application of the ancient and contemporary sport of surfing.

**KES 146 Edventure (1)** Students will be exposed to a variety of experiential physical activities over the course of seven all day sessions. The experiential physical activities that students will be exposed to will be unique to the island of Hawai'i.

**KES 152 Weight Training (1)** Fundamental techniques of weight training which includes safety and precautions, diet and nutrition, basic weight training principles and individualized exercise programs for total physical fitness.

**KES 201 School Health Problems (2)** Responsibilities of the elementary school teacher in recognizing and meeting pupil's needs, teacher's role in health instruction, health services, healthful school living, and school health policies.

**KES 202 Health Promotion (3)** This course is designed for students to understand health in the broadest sense of the word -- as an integrated process for discovering, using, and protecting all possible resources within the individual, 'ohana, community, and environment. (Same as NURS 202)

**KES 203 Intro to Physical Education (2)** Nature, scope, aim and objectives of physical education; basic principles of human movement; physical education as academic discipline and its relationship to fields such as recreation, health education, and athletics.

**KES 204 Intro to Coaching Athletics (2)** Nature, responsibilities, personal and professional requirements of a coach. Scientific principles applicable to coaching methodology and athletic competition.

**KES 206 Basic Human Movement (3)** Developing skills to understand the nature and function of human movement in everyday life, sport, dance, physical education, and adapted movement activities.

**KES 207 Basic Human Nutrition (3)** Fundamental principles of normal nutrition and the importance of nutrition in promoting growth and health. (Attributes: DB)

**KES 209 Data and Stats in Kinesiology (3)** This course focuses on the data management and the basic statistics in exercise sciences. Content includes research methods and designs, data collection, organization and management, descriptive and inferential statistics, central tendency, variability, correlation, regression, t-tests, analysis of variance and various nonparametric tests. Computerized statistical analyses are embedded throughout the course.

**KES 210 Introduction to KES (3)** Introduction to professions available for individuals graduating with a Kinesiology and Exercise Sciences degree (e.g. Public Health and Health Promotion, Sports Psychology, Strength and Conditioning Specialist, Kinesiologist, Exercise Physiologist, and various allied health professions Athletic Training, Physical Therapy, etc). This course serves as helpful tool in providing students with the information necessary to pursue a degree/focus program within Kinesiology and Exercise Sciences. KES program focuses, degree expectations, course maps, and advising will be provided; emerging evidence-based topics will be discussed.

**KES 212 Anatomical Kinesiology (3)** This course provides a thorough guide of human anatomy and its application to human movement through an in- depth evaluation tissues (bones (joints), muscle, nerve, and connective tissue) during motor activities. (Attributes: DB)

**KES 224 Human Physiology & Spaceflight (3)** This course explores the effects of microgravity and spaceflight on the physiology of passengers. Topics addressed in this course include space travel effects on: the skeletal system; the muscular system; the cardiovascular and cardiorespiratory systems; and the neurovestibular system. Effects of radiation exposure, psychosocial issues in spaceflight, and medical risks and preventions will be presented in this course.

**KES 232 Safety & Accident Prevention (2)** Understanding the fundamental principles and techniques of safety and accident prevention in school, home, work, motor vehicle, and recreational situations.

**KES 233 Physical Education: Elementary (3)** Content and methods for physical education in elementary school. Selection, planning, teaching, evaluation of movement skills, and activities. Pre: junior standing.

**KES 234 Care & Prev Athletic Injuries (3)** Fundamentals in athletic training and sports medicine designed to introduce principles and concepts in prevention and treatment of sports-related injuries. Additional fees required.

**KES 250 Foundation of Public Health (3)** An introduction to public health practice and history, with focus on principles and tools for population health, disease prevention, health promotion, health professions and healthcare systems. (Attributes: DS)

**KES 260 Exercise Science Anat & Phys I (3)** This course will cover basic human anatomy, physiology and chemistry of cells, organelles, cell division, metabolism, genetics, tissues, the integumentum, bone and muscle tissue. Each subject is presented with the emphasis on its response to activity and exercise.

**KES 261 Exercise Science Anat & Phy II (3)** This course is a continuation of Exercise Sciences Anatomy and Physiology I. The course will cover basic human anatomy and physiology of the endocrine, circulatory, lymphatic, respiratory, digestive, urinary and reproductive systems. Each subject is presented with the emphasis on its response to activity and exercise. Pre: KES 260.

**KES 263 Intramural Athletics (2)** The organization, administration, and supervision of intramural sports programs in schools with emphasis on leadership, program content, facilities, scheduling, rules and regulations, promotion, financing, and evaluation.

**KES 300 Psyc-Soc Aspects Of Sport (3)** The functions and dysfunctions of the sporting system will be examined from sociological perspectives. In addition, specific psychological constructs are presented in order to examine the relationship between environmental sources of



influence and the individual's capacity for self-management in the sporting world.

**KES 302 Sport & Spirituality (3)** The spiritual experience of sport is central both to our basic motivation to take part in sports, and to achieving success. This course explores human aspects of the sport experience through the perspectives of sport psychology, philosophy, ethics, theology and religious studies.

**KES 306 Advanced Human Movement (3)** Course focuses on the scientific aspects of human movement in everyday life, exercise and sport, adapted movements, everything in between. The contents focus on the physical load introducing principles of Biomechanics and illustrating the application of physics and mechanics on human performance. Pre: KES 206 and completion of GE Quantitative Reasoning requirement, and must be taken concurrently with KES 306L.

**KES 306L Advanced Human Movement Lab (1) (lab)** This course examines the advanced methods and techniques associated with various sports skills, strength and resistance training exercises with an emphasis on biomechanical understanding of proper form. Pre: KES 306 which must be taken concurrently.

**KES 307 Biomechanics of Human Movement (3)** This course provides an introduction to the principles and analysis of biomechanics, emphasizing the contribution of biomechanics to understanding human movement, and develops an understanding of mechanical and anatomical concepts related to human performance. Pre: PHYS 151, PHYS 151L.

**KES 307L Biomechanics Lab (1) (lab)** This course provides an introduction to the principles and analysis of biomechanics, emphasizing the contribution of biomechanics to understanding human movement, and develops an understanding of mechanical and anatomical concepts related to human performance. Pre: KES 307; may be taken concurrently.

**KES 308 Principles of Strength & Cond. (3)** This course will introduce the students to the fundamental principles of strength and conditioning while providing the skills necessary for proper selection, administration, and interpretation of athletic assessment across various modes of sport and activity, enabling the effective application of evidence-based training methodologies.

**KES 309 Prep For Personal Trn Cert (3)** This course will provide information, expertise and practical experience to help prepare students to be pass the National Council On Strength and Fitness Personal Trainer Certification Exam. Pre: KES 260 and 261 or equivalent and KES 207.

**KES 310 Motor Learning (3)** Basic understanding of the principles of motor learning and performance in a variety of contexts including teaching, coaching, design of performer-friendly equipment and work environments, and everyday motor skill learning.

**KES 311 Tests & Meas. in Sports & Exer (3)** In this course, Students will have the opportunity to experience, evaluate and discuss a wide variety of tests and assessments from the field of sport and exercise science. Also, a basic understanding and appreciation of why and how of testing is a critical factor in health, physical education and athletics will be provided.

**KES 320 Drug Awareness (3)** For students interested in the prevention and treatment of victims of legal and illegal use, misuses, and abuse of drugs and related substances. Examines the problems and consequences of people who have to deal with this dilemma.

**KES 330 Applied Motor Learning (3)** Applying the principles of motor learning in different contexts such as teaching, coaching, design of performer-friendly equipment and work environments, rehabilitation, and everyday motor skill learning. Developing of motor learning programs. Pre: KES 310.

**KES 333 Endocrinology: Our Hormones (3)** The endocrine system is the tissue and glands that secrete chemical messengers called hormones into the circulation to target specific receptors. This course will explore how the body depends upon this complex system to grow and maintain itself, and to respond to outside and inside perturbations, and fight diseases. Exercise and the endocrine system will be a prevalent topic in this course. Pre: KES 260 and KES 261 or BIOL 243 and BIOL 244.

**KES 335 Care & Prevention Athletic Inj (3)** Introduction to allied health professions (e.g. Athletic Training, Physical Therapy, etc) that specialize in the care and prevention of musculoskeletal injuries in an active population. Course focuses on the recognition, orthopaedic evaluation, treatment, management, and rehabilitation of various musculoskeletal injuries. Pre: BIOL 243-243L and BIOL 244-244L

**KES 339 Athletics & Health in Hawai'i (3)** This survey course examines the role of fitness/athletics and health-related activities in Hawaiian lifestyles, prior to foreign arrivals through to the late 20th century. The course also examines the consequences of political, economic, and cultural change on Native Hawaiian health-related activities and practices. (Same as HIST 339)

**KES 340 Science: Diet & Weight Cntrl (3)** This course presents a basic understanding of the multiple factors involved with body weight control and health. This course centers on the important scientific factors of body weight control, including energy balance, basal metabolism, hunger versus appetite, nutritional function and needs, nature versus nurture of obesity, treatment of obesity, physical activity and it's importance in weight control and maintenance. Eating disorders and medical interventions such as gastric bypass surgery will be presented.

**KES 343 Musculoskeletal Anatomy (3)** Basic understanding of human anatomy from the perspective of movement, with emphasis on the skeletal and muscular systems. Pre: KES 260 and KES 261 or BIOL 243-243L and BIOL 244-244L.

**KES 344 Musculoskeletal Physiology (3)** Basic understanding of human musculoskeletal physiology from the perspective of internal function, with emphasis on aerobic and anaerobic metabolism during muscular function. Pre: KES 343

**KES 348 Exercise Physiology (3)** Basic understanding of human physiology and its response to exercise and adaptations to various types of training. Physiological systems are reviewed as they respond to acute bouts of exercise and long-term exposure to exercise. Pre: BIOL 125.

**KES 348L Exercise Physiology Lab (1) (lab)** The objective of this course is to explore the physiological bases of exercise. We will perform laboratory experiments, collect, analyze and interpret data. Students should bring the lab manual, supplement and calculator to each class. Pre: KES 348; may be taken concurrently.

**KES 350 Health Promotion Prog Planning (3)** Student develop skills to effectively plan, design, implement, and evaluate health promotion programs in community/public health settings. Pre: KES 202

**KES 351 Epidemiology (3)** This course introduces students to epidemiology principles and methods. Topics covered include: measures of morbidity and mortality; vital statistics; incidence and prevalence



measurements; adjustment of rates; measurements of risk; biological variability; screening; measurements of error; sampling; statistical significance; surveillance; study design; association and causation; and outbreak investigation.

**KES 355 Philosophy of Sport (3)** A philosophical treatment of the role of sports in society and a meaningful life. Topics include the phenomenology of sport, the ethics of doping and artificial enhancement, leadership ethics, sports in the context of Hawai'i, and sport fandom. Pre: Previous work in philosophy or two courses in Kinesiology or instructor's consent. (Same as PHIL 355).

**KES 360 Olympism and Olympic Studies (3)** This course aims to provide students with specialized knowledge on issues related to the Olympic Games and in particular on the values and meanings behind them. The course focuses on Olympism and the three pillars of the Olympic Movement: Education, Sports, and Culture.

**KES 361 History of Sport (3)** A history of sport from the ancient world to the present. Special attention to the history of sport in Europe and the Americas (Same as HIST 361)

**KES 368 Sports and Exercise Nutrition (3)** This course will introduce the student to the importance of nutrition in the field of exercise sciences. The purpose of this course is to bridge between nutritional concepts and exercise concepts, and the practical applications. Pre: KES 207.

**KES 370 Sport Psychology (3)** Survey of methods and findings in the application of psychological principles in sport. Topics include arousal and anxiety, cognitive processes, team performance, coaching behavior and techniques to maximize sports performance. (Same as PSY 370)

**KES 380 Applied Sport Psychology (3)** Based on the principles of sport and exercise psychology. Focus on methods and programs applying sport psychology in the field of health and physical education to enhance performance, adhere people to physical exercise programs and support the overall well-being. Pre: KES/PSY 370.

**KES 401 Sem in KES: Profess.Develop (2)** This course will study selected topics and research in Kinesiology and Exercise Science professions. The purpose of this class is to provide an on-going forum for presentation and discussion of emerging issues within various professions (e.g. health promotion, sport psychology, strength and conditioning, and allied health professions). Students will inventory their core values, interests, skills, and strengths and utilize them towards the application process. Students will learn about resume/curriculum vitae preparation, cover letter construction, interview preparation, the importance of social media presence (e.g. LinkedIn, facebook), and negotiation when applying for jobs/graduate school. Pre: Junior or Senior Standing

**KES 440 Physiology of Aging (3)** Study of the physiological mechanisms and the effects of aging on the human systems including the cardiopulmonary, musculoskeletal, neurological, sensory, metabolic, and endocrinological. This course will present the topic of physiology of exercise and aging. Pre: BIOL 125.

**KES 443 Adapted Physical Education (3)** Understanding the basics of various disabilities, how to assess the physical and motor skills of the disabled and how to develop individual activity programs for children and youth with disabilities.

**KES 444 Strength and Cond. Cert Prep (4)** This course is designed to prepare students for the NSCA-CSCS test. Certified Strength and

Conditioning Specialists® (CSCS®) are professionals who apply scientific knowledge to train athletes for the primary goal of improving athletic performance by conducting sport-specific testing sessions, designing and implementing safe and effective strength training and conditioning programs and providing guidance regarding nutrition and injury prevention. Pre: KES 206 and either KES 260 and KES 261 or BIOL 243 and BIOL 244.

**KES 450 Health Promotion Practicum (3)** A planned, supervised, and evaluated practice experience. The goal of the practicum is to provide an opportunity for students to synthesize, integrate, and apply practical skills, knowledge, and knowledge, and training learned through courses. Students will gain professional experience in a professional health work environment, and work on health practice projects that are of particular interest to them. Pre: KES 202 and instructor consent. (Attributes: GCC)

**KES 470 Physical-Occupational Therapy (3)** The Purpose of this course is to introduce students who are interested in pursuing post-graduate degrees and professional careers in the fields of physical therapy and occupational therapy to these professions. This course is divided into three separate sections: The Profession; The Practitioner; and The Practice. Pre: KES 260 and KES 261, or BIOL 243 and BIOL 244.

**KES 480 Sports Medicine (3)** This course provides an opportunity for the study and application of the components of sports medicine, including, but not limited to: sports medicine related careers, organization, evaluation, and immediate care of athletic injuries, recognition, evaluation, and immediate care of athletic injuries, rehabilitation and management skills, emergency procedures, human anatomy and physiology, therapeutic modalities, and therapeutic exercise. Pre: KES 260 and KES 261, or BIOL 243 and BIOL 244.

**KES x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KES x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Language (LANG) Courses

College of Arts and Sciences (CAS) , Languages

**LANG 200 Intro to Jpns & Chns Studies (3)** This course studies the two regions of East Asia (Japan and China) with emphasis on philosophical, religious and cultural traditions, and patterns of social, economic and political change. Students will gain a general understanding of each region through a broad survey of important cultural movements and historical events that have made Japan and China what it is today. (Same as JPST 200) (Attributes: GCC)

**LANG 410 History of Chinese Characters (3)** This course introduces Chinese civilization and history through an investigation of the evolution of Chinesescript and the socio-cultural factors related to it. Archaeological and historical materials are used in introducing its various forms in history: from tortoiseshellscrip to seal and clericalscripts as well as regularscript. Historical and cultural setting of creating and using the specificscript are examined. The transformation of Chinesescript into Japanese "kanji" and cultural exchange between Asian countries are also discussed. Pre: one of the following: CHNS 101, CHNS 107, JPNS 101,



JPNS 101S, or JPNS 107. (Same as CHNS/JPST 410) (Attributes: GAHP)

**LANG x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**LANG x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Linguistics (LING) Courses

Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language (KHUOK)

**LING 102 Introduction to Linguistics (3)** A broad introduction to general linguistics: survey of phonology, morphological, syntactic, and semantic analysis, and historical and comparative linguistics. (Formerly LING/ ENG 203). (Attributes: DH, GL)

**LING 133 Elem Indig Lang (3)** Examine formal study of indigenous languages and issues of formal writing systems. For highly fluent native speakers, immersion school students, and others with similar levels of fluency. May be specific to language spoken or systematic attention to target skills with students speaking several different languages. A) Systematic for multiple languages, B) Navajo, C) Chuukese, D) Central Alaskan Yup'ik E) Samoan, F) Other. May be taken again if the sub-letters are different. Pre: LING 102 and fluency in an indigenous or minority autochthonous language appropriate to the sub-letter. NOTE: Fluency in Hawaiian cannot be used to enroll in sub-letter A of this course.

**LING 221 Intro to Language (3)** Linguistically oriented approaches to human behavior, including ethnolinguistics, sociolinguistics, and psycholinguistics. The way language functions in culture, society, and the cognitive processes. (Same as LING 221)

**LING 233 Inter Indig Langs (3)** Continuation of LING 133. A) systematic for multiple languages, B) Navajo, C) Chuukese, D) Central Alaskan Yupik, E) Samoan, F) Other. May be taken again if the sub-letters are different. Pre: LING 133 with same sub-letter.

**LING 311 Phonetics and Phonology (3)** Provides a conceptual framework and practical skills to engage in work in phonetics and phonology. Course includes training in the production and perception of speech sounds, as well as the physiological and acoustic description of them. Students learn IPA transcription symbols and practice analyzing phonological data based on the languages of the world. Pre: LING 102 or 121 or instructor's consent.

**LING 320 Hist Of The English Lang (3)** The major developments in the English language from the 5th century to the present day. Pre: ENG/ESL 100, LING 102 or LING 121, or instructor's consent. (Same as ENG 320)

**LING 321 Morphology And Syntax (3)** Introduction to grammatical analysis and theory; practical experience in solving problems in morphology and syntax, using data drawn from a wide variety of languages. Pre: LING 102 or instructor's consent. (Same as ANTH 321 and ENG 321)

**LING 324 Modern English Grammar & Usage (3)** The fundamentals of English grammar and syntax, conventions of written and spoken

English, and rhetorical choices at the sentence level. Pre: C or better in ENG 100, ENG 100T, ESL 100, ESL 100T, HAW 201, KHAW 201, JPNS 201, FIL 201, CHNS 201, or SPAN 201. (Same as ENG 324)

**LING 331 Lang in Culture & Society (3)** An examination of the articulation of language in social and cultural context, including topics relevant to sociolinguistics and ethnolinguistics. Pre: ANTH/LING 221 or LING 102 or instructor's consent. (Same as ANTH 331)

**LING 333 Psycholinguistics (3)** Theory and method in the investigation of the relationship between language and cognition, first and second language acquisition, speech pathologies. Pre: LING 102 or PSY 100 or instructor's consent. (Same as PSY 333)

**LING 344 Children And Language (3)** Strategies of language acquisition used by children; emphasis on investigative skills and methods, including some field work. Pre: LING 102 or ANTH/LING 221.

**LING 345 Historical & Comparative Ling (3)** This course provides an introduction to the principles of historical linguistics beginning with a survey of the features of the world's language families. A problem-solving approach is adopted as students learn the comparative method of reconstruction and actually engage in the linguistic reconstruction of protolanguages.

**LING 347 Pidgins And Creoles (3)** A study of the world's pidgins and Creoles with special reference to the Pacific region; the origin and nature of pidgins and Creoles; the relationship of Hawaiian Creole English to other Creoles in the world; the link between the development of a Creole and language acquisition. Recommended: LING 102 or 121. (Same as ANTH 347 and ENG 347) (Attributes: GAHP)

**LING 350 Second Lang Acquisition Theory (3)** Current research and theories of learning a second or additional language from social, psychological and linguistic perspectives. Topics include the attainment of communicative competence, the critical period hypothesis, focus on form, individual learning styles, and learner autonomy. The emphasis is on how the knowledge of second language acquisition theory helps improve the quality of classroom language teaching. Pre: LING 102 or instructor's consent. (Same as ENG 350) (Attributes: DH, GL)

**LING 351 Method Foreign Lang Tchg (3)** Foreign language teaching and learning from the perspectives of theory and practice. The application of modern linguistics to specific problems confronting the teacher. Pre: LING 102 or instructor's consent.

**LING 356 Language and Gender (3)** Students engage in the analysis of gender as it relates to language and society. Provides students with analytic resources for thinking critically about the relationship between language and social practice. Students gather and analyze data based on current theories. Pre: ENG/ESL 100 or 100T and LING 102, or instructor's consent. (Same as ENG 356 and WS 356)

**LING 410 Semantics & Pragmatics (3)** Introduction to the fundamentals and modern theories of meaning, reference and the relations between language and knowledge of the world. Ways in which the interpretation of sentences in natural languages depends upon the literal meaning of propositions and their logical (semantic) and contextual (pragmatic) inferences. Pre: LING 102 or instructor's consent.

**LING 412 Discourse Analysis (3)** This course examines the structure of function of language as its actually used in different contexts, including newspaper articles, poetry, doctor-patient interactions, news broadcasts, classrooms, and court trials. Students also gain experience in gathering, presenting, and analyzing their own data. (Attributes: DS,



GL)

**LING 432 Critical Applied Linguistics (3)** This course examines issues in applied linguistics such as language teaching, language learning, language policy, language ideology, linguistic human rights, and linguistic imperialism by considering indigenous language situations, dominant and minority languages as well as the notion of English as global language in order to appreciate the complex relationship between language and power. (Attributes: ALEX, DS)

**LING 434 Indigenous Languages of the US (3)** This course surveys Indigenous languages of the US and the communities that speak them, focusing on a representative sample for closer study. The role of languages in maintaining cultural identity is examined and prospects for the future of Indigenous languages are assessed. Pre: LING 102

**LING 442 Languages in Hawai'i (3)** This course explores the linguistic situation of Hawai'i with a focus on the history, structure, and political situation of the diverse set of languages spoken in the Islands. Languages to be examined include, but are not limited to, Hawaiian, Hawaiian Creole English, Japanese, Chinese, Ilocano, Portuguese, and Korean. Pre: LING 102 (Attributes: ALEX, GCC, HPP)

**LING 445 Explor Bilingual & Immers Ed (3)** This course provides students with the opportunity to learn about, experience, and engage in research about bilingual and immersion education, which serves as the basis for many language revitalization efforts throughout the world. Prerequisite: Linguistics 102.

**LING 451 Structure Of Japanese I (3)** Phonology, morphology, syntax of modern colloquial grammar. Pre: LING 102 and JPNS 202 or instructor's consent. (Same as JPNS 451) (Attributes: GAHP)

**LING 452 Structure Of Japanese II (3)** Phonology, morphology, syntax of modern colloquial grammar. Pre: LING 102 and JPNS 202 or instructor's consent. (Same as JPNS and JPST 452) (Attributes: GAHP)

**LING 490 Res and Methods in Linguistics (3)** This course serves as a capstone course in Linguistics, offering student the opportunity to engage in in-depth research on a linguistic topic of their choice. Students first read articles and write reaction papers to those articles, then write a proposal describing and defending and their topic choice, and next engage in research on their topic and produce an outline of their final paper. Then, at the conclusion of the semester, students present their papers to their peers and faculty and submit a research paper of at least 15 pages. Pre: LING 102, 311 and 321. (Attributes: ALEX)

**LING x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**LING x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Management (MGT) Courses

College of Business and Economics (COBE)

**MGT 300 Mgt, Orgs & Human Behavior (3)** Survey of classical and modern management theory and practice. Management implications of

organization theory. Basic concepts in work motivation, communication, group dynamics, leadership, organizational change, conflict, personality, and leadership. Pre: C or better in QBA 260 or MATH 115; C or better in ENG 209 or 287 or 215 or 225 or COM 240/WI; and C or better in BUS 290 (may be taken concurrently).

**MGT 330 Human Resource Mgt (3)** The contemporary theory and practice relating to the management of human resources; recruiting, selection, psychological testing, interviewing, job evaluation, performance review, training and development, wage and salary administration, benefit and service programs, and labor-management relations. Pre: C or better in MGT 300.

**MGT 332 Org Behavior & Manage (3)** The human relations movement; basic concepts in behavior pertaining to organizations including personality, motivation, leadership, communication, change, conflict, and group dynamics. Course includes the relationship of these concepts to performance, job satisfaction and organizational commitment. Pre: C or better in MGT 300.

**MGT 333 International Business Mgt (3)** Provides a systematic introduction to international business management, drawing examples from Pacific Rim business and commerce. Course introduces multinational marketing and international aspects of personnel management, plus introductory material on international business financial transactions. Pre: C or better in ECON 130 (Attributes: DS, GAHP, HPP)

**MGT 341 Project Management (3)** This course focuses on the technical and social aspects of project management. The basic principles of project management will be introduced to prepare students for possible Project Management Institute (PMI) certification. Topics covered include contract proposal, project definition and planning, identification and sequencing of project deliverables, automated scheduling, resource planning, cost estimation and budgeting, risk analysis, project tracking, building a project team and strategic issues of project management. Students will be assigned to teams to complete a project. Pre: C or better in CS 201 or QBA 362

**MGT 379 Hist Of Entrepreneurship in Am (3)** The role of entrepreneurship in developing the American business system from its European origins to its current global manifestations and its future prospects. Focus on the values, characteristics, and practices of entrepreneurs and on the changing relations over time between business, labor and government. Pre: 45 college credits successfully completed.

**MGT 423 Business & Society (3)** Impact of business on society and the impact of the societal environment on business operations and decision making. Pre: C or better in BUS 240, and C or better in MGT 300.

**MGT 425 Bus Planning for New Ventures (3)** Development of a business plan for a new venture with attention to form of business organization; competitive advantage; accounting systems and controls; financial, marketing, human relations, operations and risk management; government regulation and compliance; social responsibility. Identification of sponsors and sources of help for small business. Pre: C or better in any 200-level ENG course; C or better in ECON 130 or BUS 110 or BUS 100; C or better in QBA 260 or MATH 115. (Attributes: ALEX, GCC)

**MGT 490 Strategic Mgt (3)** Integrative capstone course using concepts of strategy formulation, competitive analysis, and strategy implementation as models for problem solving and decision making in an organizational setting. Computer software applications are used to aid in



comprehensive case analysis. Pre: 75 successfully-completed college credits; C or better BUS 290, MGT 300, QBA 300, MKT 310, and FIN 320.

**MGT x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**MGT x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Marine Science (MARE) Courses

College of Natural and Health Sciences (CNHS)

**MARE 100 Marine Option Program Seminar (1) (other)** Orientation to the Marine Option Program with statewide overview of ocean issues and organizations involved with marine activities, management, education, research, and business. Exploration of opportunities for internships, research projects, independent study and careers. Portions on HITS with participation of students and faculty from throughout the UH system. CR/NC only. Repeatable one time.

**MARE 101L Intro Marine Sci Field Lab (2) (lab)** A basic introduction to field techniques in marine science including: the use of marine charts, measuring bathymetry, marine sediment sampling, techniques for measuring salinity, temperature, and ocean circulation, plankton sampling and identification, marine fishes and invertebrates, and marine wildlife management techniques used in tagging sea turtles. Field trips required.

**MARE 103 Marine Option Program Proposal (2)** Introduction to the fundamentals of proposal writing and project development. Students will incorporate topics from MARE 100, identify a faculty mentor, and expand the project into a written proposal. This proposal is a prerequisite for the completion of a marine skills project required for the Marine Option Program Certificate. Pre: MARE 100 or instructor's consent.

**MARE 104 Marine Option Program Project (2)** Fundamentals of proposal writing and project development. Students assistance of a mentor and MOP coordinators. This course will provide strategies, methods, and techniques for successful project completion. Pre: MARE 100 or instructor's consent. Repeatable twice for a maximum of 6 credits.

**MARE 105 Marine Option Presentation (1)** A continuation of the marine skills project completed in MARE 104. Students expand their marine skills project, required for the Marine Option Program Certificate, into an oral or poster to be presented at the annual MOP symposium. This course will provide instruction on creating effective presentations, developing scientific posters, and explaining scientific results to both peers and the general public. Pre: MARE 100, MARE 103, MARE 104, or instructor's consent.

**MARE 110 Current Issues in Marine Sci (3)** Introduction to marine science via the controversies and problems facing our ocean environment. Topics may include coastal population growth, sonar, fisheries, dolphin-safe tuna, cruise ship waste, global warming, mercury in fish, beach erosion, alien species, and coral reef decline. Designed for non-majors. This course applies toward general education requirements in the Natural Sciences. (Attributes: DB)

**MARE 140 Intro to Hawaiian Coral Reefs (3)** Explore the underwater world of the Big Island of Hawai'i while learning about unique marine ecosystems found nowhere else on Earth. Students will acquire an appreciation for local aquatic fauna in the classroom including the basics of marine biology and natural history. Pre: concurrent enrollment in MARE 140L required. (Attributes: DB, GAHP, HPP)

**MARE 140L Intro Hawaiian Coral Reefs Lab (1) (lab)** Students will enter the natural laboratory that is Hawai'i and investigate coral reefs, coastal beaches and tide pool systems with mask, snorkel and fins. Learn to identify common marine inhabitants while enjoying an unparalleled educational experience under the sea. Concurrent enrollment in MARE 140 is required. (Attributes: DY, GAHP, HPP)

**MARE 156 Nat Hist & Conservatn Hawn Isl (3)** The formation of the Hawaiian Islands, establishment and evolution of their native terrestrial and marine flora and fauna, and human impacts and conservation. (Same as BIOL 156). (Attributes: DB, GAHP, HPP)

**MARE 171 Marine Biology-Diversity (3)** Marine organisms: classification, structure, physiology, ecology and adaptations to the marine environment. This course satisfies College of Arts and Sciences General Education Natural Science requirement. (Attributes: DB)

**MARE 171L Marine Biology Laboratory (1) (lab)** Provide students with direct exposure to the biota of Hawai'i via laboratory and field trips to sites around Hilo. The course focuses on identification, natural history, and ecology of common marine organisms. Pre: Current or previous enrollment in MARE 171. (Attributes: DY)

**MARE 172 Marine Biology-Cellular Proc (3)** Introduction to the fundamentals of biology as they pertain to marine organisms. Principles of cell biology, molecular biology and biochemistry. Focuses are biological molecules, prokaryotic and eukaryotic cell structure and function, basic metabolism, and cellular processes. Emphases will be given to cellular level adaptations to marine environment. Pre: High school Biology; or BIOL 101 and high school Chemistry; or CHEM 151 recommended. (Attributes: DB)

**MARE 201 Oceanography (3)** Geological, chemical, physical and biological aspects of the ocean; structure, formation, and features of ocean basins; seawater's properties and their distribution; currents, waves; tides; characteristics of marine organisms; marine ecological principles. Pre: Two high school or college science courses recommended. (Attributes: DP)

**MARE 201L Oceanography Lab (2) (lab)** The basic techniques of oceanography including; marine charts and navigation, bathymetry, marine sediments, techniques for measuring salinity, temperature, dissolved oxygen, and surface and deep circulation, light and sound in seawater, wave dynamics, tides, plankton sampling and identification. In-class field trips required. Pre: Concurrent or previous enrollment in MARE 201. (Attributes: DY)

**MARE 240 Small Boat Operations/Research (3) (lecture/lab)** This course is intended to provide the novice boater with skills needed to safely operate and conduct research from a small boat. Topics include: state and federal regulations, safety, navigation, small boat handling, and conducting research operations. The course will consist of lectures, lab sessions, and time on the water in a small boat. Participants must be able to swim. Pre: Instructor's consent.

**MARE 250 Statistical Apps in Marine Sci (3)** Hands-on approach to designing field experiments, collection of ecological data, analysis of data on computers using statistical methods, and presentation of results.



Requires completion of a project using data collected in the field followed by the preparation of both written and oral reports. Pre: MARE/BIOL 171 or MARE 201, or instructor's consent. (Attributes: GQ)

**MARE 264 Quest (3)** The application of commonly utilized nearshore underwater ecological surveying techniques using SCUBA. Intensive two-week course combining lecture and field work. Data will be collected in the field, reduced, analyzed and presented in an oral report. Pre: Authorization as a scientific diver in training before start of course and instructor's consent.

**MARE 265 Marine Ecology and Evolution (3)** Principles of ecology and evolution for Marine Science majors stressing integrative approach and recent advances. Topics include but are not limited to evolutionary mechanisms, macroevolution, systematics and the origin of life, population and community ecology and ecological processes, marine communities, dispersal, biodiversity and biogeography. Pre: MARE 171/171L, MARE 172 and MARE 201 or instructor's consent.

**MARE 282 Global Change (3)** Principal components of global change and impacts on the marine environment. Course focuses on the interdisciplinary nature of global change and interrelationships to biological, physical, anthropological, economic, and political concepts. Pre: College-level science course. (Attributes: DP)

**MARE 282L Global Change Lab (1) (lab)** Elements of global change in the physical, chemical and biological properties of the Hawaiian Islands using laboratory exercises and field trips. Involves shipboard water sampling and analysis, snorkeling on coral reefs, and hiking in rain forests. Pre: MARE 282 or concurrent enrollment.

**MARE 310 The Atoll Ecosystem (3)** Formation, structure, distribution, oceanography, biota and ecology of atolls. Human interactions, historical and modern, with atoll ecosystems. Atoll resource management issues and actions. Pre: MARE/BIOL 171, MARE 201, or BIOL 156 or instructor's consent. (Attributes: GAHP, HPP)

**MARE 325 Coral Reef Ecology (3)** Provides a background in evolutionary and natural history of tropical reefs, coral reef community structure and interactions, and coral reef ecosystem processes/functions. Students will learn ecology of Hawaiian and global coral reefs. Students will review information on the increasingly important conservation issues related to tropical reef systems and review present management strategies employed. Pre: C- or better in MARE 265 or instructor's consent.

**MARE 350 Coastal Methods and Analyses (3)** Planning of field and laboratory data collection and experimentation in the coastal environment. Course covers hypothesis development, experimental design, statistical analysis of data, data interpretation, scientific writing, and presentations. Pre: junior standing; a grade of C- or better in MARE 201, BIOL/ MARE 250; MARE 265; CHEM 162, and must be taken concurrently with MARE 350L. Offered Fall semester only.

**MARE 350L Coastal Methods & Analyses Lab (2) (lab)** Implementation of field and laboratory data collection and experimentation in the coastal environment. Techniques include measuring geological, chemical and physical coastal properties; estimating the abundance and diversity of plankton, nekton, and benthos; and use of modern data recording and analyzing systems. Pre: junior standing; a grade of C- or better in MARE 201, BIOL/MARE 250; MARE 265; CHEM 162; must be taken concurrently with MARE 350. Offered fall semester only.

**MARE 353 Pelagic Methods and Analyses (3)** Planning of field and

laboratory data collection and experimentation in the neritic and pelagic marine environment from an oceanographic vessel platform. Course covers hypothesis development, experimental design, statistical analyses of data, data interpretation, scientific writing, and presentations. Pre: junior standing; a grade of C- or better in MARE 201; BIOL/MARE 250; MARE 265; CHEM 162; must be taken concurrently with MARE 353L. Offered Spring semester only.

**MARE 353L Pelagic Methods & Analyses Lab (2) (lab)** Implementation of field and laboratory data collection and experimentation in the neritic and pelagic marine environment from an oceanographic vessel platform. Techniques include measuring geological, chemical, and physical properties; estimating the abundance and diversity of plankton, nekton and benthos; and use of modern data recording and analyzing systems. Pre: junior standing; C- or better in MARE 201; BIOL/MARE 250; CHEM 162; MARE 265. Must be taken concurrently with MARE 353. Offered Spring Semester only.

**MARE 360 Marine Resources (3)** A survey of human use of the marine environment including physical and biological resources. Topics covered include: fisheries, mariculture, marine mineral and energy resources, chemical resources of sea water, the use of coastal Islands and waste disposal in the sea. Pre: MARE 201 or BIOL/MARE 171, or instructor's consent. (Same as BIOL 360)

**MARE 364 Advanced Quest (3)** Students lead a dive team learning underwater ecological surveying techniques; supervise field data collection, data reduction and analysis, and team presentation of written and oral reports; and assist in training students in identification of marine organisms. Pre: BIOL/MARE 264, authorization as a scientific diver in training before start of course, and instructor's consent. Student receives CR/NC for the course.

**MARE 366 Trop Marine Research Investiga (3)** Research projects on marine-related problems. Students will do a literature search; develop experimental design; collect, reduce and analyze data; do a written final report; and present findings at a symposium. Projects will be selected from a list of topics or can be original with the consent of the instructor. Pre: instructor's consent (Same as BIOL 366).

**MARE 371 Biology Of Marine Invertebrate (3)** A survey of the major groups of invertebrates focusing on those dominant in the marine environment. Students will learn methods used to identify and classify invertebrates and will survey the anatomy, physiology, and natural history of the major groups. Pre: MARE 265 or BIOL 172 or equivalent, and concurrent enrollment in MARE 371L. (Same as BIOL 371)

**MARE 371L Bio Of Marine Invertebrate Lab (1) (lab)** The course will provide direct exposure to the major groups of invertebrates in the marine environment through laboratory exercises and field trips around the island. Students will learn to identify and classify invertebrates and will survey the anatomy and natural history of the major groups. (Same as BIOL 371L).

**MARE 372 Biology Of Marine Plants (3)** Diversity, distribution and ecology of marine macroalgae and seagrasses. Students will learn methods to identify common marine plants of the Hawaiian Islands and the tropical Pacific. Marine plants and their relation to human affairs will be discussed. Pre: MARE 171 or BIOL 171 or instructor's consent. Concurrent enrollment in MARE 372L.

**MARE 372L Biology of Marine Plants Lab (1) (lab)** Laboratory activities relating to the taxonomy, biology, chemistry, physiology and human uses of seaweeds and seagrasses. Includes field trips. Pre: concurrent enrollment in MARE 372.



**MARE 375 Applied Informatics (3)** Introduction to the theory and application of informatics tools used in Marine and Natural Sciences. Students will learn the fundamentals of data management, data analytics, ecoinformatics, bioinformatics, and data visualization. Pre: C or better in CS 171 or CS 172, C or better in MATH 271 or MARE 250 or Instructor's Consent.

**MARE 380 Nat. Hist. of Sharks and Rays (3)** This course will examine the natural history of the Elasmobranchs, an ancient group of fishes that have existed for almost 450 million years. Comprehensive investigations of sharks, rays, skates, sawfishes, and chimera, along with representative species from Hawai'i, will be conducted. Subjects will include evolution, taxonomy, anatomy, physiology, ecology, conservation and management of these unique animals. Discussions of current research papers along with group research projects will be covered during lectures. Pre: MARE 171 or instructor's consent. Concurrent enrollment in MARE 380L.

**MARE 380L Nat. Hist. of Sharks Lab (1) (lab)** This course will further examine Elasmobranchs using a hands-on approach to compliment the work done in Lecture using both laboratory and field-based activities. Laboratory sessions will involve detailed dissections of shark, ray, skate, and chimera functional anatomy. Students will also participate in a tagging study of coastal shark species throughout the Big Island of Hawai'i. Pre: Concurrent enrollment in MARE 380.

**MARE 390 Biology of Marine Mammals (3)** Comprehensive investigation of a diverse group of highly adapted marine vertebrates. Whales, dolphins, porpoises, seals, sea lions, walrus, manatees, dugongs, sea otters and polar bears will be covered. Focus will be on taxonomy, anatomy and physiology, behavior, reproductive ecology, adaptations to the marine environment, and conservation and management. Pre: MARE 171 or instructor's consent. Concurrent enrollment in MARE 390L.

**MARE 390L Biol of Marine Mammals Lab (1) (lab)** Field and lab techniques employed by professional marine mammal biologists including shore and boat-based surveys, photo-identification, and acoustic sampling. Investigations will focus on local species of marine mammals. Pre: MARE 390 or concurrent enrollment.

**MARE 405 Watersheds (3)** This course is designed to provide a mountain to ocean overview of tropical and temperate watersheds with regards to their hydrology, geology, biogeochemistry, and ecology, as well as their function in maintaining environmental quality in freshwater, coastal, and marine ecosystems. Natural and human disturbances to watersheds will be examined, as well as their impacts on watershed function and downstream riparian, coastal, and marine environments. Restoration and management of watersheds to improve freshwater and coastal environmental quality will be discussed. Pre: CHEM 162.

**MARE 410 Marine Debris in the Pacific (3)** Scientific study of marine debris issues in the Pacific Ocean, including sources, dispersal, distribution, degradation, effects, persistent organic pollutants, plastic additives, monitoring efforts, and solutions. Pre: MARE 171 and MARE 201, or instructor's consent. (Attributes: GAHP)

**MARE 423 Marine Policy (3)** Introduction to marine policy, law, and environmental regulations. Topics include protected species, fisheries, clean water, clean air, coastal wetlands, pollution, marine protected areas, climate change. Pre: C- or better in MARE 265 or instructor's consent. This course is dual listed with CBES 623.

**MARE 425 Chemical Oceanography (3)** Chemical processes occurring in marine and estuarine waters and their impact on the near shore and

oceanic environments. Topics include: salinity, chlorinity, major and minor elements, and dissolved gases in seawater; macro and micronutrients, dissolved and particulate organic matter; geochemistry of marine sediments; radiometric dating and stable isotopes as water mass tracers. Pre: C- or better in CHEM 162 and MARE 201.

**MARE 434 Teaching Marine Science (3)** Marine science concepts and teaching strategies for pre-service and inservice teachers. Includes geological, chemical, physical and biological topics. Pre: MARE/BIOL 171, MARE 201, and MARE 265. (Attributes: ALEX, GCC)

**MARE 435 Marine Field Experiences (3) (other)** Training for pre-service and inservice teachers in marine science field experiences content and strategies. Includes geological, chemical, physical and biological topics. Pre: MARE/BIOL 171, MARE 201, and MARE 265. (Attributes: ALEX, GCC)

**MARE 440 Physical Oceanography (3)** Topics in physical oceanography include: distribution of water characteristics in the ocean; dynamics of circulation; water masses; wave characteristics including formation, propagation, dispersion and refraction; dynamic and equilibrium theories of tides as well as tsunami, seiche, and internal waves; sound and optics; and the latest methods and instrumentation in physical oceanography. Pre: MARE 201, MATH 241, and PHYS 151/151L or PHYS 170/170L, or instructor's consent. Recommended: MATH 242.

**MARE 444 Biological Oceanography (3)** This course focuses on the interaction of phytoplankton, zooplankton, and pelagic organisms in the open ocean environment. Students will learn aspects of plankton taxonomy, physiology, and pelagic population dynamics. Students will survey the current research status of the field using primary literature. The student's knowledge will then be applied to the study of local and global productivity and trophodynamics. Pre: junior standing, MARE 265 and CHEM 162 or instructor's consent.

**MARE 445 Marine Microbial Ecology (3)** Marine microorganisms in a diversity of roles within the marine environment including microbial food webs, biogeochemical cycling, symbioses as well as host-pathogen interactions, extreme environments and bioremediation. Microbial interactions in tropical and temperate systems are presented. Pre: MARE 265 or instructor's consent.

**MARE 446 Phytoplankton (3)** Phytoplankton are the microbial primary producers in marine ecosystems and are sensitive indicators of the ecosystem change. The lecture section will give students baseline information on phytoplankton ecology and their roles in marine ecosystems. We will also discuss phytoplankton in the context of global environmental change. Corequisite: 446L. Pre: MARE 250 and MARE 265.

**MARE 446L Phytoplankton Ecology Lab (2) (lab)** Phytoplankton are the microbial primary producers in marine ecosystems and are a sensitive indicator of ecosystem change. This laboratory and field-based course will give students hands-on experience with the theory and techniques of phytoplankton ecology. Corequisite: MARE 446. Pre: MARE 250 and MARE 265.

**MARE 460 Marine Conservation (3)** Concepts and issues in marine conservation and marine resource management. Topics include resource exploitation, invasive species, eutrophication, marine pollution and global climate change. Ecological impacts of resource depletion, environmental modification, and biodiversity loss will be discussed along with methods used to address impacts. Pre: C- or better in MARE 265 or instructor's consent.

**MARE 461 Geological Oceanography (3)** A detailed study of the



ocean floor to include marine stratigraphy, plate tectonics, oceanic sediments and paleoceanography. Pre: MARE 201, GEOL 111 and one of CHEM 161, 162 or MARE 440, or instructor's consent.

**MARE 463 Fisheries Ecology (3)** Case studies, lectures, and class discussions provide an interactive exploration of the ecology of fishes related to management and conservation. Topics include: predator-prey theory, reproduction and early life-history, habitat selection, fish biodiversity, and response to anthropogenic climate change. Pre: MARE 265, BIOL 281, or instructor's consent. This course is dual listed with MARE 463.

**MARE 470 Senior Thesis Research (3) (other)** Practical experience in designing and completing a marine-related research project. Students will submit project proposals for evaluation and approval. Once approved, students will do a thorough literature review, develop an experimental design, collect and record data and present preliminary results. Pre: MARE 265, MARE 350 or 353 and ENG 225 or instructor's consent.

**MARE 471 Senior Thesis Report (3) (other)** Second-semester continuation of MARE 470. Students finish their research projects and prepare a final oral and written report. Pre: MARE 470. (Attributes: ALEX, GCC)

**MARE 480 Senior Internship (3)** Applications of knowledge and skills in public, private, or government agency involved in marine science education or research. Pre: junior or senior class standing, instructor's consent, and preapproved placement. (Attributes: ALEX, GCC)

**MARE 484 Biology Of Fishes (3)** The biology of marine and freshwater fishes. Topics covered include: general anatomy, locomotion, respiration, osmoregulation, sensory systems, reproduction, electrosensitive and electrogenic fishes, coloration and bioluminescence in fishes, genetic interrelationships. Students are encouraged to enroll in MARE/BIOL 484L, the corresponding lab course when offered. Pre: C- or better in MARE 171 or BIOL 172 or their equivalent; C- or better in MARE 265 or equivalent; or instructor's consent. (Same as BIOL 484)

**MARE 484L Biology Of Fishes Laboratory (1) (lab)** Anatomy of jawless, cartilaginous and bony fishes. Review of common local reef fishes. Laboratory and field trips for Biology of Fishes. Co-req: MARE 484. (Same as BIOL 484L).

**MARE 488 Kuula: Integrated Science (3)** This course will compare content, context, and methodology of Native Hawaiian and Western sciences and explore ways to apply both to understand the environment of Hawai'i. Students will be exposed to scientific knowledge and endeavors of Native Hawaiians through field trips and will also explore ways to integrate sciences to address research and management issues facing Hawai'i today. Pre: MARE 250 or equivalent and instructor's consent. (Attributes: ALEX)

**MARE 490 Sea Turtle Conserv & Ecology (3)** All-encompassing look at the natural history of these ancient marine vertebrates. Topics include investigations of sea turtles, sea snakes, saltwater crocodiles and marine iguanas throughout the world. Subjects will consist of conservation and management, human impacts, reproductive and feeding ecology, evolution, taxonomy, and anatomy and physiology of these unique marine animals. Pre: MARE 265 or equivalent or instructor's consent. Concurrent enrollment in MARE 490L.

**MARE 490L Sea Turtle Conserv & Ecol Lab (1) (lab)** Field and lab techniques employed by sea turtle biologists including shore and underwater photo-surveys, forage surveys, and evaluation of nests and

hatchlings. Investigations will focus on local species of sea turtles. Pre: MARE 490 or concurrent enrollment.

**MARE 495 Senior Seminar (3) (other)** Lectures, discussions, and research reports of topics in marine science presented by faculty, students, invited speakers, and visiting scholars. Students will be expected to present a seminar, as well as participate in other course activities. Pre: senior standing or instructor's consent. (Attributes: GCC)

**MARE 496 Tchg Asst & Tutorng in Mare (1-3) (lab)** Practice in individual tutoring, and in the preparation of the selected topics in Marine Science lecture or laboratory courses, under direct instructional supervision. This course may be repeated for a maximum of 6 credits and may not be used to replace any specific course or elective requirements of the Marine Science major. Pre: supervising instructor and department chair consent.

**MARE x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**MARE x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Marketing (MKT) Courses

College of Business and Economics (COBE)

**MKT 310 Princ of Marketing (3)** Fundamental marketing concepts and contemporary marketing issues are analyzed within present economic, social and legal environments; consumer and functional analysis are emphasized. Pre: C or better in ECON 130, ACC 201 and BUS 290.

**MKT 311 Marketing Management (3)** Planning, evaluation, and control of the marketing function. Procedures for developing the analysis and solution to common marketing management problems involving pricing, distribution, product development and promotion. Pre: MKT 310.

**MKT 313 Promotional Strategy (3)** The role of promotion in an organization's communication processes from a theoretical and managerial perspective. Advertising, personal selling and sales promotion are analyzed from the view of both the organization and its consumer groups. Pre: MKT 310

**MKT 315 Consumer Behavior (3)** An integrated framework for understanding consumer behavior from a marketing perspective. Course focuses on environmental issues, as well as consumer decision processes. Pre: C or better in MKT 310.

**MKT 318 Internet Marketing (3)** Marketing principles applied to Internet commerce. This course examines the tools and techniques currently used to harness the potential of the Internet. Internet marketing strategies that effectively blend the product, price, distribution channels and communication variables will be discussed along with the use of relationship marketing through on-line strategies. The preparation and use of an Internet marketing plan will be developed through case studies and/or student projects. Pre: C or better in MKT 310

**MKT 319 Market Research (3)** An overview of the marketing research



process as part of an organization's decision support systems. Topics include research design, attitude measurement, along with data sources, collection and analysis. A research application component will emphasize the planning, execution, and analysis of a real-world marketing research project. Pre: MKT 310, and C or better in MATH 115 or QBA 260.

**MKT 333 International Marketing (3)** Focused on identifying and satisfying global customer needs better than the competition, both domestic and international, and coordinating marketing activities within the context of the global environment. Pre: C or better in MKT 310. (Attributes: GAHP)

**MKT 351 Professional Selling (3)** This course includes the principles of personal selling for both industrial and retail sales persons covering topics of prospecting, approaching, presenting, closing and follow-up. A major emphasis is placed on understanding the customer's needs and contributing to the success of the customer, with a focus on building long-term relationships based on trust. Pre: C or better in MKT 310.

**MKT x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**MKT x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Mathematics (MATH) Courses

College of Natural and Health Sciences (CNHS)

**MATH 100 Survey Of Math (3)** Survey of Mathematics course is intended primarily for non-science liberal arts majors to satisfy the university's quantitative reasoning requirement. Core topics include mathematical logic and mathematical thinking and problem solving. Additional topics may include number systems, computers, algebra, and probability. Pre: None. (Attributes: FQ, GQ)

**MATH 103 Intro to College Algebra (3)** For students who need to improve algebraic skills prior to taking Pre-calculus or Applied Calculus, or for courses in Introductory Chemistry, Physics or Statistics. Topics include exponents and radicals, factoring, systems of equations, linear equations, quadratic equations, general properties of functions, graphing, polynomial functions, exponential and logarithmic functions.

**MATH 115 Intro to Stats and Prob (3) (lecture/lab)** Utilizes basic statistical topics including measures of central tendency and dispersion, classification of variables sampling techniques, elementary probability, normal and binomial probability distributions, tests of hypothesis, linear regression and correlation in order to solve problems. (Previously offered as MATH 121) (Attributes: FQ, GQ)

**MATH 125 Applied Calculus (3)** The course emphasis is on computations and applications to Business and Life Sciences. Topics include exponential and logarithmic functions, right triangle trigonometry, derivatives, optimization, integration and applications in these areas. Pre: C or better in MATH 103, or C or better in MATH 135T or higher, or recommendation from the Math Placement Test. (Previously offered as MATH 115) (Attributes: FQ, GQ)

**MATH 135 Precalc: Elementary Functions (3)** Investigates linear,

quadratic, polynomial, rational, exponential, logarithmic functions, and relevant topics. This course is the first part of the precalculus sequence. Pre: C or better in MATH 103, or an appropriate recommendation on the Math Placement Test. (Previously offered as MATH 104F) (Attributes: FQ, GQ)

**MATH 135T Precal: Elem Funct w/ Tutorial (4)** The main topics of the course are graph sketching, definition and properties of functions, polynomial and rational functions, and exponential and logarithmic functions. In addition, this course provides supplemental algebra instruction that directly supports the main topics of the course. Pre: An appropriate recommendation on the Math Placement Test (Attributes: FQ, GQ)

**MATH 140 Precalc:Trig/Analytic Geometry (3)** Studies trigonometric functions, analytic geometry, polar coordinates, vectors, and related topics. The course is the second part of the precalculus sequence. Pre: C or better in MATH 135T or higher, or an appropriate recommendation on the Math Placement Test. Previously offered as MATH 104G (Attributes: FQ, GQ)

**MATH 140X Precalculus (4)** MATH 140X is an accelerated one semester course on the material covered in the sequence 135-140. Topics include the essential pre-calculus skills needed for success in calculus: functions, with special attention to polynomial, rational, exponential, logarithmic and trigonometric functions; plane trigonometry; and polar coordinates. Credit may not be earned for both MATH 140 and MATH 140X Pre: B+ or better in MATH 103, or C or better in Math 135, or an appropriate recommendation on the Math Placement Test. (Previously offered as MATH 104) (Attributes: FQ, GQ)

**MATH 241 Calculus I (4)** First half of a standard first year calculus sequence intended primarily for Natural Science majors. Topics include differential calculus, applications, and an introduction to integration. Pre: C or better in MATH 140X or MATH 140, or an appropriate recommendation on the Math Placement Test. (Previously offered as MATH 205). (Attributes: FQ, GQ)

**MATH 242 Calculus II (4)** Second semester of a standard first year calculus sequence intended primarily for Natural Science majors. Topics include applications of the definite integral, techniques of integration, an introduction to differential equations, and infinite series. Pre: C or better in MATH 241. (Previously offered as MATH 206) (Attributes: FQ, GQ)

**MATH 243 Calculus III (3)** Introduction to calculus of functions of several variables. Topics include partial differentiation; gradient, divergence, curl, and multi-variable optimization. Pre: C or better in MATH 242 (Previously offered as MATH 231). (Attributes: FQ, GQ)

**MATH 244 Calculus IV (3)** Introduction to calculus of functions of several variables. Topics include multiple integrals, line integrals, and surface integrals; Green's Theorem and Stoke's Theorem. Pre: C or better in MATH 243. (Previously offered as MATH 232).

**MATH 271 Applied Statistics with R (3)** Introduction to probability and statistics, with an emphasis on applied use of the R statistical computing system. Topics include categorical and quantitative random variables, probability distributions, descriptive statistics, estimation, hypothesis testing, and linear regression. Pre: C or better in MATH 135T or higher, or placement into MATH 140 or higher. Recommended: C or better in CS 171 or computer programming experience. (Same as DATA 271)

**MATH 300 Ordinary Diff Equations (3)** Theory and methods of solutions of ordinary differential equations and systems of linear



differential equations with constant coefficients. Power series solutions, Laplace transforms, and applications. Pre: C in MATH 242.

**MATH 301 Partial Differential Equations (3)** Construction and behavior of solutions of partial differential equations in physical and engineering applications, classical equations of mathematical physics, initial and boundary value problems, and eigenvalue problems. Pre: C in MATH 300 and MATH 243. Recommended: MATH 244 or concurrent.

**MATH 303 Complex Variables W/ Apps (3)** An introduction to the theory of functions of a complex variable. Complex differentiation and the Cauchy-Riemann equations. Analytic functions, conformal mappings, and Laurent series. Cauchy's Theorem, residue theory, and their applications. Additional topics include Riemann surfaces and the algebraic closure of the complex numbers. Pre: C or better in MATH 243. Recommended: C or better in MATH 244.

**MATH 310 Discrete Mathematics (3)** Topics from discrete mathematics, including logic, proof techniques, recurrence relations, set theory, combinatorics, relations, functions, graphs, Boolean algebraic structures and applications to coding theory. Pre: C or better MATH 242

**MATH 311 Intro Linear Algebra (3)** Algebra of matrices, linear equations, vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization and basic applications. Pre: C in MATH 242

**MATH 314 Topology (4)** A study of topological spaces and their continuous functions. A focus on properties of topologies, including compactness, Hausdorff, and connectedness. The construction of topologies, including the metric, quotient, product, and subspace topologies. Additional topics include manifold theory and functional analysis. Pre: C or better in MATH 242 or higher Math course excluding MATH 271, and MATH 243 which can be taken concurrently.

**MATH 317 Intro To Theory Of Equations (3)** Algebraic systems as related to solutions of polynomial equations, division algorithms and factorization for polynomials and integers, fundamental theorem of algebra, and related topics from elementary number theory including linear congruencies and rings of residue classes. Pre: C or better in MATH 310 or instructor's consent.

**MATH 324 Ring Theory (4)** An introduction to algebraic structures with two binary operations. A focus on the properties of the ring of integers, ring of integers modulo  $n$ , polynomial rings, and quotients of polynomial rings. Topics include the normal structure of rings: subrings; ideals, homomorphisms and quotients with focus on the above examples. Additional topics include an introduction of fields. Pre: C or better in MATH 242 or higher math course excluding MATH 271.

**MATH 360 Mathematical Physics (3)** Special functions of mathematical physics which arise from Sturm-Liouville equations: Bessel, beta, elliptical, gamma and Legendre functions. Generating functions, complex integral representations. Other topics may include integral transforms, Fourier analysis and linear algebra. Pre: MATH 244, or MATH 243 and 300 or instructor's consent. (Same as PHYS 360)

**MATH 371 Multivariate Modeling with R (3)** Multivariate statistical methods and model selection using R. Topics include the multivariate normal distribution and covariances, multiple regression, analysis of variance, principal component analysis, logistic regression, and decision trees. The course will emphasize model selection and techniques such as validation sets to address the problem of overfitting. Pre: C or better in MATH 271. (Same as DATA 371)

**MATH 380 Chaos (3)** An introduction to nonlinear dynamical systems

for science majors. Topics include dynamics in one and several dimensions, stability, excitable media, fractals, and time series analysis. Applications in physics, chemistry, ecology and other fields are illustrated. Pre: C or better in MATH 242 and C or better in PHYS 272 or Math 244. (Same as PHYS 380)

**MATH 407 Intro To Numerical Analysis I (3)** Solutions of equations in one variable, direct and iterative methods for systems of linear equations, the algebraic eigenvalue problem, interpolation and polynomial approximation, error analysis and convergence for specific methods. Offered spring semester. Pre: C in MATH 242 and MATH 311 and programming experience. (Same as CS 407).

**MATH 408 Intro To Numerical Analysis II (3)** A continuation of MATH 407. Topics will include approximation theory, numerical integration and differentiation, solution of systems of nonlinear equations, numerical solutions to differential equations. Pre: C in MATH 407. (Same as CS 408).

**MATH 421 Elem Probability Theory (3)** Sets, sample spaces, combinatorial probability, random variables, mathematical expectation, classical distributions applications. Pre: C or better MATH 242

**MATH 422 Elementary Math Statistics (3)** Statistical inference, estimation, hypothesis testing, regression, correlation, introduction to analysis of variance. Pre: C or better in MATH 421 and one of the following: MATH 115; or MATH 271; or instructor's consent.

**MATH 424 Group Theory (4)** An introduction to the theory of groups. Topics include the normal structure of groups: subgroups; normal subgroups, homomorphisms and quotients; direct products, and the structure of finite Abelian groups. Additional topics may include the Sylow theorems and/or Galois Theory. Pre: C or better in MATH 310, MATH 317, MATH 324, or MATH 431, and MATH 311 which may be taken concurrently.

**MATH 431 Real Analysis I (4)** A rigorous axiomatic development of single variable calculus. Completeness, limits (functions, sequences, and series), continuity, differentiation, and integration. Topics covered: The real number system; the complete ordered field axioms with emphasis on completeness; sequences and series of real numbers, limits and continuity, differentiation, Riemann Integral, uniform and pointwise convergence. Pre: C or better in Math 310, Math 314, or MATH 424.

**MATH 432 Real Analysis II (4)** This course is a continuation of MATH 431, classical analysis concepts and theorems, including the topology of the real number and higher dimensional Euclidean spaces, convergence, continuity, uniform and pointwise convergence, differentiability, and integration Pre: C or better in MATH 431.

**MATH 441 Geometry I (3)** The course is specifically designed for future Math teachers Emphasis is equally split between content and pedagogy of teaching high school Geometry. Topics include: foundations of Geometry, formal direct and indirect geometric proofs, geometric constructions, Euclidean Geometry in 2D and 3D. Pedagogy topics include: learning and practicing different teaching methods and techniques, developing lesson plans, teaching experience in a real classroom environment. Pre: C or better in MATH 243; and C or better in MATH 310, MATH 314, or MATH 324; and MATH 311 which may be taken concurrently.

**MATH 442 Geometry II (3)** Axiomatic system-independence and consistency, advanced concepts in Euclidean geometry, elements of non-Euclidean geometries: spherical, elliptic, hyperbolic, introduction to classical Riemann geometry and modern geometry of manifolds. Pre: C or better in MATH 441 or instructor's consent.



**MATH 454 Modern Algebra I (3)** Theory of groups, rings, and fields. Polynomial rings, unique factorization, and Galois Theory. Pre: C or better in MATH 310 and MATH 311 or instructor's consent. Recommended: MATH 317 and PHIL 345.

**MATH 455 Modern Algebra II (3)** This course is a continuation of Modern Algebra I. Pre: C or better in MATH 454.

**MATH 495A Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC; in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior standing or consent of instructor. (Same as ASTR 495A-495B, GEOL 495A-495B, CHEM 495A-495B and PHYS 495A-495B.)

**MATH 495B Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC; in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior standing or instructor's consent. (Same as ASTR 495A-495B, GEOL 495A-495B, CHEM 495A-495B, and PHYS 494A-494B.)

**MATH 496 Tchg Assist & Tutoring Math (1-3)** Practice in individual tutoring and in the preparation of the selected topics in mathematics lecture or laboratory courses, under direct instructional supervision. This course may be repeated for a maximum of 6 credits and may not be used for substitution for any specific course or elective requirements of Mathematics major. Pre: consent of the supervisor and the department chair.

**MATH x94 Special Topics in Subject Matter (Arr.) (10)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**MATH x99 Directed Studies (Arr.) (10)** Statement of planned reading or research required. Pre: instructor's consent.

## Music (MUS) Courses

College of Arts and Sciences (CAS)

**MUS 106 Intro to Music Literature (3)** Appreciation of western art music through discussion, listening and reading. Study of elements, textures, forms and style characteristics. No previous music knowledge required. (Formerly offered as MUS 160) (Attributes: DH)

**MUS 107 Music in World Cultures (3)** Explores music as an aspect of human culture focusing on selected non-Western music styles from Asia, Africa, and the Americas. (Formerly offered as MUS 166) (Attributes: FGC)

**MUS 108 Fundamentals of Western Music (3)** Musical notation: pitch, rhythm, tonality, and chord structure. Aural skills and first experiences at the piano also included. (Formerly offered as MUS 180) (Attributes: DA)

**MUS 108L Fund of Western Music Lab (1)** Development and application of aural skills through analysis, dictation, and sight-singing. Reinforces concepts presented in MUS 180. Pre: Concurrent enrollment with MUS 108. (Formerly offered as MUS 180L)

**MUS 109 Music & Pop Culture in America (3)** A survey of American musical styles of the 20th century, including rock, blues, jazz, country, Motown, R & B, and other folk idioms, as well as American art music. Emphasis will be on stylistic evolution, interactions, and social context. No previous musical knowledge is required. (Formerly offered as MUS 163)

**MUS 110 Introduction to Jazz (3)** A survey of classic and modern jazz in a historical framework. Study of elements, trends, genres, forms and style characteristics. Appreciation of jazz through discussion, listening and reading. No previous musical knowledge is required. (Formerly offered as MUS 165) (Attributes: DH)

**MUS 114 University Chorus (3)** Large ensemble singing of various genres of choral music including classical, choral/orchestral, traditional, and world. Study of composers and compositional styles from selected periods of music. Public performance required. No audition required. May be repeated for credit as many times as desired. (Formerly offered as MUS 102) (Attributes: DA)

**MUS 121 Class Instruction I (1)** Basic principles of voice technique and performance; relevant problems in literature. (B) Voice; (C) Piano; (D) Guitar. Repeatable in different sections. Cannot be audited. A-F Only. (Formerly offered as MUS 123 and MUS 125)

**MUS 122 Class Instruction II (1)** A continuation of MUS 123. Basic principles of performance; relevant problems in literature. (B) Voice; (C) Piano; (D) Guitar. Repeatable in different sections. Cannot be audited. A-F Only. Pre: MUS 121 or Instructor's Consent. (Formerly offered as MUS 124 and MUS 126)

**MUS 125 Class Piano I (1)** Basic principles of piano technique and performance. Relevant problems in piano literature. Course may be repeated once for credit.

**MUS 126 Class Piano II (1)** A continuation of MUS 125. Principles of piano technique and performance. Relevant problems in piano literature. Pre: MUS 125 or instructor's consent.

**MUS 130 Convocation (1)** Seminar in music performance. Study of best practices in preparation/performance of music drawn from each student's Applied Music lessons. In-class solo performances; and public performance required at the end of semester Convocation Student Recital. Co-req: MUS 231 or 331. May be repeated for credit as many times as desired.

**MUS 131 Beginning Applied Music (1)** Individual instruction in solo vocal or instrumental performance. Course fees are in addition to regular tuition. For course fee amount, see Applied Music Coordinator and consult instructor at time of registration. May be repeated for credits three times.

**MUS 175 Intro Music Of Polynesia (3)** A general survey of the traditional and acculturated music of eight major Polynesian island groups: Tonga, Samoa, New Zealand, Cook Islands, Society Islands, Marquesas Islands, Easter Island, and Hawai'i. Music is viewed as both an organization of sound and as a product of culture and people. (Same as HWST 175) (Attributes: DH, GAHP, HPP)

**MUS 176 Hist & Dev Of Hawn Music (3)** A general survey of the interrelationships of traditional and acculturated Hawaiian music. Vocal music genres to be discussed include: chant; Christian hymn singing; secular choral singing; male and female falsetto singing; Chalangalang; Hapa Haole; and contemporary. Instrumental music genres include: pre-European instrumental styles; slack key guitar; 'ukulele; and steel guitar.



(Same as HWST 176) (Attributes: DH, GAHP, HPP)

**MUS 195 Contemporary Island Music (3)** Survey of contemporary music in Hawai'i from the 1970's to today's popular music. Emphasis on performance, via the understanding of multi-cultural influences, styles of composers, and development of musical trends in Hawai'i. Practical experience with singing and ukulele included. (Attributes: DA, HPP)

**MUS 225 Music Synthesis (3)** The use of computer-controlled synthesizers in musical composition, recording and performance; Music Instrument Digital Interface procedures and applications. Pre: MUS 126 and MUS 131C (Applied Music/Piano) or conference.

**MUS 231 Applied Music (1)** Individual instruction in solo vocal or instrumental performance at a foundational level. Performance at end of semester Convocation and Juries required. (B) voice; (C) piano; (D) organ; (F) recorder; (G) classical guitar; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable for four semesters. A-F only. Pre: Audition or Instructor's Consent. Co-Req: MUS 130. (Formerly offered as MUS 135, MUS 136, MUS 235, and MUS 236)

**MUS 240 Creative Apps of Music Tech (3)** Fundamental technology concepts learned through creative projects. Exposure to a variety of music and audio software. Pre: MUS 108 or Instructor's consent. (Attributes: DA)

**MUS 281 Theory I (2)** Materials and organization of music; analysis, writing, and keyboard application. Pre: MUS 108 or Instructor's consent. Co-Req: MUS 283 or Instructor's consent. (Formerly offered as MUS 185)

**MUS 282 Theory II (2)** Continuation of MUS 281. Pre: MUS 281 or Instructor's consent. Co-Req: MUS 284 or Instructor's consent. (Formerly offered as MUS 186)

**MUS 283 Aural Training I (1)** Perception, identification, and notation of musical sounds through dictation and sight singing. Pre: MUS 108 and ability to sing diatonic melodies at sight, or Instructor's consent. (Formerly offered as MUS 185L)

**MUS 284 Aural Training II (1)** Continuation of MUS 283. Pre: MUS 283 or Instructor's consent. Co-req: MUS 282 or Instructor's consent. (Formerly offered as MUS 186L)

**MUS 285 Music Theory III (3)** Detailed study of theory: writing, analysis, keyboard application. Pre: MUS 282. Co-req: MUS 287 or Instructor's consent.

**MUS 286 Theory IV (3)** Continuation of MUS 285. Pre: MUS 285. Co-req: MUS 288 or Instructor's consent.

**MUS 287 Aural Training III (1)** Advanced level of perception, identification, and notation of musical sounds through dictation and sight-singing. Pre: MUS 284. Co-req: MUS 285 or Instructor's consent. (Formerly offered as MUS 285L)

**MUS 288 Aural Training IV (1)** Continuation of MUS 287. Pre: MUS 287. Co-req: MUS 286 or Instructor's consent. (Formerly offered as MUS 286L)

**MUS 324 Choral Conducting (3)** Basic conducting technique and its application to the directing of choral organizations. Includes score reading, lyric dictation, rehearsal techniques, and interpretative problems. Research in conducting skills and problems. Required: Concurrent enrollment in a choral ensemble. Pre: MUS 282 or Instructor's

consent. (Formerly offered as MUS 390)

**MUS 331 Applied Music (1)** Individual instruction in solo vocal or instrumental performance at a foundational level. Performance at end of semester Convocation and Juries required. (B) voice; (C) piano; (D) organ; (F) recorder; (G) classical guitar; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable for four semesters. A-F only. Pre: Advancement from MUS 231 or Instructor's consent. Co-req: MUS 130. (Formerly offered as MUS 335, MUS 336, MUS 435, and MUS 436)

**MUS 340 Electronic Music (3)** Basic techniques of electronic sound synthesis. Pre: MUS 240 or Instructor's consent. (Formerly offered as MUS 325)

**MUS 359 Music and Activism (3)** An exploration of the ways in which music has been used to create and support social change. The role of music in movements involving resistance, protest, and activism for political, social, and environmental justice, both in the U.S. and globally. (Same as WS 359)

**MUS 365 History of Western Music I (3)** Development of Western music from its origins to the 1750. Styles, schools, and composers. Pre: MUS 160 or instructor's consent.

**MUS 366 History Of Western Music II (3)** Development of Western music from its origins to the twentieth century. Styles, schools, and composers. Pre: MUS 160 or instructor's consent.

**MUS 367 History of Pop Music (3)** MUS 367 History of American Pop Music (3) An examination of American popular music from the 16th through 21st centuries with emphasis on the music's relation to cultural and historical contexts, and technological and aesthetic developments. Listening and discussions focus on a variety of music including jazz, blues, rock and roll, reggae and hip hop. Pre: ENG 100. (Attributes: DH)

**MUS 375 Japanese Music (3)** Historical survey of traditional, contemporary, and Western-influenced music of Japan and study of major genres. No previous musical knowledge is required. Pre: Junior standing or consent of instructor. (Same as JPST 375). (Attributes: GAHP)

**MUS 383 Orchestration (3)** Survey of instruments for the orchestra and band. Study of selected scores. Basic principles of scoring and transcribing for the orchestra or band. Two semester projects. Pre: MUS 282 or Instructor's consent. (Formerly offered as MUS 349)

**MUS 400 Topics in Music (3)** Topics in history, literature, theory, world music, and applied music. May be repeated for credit once. Pre: ENG 100. (Formerly offered MUS 465) (Attributes: DA)

**MUS 401 Vulcan Band (2)** Rehearsals and performances for athletic events, pep rallies, and other similar events. Public performance required. May be repeated for credit. Pre: Audition.

**MUS 402 Jazz Orchestra (3)** Instruction and rehearsal in various types/genres of instrumental music. Public performance may be required, depending on instrumentation and personnel. Emphasis on music literacy and individual performance skills. May be repeated for credit. Pre: audition or instructor's consent.

**MUS 404 Kapili Choir (3)** Performance of choral literature, including accompanied, a capella, and major choral works. May be repeated for credit as many times as desired. Pre: audition and instructor's consent. (Attributes: DA, GCC)



**MUS 406A Jazz Ensemble (2) (lecture/other)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406B Collegium Musicum (Early Mus) (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406D Keyboard Accompanying (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406E Saxophone Quartet (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406F Chamber Music Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406G Brass Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406H String Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406I Woodwind Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406J Percussion Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406L New Music Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 406M Musical Theatre Ensemble (2)** Rehearsals and performance of chamber music for small instrumental/vocal groups. Public performance required. May be repeated for credit. Pre: audition and consultation.

**MUS 410 Ensembles (3)** Performance of literature for ensembles and performing groups of various sizes and kinds; (A) Musical Theatre; (B) Vocal Chamber Ensemble; (C) Instrumental Chamber Ensemble; (Z) Other. May be repeated for credit as many times as desired. Pre: Audition and Instructor's consent. (Formerly offered as MUS 406)

**MUS 419 Music in Education (3)** Study of practical methods and materials used in teaching basic musical concepts in educational settings serving children and youth. Opportunities for field work will be incorporated into class activities. (Attributes: DA, GCC)

**MUS 485 Form & Analysis (3)** Form, texture, and style in music literature from Renaissance to present. Formal analysis and writing. Larger forms with various textures; recent contemporary approaches to continuity. Pre: instructor's consent.

**MUS 487 Counterpoint (3)** Form, texture, and style in music literature

from Renaissance to present. Formal analysis and writing. Contrapuntal textures and forms. Pre: Instructor Consent.

**MUS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**MUS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Natural Resources (NRES) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**NRES 196 Intro to Natural Resource Mgmt (3)** This course highlights the biological and physical science aspects of natural resource management at local, national, and global scales. Topics covered will include resource management of soil, water, forests, rangelands, wetlands, coasts and wildlife. This is an intro-level course designed to introduce key concepts and topical areas in natural resources and environmental management.

**NRES 230 Philippines Environ & Nat Resou (3)** Examination of the Philippines environment and natural resources from a long-term perspective. Analysis of the effects of resource management practices on environmental quality, agroecosystems, the economy, and food security. Consideration of conflicting values and resolution. (Attributes: GAHP)

**NRES 320 Environ Issues in Asia-Pacific (3) (lecture/lab)** Impact of rapid agricultural development, deforestation, industrialization and urbanization on air, soil and water in the Asian-Pacific environment. Causes, consequences and corrective measures for pollution in the region. Combinations of expert approaches and geo-information systems, including introductory modeling are used to predict contaminant fate, behavior and critical load. Recommended: CHEM 151 or 161 or equivalent. (Attributes: GAHP)

**NRES 410 Invasive Species & Ecosystems (3)** Invasive species comprise one of the greatest immediate threats to global biodiversity. This course will focus on the ecological impacts of such species, the factors influencing their establishment, and the theory and practice of controlling invasive species. Pre: FOR 202 or BIOL 171 or BIOL 281 or Instructor's consent.

**NRES 420 Hydrology and Watershed Mgmt (3) (lecture/lab)** Managing human impact on watershed and water resources and understanding the relationships among forest, soil, water, land-use, and people. Management of wildland watershed for control of the amount and timing of water yield, stormflow, water quality, erosion, and sedimentation with socio-economic and policy considerations. Emphasis on forest and water resources management.

**NRES 425 Marine Biogeochemistry (3)** Marine Biogeochemistry examines the chemical processes occurring in marine and estuarine waters, their impact on near shore and oceanic environments, and their connection to climatic stability. Marine biogeochemistry is inherently interdisciplinary, involving aspects of biology, earth science and physics, as well as chemistry. Pre: CHEM 151 or CHEM 161 or consent of instructor.



**NRES 430 GIS Application in Nat Res Mgt (3)** GIS and spatial techniques in natural resource management. Spatial data structures, map projection, global positioning system. How to create spatial data sets through GPS survey. Utilization of GIS software and performance of basic spatial analysis. Pre: Instructor consent required.

**NRES 455 Pac Climate Change Adaptation (3)** This course focuses on three major components: 1) understanding the basic science of climate change; 2) impacts on productive sectors and coastal activities; and 3) vulnerability assessments and adaptation strategies for integrated coastal management initiatives as well as for individual sectors. Pre: Junior standing. (Attributes: GAHP)

**NRES x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**NRES x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Natural Sciences (NSCI) Courses

College of Natural and Health Sciences (CNHS)

**NSCI 475 Data Visualization (3)** This team-taught course provides an interdisciplinary framework for learning cutting-edge data visualization techniques. The class enables students from varied disciplines to work together and develop collaborative projects. Students are taught hands-on skills for creating effective data visualization products and tools that can be applied to a broad range of scientific disciplines. Pre: Junior or Senior standing and one of the following: CS 150, ART 112, or a prior course in ASTR, BIOL, CHEM, ENSC, GEOL, MARE or PHYS. Co-Req: CS/ART/NSCI 475L (Same as ART/CS 475)

**NSCI 475L Data Visualization Lab (1) (lab)** Hands-on training with the various software tools used throughout CS/ART/NSCI 475. Course is repeatable twice for a total of 3 credits. Co-Req: CS/ART/NSCI 475 or Instructor's Consent (Same as CS/ART 475L)

**NSCI 476 Communicating Science (3)** Introduction to theory and practice of communicating science to general audiences, focusing on adults but including teens and children. Pre: Senior standing and six credits from upper division courses in ASTR, BIOL, CHEM, ENSC, GEOL, MARE, or PHYS.

**NSCI x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**NSCI x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Nursing (NURS) Courses

College of Natural and Health Sciences (CNHS) , School of Nursing

**NURS 202 Health Promotion (3)** This course is designed for students to understand health in the broadest sense of the word -- as an integrated process for discovering, using, and protecting all possible resource within the individual, 'ohana, community, and environment. (Same as KES 202)

**NURS 203 General Pharmacology (3)** Pharmaceuticals discussed with emphasis on methods and sites of administration, mechanisms of action, toxicity, rate and uses of major therapeutic agents. Intended for undergraduates in the health sciences and related fields. Pre: MATH 100, BIOL 243, 243L, 244, 244L or instructor's consent.

**NURS 347 Health Assessment (3)** Introduction to comprehensive health assessment of clients across the life span using critical thinking skills. Emphasis on the pathophysiologic influences on subjective and objective findings of selected systems. Detailed health assessment techniques will be introduced as well as methods of comprehensive history-taking. Note: Restricted to Nursing students only.

**NURS 347L Hlt Assessment Practicum (1) (other)** Application of the nursing process in the comprehensive health assessment of clients across the life span. Emphasize the pathophysiologic and/or pathopsychologic influences on subjective and objective findings of selected systems. Detailed health assessment techniques as well as comprehensive history-taking. Note: Restricted to Nursing students only.

**NURS 348 Human Pathophysiology (3)** This course explores concepts of the biological basis for disease in adults and children. Alterations in normal body functions leading to disease and discomfort of the individual will be presented with an organized framework. Note: Restricted to Nursing and Pre-Nursing students only.

**NURS 350 Transcultural Care & Hlth Prom (3)** The course introduces basic principles of teaching-learning, adult learning, group process and basic transcultural care and health promotion concepts. Note: Restricted to Nursing Students Only. (Attributes: DS, GAHP, HPP)

**NURS 351 Professnl Nsg Issues & Trends (3)** Introduction of contemporary health reform issues and trends affecting the nursing profession. Overview of the history of nursing, significant national nursing studies, code of ethics, relationship of nursing theory to nursing practice and nursing research. Includes introduction to client care management. Pre: junior standing. Restricted to Nursing Students Only.

**NURS 352L Nursing Skills Laboratory (1) (lab/other)** Practice of basic clinical skills in a campus laboratory setting to prepare student for clinical practice in community settings. Includes faculty demonstrations, student return-demonstrations, and performance testing. Course offered CR/NC only. Note: Restricted to Nursing Students Only.

**NURS 353 Nursing Concepts & Skills (3) (other)** Introduction to the art and science of the professional role of transcultural nursing care. Fundamental nursing concepts, process, and practice will provide the novice nursing student with a firm foundation for advanced nursing study. Note: Restricted to Nursing students only.

**NURS 353L Nsg Concepts & Skills Practicum (3) (other)** Introduction to the application of the nursing process in the delivery of care to medical/surgical populations. Comprehensive, faculty-guided experiences in developing a beginning knowledge base for entry into the nursing profession. Note: Restricted to Nursing students only.

**NURS 355 Adult Health Care I (3) (lecture/other)** Care of adult clients with acute medical/surgical problems. Integration of pathophysiology in the understanding of human responses to health



deviations. Use of the nursing process to develop individualized, culturally congruent care plans. Note: Restricted to Nursing students only.

**NURS 355L Adult Hlt Care I Practicum (5) (other)** Application of the nursing process in providing individualized, culturally congruent care to adult clients with acute medical/surgical problems. Note: Restricted to Nursing students only.

**NURS 357 Mental Health Care (3) (other)** Application of mental health concepts, transcultural caring and professional nursing skills in delivering mental health care. Includes study and application of treatment modalities appropriate to selected psychopathological conditions. Note: Restricted to Nursing students only.

**NURS 357L Mental Hlt Care Practicum (3) (other)** Application of nursing process in the delivery of mental health care to selected populations. Faculty guided clinical experience in acute and community settings. Note: Restricted to Nursing students only.

**NURS 358 Nursing Research (3)** Introduction to the research process and the application of scientific method in nursing. Note: Restricted to Nursing students only.

**NURS 359 Foundation of Health Promotion (3)** Exploration of the relationship between health promotion, health policy, and the impact on health conditions in diverse populations. Examination of the importance of health behavior and social determinants of health as contributors to current health problems, and the role of health promotion and education programs in addressing them.

**NURS 360 Health Care Policy (3)** Analyses of local, national and global economic, legal and social factors impacting health care policies. Discussion of relationship between emerging social issues/trends and health care disparities and capacities. Discussion of social justice, cultural competence, and equity in access and delivery of health care services. Opportunities are provided to participate in political processes impacting nursing and health care policy. (Same as SOC 360)

**NURS 361 BSN Nursing Preview (3)** Preview of academic and clinical opportunities for baccalaureate level nurses with an emphasis on leadership roles and advanced practice. Exploration of strategies for success as a life-long learner. An experiential component is included in this course which will supplement didactic content. The course is restricted to licensed registered nurses who are in the RN to BSN option of the BSN Program, or by instructor's consent. Offered every spring.

**NURS 362 Nursing Professional Writing (1)** The professional writing course is tailored for students planning careers in nursing. This class assists the student in developing professional writing skills. Writing is an essential component of the communication skills that help define professional nursing practice. The APA style is included to guide clear and professional communication. It encompasses standards for the content and organization of a paper and ways to express ideas clearly while reducing bias in language.

**NURS 370 Transcultural Health Care (3)** Introduces theories of transcultural nursing and human caring with an emphasis on exploring the caring values, beliefs, client/family lifeways and health practices of different ethnic groups and self by using cultural care assessment skills. Note: Restricted to Pre-nursing and Nursing students only.

**NURS 371 Health Information Technology (3)** Overview of information technology. Topics cover concepts and methodologies to plan, analyze, design, implement and evaluate health information

systems. Note: Restricted to Pre-nursing and Nursing students only.

**NURS 372 Spirituality in Health Care (3)** An examination of the role of spirituality in patient care for clients of multicultural backgrounds across the life span. Exploration of spirituality as an integral part of self.

**NURS 373 Gerontological Health Care (3)** Care of the aging adult with an emphasis on successful aging and health promotion. Integration of theory and evidence-based practice in providing culturally congruent care.

**NURS 374 Skills Nursing Leadership & Mgmt (3)** Development of effective leadership skills, communication skills, interpersonal skills, presentation and technical writing skills necessary for nursing leadership and management. Emphasis on team management and conflict resolution skills are included.

**NURS 375 Applied Human Nutrition (3)** Applied nutrition in human health and disease, and the nurse's role in supporting nutritional care. Pre: one chemistry and one anatomy/physiology course, or consent of instructor. Note: Restricted to Pre-nursing and Nursing students only.

**NURS 376 Human Lactation (3)** No prerequisites, corequisites, crosslisting, special grading options or repeatability for credit. An Indepth focus on the anatomical and physiological basis of lactation and breastfeeding. This course includes the history of infant feeding in the US, the role of culture, benefits of breastfeeding, anatomy and physiology of human lactation including composition of human milk, evidence-based breastfeeding support for expectant and new mothers, and identification of barriers and common breastfeeding problems

**NURS 377 End of Life Care (3)** This course will introduce, explore and assist interdisciplinary providers (nursing physicians, social workers, spiritual counselors, volunteers, etc) and other individuals to recognize and understand issues related to end of life care.

**NURS 409 Perinatal & Pediatric Health (3)** Emphasizes the nursing process in providing culturally appropriate care to perinatal women and to children, in the context of the family. Explores preventative health care, anticipatory guidance and health promotion in a developmental context. Note: Restricted to Nursing students

**NURS 409L Perinatal & Pediatric Hlt Prac (3)** Application of the nursing process in providing culturally congruent nursing care to perinatal women, and to infants, children, adolescents, and their families. Supervised clinical experiences in labor/delivery, nursery, postpartum, inpatient pediatrics and/or community settings. Note: Restricted to Nursing students only.

**NURS 411 Community & Collaborative Hlt (3)** Emphasis on culturally sensitive care to families and other groups in community health delivery settings. Identification of organizational resources and delivery patterns are investigated for effectiveness in addressing client needs in a variety of community settings. Note: Restricted to Nursing students only

**NURS 411L Community & Collaboration Prac (3)** Application of the nursing process in delivery of nursing care to individuals, families, groups, and communities. Integration of a service learning project utilizing organizational resources in collaborative relationships with community agencies. Note: Restricted to Nursing students only.

**NURS 455 Adult Health Care II (3) (other)** Prevention intervention and therapeutic modalities in caring for adult clients with acute medical and/or surgical problems. Emphasis on increasing medical-surgical



nursing expertise with incorporation of client management skills and more advanced problem-solving. Note: Restricted to Nursing students only.

**NURS 455L Adult Hlt Care II Practicum (5) (other)** Continued care of adult clients with acute medical and/or surgical problems. Emphasis on increasing medical-surgical nursing expertise with incorporation of patient management skills and more advanced problem solving. Note: Restricted to Nursing students only.

**NURS 457 Ldrshp & Transition to Practic (3)** Management and leadership concepts in delivering comprehensive nursing care to clients with complex health care needs. Emphasize critical thinking and evaluation of clinical judgments in nursing practice. Note: Restricted to Nursing students only. (Attributes: ALEX, DS, GCC)

**NURS 457L Ldrshp & Tran to Prac Practicu (2) (other)** Application of management and leadership concepts in delivering comprehensive nursing care to clients with complex health care needs. Emphasize critical thinking and evaluation of clinical judgments in nursing practice. Note: Restricted to Nursing students only.

**NURS 458 Nursing Review (3)** Review of human body systems, nursing management, concepts, and skills in client health care. This review includes math and pharmacology with emphasis on critical thinking by discussion of NCLEX practice questions and related rationales. Note: Restricted to Nursing Students Only.

**NURS 458L Nursing Review Practicum (2)** Application of nursing skills in concentrated clinical experience in the acute care setting. Note: Restricted to Nursing Students Only.

**NURS 459 Nursing Review (2)** Review of human body systems, nursing management, concepts, and skills in client health care. Note: Pre: Nursing Major

**NURS 459L Nursing Review Practicum (1) (lab)** Application of nursing skills in concentrated clinical experience in the acute care setting. Pre: Nursing Majors

**NURS 471 Intro Rural-Home Health Care (3)** Introduction to the theory and role of the nurse in providing culturally congruent care in rural and home settings for client/family systems. Will examine the establishment of cooperative relationships with appropriate rural agencies. Note: Restricted to Pre-nursing and Nursing students only.

**NURS 480 Nursing Remediation Theory (4)** This course prepares the registered nurse who has been out of nursing for 5 years or more years to return to work. This course also meets the requirement as a remediation course for any applicant who has not passed their NCLEX 3 times within the past 3 years. Students needing NCLEX remediation are only required to complete this theory course. Students enrolling in this course must have graduated from an accredited school of nursing in good standing, have attempted the NCLEX examination within the past 3 years and must be eligible to sit for the NCLEX exam upon completion of the course. PRE: Instructor's Consent.

**NURS 481L RN Refresher Lab (2) (lab)** This laboratory course is designed to prepare the registered nurse who has been out of nursing for 5 years or more years to return to work. The main areas of instruction will include: general medical and surgical nursing, pediatrics, and maternal newborn nursing. Additionally, new equipment, procedures, charting, documentation, medication, IV therapy, and physician's orders will be reviewed. The course content is derived from the Hawai'i Nursing Scope of Practice and the Hawai'i Nursing Practice Act. The lab

participation is on site at the University of Hawai'i at Hilo. Students enrolling in this course must have completed initial licensure in United States, must be eligible for licensure in Hawai'i upon completion of program and must have been previously licensed as a RN. Pre: Instructor's Consent.

**NURS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**NURS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [NURS graduate-level courses](#).

### Pacific Islands Studies (PACS) Courses

[College of Arts and Sciences \(CAS\)](#)

**PACS 108 Pacific Worlds (3)** Introduces students to the geography, societies, histories, cultures, contemporary issues, and arts of Oceania, including Hawai'i. Combines lectures and discussion that emphasize Pacific Islander perspectives and experiences. (Attributes: HPP)

**PACS x94 Special Topics in Subject Matter (Arr.) (10)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PACS x99 Directed Studies (Arr.) (10)** Statement of planned reading or research required. Pre: instructor's consent.

### Performing Arts (PART) Courses

[College of Arts and Sciences \(CAS\)](#)

**PART 395 Senior Seminar (1) (other)** A seminar course focusing on the logistics of business and production in the performing arts. Topics covered include employment opportunities, self-produced work, royalties, licensing and intellectual property rights, marketing, public relations, and other knowledge required for a career in the performing arts. These skills are necessary for implementation of the Senior Project. Pre: DRAM 101

**PART 495 Senior Project (3)** Senior project in the performing arts. Pre: Senior Standing

**PART x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.



**PART x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Philosophy (PHIL) Courses

College of Arts and Sciences (CAS)

**PHIL 100 Intro to Philosophy (3)** Major philosophers, methods, and issues in Western and non-Western philosophy. Discussion of such problems as our knowledge of reality, the freedom of the will, the relations between the mind and body, morality, the meaning of life and the existence of God. (Attributes: FGC)

**PHIL 101 Intro to Asian Philosophy (3)** Philosophical teachings of Hinduism, Buddhism, Jainism, Confucianism, Taoism, Neo-Confucianism, and Shintoism. (Attributes: DH, GAHP, HPP)

**PHIL 209 Reasoning (3)** Informal logic: Study of practical reasoning, argument, and the use and misuse of language. Emphasis on development of critical thinking skills. (Attributes: DH)

**PHIL 211 History of Ancient Philosophy (3)** Philosophy of the Pre-Socratics, Plato, Aristotle and Roman thinkers. (Attributes: DL)

**PHIL 213 History of Modern Philosophy (3)** From the Renaissance to the 19th century. Recommended: PHIL 211. (Attributes: DH)

**PHIL 220 Social Ethics (3)** Contemporary ethical issues, such as abortion, euthanasia, the death penalty, sexual equality, sexual integrity, discrimination and reverse discrimination, violence, pornography, ethnic injustice, and environmental and population control. (Attributes: DH)

**PHIL 230 Belief, Knowledge & Truth (3)** The sources and limits of human knowledge. Classical and contemporary epistemological theories, and their application to the everyday search for knowledge.

**PHIL 270 Love and Sex (3)** Survey of classical and contemporary perspectives of the philosophy of love, marriage, relationships, sex, sexual identity, representations of sex and sexuality. (Previously offered: PHIL 180; Same as WS 270). (Attributes: DH, GCC)

**PHIL 300 History of Indian Philosophy (3)** The historic Indian schools of thought, Brahmanism, Jain, Carvaka, Buddhist, Samkyha, Yoga, Nayaya, Vaisheshika, Mimamsa, and Vedanta. The main philosophers and thinkers of India including Gandhi, Radhakrishnan, and Tagore. Recommended: previous work in philosophy or religious studies. (Attributes: DH)

**PHIL 301 Hist Of Chinese Philosophy (3)** History of the Confucian, Taoist, and Buddhist philosophies and their interaction in China. The pivotal thinkers including Mao. Recommended: previous work in philosophy or religious studies. (Attributes: DH, GAHP, HPP)

**PHIL 302 Hist Of Buddhist Philosophy (3)** History of Buddhist philosophy and its cultural influence and intellectual development in Asia and Hawai'i. Recommended: previous work in philosophy or religious studies. (Attributes: DH, GAHP, HPP)

**PHIL 304 Ethics and Cultural Diversity (3)** Philosophical examination of the meaning of cultural diversity and pluralism for questions concerning community and knowledge from a variety of American and non-western cultures as well as their interactions with categories of identity, based upon nation, race, class, gender and sexuality. Addresses the interactions of the social experience of individuals based upon

categories of identity and the emergence of forms of community and knowledge. A global or transnational section will be one component of the course. (Same as WS 304). (Attributes: DH, GCC)

**PHIL 307 Theory of Knowledge (3)** The sources and limits of human knowledge. Classical and contemporary epistemological theories, and their application to the everyday search for knowledge. (Same as WS 307)

**PHIL 310 Metaphysics (3)** Puzzling problems in Western thought, such as the nature of personal identity, the freedom of the will, time, and the relation between mind and body. Pre: previous work in philosophy. (Attributes: DH)

**PHIL 313 19th Century Philosophy (3)** The history of 19th century philosophy, with an emphasis on the philosophers of continental Europe, including Hegel, Schopenhauer, Kierkegaard, and Nietzsche. (Attributes: DH)

**PHIL 315 Ethical Theory (3)** Classical and contemporary theories of right and good. Pre: previous work in philosophy. (Attributes: DH)

**PHIL 320 Social & Political Phil (3)** Good and right applied to economic, political, and religious establishments; obligation, freedom of dissent, capital punishment, violence, rights, revolution, and war. Pre: previous work in philosophy. Recommended: PHIL 220. (Attributes: DH)

**PHIL 323 Professional Ethics (3)** Professional conduct is being questioned as never before-- lawyers, physicians, engineers, accountants, etc., are criticized for disregarding the rights of clients and the public interest. The course addresses the ethical problems of "the professions" in general and will focus on professions in business, law, and health care. Pre: previous course work in philosophy. (Attributes: DH)

**PHIL 325 Philosophy Of Law (3)** Problems and controversies in the nature of law and its bearing on human conduct. Topics: legal and moral obligation, obedience and respect, enforcement of morality, punishment and responsibility, justification of practices such as plea bargaining, bail, prosecutorial discretion, etc. Pre: previous work in philosophy. (Attributes: DH)

**PHIL 327 Bioethics (3)** An examination of controversial topics related to life and health, such as euthanasia, treatment of animals, genetic engineering, individual autonomy, and the health care system. Pre: Previous course work in philosophy. (Attributes: DH)

**PHIL 328 Rights (3)** This course is an examination of the socio-legal evolution of rights in the United States. Topics include theoretical approaches to rights and rights discourse as well as contextual applications of equality and power involving the Fourteenth Amendment and social movements in the areas of race and ethnicity, sex, gender, religion, education, property, and mobility. (Same as POLS 328) (Attributes: DS)

**PHIL 329 Environmental Ethics (3)** Central ethical questions concerning the natural world, including environmental justice, responding to climate change and environmental devastation, and the relationship between human beings and the environment. (Attributes: DH)

**PHIL 330 Philosophy of Art (3)** The aesthetic object, form in art, representation, meaning in art, and claims of knowledge in art. Pre: previous work in philosophy and in art or music. (Attributes: DH)

**PHIL 340 Philosophy Of Religion (3)** Philosophical problems in religious beliefs and religious knowledge. The existence of God,



immorality, the problem of evil. Pre: previous work in philosophy or religious studies. (Attributes: DH)

**PHIL 343 Comparative Philosophy (3)** A study of the mutual influences of Western and Eastern philosophical traditions and the potential each has to respond to the programs of the other. Pre: previous work in philosophy or instructor's consent.

**PHIL 345 Symbolic Logic (3)** Techniques of symbolic logic, including propositional logic, predicate logic and the logic of relations. (Attributes: GQ)

**PHIL 355 Philosophy of Sport (3)** A philosophical treatment of the role of sports in society and a meaningful life. Topics include the phenomenology of sport, the ethics of doping and artificial enhancement, leadership ethics, sports in the context of Hawai'i, and sport fandom. Pre: Previous work in philosophy or two courses in Kinesiology or instructor approval. (Same as KES 355). (Attributes: DH)

**PHIL 360 Existentialism (3)** The themes which recur in the works of existential philosophers from the 19th century to the present. Pre: junior standing or instructor's consent. (Attributes: DH)

**PHIL 370 Indigenous&American Philosophy (3) (lecture/other)** Survey of significant areas of the American tradition, e.g. 19th, 20th, 21st century thought, African, Native American, Latin American thought, feminism, recent pragmatism, pluralism, and philosophy of education. (Attributes: ALEX, DH, GCC)

**PHIL 375 Feminist Philosophy (3)** Exploration of the feminist contributions to traditional philosophical questions in metaphysics, epistemology, and ethics as well as examining the philosophical implications of the intersections of race, class, gender and sexuality. (Same as WS 375) (Attributes: ALEX, DH, GCC)

**PHIL 381 Philosophy Of Wittgenstein (3)** Topics in the philosophy of Ludwig Wittgenstein, such as: meaning, understanding, pain, private language, "family resemblance," language-games, knowledge and certainty, other minds, forms of life and the purpose of philosophy. Pre: previous work in philosophy.

**PHIL 385 Philosophy of Marxism (3)** History and philosophy of Marxism from the early Marx through recent times, including such topics as: dialectical materialism, alienation, exploitation, surplus value, class struggle, revolution, socialism, communism, and the Marxian critique of capitalism, imperialism, fascism, terrorism, and capitalist cultural hegemony. Pre: Previous work in philosophy or instructor's consent.

**PHIL 390 History & Phil of Science (3)** Natural science as a knowledge-seeking activity. Major episodes in the history of the physical and biological sciences; philosophical understanding of scientific observation, theory, and revolutionary change. Pre: previous work in philosophy or consent of instructor.

**PHIL 392 Biology & Philosophy (3)** Philosophical examination of the implications of modern biology for how we understand ourselves and our relations to the natural world. Evolutionary, genetic, developmental, and ecological topics will be discussed. Pre: previous work in philosophy and biology, or consent of instructor. (Same as BIOL 392)

**PHIL 393 Normality, Abnormality & Soc (3)** Philosophical study of how human diversity interacts with social norms. Topics include health and illness, disability, gender, and sexual orientation. Perspectives from biology and the social sciences are included in a study of how beliefs about normality vary between cultures, change through time, and affect

human relations. Pre: Previous work in philosophy or instructor's consent. (Same as WS 393).

**PHIL 410 Philosophy of Language (3) (lecture/other)** Modern and historical theories of meaning, reference and the relationship between language and knowledge. Discussion of ordinary language, ideal languages and current developments in linguistics. Pre: previous work in philosophy or instructor's consent.

**PHIL 412 Philosophy of Nature (3)** Examination of the philosophical theories of nature from classical to contemporary texts, and their interaction with questions of metaphysics, identity, the environment, and human freedom.

**PHIL 416 Science, Technology & Values (3)** Impact of science and technology on various philosophical issues. Through a variety of readings that exemplify the field's content, students will examine the social, political, aesthetic, ethical, economic, and environmental constructs that shape modern institutions in science and technology. (Same as WS 416)

**PHIL 430 Philosophy of Zen (3)** Chief philosophical teachings of Zen, its methods and cultural influences. Comparative study of Zen and Western thought. Pre: previous work in philosophy or religious studies, or consent of instructor. Recommended: PHIL 302. (Same as JPST 430) (Attributes: DH, GAHP, HPP)

**PHIL 435 Daoism (3)** Philosophical ideas of Lao Tzu, Zhuangzi, and the Neo- Daoists, and their influences upon the lives of the Chinese and Japanese peoples. Comparative study of Daoist and Western philosophy. Pre: previous work in philosophy or religious studies, or instructor's consent. Recommended: PHIL 301 (Attributes: DH, GAHP, HPP)

**PHIL 450 Mahayana Buddhist Phil (3)** Important tenets and major schools of Mahayana Buddhist philosophy in India, China, Japan, Tibet, and Hawai'i. Comparative study of Mahayana and Western philosophy. Pre: previous work in philosophy, religious studies, or instructor's consent. Recommended: PHIL 302. (Same as JPST 450) (Attributes: GAHP)

**PHIL 480 Nietzsche (3)** Philosophy of Friedrich Nietzsche. Topics include the death of God, the problem of morality, perspectivism, the overhuman, the will to power, the eternal recurrence, and the relationship between philosophy and art. Pre: PHIL 213 or PHIL 313 or PHIL 360 or consent of instructor.

**PHIL 496 Seminar in Philosophy (3)** For serious students of philosophy. The topics vary and the course may thus be repeated for credit.

**PHIL x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PHIL x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Physics (PHYS) Courses

College of Natural and Health Sciences (CNHS)



**PHYS 110 Physics of Contemporary Issues (3)** Contemporary issues of political interest such as nuclear warfare and waste, the greenhouse effect and alternative energies will be studied at a physics level appropriate for any college student. A course objective is to develop scientific reasoning. Pre: none. (Attributes: ALEX)

**PHYS 111 Intro to Space Exploration (3)** Survey of applied science, social, cultural and engineering topics in space science, focusing on exploration. Past, present and future aspects of space exploration. Relationship to Hawaiian views of cosmology and Hawaiian traditions such as Wayfaring and relationship to the land. (Same as ASTR 111)

**PHYS 115 Phys for Liberal Arts (3)** Designed for non-science majors. Basic physical concepts through student's active participation and practical experience in a manner that is simple and intuitive.

**PHYS 120 Weather & Climate Hawai'i (3)** For non-science majors and prospective science teachers. Basic meteorology, sun-earth-ocean-atmosphere interrelationships, weather types, seasonal changes, trade winds, clouds, rainfall, with examples drawn from the local weather and climate. (Same as GEOG 120). (Attributes: ALEX, DP, GAHP, HPP)

**PHYS 150 World Models (3)** This course examines computer and mathematical models of the world that take into account how its subsystems (environment, resources, politics, finance) affect each other.

**PHYS 151 College Physics I (3)** Provides a general overview of the concepts of motion, force, energy, rotation, momentum, wave motion, fluids, and thermal physics. It is the first semester of a year-long introductory algebra-based physics sequence. Pre: MATH 125 or MATH 140 or MATH 140x or MATH 241 or MATH 242 or placement into MATH 241. See also PHYS 151L which serves as the lab course. (Previously offered as PHYS 106.) (Attributes: DP)

**PHYS 151L College Physics I Lab (1) (lab)** A required laboratory supplement for PHYS 151; covers basic principles of experimentation and physical measurement. Presents illustrative experiments in mechanics, heat and waves. Pre: MATH 125 or MATH 140 or MATH 140X or MATH 241 or MATH 242 or placement into MATH 241. (Attributes: DY)

**PHYS 152 College Physics II (3)** Provides a general overview of the concepts of electricity and magnetism, EM waves, and optics. It is the second semester of a year-long introductory algebra-based physics sequence. Pre: PHYS 151. See also PHYS 152L which serves as the lab course. (Previously offered as PHYS 107.) (Attributes: DP)

**PHYS 152L College Physics II Lab (1) (lab)** A required laboratory supplement for PHYS 152; presents illustrative experiments in electricity, magnetism and optics. Pre: PHYS 151 (may be taken concurrently) and PHYS 151L and MATH 125 or MATH 140 or MATH 140X or MATH 241 or MATH 242 or placement into MATH 241. (Attributes: DY)

**PHYS 170 Gen Phys I: Mechanics (4)** Introductory physics designed for students majoring in physical sciences or engineering. Covers mechanics of particles, extended bodies, rotational dynamics, conservation laws, fluids, and wave motion. Pre: MATH 241 (Attributes: DP)

**PHYS 170L Gen Phys I Lab (1) (lab)** A required laboratory supplement for PHYS 170; covers basic principles of experimentation and physical measurement. Presents illustrative experiments in mechanics, heat and waves. Pre: MATH 241 (Attributes: DY)

**PHYS 211 Electronics (4) (lecture/lab)** Theory and application of circuit design and analysis. AC and DC circuits and filters; circuits based

on diodes and transistors and operational amplifiers; digital circuits and filters. Laboratory will consist of the design, assembly and testing of circuits. Pre: PHYS 272, 272L, and MATH 242.

**PHYS 224 Spaceflight (3)** All aspects of manned and unmanned spaceflight, with emphasis on actual technologies and procedures used in space exploration. For students interested in Astronomy, Physics, Planetary Sciences, Aerospace Engineering or with a general interest in spaceflight. Pre: Any one of the following: PHYS 151 or higher; CHEM 151 or higher; MATH 140X or higher. Students lacking these pre-requisites who believe they have sufficient science background may be admitted with the instructor's permission. (Same as ASTR 224)

**PHYS 230 Applied Electronics I (4) (lecture/lab)** Theory and applications of circuit design and analysis with an emphasis on analog devices. AC and DC series and parallel RLC circuits, diodes, transistors and operational amplifiers. Laboratory will consist of construction and analysis of representative circuits. Pre: PHYS 272 and PHYS 272L. (Same as ASTR 230)

**PHYS 260 Computational Physics & Astron (3)** Computational techniques in physics and astronomy, with an emphasis on fundamental algorithms and development of code in high-level languages. Topics include least squares, interpolation, random number generators and numerical integration of differential equations. Pre: CS 150 or CS 172 and MATH 242 and PHYS 272 (PHYS 272 may be taken concurrently). (Same as PHYS 260)

**PHYS 260L Computational Phys & Astr Lab (1) (lab)** Will offer an introduction to unix command language and programming skills relevant to Astronomy. Emphasis on writing algorithms and code programming in Python, C ++, or Fortran. Some elements of IDL and IRAF are covered. Problems will come from physics and astrophysics that will be solved using numerical methods and mathematical algorithms presents in the PHYS 260 lecture. Topics covered are integration methods, interpolation, error estimation, eigenvalues and eigenvectors, linear and non-linear equations, Fourier methods, random numbers and Monte Carlo methods. Pre: CS 150 or CS 172 and MATH 242 and PHYS 272 (PHYS 272 may be taken concurrently) and PHYS/ASTR 260 (PHYS/ASTR 260 may be taken concurrently). (Same as ASTR 260L)

**PHYS 272 Gen Phys II: Elec & Magnetism (4)** Introductory calculus-based physics designed for students majoring in physical sciences or engineering. Covers electric fields and potentials, magnetic fields, Maxwell's equations and basic optics. One class hour is dedicated to the development of problem-solving skills in small-group sessions. Pre: MATH 242 and C or better in PHYS 170. (Attributes: DP)

**PHYS 272L Gen Phys II Lab (1) (lab)** A required laboratory supplement for PHYS 272; presents illustrative experiments in electricity, magnetism and optics. Pre: PHYS 170 (may be taken concurrently), PHYS 170L, MATH 242. (Previously offered as PHYS 171L) (Attributes: DY)

**PHYS 274 Gen Phys III: Intro Modern Phy (3)** Survey of contemporary physical theory and applications: special relativity; quantum physics; atomic structure and spectra, nuclear structure and reactions; elementary particles and fundamental forces. Pre: MATH 300 which can be taken concurrently and PHYS 170 and 272. (Previously offered as PHYS 270)

**PHYS 330 Electromagnetism (3)** Intermediate-level electrostatics and electrodynamics; electric and magnetic properties of ideal and real materials; Maxwell's equations of electromagnetism; conservation laws; electromagnetic waves and boundary value problems. Pre: MATH 243, MATH 244, PHYS 272 and MATH 300 which may be taken concurrently.



**PHYS 331 Optics (3)** Intermediate optics. Topics include plane waves, multiple interfaces, polarization, light propagation in real materials, Fourier optics, coherence theory, paraxial rays, diffraction and blackbody radiation. Pre: PHYS 272 and MATH 243.

**PHYS 332 Applied Optics (3) (lecture/lab)** This class introduces students to elements and techniques for setting up optical experiments and making measurements in the lab. Topics in optics and optoelectronics will be covered and delivered in a lecture and applied exercises and application. Class will emphasize hands-on experience in data acquisition, sampling theory, signal-to-noise prediction and measurement, optimization through the use of common optical and electronic diagnostic tools. Pre: PHYS 170, 170L, 272, 272L, and PHYS 331

**PHYS 341 Thermodynamics (3)** Thermodynamics at the intermediate level. Includes energy, entropy, engines and refrigerators, free energy, classical and quantum statistical mechanics. Pre: PHYS 274 and MATH 243.

**PHYS 360 Mathematical Physics (3)** Special functions of mathematical physics which arise from Sturm-Liouville equations: Bessel, beta, elliptical, gamma and Legendre functions. Generating functions, complex integral representations. Other topics may include transforms, Fourier analysis and linear algebra. Pre: MATH 244, or MATH 243 and MATH 300 or instructor's consent. (Same as MATH 360)

**PHYS 371 Classical Mechanics (3)** Intermediate-level kinematics and dynamics. Central force motion; rotations, noninertial frames, normal modes of vibrations; introduction to Lagrangian and Hamiltonian formalism. Pre: PHYS 170, PHYS 272 and MATH 300 (MATH 300 may be taken concurrently).

**PHYS 380 Chaos (3)** An introduction to nonlinear dynamical systems for science majors. Topics include dynamics in one and several dimensions, stability, excitable media, fractals, and time series analysis. Applications in physics, chemistry, ecology and other fields are illustrated. Pre: C or better in MATH 242 and C or better in PHYS 272 or MATH 244. (Same as MATH 380).

**PHYS 430 Quantum Mechanics I (3)** Postulates and formalisms of quantum mechanics. The Schrodinger equation in one and several dimensions: scattering, the harmonic oscillator, tunneling and the hydrogen atom. Orbital angular momentum and spin. The statistical interpretation and the uncertainty principles. Quantum statistical mechanics. Fermions and bosons. Pre: PHYS 274 and MATH 300.

**PHYS 431 Quantum Mechanics II (3)** A continuation of PHYS 430. Topics may include perturbation theory, the adiabatic approximation, foundations of quantum theory and/or quantum computation. Pre: PHYS 430.

**PHYS 432 Senior Lab/Thesis Project (3) (lab)** Individual research projects conducted in the college laboratory, library, or observatory; or at an external research facility; under the direct guidance of a member of the physics and astronomy faculty or an affiliated faculty member. Students must propose and complete a research project and present a final report to the department. Pre: Permission of the department is required. May be repeated once for a maximum of 6 credits. (Same as ASTR 432)

**PHYS 495A Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC, in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior

standing or instructor's consent. (Same as ASTR 495A, CHEM 495A, GEOL 495A, and MATH 495A).

**PHYS 495B Seminar (1) (other)** Seminar presentations of topics in the physical sciences by faculty, enrolled students and invited speakers. The first semester (495A) is taken CR/NC, in the second semester (495B), students are required to present a seminar for a letter grade. Pre: senior standing or instructor's consent. (Same as ASTR 495B, CHEM 495B, GEOL 495B, and MATH 495B)

**PHYS 496 Space Studies Seminar (1)** Seminar presentations of topics related to space exploration by invited speakers, faculty, and enrolled students. Students are required to prepare and submit reaction papers/essays.

**PHYS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PHYS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Plant Pathology (PPTH) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)

**PPTH 404 Tropical Plant Pathology (3) (lecture/lab)** Principles of plant pathology, major diseases in the tropics caused by fungi, bacteria, nematodes, and viruses; their nature, diagnosis and control. Pre: BIOL 171 or Instructor's Consent. (Previously offered as PPTH 301). This course is dual listed with CBES 604.

**PPTH 405 Plant Disease Diagnosis (3) (lecture/lab)** Practical skills in field and laboratory to determine the cause of a plant disease. Recognition of characteristic symptoms of diseased plants and signs of pathogens; use of confirming tests. Pre: PPTH 301.

**PPTH 412 Plant Disease Control (3) (lecture/lab)** Methods and principles of plant disease control, including chemical and nonchemical means, based on epidemiology and the disease cycle. Formulation and application of control recommendations. Pre: PPTH 301.

**PPTH x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PPTH x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Plant Physiology (PPHY) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNRM)



**PPHY 310 Plant Growth/Develop (3) (lecture/lab)** The chemistry and physiology of growth regulators and their involvement in plant growth and development. Experiments and demonstrations illustrating both basic and applied aspects of chemical growth regulation. Pre: HORT 262 or BIOL 171 and one year of college chemistry.

**PPHY 415 Plant Nutrition (3)** Mineral nutrition of plants, symptoms of mineral deficiency, corrective measures, water relations and nitrogen cycle. Special attention will be given to the role of nutrients in essential physiological and behavioral process. Pre: HORT 262 or BIOL 171 and one year of college chemistry.

**PPHY x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PPHY x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Political Science (POLS) Courses

College of Arts and Sciences (CAS)

**POLS 100 Intro to Political Science (3)** Provides students with an introductory broad approach to the discipline of political science. This course relates current events at the global, national, local, and state levels to a wide array of political science scholarship. This course also includes a career opportunities component, which will feature speakers from the community who can speak to the questions of "What can you do with a major in Political Science?" (Attributes: DS)

**POLS 101 Am Politics: National (3)** Organization and functioning of the American political system at the national level. (Attributes: DS)

**POLS 101G Am Politics: Ntl Citizenship (3)** Organization and functioning of the American political system at the national level. Includes applied learning component. (Attributes: ALEX)

**POLS 201 Intro to Political Theory (3)** Approaches to the study of political theory. Analysis of major themes in ancient, modern, and postmodern political theories, including: human nature; the individual and the community; liberty; power; political identity. (Attributes: DS)

**POLS 220 Intro to Law and Legality (3)** Within the subfield of public law in the discipline of political science, the study of law and legality includes an integrated inquiry into the formal institutions of justice (e.g. courts, Constitution) as well as the associated cultural, social, and political contexts of governance (e.g. power, authority, and resistance) in everyday environments. (Attributes: DS, GCC)

**POLS 242 Intro To World Politics (3)** The theory and substance of international politics, with emphasis on the international behavior of nations. Topics include war, regional integration, the United Nations, and the gap between rich and poor nations. (Attributes: DS)

**POLS 251 Intro to Comparative Politics (3)** Comparative study of politics, government and economic development in several different countries including Britain, Japan, Russia, China, Mexico, India and Egypt. (Attributes: FGB)

**POLS 300 Hist Poli Thought: Anc To Mod (3)** Political thought from ancient political philosophy to the advent of modern liberal democracy. Major thinkers include Plato, Aristotle, Machiavelli, Hobbes and Locke.

**POLS 303 Feminist Political Theory (3)** An examination of the progression of feminist political thought. Topics covered include the roles of women in the history of western political thought, early feminist writings, and contemporary feminist theories related to liberalism, radicalism, and postmodernity. (Same as WS 303)

**POLS 304 Liberalism and Globalism (3)** Classical liberalism, neoliberalism, and their critical appraisals, with emphasis on the global dimensions of liberty, equality, and democracy in economic and political life. (Attributes: ALEX, DS, GCC)

**POLS 320 Mock Trial (3)** Experiential learning in a courtroom trial setting. Preparation includes knowledge of functions and roles of court personnel, elements of proof, techniques of direct and cross-examination. Includes role-playing in six mock trial cases.

**POLS 321 Constitutional Law (3)** Civil rights and civil liberties. The relationship between the individual and the government in such matters as freedom of expression, freedom of the press, religious freedom, the rights of the accused, freedom from discrimination, and the right of political participation. Pre: POLS 220 or instructor's consent. (Attributes: DS)

**POLS 322 Criminal Justice (3)** An examination of the criminal justice system, its structure and its function, with emphasis on the rights of the accused as exemplified in appellate court decisions. Pre: AJ 101 or POLS 220 or instructor's consent. (Same as AJ 322)

**POLS 323 Criminal Law and Procedure (3)** This course addresses the basics of criminal law and procedure. Topics will include the fundamental principles of criminal law and procedure, how they were established, and how they are commonly practiced. Pre: AJ 101 or POLS 220 (Same as AJ 323)

**POLS 324 Criminology (3)** Examines patterns of crime, types of offenders, theories of crime, police, courts, prisons, probation, and parole in relation to criminal behavior. Pre: SOC 100 or instructor's consent. (Same as SOC 324)

**POLS 325 Legal Geography (3)** In this course, we will explore and examine a variety of places that upon first consideration, do not seem either legal or political. We will investigate a variety of types of places and spaces that carry legal and political weight in our everyday lives. Themes of consumption, expression, access, accommodation, culture, sex, race, living, national identity, community, discipline, and property will guide our inquiry into the relationship between law, politics, and spatial habitation. (Same as GEOG 325). (Attributes: ALEX, DS, GCC)

**POLS 326 Juvenile Delinquency (3)** Examination of the causes and control of juvenile delinquency. The major theories of juvenile delinquency will be reviewed. The course will also explore the organization and process of juvenile justice. Pre: SOC 100 or instructor's consent. (Same as SOC 326)

**POLS 327 Law and Identity (3)** In this course, will politically engage with the legal construction of who we are as individuals and our presence within different communities. The relationship between law and identity involves politically contested frameworks of sexuality, gender, race and ethnicity, ability, and ownership according to both judicial doctrine and contemporary scholarship. As these frameworks shift and evolve, the politics of legal identification sculpt our own social horizons. Pre: Junior or



senior standing (Same as WS 327). (Attributes: DS)

**POLS 328 Rights (3)** This course is an examination of the socio-legal evolution of rights in the United States. Topics include theoretical approaches to rights and rights discourse as well as contextual applications of equality and power involving the Fourteenth Amendment and social movements in the areas of race and ethnicity, sex, gender, religion, education, property, and mobility. Pre: POLS 220. (Same as PHIL 328) (Attributes: DS)

**POLS 331 Presidency And Congress (3)** An examination of the institutions of the Presidency and the Congress and an analysis of the history, major office holders, processes, and functions of these American institutions.

**POLS 332 Politics Of Race & Gender (3)** A survey of the historic, legal, political, and social forces shaping society's construction of race, ethnicity, and gender. Notions of power and the political significance of race and gender are explored. (Same as WS 332).

**POLS 334 Pol Bvr, Campaigns & Elections (3)** An examination of the influence of individuals, interest groups, mass movements and elections on the democratic process. Topics covered include electoral rules, candidate strategies, campaign finance, voting, and political mobilization. (Attributes: ALEX)

**POLS 335 Envir Politics & Policy (3)** An examination of the major environmental and natural resource problems facing society today. Topics covered will include air and water pollution, energy development, and land use. (Formerly POLS 435)

**POLS 337 Politic of Hawai'i: State/Local (3)** An examination of the institutions and political forces shaping Hawai'i's contemporary state and local governance, focusing on executive, legislative and judicial institutions and their relations, political culture, leadership patterns and recruitment, voter participation in politics, electoral analysis, political economy, local political parties and interest groups. (Attributes: GAHP)

**POLS 338 Public Policy Process (3)** An examination of the American public policy-making process, with emphasis on the stages of the policy process, including agenda setting, policy formulation and adoption, policy implementation, and policy evaluation. Public policy issues covered include economic policy, social security and welfare, defense and law enforcement, and environment.

**POLS 340 U.S. Foreign Policy (3)** The policy-making process with special attention to the role of the President, the Congress, the military, organized lobbies, and the public. Pre: POLS 101 or consent of instructor. (Formerly POLS 440)

**POLS 342 International Law (3)** Development, functions, and sources of public international law. Survey of major areas: law of the sea; laws of air and space; laws of warfare; pacific settlement of disputes; and rule-making in international organizations. Pre: POLS 242 or instructor's consent. (Attributes: DS)

**POLS 343 Int'l Conflict Management (3)** An examination of a variety of international conflict management strategies that employ diplomacy or coercion, such as negotiation, mediation, economic sanctions, peacekeeping, and humanitarian intervention. (Attributes: DS)

**POLS 345 Model United Nations (3)** An examination of the organization of the United Nations, its rules of procedure and major UN issues. The course prepares selected students to represent the University at the National MUN (New York) or Western MUN (San

Francisco). May be repeated three times for credit, but only six credits may be applied to the major.

**POLS 346 International Organizations (3)** Survey of the theories of international political integration, the United Nations and its specialized agencies, the European Union, NATO, the Organization of American States, OPEC, and other supranational and regional economic, security, and political international organizations. (Attributes: DS)

**POLS 348 International Human Rights (3)** An examination of the theory and practice of international human rights including debate on universalism, empirical cases of human rights violations, the roles of states, international organizations, and non-governmental organizations, and effectiveness of enforcement of human rights. (Attributes: DS, GCC)

**POLS 351 Politics Of China Through Film (3)** This course will study contemporary Chinese politics and government. Major topics include the Chinese Communist Revolution, Mao Zedong's socialism, Deng Xiaoping's economic reforms and opening policy, recent development and changes, the Party-state political system, the Hong Kong and Taiwan issues, and the peaceful rise foreign policy. Pre: POLS 251 or instructor's consent. (Attributes: DS, GAHP, HPP)

**POLS 353 Politics Of Japan (3)** Aspects of Japanese politics, emphasizing the post-1945 period. Topics include political development and change, the political economy of Japan, major political institutions and organizations, policy-making processes, and controversial political issues. (Same as JPST 353) (Attributes: DS, GAHP, HPP)

**POLS 355 Internatl Political Economy (3)** Topics include world powers and the world economic systems, the third world economic development, political and economic reforms, and Asian development models.

**POLS 357 Politics of Pac Rim Thru Film (3)** This course will study politics of the Pacific Rim region, focusing on (1) the political economy of the Asia-Pacific nations, (2) models of development of the U.S., Japan, South Korea, China, Russia, India, and major Southeast nations, and (3) the challenging issues of the region in the twenty-first century. (Attributes: HPP)

**POLS 360 Public Administration (3)** Public administration as a major component in the American political process and of public policy making and the crucial role administrators play in that process. (Attributes: DS)

**POLS 361 Public Leadership & Ethics (3)** An examination of leadership and ethics in public administration, with emphasis on the role of public organizations in a democratic society. Topics covered include politics and administrative power, ethical expectations and professional standards, ethical dimensions of administrative leadership, and theory and practice of public sector leadership.

**POLS 380 Methods Of Research (3)** The logic and approaches used by social scientists; concept formation, design of research projects, choice of techniques and interpretation of results. Pre: POLS 100 or POLS 101 or consent of instructor. (Previously POLS 280) (Attributes: DS, GQ)

**POLS 391 Internship (3-12) (other)** Application of knowledge and skills in a public, private, or government agency/setting. A total of 15 credits of POLS 391 and POLS 481 may be applied to the POLS major. Pre: instructor's consent, preapproved placement, statement of learning objectives, and completed internship contract. (Attributes: ALEX, DS, GCC)

**POLS 402 Contemporary Political Thought (3)** Political thought from



early twentieth century existentialism to postmodernism, feminism and neo-conservatism.

**POLS 433 Politics, Media & Public Opin (3)** An examination of the role of mass media in shaping public opinion and influencing governance. Topics include the use of media by candidates, government officials and organized interests; media effects on individuals; determinants of public opinion; public opinion polling; and methods of public persuasion. Pre: POLS 101 or instructor's consent.

**POLS 442 War and the State (3)** This course will study the major wars between states in the world in the past hundred years, focusing how these wars started and ended and how they shaped the development of nations and the world. We will focus on World War I, World War II, the Korean War, the Vietnam War, the India- Pakistan conflicts, the Israeli-Arab wars, the Iraq War, the Afghan War, and the recent conflicts in the Middle East.

**POLS 444 Law, Property, and Nature (3)** Examines the relationship between nature, property, space, and legal regulation. Topics will include jurisdiction, the Takings Clause of the Fifth Amendment, land use management and policy (including zoning and conservation), property ownership, environmental justice, and the evolving relationship between culture, law, and the environment. Pre: junior or senior standing. This course is dual listed with CBES 644. (Attributes: DS, GCC)

**POLS 457 U.S.-China Relations (3)** This course surveys the history of U.S.-China relations to the present and gives in-depth consideration to contemporary issues including China's human rights record, the issue of Taiwan, U.S.-China trade relations, and China's global role in the twenty-first century. (Attributes: HPP)

**POLS 470S Seminar in Political Science (3) (other)** This is a capstone course that provides an intensive examination of the major concepts, categories and methods of political science. Topics include political ideologies, attitudes, voting behavior, institutions of government, public policy, law, justice and world politics. Pre: POLS 100 or POLS 101, and POLS 380 and junior or senior standing.

**POLS 481 Government Internship (3-15) (other)** Juniors and seniors may apply for an internship with the Hawai'i County Council or, in the Spring, with the Hawai'i State Legislature. Legislative interns receive 15 semester hours of credit and a stipend. May be repeated once for credit, but no more than 15 credits of POLS 481 and/or POLS/SOC 391 shall apply to the major. Pre: instructor's consent. (Attributes: ALEX, DS, GCC)

**POLS 490 Senior Thesis (3)** Individual research in problems of special interest. Pre: consent of instructor.

**POLS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**POLS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Psychology (PSY) Courses

College of Arts and Sciences (CAS)

**PSY 100 Survey Of Psy (3)** Principles of human behavior, individual differences, motivation, emotion, perception, learning. This introductory course provides a general survey of the entire field of psychology and serves as the prerequisite for all upper-division psychology courses. (Attributes: DS)

**PSY 213 Statistical Techniques (4)** Frequency distributions; graphic methods; central tendency and variability; correlation and regression; inferential statistics; non-parametric statistics. Pre: PSY 100 with a grade of C- or better, and a grade of C- or better in MATH 115 or higher. (Attributes: GQ)

**PSY 214 Research Methodology (4)** Methods of scientific observation, nature of experiments, the use of quasi-experimental designs, control group experimental designs, and single-subject experimental designs. Potentials and problems in research and clinical uses of these designs. Ethical considerations involved in conducting research. Pre: PSY 100, 213.

**PSY 312 Evaluation Research (3)** The application of research methods in the planning, monitoring and evaluation of social programs. Needs assessment, program monitoring impact assessment and efficiency analysis will be surveyed. Pre: PSY 100, 213, 214.

**PSY 313 Testing & Measurements (3)** Principles, concepts, and procedures of psychological testing, including construction, validation, interpretation, and use of tests in intellectual and personality assessment. Pre: PSY 100, 213.

**PSY 314 Learning & Motivation (3)** Major conditions influencing learning and forgetting; role of practice, reward, motivation, drive and emotion; theoretical interpretations of learning and motivation. Pre: PSY 100, 213, 214.

**PSY 315 Sensation And Perception (3)** Psychophysics, vision, audition, taste, smell, theories of perception. Pre: PSY 100, 213, 214.

**PSY 319 Experimental Psychology (3)** Original experiments with emphasis upon laboratory techniques. Control of variables, apparatus design, statistics in research. Pre: PSY 100, 213, 214.

**PSY 320 Developmental Psy (3)** General trends and variability in lifespan human development. Systematic change and continuity in mind and behavior from conception to death. Interaction among psychological, social and biological aspects of development. Normative and problematic development; risk and protective factors. Pre: PSY 100.

**PSY 321 Psy Of Personality (3)** Scientific study of personality through examination of major theoretical approaches: personality functioning, development, and change; assessment and research strategies; empirical data on central concepts and social-cultural determinants. Pre: PSY 100.

**PSY 322 Social Psychology (3)** Interpersonal relations, social attitudes; group dynamics; intergroup relations, class and cultural influences. Pre: PSY 100.

**PSY 323 Community Psychology (3)** Community factors such as urbanization, social service programs, and schools as they affect the psychological well-being of individuals. Social system intervention techniques to better the fit between individuals and environments. Pre: PSY 100. (Attributes: ALEX, DS, GAHP, GCC, HPP)

**PSY 324 Abnormal Psychology (3)** Broad survey of abnormal behavior including description, epidemiology, etiology and treatment of various psychological disorders. Pre: PSY 100.



**PSY 325 Psychology Of Women (3)** Issues and topics relevant to the psychological development and functioning of women including sex differences in abilities and behavior, achievement motivation, work, sexuality, pregnancy, childbirth and motherhood, mental health and domestic violence. Pre: PSY 100. (Same as WS 325)

**PSY 326 Abnormal Child Psychology (3)** Broad survey of emotional and behavioral health problems in youth. Uses a developmental psychopathology perspective to understand how psychological disorders (e.g., ADHD, Autism, Conduct Problems) develop in children and teens. Includes discussion of professional issues in clinical child psychology. Pre: PSY 100.

**PSY 333 Psycholinguistics (3)** Theory and method in the investigation of the relationship between language and cognition, first and second language acquisition, speech pathologies. Pre: LING 102 or PSY 100 or consent of instructor. (Same as LING 333)

**PSY 335 Animal Psychology (3)** Biological, ecological, social and learned bases of animal behavior based on laboratory and field investigations. Pre: PSY 100 or consent of instructor.

**PSY 350 Cognitive Psychology (3)** Theories, assumptions, empirical findings, and applications of cognitive psychology. Topics include memory, inference, prediction, and mental imagery. Pre: PSY 214.

**PSY 352 Introduction to Biopsychology (3)** Survey of the study of behavior from the viewpoint of the natural sciences. Genetics, neural mechanisms, pharmacology, and biological development of behavior will be discussed. Pre: PSY 100, 214.

**PSY 353 Clinical Psychopharmacology (3)** This course will offer a discussion of psychopathology from a biological perspective including the neurochemical, neuroanatomical, and genetic causes of psychological disease. Emphasis will be placed on the pharmacotherapeutic treatment of psychopathology. Pre: PSY 352 or instructor's consent.

**PSY 355 Science of Sex (3)** This course will examine the scientific study of sexual behavior in both human and non-human animals from the perspectives of behavioral genetics, psychoneuroendocrinology, ethology, psychology, and neuroscience. Pre: PSY 214 or instructor's consent.

**PSY 360 Cross-Cultural Psy (3)** Application of psychological methodology and theories to the study of behavior in selected cultures, with a focus on Polynesia. Topics to include child-rearing and socialization, cognition, personality, and social behavior patterns. Pre: PSY 100 and upper division standing. (Attributes: GAHP)

**PSY 369 Evolutionary Psychology (3)** The course is a synthesis of modern psychology and evolutionary biology. It introduces students to the basic mechanisms of behavioral evolution. The course emphasizes adaptive problems and how humans of different sexes, cultures, ages and developmental stages solve them. Pre: PSY 100.

**PSY 370 Sport Psychology (3)** Survey of methods and findings in the application of psychological principles in sport. Topics include arousal and anxiety, cognitive processes, team performance, coaching behavior and techniques to maximize sports performance. Pre: PSY 100. (Same as KES 370).

**PSY 377 Counseling Psychology (3)** This course covers the various theoretical approaches to counseling, the therapeutic relationship, techniques of counseling, ethical issues, research, diagnosis and

assessment, cross-cultural counseling, as well as career, family and couples, and group interventions. Pre: PSY 100.

**PSY 380 Health Psychology (3)** Psychosocial factors in physical health, illness, and the health care system. Topics include stress and coping, personality and social factors affecting health, adaptation to chronic illness, death and dying, patient-practitioner relationships, the institutional context, and health promotion. Pre: PSY 100.

**PSY 385 Women & Health (3)** Reproductive health, immune activity, autoimmune disease and mental health in women are covered from physiological, psychological, historical and cross-cultural perspectives. Pre: PSY 100. (Same as WS 385)

**PSY 390 Industrial & Organizational Psy (3)** The application of the methods, facts, and principles of psychology to people at work in diverse group and organizational settings.

**PSY 416 Emotion (3)** A comprehensive introduction to the topic of emotion as it has been treated in the field of Psychology. Different theories and approaches to the scientific study of emotion, including basic neuroscientific principles, and recent human brain imaging techniques are discussed. Pre: PSY 350 or PSY 352 or consent of instructor.

**PSY 420 Adolescent Develop & Mental Hlt (3)** Normative and problematic development during adolescence. Cross-cultural differences and similarities in adolescent development. Theoretical approaches to adolescent mental health. Causes and effects of maladjustment. Approaches to prevention and intervention. Pre: PSY 214, PSY 320.

**PSY 422 Psychology of Sustainability (3)** This course takes a service-learning approach to the study of theory and research in the areas of psychology that affect sustainable living. Research in the areas of attitudes, persuasion, behavior change, risk perception, social dilemmas, and social norms will be included. Classes will be seminars with the addition of students working in small groups to investigate and develop recommendations for a community client on a problem related to the promotion of sustainable living. Pre: PSY 214 or instructor's consent. (Attributes: ALEX, GCC)

**PSY 425 Career Development (3)** Work-related behavior over the span of life. Theory, research, and counseling about career development. Work values, career goals, career decision-making, and occupational choice. Work adjustment and satisfaction. Work within the context of human lives. Interaction between career development processes and other domains of life, such as family, education, leisure. Course is conducted as a seminar with an emphasis on discussion. Pre: PSY 214, PSY 320.

**PSY 430 Physiological Psychology (3)** Relationship between physiology and behavior. Topics include neuroanatomy, the hormone systems associated with feeding, drinking, reproduction, aggression, and stress, and the neurological and hormonal basis of mental disorders. Pre: PSY 100, 213, 214, or instructor's consent.

**PSY 430L Physiol Psy Lab (1)** Laboratory to accompany PSY 430.

**PSY 431 Brain Disease (3)** Neurobiological mechanisms of central nervous system diseases and disorders. Pre: PSY 100, 213, 214 and either PSY 350 or 352.

**PSY 432 Psy Of Motivation (3)** Theories of arousal and activation, incentive and reinforcement, and behavior suppression. Pre: PSY 100 and instructor's consent.



**PSY 436 Animal Cognition (3) (lecture/other)** A survey of the historical and contemporary scientific literature on animal cognition using a wide variety of species. The course covers a broad array of topics that may include concept formation, memory processes, numerical competence, social learning and imitation, self-awareness, theory of mind, referential communication and grammatical skills. Pre: PSY 213, 214, and PSY 314 or 350, or instructor's consent. (Same as BIOL 436)

**PSY 437 Marine Mammal Behavior (3)** An introduction to marine mammals with emphasis on the behavior of marine mammals. Special attention given to those species found in Hawaiian waters. Individual species are examined within a comparative framework. Topics include: behavioral ecology, social behavior, cetacean societies, mating systems, communication, sensory perception, and cognition. Pre: PSY 213, PSY 214 and PSY 314 or PSY 315 or PSY 350 or PSY 352 or instructor's consent. (Same as BIOL 437)

**PSY 438 Child Cognition (3)** How children think. A survey of how human perceptual and cognitive skills and intellectual abilities develop from infancy through early adolescence, and how cognitive development corresponds to brain development. Topics include theories of cognitive development, perception and attention, mental representation, concept development, categorization, social awareness, theory of mind, memory systems, language development, numerical competence, and approaches to the study of intelligence. Pre: PSY 100, 213, 214, and PSY 320 or instructor's consent.

**PSY 440 History Of Psychology (3)** Historical origins and development of contemporary psychology. Pre: 12 semester hours in psychology.

**PSY 445 Practicum in Psychology (3)** Supervised experience in human service, mental health and other community agencies in the local community. Pre: 12 semester hours in Psychology and instructor's consent. (Attributes: ALEX, DS, GCC)

**PSY 450 Child Behavior Therapy (3)** This is an advanced seminar on the practical application of behavioral theory to treatment of child and adolescent psychological disorders. Special emphasis will be given to the integration of science and practice with topics including behavioral assessment, basic principles and procedures of behavior modification, and evidence-based treatment for children and adolescents. Pre: PSY 100, PSY 213, PSY 214 and PSY 320 or PSY 324.

**PSY 451 Adult Behavior Therapy (3)** Theory, research, and practice in cognitive behavior therapy applied to adult disorders and problems. Treatment applications of relaxation, exposure and prevention, desensitization, aversion therapy, biofeedback, self-control, imagery and cognitive strategies. Pre: PSY 324

**PSY 452 Drugs of Abuse (3)** Effects and consequences of drugs of abuse from both psychological and biological perspectives. Implications for substance abuse treatment will be discussed. Pre: PSY 350 or PSY 352 or instructor's consent.

**PSY 453 Clinical Psychopharmacology (3)** This course will offer a discussion of psychopathology from a biological perspective including the neurochemical, neuroanatomical, and genetic causes of psychological disease. Emphasis will be placed on the pharmacotherapeutic treatment of psychopathology. Pre: PSY 350 or PSY 352 or instructor's consent.

**PSY 454 Methamphetamine: Clinc/Forens (3)** Effects and consequences of methamphetamine from both psychological and biological perspectives. Methamphetamine, politics and the law.

Implications for substance abuse treatment will be discussed. Pre: PSY 352 or instructor's consent.

**PSY 460 Psychology of Culture & Health (3)** This course examines research and theory on how culture influences the occurrence, symptoms, diagnosis, and treatment of disease in an individual. In seminar-format, we will explore behaviors and attitudes that affect health and prevention of disease in the individual and how they are affected by culture, such as cultural definitions of health, culture and the conception of the body, as well as cultural influences on attitudes and beliefs related to health and disease. Pre: PSY 214, PSY 360, or instructor's consent.

**PSY 461 Psychology and Cancer (3)** This course examines the state of behavioral and social science research regarding the impact of psychological, biological, behavioral, and social factors on cancer onset, progression, treatment, and survival. These factors are considered across the entire cancer continuum and at multiple levels of analysis. Pre: PSY 100, 213, 214, 323. (Attributes: GCC, HPP)

**PSY 465 Interpersonal Relationships (3)** This course will examine relationships from a scientific standpoint. A number of different perspectives will be utilized including social, developmental, counseling, and clinical psychology. A variety of questions will be addressed such as what are relationships and why are they important to study, what are the different kinds of relationships and how do they affect people differently, attachment style, relationship formation and termination, social support, relationships and health, and relationship therapy. Pre: PSY 100, PSY 213, PSY 214, and PSY 322.

**PSY 469 Social Behavior of Primates (3)** The course examines primate social systems. Emphasis is on a comparative analysis of primates' socioecology, group life, communication and intelligence. Pre: PSY 352 or PSY 335, or instructor's consent.

**PSY 470 Clinical Psychology (3)** Nature, history, and contemporary state of the profession of clinical psychology. Theories, methods, and findings in assessment, intervention, research, and clinical practice. Multiple roles of the clinical psychologist, ethical and professional issues, standards of care, legal regulations of practice, and the mental health care system. Pre: PSY 324.

**PSY 471 Child Abuse and Neglect (3)** A survey of topics related to physical, sexual and psychological child abuse and neglect, including: the prevalence and incidence of different forms of abuse and neglect, scientific theories and findings about the causes and consequences of abuse and neglect, forensic and clinical assessment of abuse and neglect, mandated reporting and other legal issues, and psychological interventions for abused and neglected children and their families. Pre: PSY 214 and PSY 320, or instructor's consent.

**PSY 472 Positive Psychology (3)** This course provides an overview of the field of positive psychology, which is the study of happiness, life satisfaction, subjective well-being and, more generally, what goes right in human lives from birth to death. We will review research findings that examine the associations and causal connections between (1) genetics, physical health, work, leisure, upbringing, education, money, fame, sex, love, family, friendship, religion, culture, and life decisions and (2) happiness, life satisfaction, subjective wellbeing and flourishing. The course also provides an introduction to applied positive psychology—the development, validation, and implementation of psychotherapeutic techniques designed to enhance subjective well-being. Students will participate in several applied positive psychology interventions that may improve the quality of their lives. Pre: PSY 100, PSY 213, PSY 214, PSY 320 or 321 or 322 or 324, or instructor's consent.



**PSY 475 Asian American Psychology (3)** The course examines the personality and mental health issues of Asian Americans. Special emphasis is given to how minority group status, adaptation processes and bicultural development influence various aspects of psychological functioning. Specific topics include stereotypes and racism acculturation and enculturation, cultural values and behavioral norms, family roles, ethnic identity, communication styles, gender and interracial relationships, academic and career achievement, stressors and social support systems, psychopathology and culturally competent mental health treatment. Pre: PSY 100 and any one of the following: PSY320 or PSY324 or PSY360 or PSY377, or instructor consent. (Attributes: DS, GAHP, HPP)

**PSY 489 Research Seminar (3) (other)** Research in Psychology. Statement of 3 semester hours of planned reading or research required. Attendance at bimonthly seminar required. Seminars include lectures, discussions and research reports of topics in psychology presented by faculty, students, and visiting scholars. Pre: consent of instructor.

**PSY 496 Tchg Asst & Tutoring in PSY (1-3)** Practice in individual tutoring, and in the preparation of the selected topics in Psychology lecture or laboratory courses, under direct instructional supervision. This course may be repeated for a maximum of 6 credits and may not be used to replace any specific course or elective requirements of the Psychology major. Pre: supervising instructor and department chair consent.

**PSY x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PSY x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [PSY graduate-level courses](#).

### Quantitative Business Analysis (QBA) Courses

College of Business and Economics (COBE)

**QBA 200 Intro to Business Analytics (3)** An introduction to quantitative modeling and data-driven decision-making used in Business Analytics. Includes the basic concepts and mathematical tools to understand the role of quantitative analytics in organizations; applications of analysis tools and interpretations of model outputs for effective communication. (Same as DATA 200) (Attributes: GQ)

**QBA 260 Business Statistics (3)** Application of statistics to business. Includes an introduction to probability and sampling; descriptive statistics, inference, regression and one-way analysis of variance. Pre: One MATH course numbered 125 or higher (may be taken concurrently). (Attributes: FQ, GQ)

**QBA 300 Operations Management (3)** This course is intended to provide students with an understanding of the principles of operations management. Topics covered include productivity, project management,

forecasting, managing quality, human resource work studies, capacity planning, location and layout planning, supply-chain, inventory management, optimization, queuing, and simulation. Pre: C or better in QBA 260 or MATH 115.

**QBA 362 Business Analytics (3)** Fundamentals of Business Analytics. This course aims to teach students to analyze, formulate, and solve managerial decision-making problems using quantitative models and techniques. Pre: C or better in QBA 200 or QBA 260. (Same as DATA 362)

**QBA 365 Managing Electronic Commerce (3)** Topics in advanced electronic commerce (EC) management. Issues include: defining EC in its various forms; exploring EC strategies; economics of EC; global EC issues. The class will complete a semester-long hands-on-project requiring students to: assess a business' needs and opportunities; plan a Web site corresponding to the needs assessment; design a fully functional and interactive commercial Web site; plan and implement administrative parameters and functions for customer service, security, site monitoring, site maintenance, business performance, and site effectiveness. Pre: MGT 341, QBA 362, or consent of instructor.

**QBA 367 Applied Business Analytics (3)** This is an advanced course in business analytics with applications. It provides the advanced concepts and tools to understand the role of business analytics in organizations, how to apply business analysis tools, communicate effectively, and use and interpret analytical models in real world settings. This course focuses on applying business analytics tools and techniques such as predictive models, statistical analysis, and operations research on real-world problems and datasets for managerial decision-making. Pre: C+ or better in QBA 260 or QBA 300 or QBA 362 or MATH 115, or MATH 271.

**QBA 465 Social Media Analytics for Bus (3)** Fundamentals of Social Media and Text Analytics. Provides the concepts to understand the role of Social Media/Text Analytics for business decision-making. Pre: C or better in QBA/DATA 200, QBA/DATA 362, CS/DATA 172 or instructor's consent. (Same as DATA 465)

**QBA x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**QBA x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

### Sociology (SOC) Courses

College of Arts and Sciences (CAS)

**SOC 100 Principles Of Sociology (3)** An introduction to the theories, scientific methods and empirical findings of contemporary sociology. (Attributes: DS)

**SOC 200 Career Opportunities in Soc (1)** A forum for the presentation of career opportunities for Sociology majors and minors. The course features speakers, and the development of practical professional skills, including writing a resume. Offered on a CR/NC basis only. Required for Sociology majors and minors. Formerly SOC 490.

**SOC 240 Social Psychology (3)** An introduction to how sociologists



view the relationship between social institutions, social groups and individual actions.

**SOC 243 Drama of Hawai'i & the Pacific (3)** Embedded in a discourse of coloniality and indigenous perspective, this course provides an introduction to a representative range of plays written by, for, and about the people of Hawai'i and other Pacific islands. (Same as DRAM 243) (Attributes: DH, HPP)

**SOC 260 Social Problems (3)** An introduction to the study of social problems in contemporary society, including their nature, sociological causes and possible solutions. Course may focus on a single social problem. (Attributes: ALEX, DS, GCC)

**SOC 280 Statistical Reasoning (3)** An introduction to basic descriptive, correlational, and inferential statistics used in the social sciences and education. Pre: concurrent enrollment with SOC 280L. (Attributes: DS, GQ)

**SOC 280L Lab in Statistical Reasoning (1) (lab)** An introduction to the techniques and usage of statistical applications involving computation and interpretation of statistics. (Attributes: DS, GQ)

**SOC 300 Family in World Perspective (3)** A comparative analysis of family and marriage patterns, mate selection, parent-child interaction, divorce rates, socialization of gender roles, legal sanctions, trends in organization and function. Pre: SOC 100 or instructor's consent. (Same as WS 300).

**SOC 301 Intro Social Work (3)** The sociological analysis of social welfare institutions and their relationship to meeting human needs and solving social problems. Course designed for students intending careers in the helping professions. Pre: SOC 100 or instructor's consent.

**SOC 305 Org Theory & Analysis (3)** Contemporary theories and techniques used in the analysis of organizations. Designed for students intending careers in administration or the human services. Pre: junior standing or consent of instructor.

**SOC 310 Race & Ethnic Relations (3)** Sociological analysis of the patterns of intergroup relations. Topics include the meaning of race, ethnicity, prejudice and discrimination, and the interactive strategies used by various groups. Emphasis on ethnic processes on Hawai'i and the Pacific region. Pre: SOC 100 or instructor's consent. (Same as WS 310).

**SOC 320 Stratification & Inequality (3)** This course examines social stratification theory and research; definition and measurement of socioeconomic status; racial, ethnic and gender inequality. Pre: SOC 100 or instructor's consent. (Same as WS 321)

**SOC 324 Criminology (3)** Examines patterns of crime; types of offenders; theories of crime; police, courts, prisons, probation, and parole in relation to criminal behavior. Pre: SOC 100 or instructor's consent. (Same as POLS 324).

**SOC 325 Sociology Of Disaster (3)** The ways in which human communities and organizations bring about, prepare for, and respond to calamitous environmental changes. Case studies selected from many societies.

**SOC 326 Juvenile Delinquency (3)** Examination of the causes and control of juvenile delinquency. The major theories of juvenile delinquency will be reviewed. The course will also explore the organization and processes of juvenile justice. Pre: SOC 100 or consent of instructor. (Same as POLS 326)

**SOC 328 Gender, Crime, and Justice (3)** This course will examine theoretical perspectives on gender, crime, and the criminal justice system. Students will analyze the intersecting roles played by gender, race, and class in criminal offending, victimization, and institutional responses. Additional topics may include masculinity and crime, women and punishment, female delinquency, gender violence, sex work, and the role of women in the criminal justice system. Pre: Soc 100 or WS 151 (Same as WS 328).

**SOC 331 Queer Studies & Contem Society (3)** A review of current issues using queer and sociological perspectives on sexualities and social change. Pre: SOC 100 or WS 151 or permission of instructor. (Same as WS 331)

**SOC 340 Socialization & Identity (3)** The process by which an individual becomes a functioning member of society. Pre: SOC 100 or instructor's consent. (Same as WS 340).

**SOC 352 Sociology Of Education (3)** Formal education as an aspect of socialization. Emphasis is on the American system from a historical and comparative perspective. Pre: SOC 100 or instructor's consent.

**SOC 355 Sociology Of Religion (3)** A comparative analysis of religion. Topics include religious movements, secularization and social change, conversion and faith dynamics, and meaning and belonging functions. Case studies drawn from different societies and historical periods. Pre: SOC 100 or instructor's consent.

**SOC 360 Health Care Policy (3)** Analyses of local, national and global economic, legal and social factors impacting health care policies. Discussion of relationship between emerging social issues/trends and health care disparities and capacities. Discussion of social justice, cultural competence, and equity in access and delivery of health care services. Opportunities are provided to participate in political processes impacting nursing and health care policy. (Same at NURS 360)

**SOC 365 Sociology of Deviance (3)** This course examines social deviance, focusing on theory and contemporary research in the field. Topics to be covered may include sexual deviance, physical and cognitive deviance, substance use and mental illness. Pre: SOC 100 or consent of instructor.

**SOC 370 Political Economy of Hawai'i (3)** An exploration into the political and economic processes of Hawai'i and how the two interrelate and affect each other. Emphasis on current issues and practices as well as processes. Pre: SOC 100 or consent of instructor. (Attributes: DS, HPP)

**SOC 380 Methods Of Research (3)** A survey of the logic, purposes, techniques, terminology, and issues of social research methodology. Pre: SOC 100, 280 and 280L or instructor's consent.

**SOC 390 Sociological Theory (3)** A critical examination of the theoretical foundations of contemporary sociological theories. Beginning with Marx, Weber, Durkheim, and Simmel, examines contemporary examples of social theory, including post-structuralism, critical theory, hermeneutics, and phenomenology. Pre: SOC 100 or instructor's consent.

**SOC 391 Internship (3-12)** Application of knowledge and skills in a public, private, or government agency/setting. May be taken for at total of 12 credits, only six of which can apply to the Sociology major or three to the minor. Pre: instructors consent, preapproved placement, statement of learning objectives, and completed internship contract. (Attributes: ALEX, GCC, HPP)

**SOC 400 Sem in Social Psych (3)** The relationship between social



pressures/structure and the individual. Emphasis upon current research and theory in the area. Pre: SOC 100 and junior standing or instructor's consent.

**SOC 405 Sem in Social Organizatn (3)** Social organization in all its forms, dynamics, and structures. While appealing to an historical and comparative perspective, primary attention will be directed to contemporary forms of social organization with an emphasis upon current research and theory in the area. Pre: Soc 100 or consent of instructor.

**SOC 407 Gender Inequality inPopCulture (3)** Exploration of gender and sexuality as systems of inequality, as social constructions, as performance, and as dynamic forces within American popular culture. Students develop skills to sociologically research and analyze artifacts of popular culture. Pre: SOC 100 or WS 151 or instructor's consent. (Same as WS 407).

**SOC 409 Seminar in Social Movements (3)** An exploration of the ways in which social movements have shaped politics, policy and social culture in the United States. Students will research and analyze historical and contemporary social movements. Pre: SOC 100 or WS 151 or instructor's consent. (Same as WS 409)

**SOC 420 Sem in Social Institutions (3)** Institutions in contemporary society, with focus upon the process and structures of modern institutions such as the polity, economy, health care, and law. Emphasis upon current research and theory in the area of specific institutions examined. Pre: SOC 100 or consent of instructor.

**SOC 430 Sem in Social Change (3)** Change in human societies from a comparative and historical perspective. Topics covered include modernization, development, tradition, and secularization. Emphasis upon current research and theory in the area. Pre: SOC 100 or instructor's consent. (Attributes: DS)

**SOC 470 Indigenous Health & Well-Being (3)** This course is concerned with indigenous health and well-being, emphasizing indigenous perspectives and ways of knowing across indigenous societies including Hawai'i and Oceania, Latin America, Turtle Island, and Sub-Saharan Africa. Pre: SOC 100 or SOC 250.

**SOC 480 Practicum in Social Research (3) (other)** Direct involvement in all facets of the research process. Students have the option of working on their own projects or on projects initiated by the faculty. May be counted only once toward the required 35 semester hours of the major, but may be repeated once for upper division credit. Pre: SOC 280 and 380 or instructor's consent. (Attributes: DS)

**SOC x94 Special Topics in Subject Matter (Arr.) (IO)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**SOC x99 Directed Studies (Arr.) (IO)** Statement of planned reading or research required. Pre: instructor's consent.

**SOIL 304 Tropical Soils (3) (other)** Origin, development, properties, classification, use and management of soils with emphasis on applications in the tropics. Pre: CHEM 151 or CHEM 161 or consent of instructor.

**SOIL 350 Soil Fertility (3) (lecture/lab)** Nutrient availability in relation to chemical and physical properties of tropical soils; fertility evaluation by plant response and soil tests; cycling of carbon, nitrogen, and minerals; nutrient management for enhanced plant productivity and maintenance of environmental and soil quality. Pre: CHEM 151 or CHEM 161 or consent of instructor. SOIL 304 recommended.

**SOIL 351 Soil Health (3) (lecture/lab)** This course includes an introduction to soil health, plant and soil nematology, nematode community indices and soil health biological indicators (nematodes) and soil health analysis. A semester-long experiment on soil health and presentation of experiment results are required.

**SOIL x94 Special Topics in Subject Matter (Arr.) (IO)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**SOIL x99 Directed Studies (Arr.) (IO)** Statement of planned reading or research required. Pre: instructor's consent.

## Spanish (SPAN) Courses

College of Arts and Sciences (CAS) , Languages

**SPAN 101 Elementary Spanish I (4)** Beginning course, primarily emphasizing oral practice. Laboratory drill. (Attributes: DH, GL)

**SPAN 102 Elementary Spanish II (4)** Beginning course, primarily emphasizing oral practice. Laboratory drill. Pre: SPAN 101 or equivalent. (Attributes: DH, GL)

**SPAN 200 Interm Conversational Spanish (3)** This course is intended for students who have gained some basic knowledge of Spanish language but need to improve their fluency and vocabulary necessary for practical functions in life: greetings and self-introduction, being or hosting guests, shopping, travel, airport situations, study abroad, etc. SPAN 200 will enhance SPAN 102 and 102 and complement SPAN 201, enabling the student to acquire oral fluency. Prereq or coreq: SPAN 102 or instructor's consent.

**SPAN 201 Intermediate Spanish I (4)** Continuation of oral practice with increasing emphasis on reading and written composition. Laboratory drill. Pre: SPAN 102 or equivalent. (Attributes: DH, GL)

**SPAN 202 Interm Spanish II (4)** Continuation of oral practice with increasing emphasis on reading and written composition. Laboratory drill. Pre: SPAN 201 or equivalent. (Attributes: DH, GL)

**SPAN 301 Adv Spanish Conversation (3) (lecture/lab)** Advanced Spanish Conversation will place emphasis on 2 of the 4 language skills: listening and speaking. The study of Spanish conversation in 15 common contexts will give the student a much deeper awareness of cultural expectations and norms in the Latin world. Knowledge of their courtesies and respect, their customs and situational idiosyncrasies is critical to create business or interpersonal relations. The student will also learn

## Soil Science (SOIL) Courses

College of Agriculture, Forestry & Natural Resource Management (CAFNR)



how Anglo customs overstep bounds and create offense in the Hispanic collective cultures. Student will gain fluidity and comprehension as well as cross-cultural understanding.

**SPAN 302 Adv Spanish Reading/Writing (3) (lecture/lab)** Advanced Spanish Reading and Writing (302) will markedly extend the student's ability to read and write in a second language. Cultural expectations and practice are necessary to produce articles, journalism, business writing and literary analysis. The 302 is for students with Intermediate Spanish experience or with immersion experience in a Spanish or Latin culture. This course will teach students to critically comprehend Spanish texts, requiring them to reflect on these texts by producing written Spanish. Fifteen cultural texts will be read; fifteen papers and their corrections will be required.

**SPAN 306 Medical Spanish (3)** This class will develop students linguistically to work with Spanish speakers in nursing, pharmacy and medicine. The purpose of this course is to give the students the skills to communicate with patients and customers whose English is not adequate for intercommunication. The emphasis will be on medical vocabulary and the taking of medical histories by oral interview in Spanish. Vocabulary for heart patients, diabetes patients, gynecological patients and common ailments such as urinary tract discomforts will be covered and reviewed repetitively. The student will participate in 40 oral interviews.

**SPAN 307 Business Spanish (3)** This course is for students of business, finance, tourism, or law. It provides linguistic tools in Spanish for employment purposes in line with students' respective majors. The course will build appropriate vocabulary, emphasizes Spanish and Latin protocols, perceptions in business, and address major mistakes made by North Americans in Latin or Hispanic business situations. The course is divided into three units: Business Situations, Written Forms of Business Communications and Business Practice, which will combine and reinforce the first two units.

**SPAN 368 Gender & Women LatAm Lit/Film (3)** Latin American men and women of alternative genders in the 20th century have lived in vastly different conditions and upheaval spanning feudalism to postcolonial thought. From genocide to authoritarian institutions of torture, the people in the texts and films had to endure turmoil and violent clashes of ideas. This course captures the Latin perspective of four different sociological spaces that women occupy in Latin America: the Indigenous space, the patriarchal latifundio, the mestizo space of markets, and the professional women under the military governments. Latin American and French feminist theories are used to clarify these contexts. (Same as WS 368).

**SPAN 369 Lat&Glob Docum&Film: Crit Analy (3)** This course will engage students in Latin and Global documentaries and films in the context of their perspectives, providing an excellent window into culture and world conflicts. The student lives in a global world today in which expansion of mindsets must become elastic with the practice of cultural exposure and analysis. (Same as WS 369) (Attributes: DH, HPP)

**SPAN x94 Special Topics in Subject Matter (Arr.) (10)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**SPAN x99 Directed Studies (Arr.) (10)** Statement of planned reading or research required. Pre: instructor's consent.

## Tourism (TOUR) Courses

College of Business and Economics (COBE)

**TOUR 317 Mkt & Mgt Of Travel & Tourism (3)** Principles of marketing and management applied in hotel/ motel, resort, restaurant, travel, transportation, tourism and leisure industries. Course looks at who travels, where and why. Focus is on cases involving both small and large firms in the travel and tourism area. Pre: C or better in MKT 310

**TOUR 320 Tourism Economics (3)** Microeconomics of travel: determinants of demand, empirical studies, demand forecasting; production cost analysis, market structure in major travel industries. Macroeconomic impacts. Pre: C or better in ECON 130

**TOUR 340 Interntl Travel & Tourism Plcy (3)** Tourism in international trade, legal environment of international travel, political implications of tourism, social and cultural aspects of tourism, public and private policy issues for developed and developing destinations. Pre: 45 college credits successfully completed.

**TOUR 350 Intro to Sustainable Tourism (3)** Management and marketing issues faced by communities, business and government in developing sustainable tourism. Product development, pricing, capacity management, promotion and distribution channels. The strategic planning approach is introduced and applied in hands-on casework. Special resources include guest speakers with working knowledge of sustainable tourism and field trips to on-island tourism sites. Pre: 45 college credits successfully completed.

**TOUR x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**TOUR x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## University (UNIV) Courses

College of Arts and Sciences (CAS)

**UNIV 101 Paths to Acad/Lifelong Success (1)** Designed for the first-time college student, this course is intended to promote the attitudes, behaviors, competencies, and skills that will increase students' academic success and foster their social integration into the college environment.

**UNIV 102 Career and Major Decisions (3)** A course designed to introduce students to the UH Hilo colleges, major areas they offer, and how to connect your major choices to potential career paths. Students will utilize activities and assignments in and out of the class in order to reach this goal.

**UNIV 191 General Internship (1-3) (other)** Application of knowledge and skills in a public, private, or government agency/setting. Pre: Instructor's consent. May be repeated for a total of six credits.

**UNIV x94 Special Topics in Subject Matter (Arr.) (10)** Special topics



chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**UNIV x99 Directed Studies (Arr.) (IO)** Statement of planned reading or research required. Pre: instructor's consent.

## Gender and Women's Studies (WS) Courses

College of Arts and Sciences (CAS)

**WS 151 Intro Gender & Women's Studies (3)** An interdisciplinary survey of gender issues in contemporary U.S. society. Introduces foundational concepts regarding social constructions of gender, race, class, and sexual orientation. Topics include history, religion, sexuality, body image, reproductive rights, family, work, and violence. (Attributes: DS)

**WS 200 Gender Leadership & Soc Just (3)** This course offers students the opportunity to think critically about leadership concepts, activism, and social change. Students will reflect on how social justice and multiculturalism influence the community and leadership of woman. Students will critically examine leadership theories and how to apply personal leadership styles. Pre: WS 151 or permission of the instructor. (Attributes: ALEX)

**WS 200E Lit Genres: Myth/Folklore (3)** An introduction to major genres in literature: Mythology and Folklore. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as ENG 200E) (Attributes: DL)

**WS 201 Global Cinema (3)** A course that offers students a critical examination of worldwide cinema. The course will cover film theory and film making techniques from countries such as Germany, Mexico, China, Senegal, Iran, and India. Students will undertake a critical study of various schools of film as they pertain to these national cinemas as well as explore the cultural and socio-political controversies surrounding cinematography. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as ENG 201) (Attributes: DL)

**WS 202 Literature of Human Rights (3)** This course will explore narratives from a human rights perspective, beginning in the era shortly before the adoption of the Universal Declaration of Human Rights in 1948 and extending into the 21st century. Students will focus on geopolitical conditions that contribute to the suppression of human rights in areas around the globe, including, but not limited to, Chile, India, Nigeria, Iran, the Palestinian Territories, and the United States. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as ENG 202) (Attributes: DL, GCC)

**WS 204 Intr Race/Gender Film Studies (3)** This course will focus on how race and gender historically shape individual and cultural experiences in America, as expressed in film. Key works that offer portrayals by and about various groups (i.e. gays/lesbian, immigrants, indigenous communities, mixed-race populations, etc.) will be critically compared and examined. Students will also discuss and address evolving audience responses to these works. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as ENG 204) (Attributes: DL, GL)

**WS 205 Hawai'i on Screen (3)** A critical look at the development of film in and on Hawai'i. The course will cover a number of silent era films as well as the development of the musical and the war story as popular genres in the Islands. The class will also focus on the problems of cultural, racial and gendered representation in mainstream cinematic

depictions of Hawai'i as well as the contemporary emergence of local and indigenous filmmaking. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as WS 205) (Attributes: DL, GAHP, GL, HPP)

**WS 206 Intro to Popular Culture (3)** This course offers an introductory study of mainstream manifestations of culture. Students will critically assess production, distribution, and consumption of various popular cultural genres, such as advertising, talk shows, sports programs, music videos and gossip magazines and websites, among many others. Pre: C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as ENG 206) (Attributes: DL, GL)

**WS 207 Gender and Communication (3)** This course is an introduction to gender research in communication, studying ways in which language, interpersonal communication, the media, and various social institutions influence conceptions of gender. (Same as COM 207).

**WS 210 Gender and Communication (3)** This course is an introduction to gender research in communication, studying ways in which language, interpersonal communication, the media, and various social institutions influence conceptions of gender. (Same as COM 210)

**WS 257 Multicultural Literature (3)** This is a course designed for students who want to engage literatures from various ethnic groups in the U.S. The course includes historical context regarding the production of these literatures, providing an overview of how these groups have developed their own literary techniques, genres, and canons. Pre C or better in ENG 100, ENG 100T, ESL 100 or ESL 100T. (Same as ENG 257) (Attributes: DL, GL)

**WS 270 Love and Sex (3)** Survey of classical and contemporary perspectives of the philosophy of love, marriage, relationships, sex, sexual identity, representations of sex and sexuality. (Previously offered: PHIL 180; Same as WS 270).

**WS 300 Family in World Perspective (3)** A comparative analysis of family and marriage patterns, mate selection, parent-child interaction, divorce rates, socialization of gender roles, legal sanctions, trends in organization and function. Pre: Soc 100 or instructor's consent. (Same as SOC 300).

**WS 301 Women in Science (3)** The interrelationships of women and science examined from historical, sociological, philosophical, and biological perspectives. Factors contributing to underrepresentation, feminist critiques of science, examination of successful strategies.

**WS 303 Feminist Political Theory (3)** An examination of the progression of feminist political thought. Topics covered include the roles of women in the history of Western political thought, early feminist writings, and contemporary feminist theories related to liberalism, radicalism, and postmodernity. (Same as POLS 303)

**WS 304 Ethics & Culture Diversity (3)** Philosophical examination of the meaning of cultural diversity and pluralism for questions concerning community and knowledge from a variety of American and non-western cultures as well as their interactions with categories of identity, based upon nation, race, class, gender and sexuality. Addresses the interactions of the social experience of individuals based upon categories of identity and the emergence of forms of community and knowledge. A global or transnational section will be one component of the course. (Same as PHIL 304). (Attributes: DH, GCC)

**WS 305B Themes in Regnl Geog: Mid East (3)** Surveys regional landscapes of the Middle East, including North Africa; focuses on historical and contemporary influences of physical, cultural, and



economic landscapes. Pre: Junior or senior status, or consent of instructor. (Same as GEOG 305B)

**WS 307 Theory of Knowledge (3)** The sources and limits of human knowledge. Classical and contemporary epistemological theories, and their application to the everyday search of knowledge. (Same as PHIL 307)

**WS 310 Race & Ethnic Relations (3)** Sociological analysis of the patterns of intergroup relations. Topics include the meaning of race, ethnicity, prejudice and discrimination, and the interactive strategies used by various groups. Emphasis on ethnic processes on Hawai'i and the Pacific region. Pre: SOC 100 or instructor's consent. (Same as SOC 310).

**WS 316 Science, Technology & Values (3)** Impact of science and technology on various philosophical issues. Through a variety of readings that exemplify the field's content, students will examine the social, political, aesthetic, ethical, economic, and environmental constructs that shape modern institutions in science and technology. (Same as PHIL 316)

**WS 319 European Women's History (3)** Study of European women from pre-history to the 20th century with emphasis on women's social and cultural roles in western history. Current feminist theory is also studied. (Same as HIST 319)

**WS 320 Cross-Cultural Study Of Women (3)** Comparative analysis of women's roles and women's lives in different societies. Topics include women's status, life stages, gender roles, images of women and power. (Same as ANTH 320) (Attributes: DS)

**WS 321 Stratification & Inequality (3)** This course examines social stratification theory and research; definition and measurement of socioeconomic status; racial, ethnic and gender inequality. Pre: SOC 100 or instructor's consent. (Same as SOC 320)

**WS 324 Culture, Sex And Gender (3)** A cross-cultural examination of the development of gender systems and gender roles. Consideration of sex roles and activities as part of the larger gender system. Pre: ANTH 150 or 205 or instructor's consent. (Same as ANTH 324) (Attributes: DS)

**WS 325 Psychology Of Women (3)** Issues and topics relevant to the psychological development and functioning of women including sex differences in abilities and behavior, achievement motivation, work, sexuality, pregnancy, childbirth and motherhood, mental health and domestic violence. Pre: PSY 100. (Same as PSY 325)

**WS 327 Law and Identity (3)** In this course, will politically engage with the legal construction of who we are as individuals and our presence within different communities. The relationship between law and identity involves politically contested frameworks of sexuality, gender, race and ethnicity, ability, and ownership according to both judicial doctrine and contemporary scholarship. As these frameworks shift and evolve, the politics of legal identification sculpt our own social horizons. Pre: Junior or Senior standing (Same as POLS 327) (Attributes: DS)

**WS 328 Gender, Crime, and Justice (3)** This course will examine theoretical perspectives on gender, crime, and the criminal justice system. Students will analyze the intersecting roles played by gender, race, and class in criminal offending, victimization, and institutional responses. Additional topics may include masculinity and crime, women and punishment, female delinquency, gender violence, sex work, and the role of women in the criminal justice system. Pre: Soc 100 or WS 151 (Same as SOC 328).

**WS 331 Queer Studies & Contem Society (3)** A review of current issues using queer and sociological perspectives on sexualities and social change. Pre: SOC 100 or WS 151 or permission of instructor. (Same as SOC 331)

**WS 332 Politics of Race & Gender (3)** A survey of the historic, legal, political, and social forces shaping society's construction of race, ethnicity, and gender. Notions of power and the political significance of race and gender are explored. (Same as POLS 332).

**WS 340 Socialization & Identity (3)** The process by which an individual becomes a functioning member of society. Pre: SOC 100 or instructor's consent. (Same as SOC 340).

**WS 342 Sociology of Human Aging (3)** Aging as a social phenomenon, including social impact of a growing elderly population, and emerging social patterns among the elderly. Emphasis on the interplay of biological, psychological, sociological and cultural factors of human aging. Pre: SOC 100 or instructor's consent. (Same as SOC 342).

**WS 352 Gender and Sexuality (3)** An interdisciplinary exploration of concepts, constructions, and behaviors associated with gender and sexuality. Course materials examine historical, contemporary, and cross-cultural definitions and expectations, and correlations with social power and hierarchies. In addition, the course aims to illuminate the multiplicity of personal and social identities relating to sex, race/ethnicity, class, age, etc.

**WS 355 Women in Modern Lit & Film (3)** Literature and film by and about women from 1900 to the present. Feminist literary theory. Pre: C or better in ENG 300, or instructor's consent. (Same as ENG 355) (Attributes: DL)

**WS 356 Language and Gender (3)** Students engage in the analysis of gender as it relates to language and society. Provides students with analytic resources for thinking critically about the relationship between language and social practice. Students gather and analyze data based on current theories. Pre: ENG/ESL 100 or 100T and LING 102, or consent of instructor. (Same as ENG 356, LING 356)

**WS 357 Women and Religion (3) (other)** Examines roles of, and attitudes towards, women in various religious traditions. Through both chronological and comparative approaches, explores depictions of women in scriptures and other primary texts as well as women's contributions to each tradition.

**WS 358 Women in Christianity (3)** Examines issues relating to sex and gender throughout the history of Christianity. Emphasizing primary texts, the course will explore writings by Christian women and Christian writings about women. (Same as HIST 358)

**WS 359 Music and Activism (3)** An exploration of the ways in which music has been used to create and support social change. The role of music in movements involving resistance, protest, and activism for political, social, and environmental justice, both in the U.S. and globally. (Same as MUS 359) (Attributes: DH)

**WS 360 American Women's History (3)** Study of American women from the 17th to the 20th centuries. Special emphasis on women's social and cultural roles. Current feminist theory is also studied. Pre: HIST 151, 152 or instructor's consent. (Same as HIST 360)

**WS 361 Girls and Women in Japan (3)** A survey of the life of Japanese girls and women focusing on Japan's changing aspects from the ancient to the contemporary periods. The course questions the current prevalent



image of the subservient Japanese woman and articulates the role of Japanese girls and women in Japanese society. (Same as JPNS 361 and JPST 361) (Attributes: DH, HPP)

**WS 368 Latin American Women's Lit (3)** Latin American women of the 20th century have lived in vastly different conditions and upheaval spanning feudalism to postcolonial thought. From genocide to authoritarian institutions of torture, Latin women have had to endure turmoil and violent clashes of ideas. This course captures the Latin perspective of four different sociological spaces that women occupy in Latin America: the Indigenous space, the patriarchal latifundio, the mestizo space of markets, and the professional woman under the military governments. Latin American and French feminist theories are used to clarify these contexts. (Same as SPAN 368).

**WS 369 Lat&Glob Docum&Film: Crit Analy (3)** This course will engage students in Latin and Global documentaries and films in the context of their perspectives, providing an excellent window into culture and world conflicts. The students lives in a global world today in which expansion of mindsets must become elastic with the practice of cultural exposure and analysis. (Same as WS 369). (Attributes: DH, HPP, WI)

**WS 375 Feminist Philosophy (3)** Exploration of the feminist contributions to traditional philosophical questions in metaphysics, epistemology, and ethics, as well as examining the philosophical implications of the intersections of race, class, gender and sexuality. (Same as PHIL 375) (Attributes: DH)

**WS 378 N. Amer Indig Cultr Survival (3) (lecture/other)** This course will cover a broad swath of Native American history from the past few hundred years in the context of cultural survival and resistance. The course will begin with a short background in Native American history, but will be more specifically focused on various examples of resistance and incorporation. (Same as HIST 378).

**WS 382 Qualitative Research (3)** Introduction to the ethics, methodologies, and practice of research in human geography, particularly standpoint epistemologies and associated methodologies. Combines lectures, workshops, and assignments. Students will conduct and report upon their own research. Pre: GEOG 103 or 102 or WS 151 or consent of Instructor. (Same as GEOG 382).

**WS 384 Gender & Japanese Performance (3)** This course views how gender is represented in Japanese performance from rituals to dance, music, theatre and everyday performance. Through readings and visual materials, students observe the historical development of Japanese theatre and performance and examine relationship between gender, sexuality and the Japanese cultural forms from the performance studies as well as gender and feminism studies perspectives. (Same as JPNS/JPST 384) (Attributes: DH, HPP)

**WS 385 Women & Health (3)** Reproductive health, immune activity, autoimmune disease, and mental health in women are covered from physiological, psychological, historical and cross-cultural perspectives. Pre: PSY 100. (Same as PSY 385)

**WS 391 Intern Gender & Women Studies (3)** Application of knowledge and skills in a field placement or engaged scholarship project setting. May be taken for a total of 12 credits, only 6 of which can be applied to the major or three to a minor. Pre: WS 151, instructor's consent. (Attributes: ALEX)

**WS 392 Japanese Women (3)** History of women in Japan from the earliest historical eras, including the Heian aristocracy and evolving samurai culture, through the present. Topics include property rights,

family structures, the influence of religion and secular philosophies, effects of political and legal changes, women's role in the economy and its effect on their status and lives, and women's activism. (Same as JPST 392, HIST 392). (Attributes: GAHP)

**WS 393 Normality, Abnormality & Soc (3)** Philosophical study of how human diversity interacts with social norms. Topics include health and illness, disability, gender and sexual orientation. Perspectives from biology and the social sciences are included in a study of how beliefs about normality vary between cultures, change through time and affect human relations. Pre: Previous work in Philosophy. (Same as PHIL 393)

**WS 401 Women in Hawaiian History (3) (lecture/other)** This course examines the lives and contributions of women in the history of Hawai'i. It considers how events such as the arrivals of foreigners, dismantling of the kapu system, the mahele, epidemics, political changes, world wars, etc., affected the social and cultural lives of women, men, children, and families. Course materials seek to understand how those gendered as "feminine" negotiated, accommodated, and resisted these changes over the last two centuries. (Same as HIST 401). (Attributes: GAHP)

**WS 407 Gender Inequality inPopCulture (3)** Exploration of gender and sexuality as systems of inequality, as social constructions, as performance, and as dynamic forces within American popular culture. Students develop skills to sociologically research and analyze artifacts of popular culture. Pre: SOC 100 or WS 151 or instructor's consent. (Same as SOC 407).

**WS 409 Seminar in Social Movements (3)** An exploration of the ways in which social movements have shaped politics, policy and social culture in the United States. Students will research and analyze historical and contemporary social movements. Pre: SOC 100 or WS 151 or instructor's consent. (Same as SOC 409)

**WS 411 Family & Gender in Oceania (3) (lecture/other)** With a focus on the 19th and 20th centuries, this course examines how historical changes affected the social and cultural lives of women, men, children, and families in Oceania. Throughout the course we will endeavor to explore gendered reconstructions of particular events in the history of the Pacific: historiography, exploration, disease & depopulation, missionization, education, imperialism, colonization and decolonization in general. (Same as HIST 411). (Attributes: GAHP)

**WS 416 Science, Technology & Values (3)** Impact of science and technology on various philosophical issues. Through a variety of readings that exemplify the field's content, students will examine the social, political, aesthetic, ethical, economic, and environmental constructs that shape modern institutions in science and technology. (Same as PHIL 416)

**WS 420 Family Communication (3)** Foundational concepts and theories are introduced. Communication dynamics within families are explored. Narrative, functional, interpretive, and systems approaches to family communication are included. Cultural influences are examined. Conditions necessary for optimal family functioning are addressed. (Same as COM 420)

**WS 423 Post-Colonial Literature (3)** A critical analysis of the development of contemporary world literature in the wake of the fall of European empires. This class is designed to address the importance of writing in an age of changing national identities, shifting alliances, and volatile conflicts. Texts from African, Latin American, the Middle East, the Caribbean, and Hawai'i will be featured. Pre: ENG 300 or instructor's consent. (Same as ENG 423). (Attributes: DL, GL)

**WS 430 Gender, Place and Environment (3)** Survey of trends in



geography of gender related to place, space and the environment. Addresses spatial interactions of gendered bodies of different ages, class and ethnicities. Pre: junior or senior standing or instructor's consent. (Same as GEOG 430). (Attributes: ALEX, GCC)

**WS 431 Pacific Islands Literature (3)** A study of a representative range of contemporary poems, short stories, novels, and plays written in English by Pacific Islanders from Polynesia, Micronesia, and Melanesia. Pre: C or better in ENG 100, ENG 100T, ESL 100, or ESL 100T and a 200-level literature course, or instructor's consent. (Same as ENG 430)

**WS 442 Romantic Literature (3)** Poetry and prose from 1780 to 1832. Pre: C or better in ENG 300 or instructor's consent. (Same as ENG 442).

**WS 448 Graphic Novels & Comics (3)** Advanced study of major developments, schools and styles in contemporary graphic novels and comics. Emphasis on literary theory and analysis. Pre: C or better in ENG 300 or instructor's consent. (Same as ENG 448) (Attributes: DL, GL)

**WS 461 Race and Gender in Media (3)** This course explores the dynamic interactions between race, gender and the mass media. Specifically, it examines media representations of race and gender and their cultural, sociological, and psychological effects in the society. Pre: COM 260, 360 or instructor's consent. (Same as COM 461).

**WS 480 Women and Rhetoric (3)** Survey of key female figures that have figured (or not figured) into the rhetorical canon. Analysis of women's use of rhetoric in everyday life and at historic moments and consideration of methodological and theoretical issues intersecting women, rhetoric, and historical research. Pre: C or better in ENG 300 or instructor's consent. (Same as ENG 480).

**WS 486 Women in Ancient European Civi (3)** Study of European women up to the year 800, with primary focus on the Mediterranean Basin. Themes encompass religion, social customs, and economic activities. Pre: HIST 319 or 323 or 341 or 356 or 360; or consent of instructor. (Same as HIST 486).

**WS 495 Women's Studies Seminar (3) (other)** Capstone seminar to be taken in the senior year (or as a second-semester junior). Readings, discussions, presentations, and guest lectures involving advanced analysis of theories about social systems and women's lives. Seminar will facilitate student's application of theoretical material and research toward particular areas of interest. Seminar topics may vary from year to year. Pre: WS 151; 6 credits of upper-division WS courses or instructor's consent.

**WS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**WS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

UH Hilo currently offers several graduate and professional programs. Information on admission policies and procedures, tuition and fees, registration, and degree requirements can be found in the following sections.

- [Graduate Admission Policies](#)
- [Graduate Admission Procedures](#)
- [Registration and Degree Requirements](#)
- [Requirements for Candidates for Masters Degrees](#)
- [Requirements for Candidates for Doctoral Degrees](#)
- [Graduate Student Rights and Responsibilities](#)

## Graduate Admission Policies

The University of Hawai'i at Hilo is an equal opportunity institution of higher education and does not discriminate on the basis of race, gender, sexual identity, age, disability, religious affiliation, or country of origin.

Students are expected to be familiar with and follow the guidelines and policies set forth in the UH Hilo Catalog and [Graduate Student Handbook](#). Students are ultimately responsible for selecting courses appropriate to the program degree objective.

Professional programs' policies may vary slightly from graduate program policies. Please check with your program chair for details.

## Application Requirements

**Note:** The following requirements are the **minimum** requirements for any UH Hilo graduate program. Particular graduate programs' requirements may differ from the minimum. Therefore, prospective students must also check the requirements of their program of interest.

Applicants applying for admission to graduate programs must submit the following items (except for the app and fee) directly to the Graduate Division:

1. A completed application form and appropriate fee. The application form and fee information are available online [UH Online Application Form](#). Application deadlines for graduate programs differ from deadlines posted for undergraduate programs. Priority deadlines for graduate programs are posted on the [graduate division website](#).
2. One official transcript from each post-secondary institution attended. These transcripts must be sent directly from the institution or submitted by the applicant in a sealed institutional envelope if accompanying the application. Official electronic transcripts are acceptable if sent directly from the institution to [hilograd@hawaii.edu](mailto:hilograd@hawaii.edu). Official transcripts from within the UH system are not required.
3. Official Graduate Record Examination scores or other qualifying test scores as determined by the program (check admissions requirements in each program description).
4. A minimum of three letters of recommendation attesting to the academic ability or other qualifications of the applicant.
5. Statement of academic and/or long range goals.

## International Applicants

In addition to the above requirements, international applicants must submit:

1. International applicants whose native language is not English, or who have not attained a baccalaureate or higher degree from an English-speaking institution, also must submit TOEFL or Cambridge

## Graduate Education General Information

### UH Hilo Graduate Division

College of Business and Economics Building, Room 201

Tel: (808) 932-7927

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

Website: [hilo.hawaii.edu/academics/graduate/](http://hilo.hawaii.edu/academics/graduate/)



IELTS scores.

2. Verification of financial status using the [Confidential Financial Statement Form \(PDF\)](#)
3. International students and students who attended colleges outside of the U.S. and whose transcripts are in languages other than English must submit official academic records in the original language accompanied by certified English translations. These translations must bear the embossed seal or inked stamp of the issuing institution or government agency and the original signature of the translator. Translations must be complete and exact word-for-word translations of the original documents. International applicants with a Grade Point Average of less than a B (or equivalent) in their undergraduate work or less than a B in 12 or more credits of post-baccalaureate work are **not** eligible for admission.

More information for International Students can be found at: [International Graduate Students](#)

## Minimum Qualifications for Acceptance

### Baccalaureate Degree

Each applicant must hold a baccalaureate degree or graduate degree from a regionally accredited U.S. college or university, or its equivalent from a recognized non-U.S. institution of higher learning. The standards of the degree in question must be equivalent in scholarship requirements to those maintained in the undergraduate program at the University of Hawai'i at Hilo.

### Graduate Record Examination (GRE)

The GRE is required for most applicants for consideration of acceptance. Some programs may require a professional test specific to the program of study in lieu of the GRE for admission purposes. Minimum scores on the GRE or professional tests are set individually for each program. Applicants who have completed a graduate program at a regionally-accredited U.S. institution or its equivalent from a recognized non-U.S. institution are not required to submit GRE scores.

Applicants for doctoral programs should check with the specific program to see if submission of the GRE is required.

### Test of English As A Foreign Language (TOEFL or Cambridge IELTS)

In addition to above requirements, an applicant whose native language is not English must demonstrate English language proficiency as a partial admissions requirement. Evidence of proficiency in English is successful completion of the Test of English as a Foreign Language (TOEFL) with a minimum score of 550 (paper version), 213 (computer version), or 79 (internet version). The minimum Cambridge IELTS score is 6.0. Applicants who have baccalaureate degrees from English-speaking institutions are exempt from the TOEFL and Cambridge IELTS requirement.

### International Transcripts

Transcripts from international institutions where a bachelor's degree was awarded must be submitted to a transcript evaluation service. See [International Transcript Information](#) for more info.

Please plan ahead to allow adequate time for processing of the evaluation of international transcripts, which may take a month or longer.

## Grade Point Average (GPA)

The applicant must have a GPA of 3.0 or the equivalent from the last 60 semester credits (or equivalent) in the undergraduate degree completed, or must hold a graduate degree with a GPA of 3.0 or better in his/her graduate program.

Please note: The meeting of minimum requirements does not assure acceptance into a UH Hilo graduate degree program. Acceptance into a graduate program is competitive and decided upon by each individual graduate program.

An applicant whose GPA in the last 60 semester credits (or equivalent) falls between 2.75 and 2.99 on a 4.0 scale may be eligible for provisional acceptance. See the [Classification of Students](#) section below for more information.

## Classification of Students

### Regular Admission

Regular admission may be granted to applicants who hold a baccalaureate degree with a grade point average (GPA) of 3.0 or better for the last 60 semester credits (or equivalent), or who hold a graduate degree with a GPA of 3.0 or better from an accredited institution. Determination of acceptance, however, is made by the admissions committees of individual programs. Students accepted by program admission committees are defined as "classified students."

### Provisional Admission

An applicant whose GPA in the last 60 credits (or equivalent) falls between 2.75 and 2.99 may be admitted under provisional status. To be accepted, the applicant must have program approval and otherwise meet program requirements. Some conditions may apply; the student will be notified at the time of acceptance of any conditions in place.

The student must:

1. Sign and return a form acknowledging receipt and understanding of the conditions listed in the acceptance letter and agreeing to the conditions;
2. Attain B- grades or higher in all classes required by the graduate program in the first academic year;
3. Register for the same classes required of other students entering the same program. The program will monitor the student's academic progress at the end of the first semester to confirm that conditions have been successfully met.
4. Complete any additional required coursework as specified by the Program Director in the provisional acceptance letter. Coursework may be required to be completed prior to enrollment in the graduate program or during enrollment in the program.

A hold will be placed on the student's record to prevent registration for courses in the second and third semesters (the hold will be removed once the program reports satisfactory progress to the Graduate Division). Failure to meet the conditions will result in dismissal from the program.

### Denied Admission

Students whose academic records do not meet the minimum requirements, whose applications are incomplete, and/or whose admission is not supported by the program and the Graduate Division, will be denied admission.



## Visiting Graduate Student

Applicants who are pursuing an advanced degree at another institution and who wish to study at UH Hilo for a limited time may apply for admission as visiting graduate students. To be eligible, applicants must be enrolled in and actively pursuing a graduate degree program at a regionally accredited institution of higher education or an equivalent degree at a recognized non-U.S. institution of higher learning, and be in good academic standing. Current transcripts from the home institution must be provided in order to determine academic standing and eligibility for specific classes at UH Hilo.

Visiting graduate students register on a space available basis and only in courses for which they are judged to be eligible by the instructor of the course and the chair of the individual graduate program. Generally, visiting graduate students are limited to two (2) semesters of study.

Visiting Graduate Students must provide the same application materials as applicants for regular admission: the application, the application fee, statement of research interest/goals in the program, resume, three letters of recommendation, and official transcripts from all colleges and universities attended. The exception is that Visiting Graduate Students do not need to provide official GRE scores.

The program chair must approve their acceptance into the program. Visiting Graduate Students will be accepted as “classified graduate students.”

Visiting international graduate students must comply with certain application and enrollment regulations in order to qualify for an I-20 certificate of eligibility, which permits them to request an F-1 student visa. Regulations include providing a copy of a current passport, providing proof of adequate financial support, and maintaining full time enrollment (6 credits per semester) while at UH Hilo. Please contact the UH Hilo Graduate Division for details.

Admission as a visiting graduate student does not guarantee subsequent admission as a regularly admitted graduate student. A visiting graduate student who decides to apply for admission as a regular graduate student must apply for acceptance via the standard admissions process as do all other applicants.

Visiting graduate students who later become admitted as regular students may request to have courses taken under the visiting student status credited toward the new degree objective. They should consult with their graduate programs. The visiting student will submit the form [Petition to Substitute and/or Waive Courses-Graduate \(PDF\)](#) to the Graduate Division.

## Unclassified Graduate Student

Students with documented baccalaureate degrees who do not meet the minimum requirements for admission to a program, or who for any other reason have not been formally accepted into a program, may attempt to register for selected graduate level courses.

Such registration is done on a space-available basis, and is at the discretion of the Graduate Program Chair of the program that the course falls within. Permission to enroll as an unclassified student may be granted with the permission of the instructor and the graduate program chair using the [Permission to Enroll in Graduate Coursework as an Unclassified Student \(PDF\)](#). The form must be accompanied by a brief statement of objectives specific to each class in which the applicant hopes to enroll and should be submitted to the Graduate Division.

Admission into a course as an unclassified graduate student does not guarantee admission as a regularly classified graduate student at a future date.

Applicants who are sponsored by an educational institution or governmental agency and who wish to undertake a special program of study, research, or training without a degree objective may apply as unclassified graduate students.

All applicants for unclassified graduate student status are required to submit the following:

1. A UH Hilo application to the [UH Hilo Admissions Office](#)
2. Proof of baccalaureate degree if earned degree was outside of the UH System;

Unclassified graduate students are not required to submit the application fee, GRE scores, or letters of recommendation. If an unclassified graduate student later applies, and is accepted, into a graduate program, the student may petition for acceptance of credits taken while in unclassified status, but acceptance of the petition by the graduate program is not assured.

## Taking Graduate Level Coursework as an Undergraduate Student

Undergraduate students with senior standing, and with a cumulative GPA of at least 2.5, before being granted a baccalaureate degree may petition to take graduate coursework for credit in the status of an Unclassified Graduate Student. Permission must be received from the student’s undergraduate academic advisor, the graduate course instructor, and graduate program chair. This coursework must be in excess of the requirements for the baccalaureate degree. Submit the completed form [Permission to Enroll in Graduate Coursework as an Undergraduate Student \(PDF\)](#) to the Graduate Division.

Completion of graduate coursework does not guarantee future admission into a UH Hilo graduate program.

## Additional Considerations

### Concurrent Degrees

An applicant may apply to more than one graduate program but may enroll in only one program initially. Concurrent enrollment in more than one program is strongly discouraged. The individual programs applied for, however, will determine individually what constitutes the minimum course load, and the student (with the approval of both program chairs) may decide to attempt both programs.

### Reapplication

Applicants who have been denied admission to a graduate program at UH Hilo because of failure to meet academic standards may reapply for admission after completing additional credits of post-baccalaureate course work and attaining a GPA of at least 2.75 in the last 60 credits. If subsequently accepted with a recalculated GPA of between 2.75-2.99 in the last 60 credits, the student will begin the program under provisional acceptance policies.

Completion of additional course work does not guarantee admission. To be reconsidered for admission, applicants must follow the standard application process and will be considered along with all other applicants.



## If Admitted, But Not Enrolled

Admission may not be postponed or deferred. Newly-admitted students who do not register during the semester for which they are admitted or who withdraw from all courses before the last day to drop are considered no-shows. Their admission status will be rendered invalid. To reapply for admission, they must contact the Graduate Division for instructions.

## Returning Student

If a student has not registered continuously, that student must reapply for admission. Readmission is not guaranteed. Please see the policies on [Continuous Registration](#) and on [Leave of Absence](#).

## International Student Documents

International student documents are processed by the Graduate Division in consultation with the International Admissions Officer. Visa questions will be handled by [International Student Services](#).

## Appealing an Admission Decision

Individual graduate programs have processes in place for instances when students believe they have been unfairly denied acceptance to the program. Please consult your program's chair.

## Graduate Admission Procedures

The Graduate Division is responsible for accepting application materials for all graduate programs not administered by the College of Pharmacy. The Graduate Division screens each application for minimum qualifications and distributes completed applications to each respective program for decision of acceptance or rejection. The admissions committee within individual programs will make the final decision on applications that meet minimum university qualifications.

For programs with summer or fall semester initial enrollment, the priority application deadline for receipt of all application documents varies by program, and ranges between December 1 and January 15. Applications that are complete as of the program's specific priority deadline receive priority consideration for acceptance. The application deadline for spring semester admission, if appropriate, is November 1. Applications received after the priority deadlines will be considered on a space available basis. Each applicant will be notified of receipt of the application. Incomplete applications will be held in the Graduate Division until complete and ready for review by the graduate program. Applications that remain incomplete at the end of the selection process will be labeled as "incomplete," and applicants will be denied admission. Applicants will be notified of this action. Specific priority deadlines are posted under the program's Checklist and on the [Graduate Division home page](#).

Official notification of acceptance or rejection generally is mailed by the Graduate Division between January 1 and May 30 for summer and fall admission. For spring admission, notification is generally mailed between November 15 and December 15. Applicants should not make definite arrangements to attend the University until they receive formal notice of acceptance from the Graduate Division.

Evaluation of transcripts of international students and of non-traditional grading will be done at the program level if the applicant meets other minimum qualifications. The Graduate Division and Office of Admissions will help with interpreting unusual grading practices and other special cases.

## Graduate Tuition and Fees

### Tuition for the 2021-2022 Academic Year

#### Graduate students other than Pharmacy and Nursing

Classification	Per Credit Hour	Full Time
Resident	\$ 489	\$ 5,868/semester
Non-resident	\$ 1,107	\$ 13,284/semester

#### Pharmacy Doctoral Students

Classification	Per Credit Hour	Full Time
Resident	\$ 1,004	\$ 12,048/semester
Non-resident	\$ 1,710	\$ 20,520/semester

#### Graduate Nursing Students

Classification	Per Credit Hour	Full Time
Resident	\$ 797	\$ 9,564/semester
Non-resident	\$ 1,574	\$ 18,888/semester

### Tuition for Summer 2022

#### Graduate students other than Pharmacy and Nursing

Classification	Per Credit Hour
Resident	\$ 489
Non-resident	\$ 641

#### Graduate Nursing Students

Classification	Per Credit Hour
Resident	\$ 797
Non-resident	\$ 1,574

### Fees for the 2021-2022 Academic Year (Per Semester)

Fee	1+ credits
Media Broadcasting	\$24.00
Student Association	28.50
Student Publications	28.50
Campus Center	29.50
Student Activities	28.50
Student Health	30.00
Student Life Center	78.00
<b>Total:</b>	<b>\$ 247.00</b>



## Application Fee

A \$50 fee is required for all applicants. **This fee is not refundable, not transferable to another semester, and is required each time an application is submitted.**

## Late Registration Fee

Students will be assessed a \$30.00 fee for registering during the late registration period, which begins on the first day of instruction.

## Special Fees and Charges

Fee/Charge	Amount
Student Identification Card	\$ 10.00
Graduation Application Fee	15.00
Transcript of Record	5.00
Rush Transcript	15.00
Institutional Credit by Examination	15.00
Replacement of laboratory equipment	Cost of item(s) broken or lost

## Registration and Degree Requirements

### Registration

Entering graduate students register during the official registration period posted under the [Registration Timetable](#) for the relevant semester. Registration for classes is done using the

STAR for Students system by tapping on the tab “STAR GPS Registration”. Students may also register in the period just prior to the start of fall classes, or in the case of programs that begin in the spring or summer, prior to the beginning of the semester.

Continuing graduate students are encouraged to participate in early registration whenever possible. Graduate students must meet general guidelines for tuition and fee payments set by the university.

### Full-Time Registration Requirements for Students

Graduate students must register for six or more credits during the Fall or Spring semesters and when applicable, three credits during the summer to be considered full time. 1/2 time is defined as three credits, and students taking 1-2 credits are considered less than half time.

International students must be enrolled for at least 6 credits in each regular semester of the graduate program. Please check with the [International Student Services](#) Office for details.

Fall & Spring Classification	Description
Graduate Full-time	6
Graduate Three-quarter time	4-5
Graduate Half-time	3
Summer Classification	Description
Graduate Full-time	3
Graduate Three-quarter time	N/A
Graduate Half-time	2

## Academic Standards

A cumulative grade point average (GPA) of at least 3.0 (on a scale where A = 4.0) in courses required by the graduate program is required in order to maintain satisfactory academic standing and graduate degree certification. When the cumulative GPA falls below 3.0, the student will be placed on academic probation. Once a student is placed on probation, the student has two semesters to attain a cumulative GPA of 3.0 or higher, or the student will be dismissed.

Students admitted under Provisional status must earn a grade of B- or better in all courses taken in the first year. Failure to meet this requirement will result in dismissal from the program.

No credit is granted for graduate courses in which a grade lower than a B- has been received, or in the case where courses are evaluated as either Credit/No Credit, where no credit is given. Grades lower than a B-, however, will appear on the student’s transcript and will be computed into the student’s GPA, although the student may not use the course for degree requirements.

Graduate students who do not meet other academic/program standards will be dismissed from their graduate program. This process entails a warning letter from the chair of the graduate program to the student. If the necessary academic standards are not attained within a period specified by the graduate program, the graduate program’s chair informs the appropriate Dean that the student be dismissed from the program.

Students will be notified of the intended action. Appeals of such action may be made in writing to the Vice Chancellor for Academic Affairs (VCAA) or designee within ten business days. The VCAA’s decision on the appeal will be final.

## Graduate Committees and Primary Academic Advisors

With the exception of certain professional programs, most graduate programs utilize a graduate committee system for advising and evaluating graduate students. At the Master’s level, the committee is comprised of a minimum of three faculty members. One member will chair the committee and serve as the student’s primary academic advisor. At least two members of a student’s graduate committee must be full time tenured or tenure track faculty at UH Hilo.

For students in a non-thesis option, the graduate committee serves as an examination and evaluation body of the student’s requirements as listed by the graduate program. For students utilizing a thesis option, the committee serves as the thesis committee. Acceptance or rejection of a student’s work as fulfilling degree requirements is determined by a majority of the graduate committee.

Some professional programs may not utilize a graduate committee system. In these cases, a designated faculty member serves as the student’s primary academic advisor. Acceptance or rejection of a student’s work as fulfilling degree requirements is determined by a majority vote of the graduate program’s faculty.

## Minimum Residence Credits for Degree Certification

Regardless of any previous graduate experience, a minimum of 24 credit hours must be taken at UH Hilo before a degree can be granted. This is known as the “residence requirement,” and applies to all graduate



degree programs at UH Hilo. At the graduate level, a maximum of six credit hours earned under courses designated as "thesis" may be counted toward the Graduate Division's minimum residence requirement.

Students continuing their studies for a doctoral degree in the same UH Hilo program from which they earned their masters' degree need not fulfill a second residence requirement.

### Minimum Credits in Graduate Level Courses

Students are required to complete a minimum of 24 credits in courses at the graduate level before a degree may be granted. Specific graduate programs may require additional credits at the graduate level. Students are advised to read program requirements and discuss them with their primary academic advisor.

### Use of Undergraduate Courses for Graduate Credit

Graduate students may take up to six credits in 400-level courses toward their graduate degree requirements with the prior approval of the primary academic advisor, graduate program chair and the Graduate Division. Courses numbered 499 may not be used for graduate credit. Credits used to meet requirements for an undergraduate degree may not be used to meet graduate program requirements. To register for 400-level courses, complete the [Petition to Transfer, Substitute, and/or Waive Courses](#) form and submit it to the Graduate Division.

### Dual Level Courses

Some courses are dually listed at the 400- and 600-level. Courses identified by graduate programs as core courses are not eligible as dual level offerings. For dual level courses, credit in the graduate course is not available to students who have received credit in the corresponding undergraduate course.

Dual level courses must be evaluated as a unit based upon their specific content, including specification of differences in expectations for undergraduate and graduate students. Courses that have changing content from semester to semester, such as those ending in the numbers -94, -97 and -98, are not eligible for use in dual level offerings.

### Overload Policy

Students may register for up to 15 credits without the approval of the graduate program chair. Any course load above 15 credits requires approval by both the graduate program chair and the Graduate Council Chair as indicated on the [Student Overload Approval Form](#). After obtaining the primary advisor's and graduate program chair's signatures, the form is submitted to the Graduate Division for the Graduate Council Chair's signature; the form is then submitted to the Office of the Registrar by the Graduate Division. The Overload Form must be approved before the end of the add deadline, and will be retained in the student's file in the Graduate Division.

### Incomplete Grades

An instructor may assign an Incomplete (I) grade when a student has done most of the course work satisfactorily, but because of unforeseen circumstances has not completed all course requirements. The Incomplete is not for the purpose of converting a failing grade, or unsatisfactory work, to a passing grade. The student must request the

Incomplete option from the instructor, but it is the instructor's decision as to whether it is appropriate or not.

Graduate students who are given a grade of "I" must complete the coursework before the due date listed in the University [Academic Calendar](#). "I" grades that are not completed by this due date automatically are converted into "NC" grades. The instructor may set a deadline sooner than that listed in the University Academic Calendar, reflecting the instructor's availability to extend his/her commitment beyond the course. The instructor, however, cannot extend the due date unless granted a specific waiver by the college Dean.

Some departments and programs may have more restrictive policies regarding incomplete grades. Students should confer with their academic advisors concerning departmental rules and expectations.

The incomplete policy has specific implications for students receiving tuition scholarships and other kinds of financial aid and for international students holding visas. Graduate students who receive federal or state aid may lose their eligibility if they receive Incompletes. See the [Financial Aid Satisfactory Academic Progress Policy](#).

All courses taken by graduate students are subject to the above policy. **Incomplete grades must be resolved before students can receive a graduate degree.**

### Repeating Courses for Credit

A few graduate courses (numbered 600 and above) are repeatable for credit. Examples include thesis research and courses that are approved via the curriculum review process as "repeatable for credit" (e.g. Special Topics classes).

### Retaking Courses for a New Grade

With the exception of courses that are explicitly repeatable for credit (see above), graduate courses cannot be retaken unless approved by the primary advisor, program chair and Graduate Council Chair prior to registration. With the permission of the primary advisor and the graduate program chair, courses may be retaken, but not for additional credits. No more than two courses may be retaken, and no graduate level course may be retaken more than once during the student's graduate career.

The grade received will be averaged with the previous grade in that course in computing the UH Hilo cumulative grade point average (GPA). For graduation purposes, however, a program grade point average may be computed which includes only the grades earned in the courses that are part of the student's graduate program. A statement which specifies the recomputed program GPA will be reflected on the student's academic records and transcript. Submit the completed [Graduate Repeat Course Notification form \(PDF\)](#) to the Graduate Division, where the final signature will be obtained.

### Continuous Registration

All students admitted to a degree-granting program must maintain continuous registration each semester for at least one credit hour. Even students pursuing research or work opportunities off campus must register if they intend on completing their degrees. The purpose of the continuous registration policy is to ensure that students and programs remain in contact and that steady progress is made each semester towards completion of the degree.

Students who do not register and who have not been granted a leave of



absence (see below) will be removed from their graduate programs. In order to return to their programs, students must reapply for admission and include in their application an explanation for the absence from the program. Readmission is not guaranteed and students may be subject to changes in the degree or additional requirements deemed necessary by the program and graduate council. In addition, if students are readmitted, they will be required to pay an additional one credit of tuition for each semester not continuously registered for up to three semesters.

Students do not need to be enrolled during the summer session unless final degree requirements are to be completed during this period.

Students must be registered during the semester when the degree is granted.

## Leave of Absence

Under exceptional situations, students may apply for a Leave of Absence. Students on leave are excused from the continuous registration requirement during the period of the leave and thus are not required to pay tuition and fees.

Leaves are normally granted for six months with a possible extension of 6 months for a total of up to one year. A Leave of Absence is granted only in exceptional circumstances, such as illness or other unusual personal hardship, and requires detailed justification. Students must submit a Returning Student Application to the Graduate Division prior to return.

Leaves of Absence are not granted to students who wish to absent themselves to undertake thesis or dissertation research elsewhere.

Requests for Leaves of Absence should be submitted one month prior to the semester for which the leave is requested. Students may NOT apply retroactively for a Leave of Absence because they have failed to register for a current semester. Students not submitting Leaves of Absences or requests to extend their Leaves of Absence must comply with the Continuous Registration policy.

In order to request a Leave of Absence, or an extension to a Leave of Absence, students must submit the [Petition for Leave of Absence \(PDF\)](#) with the signed approval of the chair of their program for his or her signature.

Additional signatures must be obtained from the [Financial Aid Office](#), and if the student is an international student, from the [Director of International Student Services](#). The completed Leave of Absence form is submitted to the Graduate Division Office for approval by the Graduate Council Chair and the Vice Chancellor for Academic Affairs.

## Withdrawals

Once classes begin, a student can withdraw from his/her last or only class via MyUH until the Last Day to Drop a Class Online with a "W". Please see the [Academic Calendar](#) for the appropriate corresponding date.

After the Last Day to Drop a Class Online with a "W", students must submit a Complete Withdrawal form and follow official procedures. Please be sure to review the Tuition and Fee Refunds schedule to determine the financial implications of doing a complete withdrawal.

For students who completely withdraw by the last day to withdraw without a "W", the courses will not be reflected on their transcript.

Students who completely withdraw after that date will receive a "W" for each of the courses in progress at the time of withdrawal. See Academic Calendar for corresponding dates. Tuition and fees will be assessed according to the UH system policy.

Students may completely withdraw through the last day of instruction.

A student who completely withdraws without an approved Leave of Absence must reapply for admissions. The student may be required to fulfill the requirements in force upon return to UH Hilo.

Withdrawal from classes may affect financial aid eligibility. See the [Financial Aid Satisfactory Academic Progress Policy](#) in the UH Hilo Guide to Financial Aid.

Withdrawal may also negatively impact the [Continuous Registration policy](#). For international students, student visas require that students be registered full time (6 credits in Fall and Spring; 3 credits in Summer, if the student chooses to attend classes in the summer). Withdrawal from courses may result in a failure to meet visa requirements. Please consult with the International Student Services director for more information prior to withdrawing from any courses.

## Transfer of Graduate Credits

Students matriculated in advanced degree programs must petition to have previously earned graduate credits from other institutions transferred toward their University of Hawai'i at Hilo graduate degrees within their first semester at UH Hilo. Using the Graduate Division's [Petition to Transfer, Substitute, and/or Waive Courses](#) form, students submit this petition to their graduate program. A copy of the official transcript from the other institution must be on file with the Graduate Division, and a course description or syllabus should be provided by the student.

Credits petitioned for transfer must be relevant to the student's UH Hilo degree program, must have been earned at a regionally accredited university, must not have been used to satisfy the requirements of another degree, and must have been earned in graduate-level courses for which the student earned at least a B. In cases where the transferring institution awards Credit or No Credit instead of a letter grade, the course may be eligible for transfer if the transferring institution awards Credit when the student has earned the equivalent of at least a B grade had a letter grade been used. In cases where a graduate student wishes to take graduate coursework elsewhere for transfer credit during their tenure at UH Hilo, the course work must be pre-approved, using the [Petition to Substitute, and/or Waive Courses](#), by the student's primary academic advisor and graduate program chair. Petition for transfer of these credits must be completed within a semester of completion of the course work, and will otherwise be subject to the same regulations as credits petitioned for transfer from before the student's acceptance to UH Hilo.

Credits earned through correspondence courses or through courses or experiences offered under the auspices of proprietary schools, business or industrial training programs, or schools conducted by federal agencies such as the Department of Defense normally are not considered for transfer.

Courses taken more than five years prior to matriculation on in the Graduate Division are accepted only when the graduate program chair attaches a statement justifying the transfer.

The graduate chair in the student's program forwards all approved petitions to the Graduate Division or designee for final approval.



Approved transfer credits will be included on the student's official Graduate School transcript as a single entry of total credits accepted in transfer. Letter grades from transfer credits are not considered in the determination of grade-point average.

Limitations on the number of credits acceptable in transfer are set in the first instance by the minimum residence requirement of 24 credit hours for any advanced degree; transfer credits cannot be applied toward the residence requirement. For example, for a master's program requiring a minimum of 30 credit hours, no more than six transfer credits may be applied toward the degree. When graduate programs require more than 30 credit hours, the Graduate Division or designee may accept a correspondingly larger number of transfer credits.

### Prohibiting the Awarding of a Second Degree in the Same Field

The UH Hilo policy is that a second degree at the same level (master's or doctoral) can be awarded only when a significant amount of additional coursework in a different field is completed. Normally students who have already earned a master's or doctoral degree in a given discipline at either a foreign or U.S. institution may not earn a second degree in a similar field at the same level from UH Hilo.

### Transcript Notations of Approved Concentrations Within a Major Program

For each advanced-degree recipient, approved concentrations, or specializations, may be listed on the official graduate transcript, along with the graduate major. Such listings are limited to two concentrations. In addition to the titles of approved and satisfactorily completed majors and concentrations, official graduate transcripts show the titles of doctoral dissertations and master's theses. All such special transcript listings are made only at the time of completion of final degree requirements.

### Courses Taken in Other Graduate Programs at UH Hilo

Graduate students may take courses offered by other graduate programs at the University with the consent of the course's instructor. These other courses may count toward the student's degree program only with the authorization of the student's graduate program, and this authorization must be obtained before the student registers for the course using the [Petition to Substitute and/or Waive Courses-Graduate form \(PDF\)](#).

### Waiver of Regulations and Requirements

Some Graduate Division regulations and/or program requirements may be waived by the VCAA or designee in exceptional individual instances. A petition for waiver must be endorsed by the student's graduate program committee or graduate chair, who append their reasons for believing that the waiver request would not breach the spirit of the specified regulation or requirement.

## Requirements for Candidates for Masters Degrees

### Advising and Guidance from the Graduate

### Committee

At the beginning of a student's work toward the master's degree, the chair of the student's graduate program, in consultation with the student, designates a primary academic advisor. The primary academic advisor may be the chair of the graduate program or another faculty member. This advisor also may serve as chair of the student's graduate committee. The graduate committee, when required by the program, will consist of a minimum of three members who meet periodically with the student to discuss his or her progress.

### Requirements for a Master's Degree

This Catalog stipulates the specific requirements for a master's degree in each program of the University. The minimum requirements include the following:

1. Students must maintain continuous registration, including the semester in which the degree is awarded.
2. Students must complete at least 24 credit hours of graduate coursework in residence. A minimum total of 30 credit hours of graduate coursework are required for all master's degrees. A maximum of six hours of transfer credit is allowed for programs requiring 30 credit hours; additional credit hours may be accepted for transfer if more than 30 credit hours are earned, as long as the 24 credit minimum in residence is maintained.
3. Graduate students must maintain at least a B average in courses approved by the program or graduate committee and presented for the degree.
4. Students must fulfill all departmental or school course requirements. (No credit is granted for graduate courses in which a grade lower than a B- has been received).
5. Students must complete all other requirements as listed by the specific graduate program.
6. Students must complete all requirements, including thesis if required by the program, within five years after admission to the Graduate Division.

There are specific [Graduate Level Forms](#) (Form 1, Form 2, Form 3) used to mark the student's progress through the graduate program; they are available online through the Office of the Registrar's website. They should be completed in collaboration with the primary academic advisor and submitted within the stated deadlines. Other useful forms are also posted at this site.

All graduate level forms are submitted to the Graduate Division, with signatures as noted. The Graduate Division obtains final signature(s) and submits forms to the Office of the Registrar.

### Examination

If a general examination is required for the student's master's degree, the examination may be written, oral, or a combination of both. The decision for pass or fail shall be by majority vote of the graduate committee in programs that utilize a graduate committee. In programs that do not use graduate committees, the program faculty by majority vote shall determine whether the student has passed or failed.

### Thesis

### Evaluation

If a thesis is required for the student's master's degree, the graduate committee, or the program faculty in programs that do not use graduate



committees, will supervise and approve the thesis. Programs may designate additional examiners for the master's thesis beyond the student's graduate committee. Students must receive approval from the [Institutional Review Board \(IRB\)](#) for theses involving human subjects or from the [Institutional Animal Care and Use Committee \(IACUC\)](#) for theses involving use of vertebrate animals. Approval from these institutional committees, where appropriate, must be sought at the time of approval of the thesis topic, and research on the thesis may not commence until after IRB and/or IACUC approval is granted. Where appropriate, permission from other entities, such as the [Office of Research Services](#) and the UH Hilo [Environmental Health & Safety Office](#) may be required.

## Submission and Publication

It is the student's responsibility to prepare a final manuscript that meets the style requirements of both the UH Hilo Graduate Division and his or her graduate program. Details on these requirements may be found in the Graduate Student Handbook.

Publication is required for the thesis. UH Hilo uses ProQuest/UMI's [ETD Administrator](#), a web-based service for the submission and publication of student theses and dissertations. If online submission is unfeasible, please contact the [Mookini Library](#) or call (808) 932-7296 for assistance.

## Annual Review Form

The primary academic advisor will submit an annual review form for each graduate student under her or his charge to the chair of the graduate program, using the form provided by their graduate program. This form will include data concerning number of credits earned; progress toward meeting other requirements such as papers, projects or theses; GPA; and other specific requirements for the graduate degree.

## Awarding of the Degree

When a student has satisfied the requirements for a master's degree, the chair of the student's graduate program submits [Form 3: Thesis/Project/Dissertation Completion \(PDF\)](#) to the Graduate Division by the required deadline. If submitting a thesis, this form should be submitted to the library for acknowledgement of submission of the thesis.

## Deadlines

Degree completion dates will be posted on the [academic calendar](#). Those who have not completed all degree requirements by the established deadlines will be required to register the following semester.

## Degree Conferral and Commencement

Graduating from a program and participating in Commencement are two separate activities. Graduating from a program means the student has successfully completed all requirements identified by the program. It is an academic milestone whose indicator is conferral of the graduate degree.

Commencement is a public celebration of the academic completion of a degree program. Separate applications are required to graduate from a program and to participate in Commencement. A student may complete the degree and decide not to participate in Commencement. A student may not participate in Commencement before completing the degree.

Degrees are conferred three times each year: December, May, and August. Commencement exercises are conducted twice a year, in

December and in May. Students who complete degree requirements in the summer or in the fall semester may participate in Commencement in December. Students who complete degree requirements in the spring semester may participate in Commencement in May. More information can be found in the Graduate Handbook- [Degree Conferral and Participating in Commencement](#)

Commencement exercises are held only in December and May.

## Completion Letter

Students who complete all requirements for the degree well in advance of the award of the degree may, upon request, receive a statement from the Office of the Registrar certifying that all requirements for the degree have been completed.

## Checklist for Completion of Degree Requirements

### Master's Degree (non-thesis option)

1. **Graduate program:** Appoints primary academic advisor and, where appropriate, graduate committee, in consultation with the student.
2. **Student:** Submits [Form 1: Graduate Committee Formation \(PDF\)](#) to the Graduate Division Office, indicating the student will complete the Non-Thesis track.
3. **Student:** Satisfies residence and course requirements.
4. **Student:** Maintains continuous enrollment in program.
5. **Student:** Completes any other program requirements.
6. **Student:** Registers for semester in which degree requirements will be completed.
7. **Student:** Submits [Graduation Application form \(PDF\)](#) to the Cashiers Office by the required deadline. If student wants to participate in Commencement exercises, student submits the separate Commencement Registration by the required deadline.
8. **Student:** Submits the [Authorization to Participate in Commencement Form \(PDF\)](#) to the Graduate Division by the required deadline.
9. **Student:** Passes final examination, and/or passes requirements for papers or projects as specified by the graduate program.
10. **Student:** Completes all other requirements specified by the graduate program.
11. **Student:** Submits [Form 3: Thesis/Project/Dissertation and Degree Requirements Completion \(PDF\)](#) with appropriate signatures to the Graduate Division by the required deadline.
12. **Graduate Division:** Obtains final signatures.

### Master's Degree (thesis option)

1. **Graduate program:** Assigns primary advisor and committee.
2. **Student:** Submits [Form 1: Graduate Committee Formation \(PDF\)](#) to the Graduate Division Office.
3. **Student:** Submits [Form 2: Thesis/Project/Dissertation Proposal \(PDF\)](#) to the Graduate Division Office when ready to begin thesis.
4. **Student:** Satisfies residence and course requirements.
5. **Student:** Maintains continuous enrollment in program.
6. **Student:** Completes coursework required for the degree.
7. **Student:** Completes any other program requirements.
8. **Student:** Passes general examination if required.
9. **Student:** Registers for semester in which degree requirements will be completed.
10. **Student:** Submits [Graduation Application form \(PDF\)](#) to the Cashiers



Office by the required deadline. If student wants to participate in Commencement exercises, student submits the separate Commencement Registration by the required deadline.

11. **Student:** Submits a copy of the [Thesis Defense Schedule Form \(PDF\)](#) to the Graduate Division one month prior to the defense deadline posted in the University Academic Calendar. Student retains the original until the time of the defense, and submits the completed form to the Graduate Division with the Primary Advisor's signature indicating successful (or unsuccessful) completion of the defense.
12. **Student:** Defends and completes thesis.
13. **Student:** Submits original completed Thesis Defense Schedule Form to the Graduate Division)
14. **Student:** Obtains signatures of committee members on [Form 3: Thesis/Project/Dissertation and Degree Requirements Completion \(PDF\)](#).
15. **Student:** Submits thesis on ETD Administrator.
16. **Student:** Obtains initials of the Collection Development Librarian (or designee) on Form 3, then submits form to the Graduate Division by the required deadline posted in the University Academic Calendar.
17. **Graduate Division:** Obtains final signatures.

## Requirements for Candidates for Doctoral Degrees

### Admission to Doctoral Work

For masters' degree candidates intending to continue into the doctoral program in the same graduate program, the student's graduate committee, at a designated time near the completion of the student's masters' work, decides whether or not to admit the student to the doctoral program. For entry into a UH Hilo doctoral program from a masters' program at another university, or from a masters' program in a different discipline at UH Hilo, students follow the regular graduate application and admission procedures.

### Beginning the Program

At the beginning of the student's doctoral work, the chair of the graduate program appoints a primary academic advisor or graduate committee (whose chair is the principal advisor). The initial advisor assists the student in planning coursework and in understanding the program structure and requirements; the advisor has primary responsibility for monitoring the progress of the student's work. The advisor may or may not become the student's graduate committee chair at a later stage in his or her studies. The initial advisor should meet with the student at least once each semester.

### Requirements for a Doctoral Degree

The Graduate Catalog stipulates the specific requirements for the doctoral degree in each program. The requirements include:

1. Maintenance of at least a B average in courses approved by the program's graduate committee and presented for the degree.
2. Fulfillment of all program course requirements (no credit is granted for graduate courses in which a grade lower than B- has been received).
3. Completion of at least 24 credit hours in residence regardless of any previous graduate coursework elsewhere. Students continuing their studies for a doctoral degree in the same UH Hilo program from which they earned their masters' degree need not fulfill a second residence requirement.

4. Continuous registration including the semester in which final degree requirements are completed.
5. Demonstration to the graduate committee by means of a comprehensive examination (written and/or oral) of familiarity with basic hypotheses and techniques of the discipline and competence in applying them.
6. Fulfillment of any research skills requirements.
7. Submission of a dissertation on a topic approved by the department or school, embodying the results of original research and giving evidence of high scholarship.
8. Successful defense of the dissertation at a final oral examination.
9. Completion of any other requirements specific to the graduate program.

### Research Skills Requirements

Each graduate program establishes foreign language reading competency or equivalent research skills for its students. The graduate program determines the method(s) to be used to fulfill these requirements. Graduate students may register for research skills courses that have been established in each program.

### Formation of Dissertation Committee

By the end of the second semester of course work in a doctoral program, [Form 1: Graduate Committee Formation](#) should be submitted.

Committees are formed and modified (if necessary) by mutual agreement between the student and the faculty. The principal dissertation supervisor serves as chair of the graduate committee. Faculty are not required to serve on a particular dissertation committee if they do not wish to, and they are entitled to withdraw from a dissertation committee for reasonable cause. Faculty members from outside the student's own department or school may serve on the dissertation committee, but they do not replace the outside examiner, who is appointed by the VCAA before the final oral examination is scheduled.

Visiting, affiliate, and research faculty of UH Hilo (not holding the rank of Professor, Associate Professor, or Assistant Professor) may be appointed to a dissertation committee by the VCAA or designee upon recommendation of the program for a period not to exceed their term appointment at UH Hilo. If such term appointment is renewed, the member may continue to serve on the student's graduate committee.

### Outside Member

1. In consultation with his or her committee chair, the student will identify a UH faculty member from outside of the student's graduate program to serve as an outside voting member of the dissertation committee.
2. The outside member must possess sufficient familiarity with the student's research topic to be able to review and comment on the manuscript.
3. The committee chair must ascertain that the outside member is indeed independent of the faculty in the student's graduate program and that his or her membership on the committee will not constitute any conflict of interest.

The outside member fulfills the following functions:

1. Represents the University faculty on the committee, ensuring administration of proper procedures and fair treatment of the student;
2. Ensures that the level of research is indeed appropriate to the student's degree objective; and



3. Provides disciplinary expertise and an academic perspective that may not be possessed by the faculty of the student's graduate program.

The approval process for the outside member is as follows:

1. The student and committee chair will forward the name of the proposed outside committee member to the Graduate Council.
2. If the Graduate Council affirms the selection, the name will be sent forward to the VCAA for final approval.
3. If the Graduate Council does not affirm the selection, the VCAA will determine how to resolve the disagreement; final selection will rest with the VCAA if the disagreement cannot be resolved between the candidate/committee chair and the Graduate Council.

### External Examiner

The VCAA or designee, upon recommendation from the graduate program, adds an external examiner to the examination committee as the representative of the Graduate Division and the university. The external examiner is either a UH Hilo faculty member from a related area outside the student's graduate program or someone from a related discipline outside the University. Normally, the external examiner will have no involvement in the supervision of the student's dissertation. The external examiner's function on the examination committee is to render an independent judgment and to assure that the dissertation satisfies Graduate Division standards. Because the external examiner is supposed to serve the Graduate Division, s/he therefore must have substantial experience evaluating the scholarship/research of doctoral students (e.g., by being part of a graduate program, on graduate committees, supervising graduate research).

In special circumstances, particularly when a student would benefit from early counsel from a faculty member outside UH Hilo, the department chair or director of graduate studies can petition the VCAA or designee to appoint an external examiner while the dissertation is still being written. If the nominee is from another institution, the program chair should forward the nominee's academic credentials, including a vita, to the VCAA or designee to be evaluated. The VCAA or designee then invites the nominee or another faculty member to serve as external examiner.

### Comprehensive Examination

A comprehensive or proficiency examination is used to test candidates' specialized knowledge in the discipline and to demonstrate that they are qualified to undertake advanced-level dissertation work. The comprehensive examination may be written and/or oral.

The student's graduate committee serves as the examination committee, and this body determines the outcome of the examination. The student may repeat all or part of the comprehensive examination only once without prior approval from the Vice Chancellor for Academic Affairs (VCAA) or designee. The student has five years to complete the doctorate after passing the comprehensive examination.

Once the comprehensive examination has been successfully passed, the program should complete the [Comprehensive Exam Reporting Form \(PDF\)](#) and submit it to the Graduate Division.

### Dissertation Planning

After the student passes the comprehensive examination, the student's graduate committee will oversee the dissertation work. The committee will include an additional member chosen from a field outside the graduate program or from a similar field but from a different university,

approved by the VCAA or designee. Based on the student's recommendations, the committee is appointed by the chair of the student's graduate program. Two of the three regular members of the committee must be full time faculty at UH Hilo. Students must receive approval from the [Institutional Review Board \(IRB\)](#) for theses involving human subjects or from the [Institutional Animal Care and Use Committee](#) for dissertations involving use of vertebrate animals. IRB approval, where appropriate, must be sought at the time of approval of the dissertation topic, and research on the dissertation may not commence until after IRB approval is granted. Where appropriate, permission from other entities, such as the [Institutional Biosafety Committee][1], may be required.

### Prospectus

The prospectus functions to identify the topic to be undertaken in the dissertation and to formalize the approval of the project by a faculty committee. The timing, format, length, and conventions governing the prospectus are set by each graduate program. If the student's program requires a prospectus, the student should submit it within six months after being admitted to candidacy; the prospectus must first be approved by the dissertation committee. In a conventional prospectus, a student is asked to identify a topic, to summarize relevant backgrounds, and to explain the approach. Some programs substitute for the prospectus another means of ensuring that the student's project has been identified clearly and has received written approval by each member of the committee.

Before approving the dissertation project, the chair of the graduate committee is encouraged to arrange a conference with the student and the other committee members for the purpose of discussing the research topic. Each program must inform doctoral students of its expectations, standards, and procedures regarding the prospectus or other approval of dissertation projects and must provide access to samples of accepted proposals or prospectuses. Graduate programs should include specific information about their expectations for a prospectus in advising manuals for graduate students.

### Admission to Candidacy

After the student has passed the comprehensive examinations and met all research skills and coursework requirements, as certified by the program's submission of the [Form 2: Thesis/Project/Dissertation Proposal \(PDF\)](#) form, he or she will be officially admitted to candidacy for the doctoral degree by the VCAA. Intra- and inter-program majors and minors should be declared at this time where applicable.

At least two semesters normally elapse between admission to candidacy and the granting of the degree. Doctoral candidates must complete all requirements for the degree, including the dissertation, within five years after admission to doctoral candidacy.

### Dissertation Defense

The graduate committee has direct charge of all matters pertaining to the dissertation. The student's dissertation must have the unanimous approval of his or her dissertation committee and of the chair of the graduate program before arrangements are made for the final examination for the degree. Members of the student's graduate committee serve as the examination committee.

### Final Oral Exam (Dissertation Defense)

After the student's program has been notified of the appointment of an external examiner, the program director, in conjunction with the chair of



the examination committee, may proceed to schedule the final oral examination. Because of the time required to give adequate consideration to the student's research, the student should submit the dissertation to the graduate committee well in advance of the final oral defense. Normally, two months is recommended; the student should consult the committee.

The final oral examination is open to any person wishing to attend. Members of the graduate committee must be given sufficient time to question the candidate about the dissertation. The final defense is a public examination, however, and the committee chair is responsible for the conduct of an open and impartial examination, including reasonable participation by observers. At the conclusion of the examination, it is customary for the chair to request that everyone except the graduate committee leave the room, so that the members may reach a decision. This procedure should not be invoked at any other time during the examination and should not preclude questions from either committee members or outside observers. The final oral examination shall not exceed 4 hours in length. No member of a graduate committee can be expected to participate in a dissertation defense if that member has not had at least two weeks to read and consider the dissertation beforehand.

At the final examination, the student will be required to respond to examiners' questions concerning the dissertation and to defend the validity of the dissertation. To pass, the student must receive unanimous approval from the total graduate committee present. All members of the graduate committee who accept the dissertation in partial fulfillment of requirements for the doctorate shall so attest by their signatures on Form 3: Thesis/Project/Dissertation and Degree Requirements Completion (PDF). If the external examiner does not signify approval in this manner, he or she should give the reason for dissent by submitting a separate memorandum to the VCAA or designee within three days of the examination.

If at the final examination the examiners generally approve of the dissertation but require significant changes and are not yet prepared to sign Form 3: Thesis/Project/Dissertation and Degree Requirements Completion (PDF), the chair of the graduate committee will coordinate with other members of the committee to compile all required changes and will inform the student of the scope and substance of those changes. The committee will establish how the changes will be reviewed and approved.

Following the oral exam and approval of the dissertation, and with the signatures of the members of the dissertation committee, the student submits Form 3: Thesis/Project/Dissertation and Degree Requirements Completion to the Graduate Division, indicating that the student has now fulfilled all academic requirements for the doctoral degree, including submission to Mookini Library via ETD Administrator, and has successfully defended the dissertation. The Graduate Division obtains the final two signatures.

## Remote Participation

Normally, all members of the graduate committee and the outside examiner are present at the defense. At the discretion of the program, with the unanimous consent of all members of the graduate committee and the student, committee members or the outside examiner may participate in the defense via real-time teleconferencing or real-time videoconferencing. In all cases, the chair and at least one other member of the dissertation committee must be physically present.

If in exceptional circumstances one member of the graduate committee cannot be present (either physically or *virtually*), they may submit

questions and comments in writing. Such arrangements must be approved in advance by the program and must have the unanimous consent of all other members of the graduate committee and the student.

## Deadlines

Degree completion deadlines are noted in the [University calendar](#).

## Degree Conferral and Commencement

As noted under Master's degree requirements.

## Completion Letter

Students who complete all degree requirements well in advance of the awarding of the degree may, upon request, receive a statement from the Office of the Registrar certifying that all requirements for the degree have been completed.

## Checklist for Completion of Degree Requirements of Doctoral Degree

1. **Graduate program:** Assigns principal academic advisor and graduate committee.
2. **Student:** Submits [Form 1: Graduate Committee Formation \(PDF\)](#).
3. **Student:** Satisfies residence and course requirements.
4. **Student:** Passes research skills examinations (if required).
5. **Graduate program:** Arranges comprehensive examination.
6. **Student:** Takes comprehensive examination.
7. **Student:** Writes a prospectus.
8. **Student:** Submits [Form 2: Thesis/Project/Dissertation Proposal \(PDF\)](#) when ready to begin the dissertation and advance to candidacy.
9. **Student:** Maintains appropriate registration for dissertation credit each semester, including semester in which all degree requirements will be completed.
10. **Student:** Completes dissertation.
11. **Graduate program:** Nominates Outside Member by memo to the Chair of Graduate Council who then forwards his/her recommendation to the VCAA or designee.
12. **VCAA or designee:** Appoints Outside Member and so notifies the graduate program.
13. **Graduate program:** Nominates External Examiner by memo to the VCAA or designee.
14. **VCAA or designee:** Appoints External Examiner and so notifies the graduate program.
15. **Student:** Submits Graduation Application form and fee to the Business Office by the required deadline. If student wants to participate in Commencement exercises, student submits the separate Commencement Registration by the required deadline.
16. **Student:** Submits a copy of the [Thesis/Project/Dissertation Defense Schedule \(PDF\)](#) form to the Graduate Division one month prior to the defense deadline posted in the University Academic Calendar. Student retains the original until the time of the defense, and submits the completed form to the Graduate Division with the Primary Advisor's signature indicating successful (or unsuccessful) completion of the defense.
17. **Student:** Defends and completes dissertation.
18. **Student:** Obtains signatures of committee members on [Form 3: Thesis/Project/Dissertation and Degree Requirements Completion \(PDF\)](#).
19. **Student:** Submits dissertation on ETD Administrator.



20. **Student:** Obtains initials of the Collection Development Librarian (or designee) on Form 3, then submits form to the Graduate Division by the required deadline posted in the University Academic Calendar. The Graduate Division obtains final signatures.

## Graduate Student Rights and Responsibilities

### Policy on Academic Dishonesty

Graduate students are subject to the policies and procedures governing student conduct as described in the UH Hilo Student Conduct Code. This includes acts of academic dishonesty, including, but not limited to, plagiarism, cheating, and falsifying data. Students can find these policies in the [Academic Dishonesty](#) section of this Catalog.

### Policy on Conduct Violations Other than Academic Dishonesty

Instances in which graduate students are alleged to have violated the UH Hilo Student Conduct Code in areas other than academic dishonesty will be handled following the procedures described in the Student Conduct Code. These procedures are described in the [Student Conduct Code](#) section of this catalog.

### Conduct and Removal of Financial Support

All other recommendations to dismiss a student from the Graduate Division or one of its programs, or to break a student's assistantship contract or to revoke a fellowship, tuition scholarship, or other source of financial support, are made to the VCAA, accompanied by appropriate documentation. The student will be informed of the basis for any such decision. The student may appeal the decision by using first the grievance procedure of the student's program and then, if needed, the appeals procedures of the Graduate Council Grievance Committee. Action on a recommendation to remove support from or to dismiss a student in good academic standing will await the outcome of the grievance procedure.

### Academic Complaints

The process for handling academic complaints by graduate students will follow the same general procedure as utilized for undergraduate students at UH Hilo. This procedure is outlined in the [University of Hawai'i at Hilo Student Academic Complaint Policy](#). The following exception is made for graduate students:

Under Part III (Procedures for the Resolution of Academic Complaints Filed During the Regular Academic Year) Letter B (Complaint of Academic Impropriety), for complaints relating to academic impropriety involving graduate students, the Dean shall refer the written complaint to the UH Hilo Graduate Council (Academic Complaints Committee) for timely review and recommendation (10 calendar days) before taking action.

## M.A. in Heritage Management

**Program Chair:** Peter R. Mills , Ph.D.  
Dept. of Anthropology  
Social Sciences Division Office  
200 W. Kāwili Street  
Hilo, HI 96720

**Email:** [millsp@hawaii.edu](mailto:millsp@hawaii.edu)

#### Professors:

- Peter R. Mills , Ph.D., Professor of Anthropology
- Lynn A. Morrison , Ph.D., Professor of Anthropology

#### Associate Professors:

- Joseph H. Genz , Ph.D., Associate Professor of Anthropology
- Kathleen L. Kawelu , Ph.D., Associate Professor of Anthropology

#### Lecturers:

- Eileen Momilani Naughton, Ph.D., NHERC
- Timothy Scheffler , Ph.D., Lecturer, Dept of Anthropology
- Hans Van Tilburg, Ph.D., NOAA (adjunct)
- Lynne M. Wolforth , Ph.D., Lecturer, Dept. of Anthropology

### Program Description

The M.A. in Heritage Management is for students who seek careers in a multitude of governmental agencies, private-sector consulting firms, and in education, who work with the interpretation and preservation of cultural heritage. UH Hilo's MA in Heritage Management responds to House Resolution No. 130 of the 24th Legislature (2008).

There are five main objectives:

1. to apply anthropological concepts to guide a workforce of historic preservationists who are committed to the long-term management of Hawaiian cultural resources;
2. increase the number of individuals of local ancestry in leadership positions in heritage management;
3. provide better assistance to community planners in developing plans that are more sensitive to traditional cultural properties, human burials, sacred sites, ancient habitation sites, agricultural systems, and trails;
4. provide training to meet the professional qualifications of principal investigators as defined in Hawai'i Administrative Rules (HAR)13-281 for conducting archaeological fieldwork and for conducting cultural impact assessments; and
5. provide training to meet the federal professional standards for archaeologists as defined in 36 CFR Part 61.

Although the program is focused primarily within Hawai'i, we address heritage training across the Pacific Islands. The proposal fills a clear need to produce individuals who are well-trained in the specific issues of Oceanic heritage. Despite dozens of similar MA programs around the globe, none of the major extant programs focus on the Pacific Islands. The region has unique cultural historical, social, and environmental characteristics that would make localized training more effective in creating qualified, culturally sensitive professionals.

### Program Learning Outcomes

Upon graduation with this degree, students will be able to:

1. Demonstrate the value of community engagement in Heritage Management through sustained efforts in community-outreach during their graduate program.
2. Develop and apply technical skills in heritage management including:
  1. Technical Report preparation following an accepted style guide.
  2. Successful implementation of fieldwork, such as archaeology,



oral history, and ethnography.

3. Demonstrate professional familiarity with federal and state laws and regulations that affect preservation programs.
4. Apply an anthropological context to original Heritage Management fieldwork.

## Program Curriculum

### Required Courses (12):

- ANTH 600 Thesis Design, Method, Theory (3)
- ANTH 601 Ethics of Heritage Management (3)
- ANTH 602 Historic Preservation Laws (3)
- ANTH 603 Qualitative & Quant. Methods (3)

### Topical Courses (3): [choose 1]

- ANTH 611 Cultural Impact Assessments (3)
- ANTH 612 Indigenous Museum Studies (3)
- ANTH 613 Human Paleocology (3)
- ANTH 614 Submerged Cultural Resources (3)

### Area Courses (3): [choose 1]

- ANTH 623 Archaeology of Oceania (3)
- ANTH 624 Archaeology of Hawai'i (3)
- ANTH 625 Pacific Heritage Management (3)

### Applied Analytical Methods (minimum 6): [choose 2]

- ANTH 631 Oral History Research (3)
- ANTH 632 Paleobotanical Methods (3)
- ANTH 633 Material Conservation (3)
- ANTH 634 Lithic Analysis (3)
- ANTH 635 Human Osteology (3)
- ANTH 682 Archaeological Field Methods (3-5)

**Year 2 Internship in Heritage Management:** (minimum 6 credits to be determined by student's area of specialization, may be repeated)

- ANTH 690 Heritage Management Internship (3) (a) Internship in Archaeology; (b) Internship in Museum Studies; (c) Internship in Burials Program (d) Internship in Cultural Impact Assessments.

### Year 2 Thesis: (minimum 6 credits)

- ANTH 700 Thesis Research (1-6)

**Total Minimum Semester Hours Required for the M.A. in Heritage Management: 36 credits.**

## M.A. in Counseling Psychology

### Specialization: Clinical Mental Health Counseling

**Program Director:** Charmaine Higa-McMillan , Ph.D.

**Email:** [higac@hawaii.edu](mailto:higac@hawaii.edu)

**Website:** [counseling.uhh.hawaii.edu](http://counseling.uhh.hawaii.edu)

### Faculty:

- Steven Herman , Ph.D.
- Charmaine Higa-McMillan , Ph.D.

- Bryan Kim , Ph.D.
- Sunyoung Kim , Ph.D.
- Errol Yudko , Ph.D.

## Program Description

The Master of Arts in Counseling Psychology is a 60 semester hour program that is designed to provide multicultural, student-centered training in counseling psychology with a specialization in clinical mental health counseling. The program is offered through the [Department of Psychology](#).

Counseling psychology as a psychological specialty aims at facilitating personal and interpersonal functioning across the life span with a focus on emotional, social, vocational, educational, health-related, developmental, and organizational concerns. Through the integration of theory, research, and practice, and with sensitivity to multicultural issues, this specialty encompasses a broad range of practices that help people improve their well-being, alleviate distress and maladjustment, resolve crises, and increase their ability to live more highly functioning lives. Counseling psychology is unique in its attention both to normal developmental issues and to problems associated with physical, emotional, and mental disorders. Here are two websites that contain more information about the field of counseling psychology: [Society of Counseling Psychology](#) and [CounselingPsychology.org](#).

## Accreditation

Our program is **nationally accredited** by the [Masters in Psychology and Counseling Accreditation Council](#) for the period of June 2021 through June 2029. MPCAC accredits academic programs in psychology and counseling, which promote training in the scientific practice of professional psychology and counseling at the master's level. Accredited programs must demonstrate a commitment to science-based training in all aspects of psychology and counseling and to enhancing services to the consumer and the public at large.

Masters in Psychology and Counseling Accreditation Council (MPCAC)  
595 New Loudon Road #265  
Latham, New York 12110

## Mission

The mission of the Master of Arts Program in Counseling Psychology (Specialization: Clinical Mental Health Counseling) is to prepare students to help meet the mental health service needs of the diverse and multicultural populations in Hawai'i and beyond. The program is designed to train students to become knowledgeable, skillful, ethical, and reflective mental health counselors, and to serve as a foundation for students interested in pursuing advanced graduate studies. The program assigns a high priority to meeting the educational needs of its students and is based on a scientist-practitioner model, with an emphasis on empirical research and evidence-based practices.

## Program Objectives

The degree objectives are designed to enable the student to:

1. Understand legal and ethical principles as they pertain to professional conduct and responsibility.
2. Display multicultural awareness and competence when working with diverse individuals, groups, and communities.
3. Develop their theoretical orientation and identity as a reflective practitioner.



4. Demonstrate effective skills in evidence-based assessment, case conceptualization, treatment planning and intervention strategies to alleviate suffering and promote health and well-being.
5. Recognize and apply research principles to real world clinical situations and settings.

## Prospects for Graduates

Graduates of the program will be able to seek employment as professional counselors. Employment prospects for mental health counselors are currently good in Hawai'i and in many other areas of the United States. Employment opportunities in this field are expected to grow at a faster than average rate over the coming years. Professional counselors may find employment in a wide variety of settings, including the following:

- Community mental health clinics
- Public and private elementary and secondary schools
- Colleges and universities
- Correctional facilities
- Vocational rehabilitation centers
- Job training and career counseling centers
- Residential care facilities
- Drug and alcohol rehabilitation programs and agencies
- Private practice settings
- Mental hospitals and psychiatric wards
- General medical hospitals and other healthcare facilities
- Employee Assistance Programs
- Child welfare and other family assistance agencies
- Military settings

## Licensure

The program curriculum meets the educational requirements for licensure as a Mental Health Counselor in the state of Hawai'i. Additional information can be obtained from the [Hawai'i Department of Commerce and Consumer Affairs](#). Please note that, in addition to completing the M.A. program, the current law has other requirements, including earning a passing score on the National Counselor Examination for Licensure and Certification and accruing at least 3000 hours of post-graduate experience in the practice of mental health counseling.

The [American Counseling Association](#) maintains a web page with links to all of the [state licensing boards for mental health counselors](#).

## Admission Requirements

To be eligible for admission to the Master of Arts in Counseling Psychology program, students must meet the following minimum requirements:

- A baccalaureate degree from a regionally-accredited institution;
- A cumulative GPA of 3.0 on a 4.0 scale;
- A strong background in psychology or a closely-related field, with a minimum of 15 semester hours of course work in psychology; strongly recommended are an introductory or survey of psychology, statistical techniques, research methods, and at least two 300-level or higher psychology courses. For these 15 semester hours, similar courses in closely-related fields of study may also be acceptable;
- At least one 3-semester-credit course in statistics and one 3-semester-credit course in research methods from any discipline;
- Completion of the Graduate Record Examination (General Test) **(Note: The GRE Test Requirement has been waived for the 2022 application cycle);**

- A score of 550 on the TOEFL (required of applicants for whom English is not their native language and whose undergraduate degree was earned in a non-English speaking country).

Meeting the minimum requirements does not guarantee admission. Eligible applications are reviewed by the Psychology Graduate Admissions Committee, which uses multiple criteria for the assessment of applicants. Admission is selective. Priority may be given to students applying for full-time enrollment. Depending on program needs, a few outstanding applicants for part-time enrollment may be admitted.

The application priority deadline for Fall admission is January 21, 2022. Please see [Graduate Application Procedures](#) for detailed information.

## Transfer of Credits

Requests for transfer of credits must be made during the first semester in which the student is enrolled in the program. Students need to obtain departmental approval for all credit transfers. Only credit hours with a grade of B or better from accredited universities are transferable. Credit hours for practicum and internship courses are not transferable. Transfer credit hours must have been completed within five years prior to admission. Students may transfer a maximum of 12 semester hours (or the equivalent). On rare circumstances, requests for an exception to the 12-credit limit could be considered by the program faculty. All requests for transfer of credits must be accompanied by a transcript and course syllabi.

## Program Curriculum (60 credits)

### 1. Required courses (51):

- PSY 601 Applied Multivariate Statistic (4)
- PSY 602 Research Meth & Prgm Evaluatn (3)
- PSY 603 Psychological Assessment (4)
- PSY 604 Profssnl Identity, Ethics (3)
- PSY 611 Lifespan Human Development (3)
- PSY 612 Career Development (3)
- PSY 613 Psychopathology over Lifespan (3)
- PSY 620 Counseling Theories (3)
- PSY 622 Group Work & Counseling (4)
- PSY 623 Social & Cultural Foundations (3)
- PSY 624 Counseling Skills (3)
- PSY 640 Practicum Supervision (3)
- PSY 640F Practicum Fieldwork (3)
- PSY 659 Internship Supervision (3)
- PSY 659F Internship Fieldwork (6)

### 2. Electives (9):

- An additional **nine (9)** credits of PSY courses at the 600 or 700 level, not included in the list above.

## Master of Education (M.Ed.)

**Program Chair:** Janet Ray , Ed.D.

**Website:** [hilo.hawaii.edu/depts/education/](http://hilo.hawaii.edu/depts/education/)

## Program Description

The Master of Education degree (M.Ed.) program prepares teacher leaders to serve their schools and communities in Hawaii and throughout the Pacific Rim. The program is aligned to Teacher Leader Model Standards. It is a 30-semester-hour, cohort-based program that may be completed in four semesters and two summers. Courses are offered primarily through a distance-learning format. As teacher leaders, graduates will be prepared to bring a culturally-responsive, research-



based approach to school improvement efforts.

## Student Learning Outcomes

Graduates of the program will be able to:

1. Design and conduct action research by exploring instructional and professional topics relevant to school and student performance;
2. Critically examine and analyze current trends and issues in education and apply this knowledge by demonstrating teacher leader competencies within the profession.

## Admission Requirements

Admission is based upon previous preparation and requires completion of a baccalaureate degree and evidence of eligibility for the initial basic license to teach as defined by the UH Hilo [School of Education](#) and guided by the Hawaii Teacher Standards Board. Applications and a detailed description of requirements are available from the School of Education or from the UH Hilo Graduate Office of Admissions. Interested potential students may contact the School of Education Advisor at (808) 932-7102 for more information.

Following are the major requirements for admission:

1. Baccalaureate degree from an accredited institution;
2. A cumulative grade point average (GPA) of 3.0 (4.0 = A scale) or the equivalent in the last four semesters or approximately 60 semester credits of the undergraduate record and in all post-baccalaureate work;
3. Evidence of eligibility for an Initial Hawai'i Basic License to teach; <sup>1</sup>
4. Three letters of recommendation from references who have observed or supervised the applicant's performance and are able to comment on the quality of the applicant's teaching experience, ability to pursue graduate study, and general character.

The UH Hilo School of Education M.Ed. Admissions Committee will evaluate above evidence submitted as one of the components in the M.Ed. application.

Application packets will be reviewed only when they are complete. International applicants also must provide verification of financial status. An official TOEFL score report may be required for international applicants.

**The UH Hilo M.Ed. Program does not lead to licensure in the State of Hawai'i.**

## Course and Graduation Requirements

### M. Ed. Course Requirements

- ED 600 Ed Of Ethnic Groups in Hawai'i (3)
- ED 602 Technology in Education (3)
- ED 608A Action Research I (3)
- ED 608B Action Research II (3)
- ED 608C Action Research III (3)
- ED 610 Foundations Of Education (3)
- ED 616 Assess & Evaluation in Ed (3)
- ED 622 School Curriculum (3)
- ED 625 Seminar in Teaching Fld (3)
- ED 635 Adv Instructional Strategies (3)

### M. Ed. Graduation Requirements

- Students must complete all program courses.
- To remain eligible for continuance in the M.Ed. and to be awarded the graduate degree, students must maintain progress toward completion of the program and may earn no grade lower than a B- in any individual class, and maintain a B average (3.0 GPA) for all courses completed in the program.
- Each student must complete a culminating experience; this is an independent project that integrates what he or she has learned during the program.

### Cohort and Other Requirements

- Students enroll in the M.Ed. program as members of a cohort which is expected to complete all requirements in four semesters and two summers.
- Courses are offered during the evening and/or on Saturdays, and during the summer.
- Typically, all students in a cohort will take courses together and in sequence.
- New cohorts will be established based on student demand and available resources.
- Students must remain continuously enrolled while in the M.Ed. program.

### Faculty Advising and Guidance

Each student will be assigned a faculty advisor who will meet with the individual student to provide guidance for the culminating project.

1. Applicants who do not hold a license to teach should meet with the School of Education Advisor ((808) 932-7102 for appointment) prior to submitting documentation for admission to the M.Ed. Program. Applicants must submit evidence of their eligibility by documenting the following: **a)** development of knowledge, skills, and dispositions described in the Hawai'i Teacher Standards Board's Teacher Performance Standards, **b)** teaching experience, and **c)** ability to participate in the study of education at the level required in a graduate program.

## Master of Arts in Teaching (MAT)

**Program Chair:** Janet Ray , Ed.D.

**Website:** [hilo.hawaii.edu/depts/education/](http://hilo.hawaii.edu/depts/education/)

### Program Description

The primary purpose of the MAT is to prepare teachers who demonstrate the knowledge, skills, and dispositions needed to build strong curriculum, pedagogy, assessments, and the relationships that bring about significant changes to improve schools, support learners and their development, and positively impact student achievement. After the first year of the MAT, students apply for initial teacher licensure with the Hawai'i Teacher Standards Board. During the second year of the MAT, students will be able to engage in action research, a critical and reflective analysis that enables teachers to integrate and apply a variety of research-based methods in their classrooms.



## MAT Claims - Student Learning Outcomes

Those who complete the program will be able to:

- Create supportive environments based on their knowledge of learner development and learning differences.
- Demonstrate subject matter knowledge and apply this knowledge to engage students in learning content.
- Plan instruction that supports student learning through the use of multiple instructional and assessment strategies including technology.
- Demonstrate professional attributes, engage in critical reflection and collaborate to ensure learner growth.

## Admission Requirements

- Applicants must:
  - have earned a baccalaureate degree from an accredited institution or from a nationally recognized foreign institution.
  - have a GPA of 3.0 on a 4.0 scale in the last 60 semester credits.
  - receive passing scores on the PRAXIS II: Content Area Examinations. Students who have taken, but have not successfully passed the Praxis for the content area they wish to teach, may request a transcript review to determine if they meet the content knowledge requirements.
  - have a minimum of 40 hours (more preferred) of previous experience working with school-aged (P-20) youth.
  - submit three letters of recommendation from those who observed applicant working with school-aged youth.
  - submit two professional statements detailing interest in the teaching profession and beliefs about student learning.
- Additionally:
  - [School of Education](#) Interview may be required.
  - For all applicants seeking elementary licensure, these pre-requisite courses must be completed, each with a grade of C or better, and in combination passed with a GPA of 2.75 or above: ED 341 Literacy Dev in Elem School (4) , ED 343 Math for Elem School Teachers (3) , and ED 347 Intgr Sci/Soc Stud Elem School (3) .
  - For applications seeking licensure at the secondary level, the baccalaureate degree must be related to the content area of licensure.
  - For applications seeking licensure in Social Studies, there may be additional prerequisite coursework. Each of the Social Studies prerequisite courses must be completed, each with a grade of C or better, and in combination passed with a GPA of 2.75 or above.
  - Applicants for whom English is not the native language must obtain a score of 550 (paper based test), 213 (computer based) or 79 (internet based) on the TOEFL, or a 6.0 on the IELTS. Students with bachelor's degrees from English-speaking institutions do not need to submit TOEFL scores.

Some courses are specific to the elementary track and others to the secondary track. Some courses are common to both tracks.

## Elementary (36 credits)

### First year, for licensure:

- ED 640 Learner Development (2)
- ED 641 Learning Differences (3)
- ED 642 Learning Differences II (2)
- ED 643 Learning Environments I (1)

- ED 644 Learning Environments II (1)
- ED 645 Learning Environments III (2)
- ED 650 Teaching in Hawaii's Schools (1)
- ED 651 Elem Instructional Practice (2)
- ED 652 Elem LA/SS Pedagogy (2)
- ED 653 Elem MT/SC Pedagogy (2)
- ED 654 Tech Instruction & Assessment (2)
- ED 659 Professional Practice (3)
- ED 660 Professional Responsibility I (1)
- ED 661 Professional Responsibility II (1)
- ED 662 Prof Responsibility III (1)
- ED 670 Field Experience I (1)
- ED 671 MAT Field Experience II (2)
- ED 672 Clinical Practicum (3)

### Second year, to complete the MAT:

- ED 680 Teacher as Researcher I (3)
- ED 681 Teacher as Researcher II (3)

## Secondary (36 credits)

### First year, for licensure:

- ED 640 Learner Development (2)
- ED 641 Learning Differences (3)
- ED 642 Learning Differences II (2)
- ED 643 Learning Environments I (1)
- ED 644 Learning Environments II (1)
- ED 645 Learning Environments III (2)
- ED 650 Teaching in Hawaii's Schools (1)
- ED 654 Tech Instruction & Assessment (2)
- ED 655 Sec Instructional Practice (2)
- ED 656 Sec LA/SS Pedagogy (2) **or** ED 657 Sec MT/SC Pedagogy (2)
- ED 658 Sec Content Literacy (2)
- ED 659 Professional Practice (3)
- ED 660 Professional Responsibility I (1)
- ED 661 Professional Responsibility II (1)
- ED 662 Prof Responsibility III (1)
- ED 670 Field Experience I (1)
- ED 671 MAT Field Experience II (2)
- ED 672 Clinical Practicum (3)

### Second year, to complete the MAT:

- ED 680 Teacher as Researcher I (3)
- ED 681 Teacher as Researcher II (3)

The first three semesters (Summer-Fall-Spring) in the MAT program prepare the student to become licensed to teach. Continuation in the program for 2 more semesters (6 more credits) leads to the Master of Arts in Teaching degree.

### Academic Status, Progression, and Readmission Policies

Participants are required to begin the program during the Summer semester and are required to be enrolled full-time during Fall and Spring semesters. There are no elective courses.

To remain eligible for continuance in the MAT and to be awarded the graduate degree, students must maintain satisfactory progress toward completion of the program and they must earn no grade lower than a "B-" in an individual class that is taken for a letter grade. Additionally, they must earn a grade of CR for Field Experience and Professional Practice Courses (ED 660 Professional Responsibility I (1) , ED 661 Professional



Responsibility II (1) , ED 662 Prof Responsibility III (1) , ED 670 Field Experience I (1) , ED 671 MAT Field Experience II (2) , ED 672 Clinical Practicum (3) ) which are taught as CR/NC.

Grades below "B-" or "credit" will not be accepted in courses defined to fulfill program requirements. Work for courses designated "credit/no credit," must be at least at the "B-" (2.7) level to qualify for "credit." Required MAT courses, unless designated "credit/no credit," may not be taken on a "credit/no credit" basis. A cumulative 3.0 GPA must be maintained in all MAT program course work. A candidate whose GPA in MAT courses falls below 3.0 may be dismissed from the program. In order to enroll in MAT courses, students must be admitted as teacher candidates into the program. Candidates must progress through MAT coursework and field experiences in three consecutive semesters. Fall and Spring semester enrollment is based on recommendation of the Education faculty. A candidate may be removed from a field experience when in the judgment of the Education faculty, cooperating teacher, and/or school principal the candidate is disrupting the educational process or is not making satisfactory progress toward meeting the requirements of the program. Such removal may result in complete dismissal from the program.

Students and candidates who stop out of the University must reapply and meet all criteria in effect for the respective Admission deadline. See guidelines and policies set forth in the UH Hilo Graduate Student Handbook.

## Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language

### Graduate Programs

**Graduate Programs Coordinator:** Scott Saft , Ph.D.

**Email:** [saft@hawaii.edu](mailto:saft@hawaii.edu)

**Website:** <https://www.olelo.hawaii.edu/khuok/>

#### Professors:

- Scott Saft , Ph.D.
- Glenn Kalena Silva , Ph.D.
- William Pila Wilson , Ph.D.

#### Associate Professors:

- Jason Iota Cabral , Ph.D.
- Kekoa Harman , Ph.D.
- Betty-Joann Noelani Iokepa-Guerrero , Ph.D.
- Kauanoē Kamanā , Ph.D.
- Keiki Kawai'ae'a , Ph.D.
- Larry Kimura , Ph.D.
- Yumiko Ohara , Ph.D.
- Hiapokeikikane Perreira , Ph.D.

#### Assistant Professor:

- Kananinohea Māka'imoku , M.A.

#### For Information Contact:

Ku'ulei Kepa'a  
Ka Haka 'Ula O Ke'elikōlani  
University of Hawai'i at Hilo  
200 W. Kāwili Street  
Hilo, Hawai'i 96720-4091

**Tel:** (808) 932-7730

**Email:** [kuulei.kepaa@hawaii.edu](mailto:kuulei.kepaa@hawaii.edu)

### Vision and Mission of the College

*'O ka 'ōlelo ke ka'ā o ka maui.*

Language is the fiber that binds us to our cultural identity.

UH Hilo's College of Hawaiian Language, Ka Haka 'Ula O Ke'elikōlani, was established in 1998 as the world's first college through the medium of Hawaiian. The College is named in honor of Ruth Ke'elikōlani Keanolani Kanāhoahoa, the 19th century high chiefess known for her strong advocacy of Hawaiian language and culture.

The mission of the College is to assure the revitalization and continued advancement and growth of the Hawaiian language and maui ola Hawai'i. A thriving Hawaiian language is the means through which the maui ola Hawai'i will once again become commonplace in both traditional and contemporary contexts in Hawai'i. The College joins with other Indigenous peoples in the revitalization of their own languages and cultures. Our collective efforts will ensure the furthering of local, national and international initiatives toward establishing language and cultural vibrancy throughout the world.

The **Graduate Program** is tied to the reestablishment of Hawaiian as the medium of education in preschools (1984) and in K-12 education (1986) and offers A Master of Arts degrees, two associated Graduate Certificates, and a Doctoral degree.

### Graduate Program Learner Outcomes

1. Demonstrate advancement in spoken and written Hawaiian with fluency and consistency in all educational contexts, adhering to graduate-level writing standards.
  2. Demonstrate analytical skills and comprehension of content and overall constitution of literary, cultural, and historical Hawaiian language texts.
  3. Examine and articulate the Hawaiian language renormalization movement within the broader context of language revitalization.
  4. Apply knowledge of and skills in the performance of Hawaiian chant, dance, and oratory.
  5. Exhibit leadership in Hawaiian and Indigenous language and culture revitalization in academic and community environments.
- [Indigenous Language and Culture Revitalization Graduate Certificate](#)
  - [Kahuawaiola Indigenous Teacher Education Graduate Program Certificate](#)
  - [M.A. in Indigenous Language and Culture Education](#)
  - [Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization](#)
  - [Hawaiian Language \(HAW\) Graduate Courses](#)
  - [Hawaiian Studies \(HWST\) Graduate Courses](#)
  - [Ke'elikōlani Education \(KED\) Graduate Courses](#)
  - [Ke'elikōlani Hawaiian Language \(KHAW\) Graduate Courses](#)
  - [Ke'elikōlani Hawaiian Studies \(KHWS\) Graduate Courses](#)
  - [Ke'elikōlani Indigenous Language \(KLAN\) Graduate Courses](#)
  - [Ke'elikōlani Indigenous Studies \(KIND\) Graduate Courses](#)
  - [Ke'elikōlani Linguistics \(KLIN\) Graduate Courses](#)



## Indigenous Language and Culture Revitalization Graduate Certificate

**Coordinator:** Scott Saft , Ph.D

**Email:** saft@hawaii.edu

**Website:** <http://www.olelo.hawaii.edu/khuok/>

### Faculty:

- Jason "Iota" Cabral , Ph.D.
- Kauanoë Kamanā , Ph.D.
- Yumiko Ohara , Ph.D.
- Scott Saft , Ph.D.
- William "Pila" Wilson , Ph.D.

### For Information Contact:

Ku'ulei Kepa'a

Ka Haka 'Ula O Ke'elikōlani  
University of Hawai'i at Hilo  
200 W. Kāwili Street  
Hilo, Hawai'i 96720-4091

**Tel:** (808) 932-7730

**Email:** [kuulei.kepaa@hawaii.edu](mailto:kuulei.kepaa@hawaii.edu)

The **Graduate Certificate in Indigenous Language and Culture Revitalization** was approved in 2004 by the Board of Regents on October 22, 2004 with the M.A. in Hawaiian and Indigenous Language and Culture Education and Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization programs.

The **Graduate Certificate in Indigenous Language and Culture Revitalization** is a program of course work to prepare students for careers primarily as educators and administrators. In addition, the Certificate provides training for practitioners desiring further career development and those seeking preparatory work before entering an Indigenous language focused graduate program of the College.

### Admission Requirements:

1. A bachelor's degree from an accredited college or university;
2. A GPA of at least 3.0 out of 4.0 over the last 60 credits in an approved field of study;
3. Three letters of recommendation, at least one of which must focus on background in a particular language and culture of an indigenous or endangered community;
4. Appropriate level fluency and academic knowledge demonstrated in a program recognized indigenous language and culture chosen as a language of focus plus additional credits in other areas when appropriate to balance the status of different endangered languages relative to community use, revitalization stage, and level of academic study available.

### Graduation Requirements

At least a 3.0 (B) in each required course

- KLIN 601 General Ling in Indig Context (3)
- KLIN 603 Socioling Analysis Indig Lang (3)
- KIND 641 Advanced Language in Culture I (3)
- KIND 642 Advanced Lang in Culture II (3)
- KLAN 641 Advanced Language Structures I (3)

## Kahuawaiola Indigenous Teacher Education Graduate Program Certificate

**Coordinator:** Kananinohea Māka'imoku , M.A.

**Email:** [kananino@hawaii.edu](mailto:kananino@hawaii.edu)

### Faculty:

- Betty-Joann Noelani Iokepa-Guerrero , Ed.D.
- Keiki Kawai'ae'a , Ph.D.
- Kananinohea Māka'imoku , M.A.

Note: This program is assisted by experts in Hawaiian language and culture from outside the college and by additional faculty drawn from Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language.

### For Information Contact:

Ku'ulei Kepa'a

Ka Haka 'Ula O Ke'elikōlani  
University of Hawai'i at Hilo  
200 W. Kāwili Street  
Hilo, Hawai'i 96720-4091

**Tel:** (808) 932-7730

**Email:** [kuulei.kepaa@hawaii.edu](mailto:kuulei.kepaa@hawaii.edu)

**Website:** <http://www.olelo.hawaii.edu/kwo/>

The **Graduate Certificate in Kahuawaiola Indigenous Teacher Education** (Kahuawaiola) was mandated in Act 315 HRS 304A-1302 by the Hawai'i State legislature. Kahuawaiola was established by the University of Hawai'i (UH) Board of Regents in 1998 and has been recognized by the UH system as an approved professional education unit since January 1999. Since 2001, Kahuawaiola has functioned as a state approved teacher education program (SATEP) and is the only fully approved and accredited unit established to specifically prepare teachers through Hawaiian for P-12 Hawaiian language education. It is the first and only teacher licensing preparation program taught entirely in the Hawaiian language and is also the first teacher education program taught through an Indigenous language in the United States.

The **Graduate Certificate in Kahuawaiola Indigenous Teacher Education** (Kahuawaiola) prepares teacher candidates for professional licensure as maui ola educators who focus on maui ola Hawaiian language medium contexts. This program also prepares students for other Hawaiian language and culture educational settings. An option is available for Indigenous languages other than Hawaiian contingent upon demand and resources.

### Program Description

The **Kahuawaiola Hawaiian and Indigenous Teacher Education Program** is a three-semester graduate certificate program, delivered primarily through the medium of Hawaiian, specifically designed to prepare *Mauli Ola Hawai'i* (Hawaiian identity nurturing) teachers of the highest quality to teach in Hawaiian language medium schools, Hawaiian language and culture programs in English medium schools, and schools serving students with a strong Hawaiian cultural background. Kahuawaiola is accredited through the State Approval of Teacher Education Programs (SATE) and the World Indigenous Nations Higher Education Consortium (WINHEC). Upon successful completion of the program, candidates will have satisfied one of the requirements for initial licensure from the Hawai'i Teachers Standards Board. (See Graduation Requirements section for additional requirements for recommendation to the HTSB.)



Based on the Hawaiian concepts *Ma ka hana ka 'ike* (Knowledge comes from direct experience), and *Ma mua ka hana, ma hope ka wala'au* (direct experience comes first, discussion comes second), Kahuawaiola places a high value on on-site learning and practicum experience with high performance outcomes. Academics are integrated in a spiraling sequence and holistic indigenous approach both within and outside the classroom for a balance of theory and applied learning situations. The four program areas of teacher preparation include, 1) Hawaiian language, culture, and values; 2) pedagogical skills; 3) knowledge of content; and 4) development of professional qualities.

Kahuawaiola is delivered through a Hawaiian cultural framework of four *pale*, or phases. The first pale, *Wana'ao*, requires that students accepted into the program have previous experience in teaching and/or curriculum development through the medium of Hawaiian. (See Entrance Requirements section for complete description of work experience requirement.)

The second pale, *Kahikole*, takes place during the summer. During this foundation phase of teacher training, principles of learning and teaching are integrated with state standards and general educational theory through a philosophy of education, *Ke Kumu Honua Maui Ola*, based on Hawaiian traditions. Students learn to integrate Hawaiian culture and pedagogy into all phases of the curriculum and content areas, including differential learning strategies, lesson planning, assessment, classroom management, and other skills necessary for practical application in the third pale. Students carry a total course load of 13 credits during the summer session.

Students then invest two full semesters to gain student teaching experience at Hawaiian medium school locations around the state. They are encouraged to return to their home communities for the practicum phases and are supported by a cooperating teacher, regular site visits from clinical faculty, and professional development workshops where the students are given the opportunity to interact with practicing Hawaiian immersion professionals from throughout the state. Students are expected to commit full-time to the practicum experience, which also includes a discussion seminar via HITS (Hawai'i Interactive Television System). The third pale, *Kahikū*, takes place during the fall semester and focuses on developing teaching skills but includes discussion of broader issues as appropriate. Students carry a total course load of 12 credits during the fall semester which includes both the practicum and seminar.

The fourth pale, *Kaulolo*, takes place during the spring semester and focuses on mastery of teaching skills and professionalism through extended teaching experiences and seminar support. The seminar focuses on hypothetical situations and long-range goals rather than practical day-to-day situations, although these are also covered when appropriate. In this pale, students acquire the higher-level planning and conceptualization skills necessary for the growth of Hawaiian medium education. During the spring semester, students carry a total course load of 12 credits including both the practicum and seminar.

Evaluation of Hawaiian language proficiency is conducted through tests that evaluate the level of fluency in six areas:

1. reading comprehension;
2. aural comprehension;
3. use of standard orthography in adapting older materials;
4. translation from English;
5. composition; and
6. oral language skills demonstrated in an interview.

## Mission

The mission of the College is to assure the revitalization and continued advancement and growth of the Hawaiian language and maui ola Hawai'i. A thriving Hawaiian language is the means through which the maui ola Hawai'i will once again become commonplace in both traditional and contemporary contexts in Hawai'i. The College joins with other Indigenous peoples in the revitalization of their own languages and cultures. Our collective efforts will ensure the furthering of local, national and international initiatives toward establishing language and cultural vibrancy throughout the world.

## Student Learning Outcomes

1. Demonstrate advancement in spoken and written Hawaiian with fluency and consistency in all educational contexts, adhering to graduate-level writing standards.
2. Demonstrate analytical skills and comprehension of content and overall constitution of literary, cultural, and historical Hawaiian language texts.
3. Examine and articulate the Hawaiian language renormalization movement within the broader context of language revitalization.
4. Apply knowledge of and skills in the performance of Hawaiian chant, dance, and oratory.
5. Exhibit leadership in Hawaiian and Indigenous language and culture revitalization in academic and community environments.

## Admission Requirements

Applicants will be evaluated on the following criteria:

- Completion of the application packet.
- Bachelor's degree from an accredited college or university, in a major approved by the Hawaiian Studies Division requiring a minimum of 120 credits, 45 of which are at the 300 level or above.
- A minimum GPA of 3.0 in the last 60 semester credits completed (including post-baccalaureate credits).
- A minimum GPA of 2.75 in the major.
- Four years of Hawaiian language with a minimum GPA of 2.75 for the third and fourth years, or permission from the Hawaiian Studies Division based on an evaluation of fluency.
- Successful completion of one of the following: HWST 111 Hawaiian 'Ohana (3) , HWST 211 Hawaiian Ethnobotany (3) , HWST 213 Hawaiian Ethnozoology (3) ; or permission from the Hawaiian Studies Division based on an evaluation of Hawaiian cultural knowledge and skills.
- Successful completion of one of the following: HWST 205 Hawaiian Music in Action (2) , KHWS 475 Na Mele Hula Kahiko (3) , KHWS 476 Na Mele Hula 'Auana (3) ; or permission from the Hawaiian Studies Division based on an evaluation of Hawaiian cultural knowledge and skills.
- Successful completion of KHAW 490 Base-level Fluency Hawn Med Ed (1) Base-level Fluency Hawn Med Ed (1).
- 50 hours of (paid or volunteer) teaching experience through the medium of Hawaiian, or 30 hours of (paid or volunteer) teaching experience through the medium of Hawaiian and 30 hours of (paid or volunteer) experience in Hawaiian medium curriculum development.
- Passing scores on the Praxis I exams (reading, writing, and mathematics) or equivalent , and on Praxis II (Subject Assessments) Content Area Exercises or equivalent, relevant to elementary and secondary level licenses which the applicant will seek from the Hawai'i Teacher Standards Board. Equivalents are those stated in current Hawai'i Teacher Standards Board policy.



- Interview with Kahuawaiola faculty.

Note: In special circumstances, provisional acceptance may be granted by the selection committee for students who meet some, but not all of the above requirements.

## Applying to the Program

Applications will be evaluated on submission of the following required documentation in a timely manner.<sup>1</sup> (**Application deadline is December 1st**)

- University of Hawai'i Application for Admission (including processing fee)
- Kahuawaiola Admission Application
- Statement of interest
- Work Experience Verification form
- Three letters of recommendation
- Official college/university transcripts (for EACH post-high institution previously attended)
- Official Praxis I/II scores

<sup>1</sup> Applicants accepted into the program will be required to complete additional documentation prior to the start of the summer session, including but not limited to a criminal background check and fingerprinting as required by the state prior to classroom teaching. For more information, contact the Kahuawaiola office.

## Program Requirements (37 credits)

Graduation from the program is based on the successful completion of the following requirements:

### 11 required courses:

- KED 620 Fdns Hwn & Indig Medium Ed (3)
- KED 621 Lng Arts Hwn & Indig Medium Ed (2)
- KED 623 Soc Stud Hwn & Indig Medium Ed (2)
- KED 625 Phys Ed Hwn & Indig Medium Ed (1)
- KED 626 Science Hwn & Indig Medium Ed (2)
- KED 627 Math in Hwn & Indig Medium Ed (2)
- KED 628 Arts in Hwn & Indig Medium Ed (1)
- KED 641 Hwn & Indig Medium Fld Exp I (9)
- KED 642 Hwn & Indig Med Fld Exp I Sem (3)
- KED 643 Hwn & Indig Medium Fld Exp II (9)
- KED 644 Hwn & Indig Med Fld Exp II Sem (3)

Minimum grade of 3.0 in all teacher training courses requiring grades.

## Academic Status, Progression, and Readmission Policies

Kahuawaiola runs summer, fall, spring and only takes 12 months to complete. Students are expected to maintain full-time status in three consecutive semesters in order to complete the course work, field experiences, and other requirements of the program. There are no elective courses.

Unless so designated, Kahuawaiola courses may not be taken on a "credit/no credit" basis. A 3.0 GPA must be maintained in all courses. A student whose GPA falls below 3.0 may be dismissed from the program. Likewise, a student may be removed from a field experience if it is determined by Kahuawaiola faculty that the student is not making satisfactory progress toward meeting the requirements of the program.

Such removal may result in complete dismissal from the program.

## Gainful Employment Disclosure

Beginning July 1, 2011, the US Department of Education began requiring colleges to disclose a variety of information for any financial aid eligible program that "prepares students for gainful employment in a recognized occupation". We hope that this information is helpful to our current students and to prospective students as they make their career and educational choices.

The data includes occupations, placement rates, on-time completion rates, average costs and program median loan debt.

[Gainful Employment Disclosure for Kahuawaiola Indigenous Teacher Education Program](#)

## M.A. in Indigenous Language and Culture Education

**Coordinator:** Keiki Kawai'ae'a , Ph.D.

**Email:** [keiki@hawaii.edu](mailto:keiki@hawaii.edu)

### Faculty:

- Jason "Iota" Cabral , Ph.D.
- Kekoa Harman , Ph.D.
- Betty-Joann "Noelani" Iokepa-Guerrero , Ed.D.
- Kauano Kamanā , Ph.D.
- Keiki Kawai'ae'a , Ph.D.
- Larry Kimura , Ph.D.
- Kananinohea "Kanani" Māka'imoku , M.A.
- Yumiko Ohara , Ph.D.
- Hiapokeikikane "Hiapo" Perreira , Ph.D.
- Scott Saft , Ph.D.
- Glenn "Kalena" Silva , Ph.D.
- William "Pila" Wilson , Ph.D.

Note: This program is also assisted by other faculty drawn from Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language and by scholars with a national and international reputation in indigenous language and culture education from outside the college.

### For Information Contact:

Ku'ulei Kepa'a

Ka Haka 'Ula O Ke'elikōlani  
University of Hawai'i at Hilo  
200 W. Kāwili Street  
Hilo, Hawai'i 96720-4091

**Tel:** (808) 932-7730

**Email:** [kuulei.kepaa@hawaii.edu](mailto:kuulei.kepaa@hawaii.edu)

**Website:** <http://www.olelo.hawaii.edu/khuok/mokuna-kalaiiike.php>

## Program Description

The **Master of Arts in Indigenous Language and Culture Education** further prepares maui ola educators as applied researchers who advance the development of Hawaiian and Indigenous culture-based education through three distinct emphasis: Indigenous Medium Education, Hawaiian Language and Literature, and Indigenous and Minority Languages Revitalization; offering a Plan A thesis track and a



Plan B applied research track. Students will automatically be admitted into the Plan B applied research track. If interested in the Plan A thesis track, please meet with the College Graduate Program Coordinator.

The **Indigenous Medium Education Emphasis** includes preservice preparation for initial teacher certification through Kahuawaiola, as well as applied academic research knowledge and skills enabling the advancement of Hawaiian language medium education. Conducted primarily in Hawaiian.

The **Hawaiian Language and Literature Emphasis** contributes to the revitalization of the language and further scholarship through the expanse of historical and contemporary Hawaiian literary resources for continued praxis in society. Conducted primarily in Hawaiian.

The **Indigenous and Minority Languages Revitalization Emphasis** develops the abilities of students to analyze the role of minority and indigenous languages in their local, national, and international contexts. This stream prepares students to contribute to the maintenance, promotion, and revitalization of languages and cultures facing endangerment in various situations throughout the world. Conducted primarily in English.

## Mission

The mission of the College is to assure the revitalization and continued advancement and growth of the Hawaiian language and maui ola Hawai'i. A thriving Hawaiian language is the means through which the maui ola Hawai'i will once again become commonplace in both traditional and contemporary contexts in Hawai'i. The College joins with other Indigenous peoples in the revitalization of their own languages and cultures. Our collective efforts will ensure the furthering of local, national and international initiatives toward establishing language and cultural vibrancy throughout the world.

## Student Learning Outcomes

1. Demonstrate advancement in spoken and written Hawaiian with fluency and consistency in all educational contexts, adhering to graduate-level writing standards.
2. Demonstrate analytical skills and comprehension of content and overall constitution of literary, cultural, and historical Hawaiian language texts.
3. Examine and articulate the Hawaiian language renormalization movement within the broader context of language revitalization.
4. Apply knowledge of and skills in the performance of Hawaiian chant, dance, and oratory.
5. Exhibit leadership in Hawaiian and Indigenous language and culture revitalization in academic and community environments.

## Admission Requirements

1. B.A. or B.S. degree from a regionally accredited institution or from a nationally recognized foreign institution;
2. 30 credits in Hawaiian Language, Hawaiian Studies, and/or Linguistics at the 300- or 400-level with no grade lower than a 3.0 (B);
3. GPA of 3.0 (4.0 = A scale) or the equivalent in the last four semesters of approximately 60 semester credits of undergraduate and/or in all post- baccalaureate work;
4. Statement of purpose;
5. Sample undergraduate academic paper (by preference written in Hawaiian);
6. Three letters of recommendation which should address the

applicant's background and potential in their field of interest including any service to the Hawaiian or indigenous language/culture community;

7. Interview;
8. Successful completion of KHAW 490 Base-level Fluency Hawn Med Ed (1) (not required for Indigenous and Minority Languages Revitalization Emphasis); and
9. In the case of second language speakers of English, passing scores on the TOEFL as determined by the College or other evidence of English fluency.

Further information on the details of fulfilling admission requirements are available from the program. The College may, under some circumstances, provisionally accept students to the program.

## Graduation Requirements

### Plan B Applied Research Track (33-37 credits)

#### Indigenous Medium Education Emphasis (37 credits)

1. Indigenous Language Medium Education (13):
  - o KED 620 Fdns Hawn & Indig Medium Ed (3)
  - o KED 621 Lng Arts Hwn & Indig Medium Ed (2)
  - o KED 623 Soc Stud Hwn & Indig Medium Ed (2)
  - o KED 625 Phys Ed Hwn & Indig Medium Ed (1)
  - o KED 626 Science Hawn & Indig Medium Ed (2)
  - o KED 627 Math in Hawn & Indig Medium Ed (2)
  - o KED 628 Arts in Hawn & Indig Medium Ed (1)
2. Field study (6):
  - o KED 642 Hawn & Indig Med Fld Exp I Sem (3)
  - o KED 644 Hwn & Indig Med Fld Exp II Sem (3)
3. KED 630 Res Meth in Indigenous Lang (3)
4. KED 693 Applied Rsrch in Indigenous Ed (3)
5. Electives (12): Choose 12 credits from:
  - o KHAW 603 Grad Level Hawn Lang (3)
  - o KHAW 632 Hawaiian As Second Language (3)
  - o KHWS 662 Applied Hawaiian Chant (3)
  - o KHWS 663 Traditional Hawn Literature (3)
  - o KED 660 Indigenous Culture-based Educ (3)
  - o KED 661 Curr Dev Maui Ola-based Sch (3)
  - o KED 662 Indigenous Well-being Thru Edu (3)
6. Completion of the Kahuawaiola Indigenous Teacher Education Program
  - o KED 641 Hawn & Indig Medium Fld Exp I (9) and KED 643 Hawn & Indig Medium Fld Exp II (9)
  - o OR both waived upon approved equivalent

#### Hawaiian Language and Literature Emphasis (33 credits)

1. Required Courses (33):
  - o KHAW 603 Grad Level Hawn Lang (3)
  - o KHAW 631 History of Hawaiian Lang & Lit (3)
  - o KHAW 654 Advanced Hawn Grammar (3)
  - o KHAW 693 Thesis and Proposal Writing (3)
  - o KHWS 662 Applied Hawaiian Chant (3)
  - o KHWS 663 Traditional Hawn Literature (3)
  - o KHWS 664 European Influenced Hawn Lit (3)
  - o KHWS 665 Ethnological & Hist Narratives (3)
  - o KED 630 Res Meth in Indigenous Lang (3)
  - o KED 662 Indigenous Well-being Thru Edu (3)
  - o KED 693 Applied Rsrch in Indigenous Ed (3)



### Indigenous and Minority Languages Revitalization Emphasis (33 credits)

1. Core Courses (27):
  - o KED 630 Res Meth in Indigenous Lang (3)
  - o KED 662 Indigenous Well-being Thru Edu (3)
  - o KED 693 Applied Rsrch in Indigenous Ed (3)
  - o KIND 641 Advanced Language in Culture I (3)
  - o KIND 642 Advanced Lang in Culture II (3)
  - o KLIN 601 General Ling in Indig Context (3)
  - o KLIN 603 Socioling Analysis Indig Lang (3)
  - o KLIN 604 Field Study in Applied Ling I (3)
  - o KLIN 605 Field Study in Applied Ling II (3)
2. Electives (6): Choose 6 Credits from:
  - o KIND 601 Language Maintenance and Shift (3)
  - o KIND 602 Meth Res Indig Lang Comm Bldg (3)
  - o KIND 694 Special Topics in Subject Matter (To Be Arranged)
  - o KLIN 694 Special Topics in Subject Matter (To Be Arranged)

### Plan A Thesis Track (37-43 credits)

#### Indigenous Medium Education Emphasis (43 credits)

1. Indigenous Language Medium Education (13):
  - o KED 620 Fdns Hawn & Indig Medium Ed (3)
  - o KED 621 Lng Arts Hwn & Indig Medium Ed (2)
  - o KED 623 Soc Stud Hwn & Indig Medium Ed (2)
  - o KED 625 Phys Ed Hwn & Indig Medium Ed (1)
  - o KED 626 Science Hawn & Indig Medium Ed (2)
  - o KED 627 Math in Hawn & Indig Medium Ed (2)
  - o KED 628 Arts in Hawn & Indig Medium Ed (1)
2. Field study (6):
  - o KED 642 Hawn & Indig Med Fld Exp I Sem (3)
  - o KED 644 Hwn & Indig Med Fld Exp II Sem (3)
3. KED 630 Res Meth in Indigenous Lang (3)
4. KED 693 Applied Rsrch in Indigenous Ed (3)
5. Electives (12): Choose 12 credits from:
  - o KHAW 603 Grad Level Hawn Lang (3)
  - o KHAW 632 Hawaiian As Second Language (3)
  - o KHWS 662 Applied Hawaiian Chant (3)
  - o KHWS 663 Traditional Hawn Literature (3)
  - o KED 660 Indigenous Culture-based Educ (3)
  - o KED 661 Curr Dev Maui Ola-based Sch (3)
  - o KED 662 Indigenous Well-being Thru Edu (3)
6. Completion of the Kahuwaiola Indigenous Teacher Education Program
  - o KED 641 Hawn & Indig Medium Fld Exp I (9) and KED 643 Hawn & Indig Medium Fld Exp II (9)
  - o OR both waived upon approved equivalent
7. Minimum 6 credits: KHAW 700 Thesis Research (1-6)

#### Hawaiian Language and Literature Emphasis (39 credits)

1. Required Courses (33):
  - o KHAW 603 Grad Level Hawn Lang (3)
  - o KHAW 631 History of Hawaiian Lang & Lit (3)
  - o KHAW 654 Advanced Hawn Grammar (3)
  - o KHAW 693 Thesis and Proposal Writing (3)
  - o KHWS 662 Applied Hawaiian Chant (3)
  - o KHWS 663 Traditional Hawn Literature (3)
  - o KHWS 664 European Influenced Hawn Lit (3)
  - o KHWS 665 Ethnological & Hist Narratives (3)
  - o KED 630 Res Meth in Indigenous Lang (3)
  - o KED 662 Indigenous Well-being Thru Edu (3)

- o KED 693 Applied Rsrch in Indigenous Ed (3)
- 2. Minimum 6 credits: KHAW 700 Thesis Research (1-6)

### Indigenous and Minority Languages Revitalization Emphasis (39 credits)

1. Core Courses (27):
  - o KED 630 Res Meth in Indigenous Lang (3)
  - o KED 662 Indigenous Well-being Thru Edu (3)
  - o KED 693 Applied Rsrch in Indigenous Ed (3)
  - o KIND 641 Advanced Language in Culture I (3)
  - o KIND 642 Advanced Lang in Culture II (3)
  - o KLIN 601 General Ling in Indig Context (3)
  - o KLIN 603 Socioling Analysis Indig Lang (3)
  - o KLIN 604 Field Study in Applied Ling I (3)
  - o KLIN 605 Field Study in Applied Ling II (3)
2. Electives (6): Choose 6 Credits From:
  - o KIND 601 Language Maintenance and Shift (3)
  - o KIND 602 Meth Res Indig Lang Comm Bldg (3)
  - o KIND 694 Special Topics in Subject Matter (To Be Arranged)
  - o KLIN 694 Special Topics in Subject Matter (To Be Arranged)
3. Minimum 6 credits: KLIN 700 Thesis Research (1-6)

#### Notes

1. At least a 3.0 (B) in each course.
2. No more than 6 credits of 400-level courses may count towards the Master's degree with the prior approval of the primary advisor, College graduate program chair, and the Graduate Division.

## Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization

**Coordinator:** Scott Saft , Ph.D.

**Email:** [saft@hawaii.edu](mailto:saft@hawaii.edu)

**Website:** <http://www.olelo.hawaii.edu/khuok/mhhphd.php>

#### Faculty:

- Jason Iota Cabral , Ph.D.
- Betty-Joann Noelani Iokepa-Guerrero , Ed.D.
- Kauanoë Kamanā , Ph.D.
- Larry Kimura , Ph.D.
- Yumiko Ohara , Ph.D.
- Hiapokeikikane Perreira , Ph.D.
- Scott Saft , Ph.D.
- Glenn Kalena Silva , Ph.D.
- William Wilson , Ph.D.

#### Affiliate Instructional Faculty:

- John Charlot, University of Hawai'i at Mānoa, Professor of Religion
- Larry Kaplan, University of Alaska Fairbanks, Professor of Linguistics and Director of Alaska Native Language Center
- M. Puakea Nogelmeier, University of Hawai'i at Mānoa, Associate Professor, Kawaihuelani Center for Hawaiian Language

#### For Information Contact:

**Ku'ulei Kepa'a**

Ka Haka 'Ula O Ke'elikōlani  
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The **Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization** has a unique status within the University of Hawai'i system - it is the first doctorate in a Hawaiian Studies field and the first doctorate in the world specific to the growing field of Indigenous language and culture revitalization. The program began with provisional status in 2006 with Hawaiian and other Indigenous candidates and was approved as an established program in 2015.

The **Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization** engages candidates in rigorous research in linguistics, language planning, culture, and education that enhances leadership capacity to strengthen language and cultural vibrancy within their communities.

## Program Description

Ka Haka 'Ula O Ke'elikōlani is widely recognized as the leader in indigenous language revitalization in the United States, and indeed the North Pacific Basin. Concentrated in Hilo is a preschool through graduate school Hawaiian medium educational system and key support offices providing administrative, curricular, language planning, and technological support to programs throughout the Hawaiian islands. In addition, Ka Haka 'Ula O Ke'elikōlani provides government sponsored outreach services to support indigenous languages throughout Polynesia and the United States.

The Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization engages candidates in rigorous research in linguistics, language planning, culture, and education that enhances leadership capacity to strengthen language and cultural vibrancy within their communities.

All students in the doctoral program are required to speak an indigenous language - their "language of focus" - and further develop their knowledge of that language in courses that explore the similarities and differences among such languages. In addition, students choose two specializations from among the four systematic fields offered in the program, a) Indigenous Language and Culture Education, b) Indigenous Language and Culture in Society, c) Language Planning, and d) Hawaiian Language and Culture. Thus, students who focus on a non-Hawaiian indigenous language will choose two specializations from areas a), b), and c); students who focus on Hawaiian language may choose among all four areas. A number of possible paths from other universities lead into the doctoral program, including the master's in Indigenous Studies, Anthropology, Languages (including English), and Linguistics.

## Mission

The mission of the College is to assure the revitalization and continued advancement and growth of the Hawaiian language and maui ola Hawai'i. A thriving Hawaiian language is the means through which the maui ola Hawai'i will once again become commonplace in both traditional and contemporary contexts in Hawai'i. The College joins with other Indigenous peoples in the revitalization of their own languages and cultures. Our collective efforts will ensure the furthering of local, national and international initiatives toward establishing language and cultural vibrancy throughout the world.

## Student Learning Outcomes

1. Demonstrate advancement in spoken and written Hawaiian with

fluency and consistency in all educational contexts, adhering to graduate-level writing standards.

2. Demonstrate analytical skills and comprehension of content and overall constitution of literary, cultural, and historical Hawaiian language texts.
3. Examine and articulate the Hawaiian language renormalization movement within the broader context of language revitalization.
4. Apply knowledge of and skills in the performance of Hawaiian chant, dance, and oratory.
5. Exhibit leadership in Hawaiian and Indigenous language and culture revitalization in academic and community environments.

## Admission Requirements

1. Master's degree from an accredited college or university with a minimum 3.0 grade point average in an approved field of study (e.g., Hawaiian Language and Literature, Indigenous Studies, Anthropology, Languages, etc).
2. Proficiency in and academic knowledge of the applicant's indigenous language of focus, as demonstrated by a taped speech and written essay, with English translation. (The level of proficiency and academic knowledge required will depend on the status of the indigenous language, in terms of how endangered it is and how much linguistic description has been done.)
3. A letter requesting admission to the program which describes the applicant's:
  - o academic objectives and research interests.
  - o experience in educational service to his or her indigenous language of focus.
  - o diverse experience with the contemporary status of an indigenous or threatened language and culture besides the student's own indigenous language of focus. The social and political environment of this additional language should be different from that of the student's language of focus.
  - o future plans regarding work to revitalize his or her indigenous language and culture.
4. A sample of written work (usually the master's thesis).
5. Course work of at least 6 credits in general linguistics, linguistic analysis, and sociolinguistics
6. Complete taped interview either in person or by telephone.
7. Three letters of recommendation, at least one of which must focus on the applicant's background in the language and culture of an indigenous people and service to that indigenous community.
8. For second language speakers of English, passing scores on the TOEFL or other evidence of English fluency.

Further information on the details of fulfilling admissions requirements are available from the Director of Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language.

## Graduation Requirements

### 1. KIND 730 Rsch Meth Hwn Ind Lang Culture (3)

### 2. Advanced Study of Language of Focus (8):

- KLAN 701 Semantic/Pragmatic Indig Lang (1) Semantic/Pragmatic Indig Lang (1)
- KLAN 702 Stylistics/Domains Indig Lang (1) Stylistics/Domains Indig Lang (1)
- KLAN 703 Semantics-Prag of Indig Langua (3) Semantics-Prag of Indig Langua (3)
- KLAN 704 Stylistics-Domain of Indig Lan (3) Stylistics-Domain of Indig Lan (3)



### 3. Additional Language Requirement:

- Language of focus is Hawaiian: Approved second language equivalent to the 101 level as taught at UH-Hilo.
- Language of focus is other than Hawaiian: Hawaiian equivalent to the 101 level as taught at UH-Hilo.

### 4. Two of Four Areas of Specialization (12-14):

- **a. Indigenous Language and Culture Education (6-8):**
  - KED 794 Special Topics in Subject Matter (To Be Arranged)
- **b. Indigenous Language and Culture In Society (6-8):**
  - KIND 731 Indig/Minor Autochthonous Lang (3)
  - KIND 732 Lang Plcy/Pract Endanger/Indig (3)
  - KIND 733 Hawn and Indig Language Med Ed (3)
  - KIND 794 Special Topics in Subject Matter (To Be Arranged)
- **c. Language Planning (6-8):**
  - KLIN 794 Special Topics in Subject Matter (To Be Arranged)
- **d. Hawaiian Language and Culture (6-8):**
  - KHAW 751 Ho'oiikaika 'Ōlelo Hawai'i (2)
  - KHAW 794 Special Topics in Subject Matter (To Be Arranged)
  - KHWS 741 Classical Hwn Ed: Gen Hwn Cult (3)
  - KHWS 794 Special Topics in Subject Matter (To Be Arranged)

The amount of course work in the two areas of specialization will be determined upon admission to the program.

**5. Up to six semester credits (or equivalent) at another accredited university in courses pre-approved by the program chair and transfer the credits to the University of Hawai'i at Hilo in place of any of the listed program courses.**

**6. Completion of all graduate courses with a grade no lower than "B."**

**7. Successful completion of a comprehensive examination consisting of oral and/or written questions.**

**8. Submission and approval of a portfolio which documents the student's work to improve public opinion and/or government policy concerning the revitalization of the student's language and culture of focus. The portfolio may include newspaper or periodical articles or oral presentations aimed at the student's indigenous community or the larger public; it may include written material or oral testimony given at government forums concerned with indigenous language and culture revitalization.**

**9. KIND 800 Doctoral Dissertation Research (1-6) \*minimum 6 credits; successful completion of a dissertation; and final oral examination in defense of the dissertation.**

## Doctor of Nursing Practice (D.N.P.)

**Program Co-Coordinator:** Katharyn "Kay" Daub, Ed.D., RN, CTN-A, CLNC, CNE

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**Program Co-Coordinator:** Bobbie Elisala

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University of Hawai'i at Hilo, [School of Nursing](#) (UH Hilo SON)  
School of Nursing Office  
200 W. Kāwili Street  
Hilo, HI 96720

## Program Description

The Doctor of Nursing Practice (DNP) is the practice-focused doctoral degree developed in response to the endorsement of the American Association of Colleges of Nursing (AACN) position paper recognizing the DNP as the credential for advanced nursing practice. The DNP is equivalent to entry level professional degrees offered by other health care disciplines including Doctor of Medicine (MD), Doctor of Dental Surgery (DDS) and the Doctor of Pharmacy (PharmD) opportunities culminating in a practice inquiry project. The curriculum is based on the AACN essentials of Doctoral education for Advanced Practice Nurses. Students will participate in lectures, seminars, laboratory simulations, and site visits to rural communities. Research methods and evidence based practice provide opportunities for data analysis, research critique, evidence-based presentations, formulation and evaluation of a practice inquiry research project. At the conclusion of the program, all students will demonstrate competence in the eight essentials of doctoral education, be prepared for their specialty role as an individual health care provider, and be trained for leadership roles within the larger health care system.

## Mission

The Doctorate of Nursing practice (DNP) is a program designed to prepare the nurse at an advanced level of nursing science. The program emphasizes the development of the student's capacity to impact the clinical setting as leaders and educators and to utilize clinical research to improve and transform health care. Our program is based on the understanding that nursing provides services which includes the direct care of individual clients, transcultural nursing, management of care for rural populations, administration of nursing systems, and development and implementation of health policy. In addition, the program will encompass health policy, health economics, cultural diversity, chronic care management, health promotion, and disease prevention in rural communities and will create a cadre of new nursing faculty who can immediately address the nursing faculty shortage. Advanced practice nurses with practice doctorates will address significant practice issues in a scholarly way, adopt broad system perspectives for health promotion and risk reduction, and act as agents of change that transform client/community care, participate in the on-going evaluation of health care outcomes, and assist in the translation of research that leads to positive nursing practice changes.

## Program Learning Outcomes

The UH Hilo SON ascribes to the curricular elements and competencies of the DNP degree proposed by the [American Association of Colleges of Nursing \(AACN\)](#). The DNP essentials describe the necessary foundational outcomes required for the DNP graduate.

1. Scientific Underpinnings for Practice
2. Organizational and Systems Leadership for Quality Improvement and Systems Thinking
3. Clinical Scholarship and Analytical Methods for Evidence-Based Practice
4. Information Systems/Technology and Patient Care Technology for



- the Improvement and Transformation of Health Care
5. Health Care Policy for Advocacy in Health Care
  6. Interprofessional Collaboration for Improving Patient and Population Health Outcomes
  7. Clinical Prevention and Population Health for Improving the Nation's Health
  8. Advanced Nursing Practice

## Student Learning Outcomes

Graduates from the DNP program will achieve the following program learning outcomes as a result of an integrated approach to learning, problem solving, evidence-based knowledge utilization, and skill acquisition:

1. Synthesize theoretical knowledge and research evidence in designing primary care delivery for diverse populations across the lifespan in rural contexts.
2. Collaborate with multidisciplinary professions, multisectoral agencies and lay communities to influence social and health policies impacting rural population health.
3. Assume leadership role in organizational systems to improve rural population health in local and regional communities.
4. Promote adherence to professional and ethical-legal standards of practice by individual professionals and organizations.
5. Integrate cultural competence and social justice in addressing health disparities in rural populations.
6. Examine research evidence in design and implementation and evaluation of policies and programs for population health in rural communities.
7. Use best practices and technology to improve care delivery for diverse individuals, families and communities within the continuum of primary, secondary and tertiary care.
8. Create educational programs to develop culturally competent practice and education of the nursing workforce .
9. Design educational programs and evaluation programs to enhance rural community empowerment for health.

## Admission Requirements

Acceptance is granted at the discretion of the Doctor of Nursing Practice Admissions Committee based on the criteria below:

- UH Graduate Application
- Application fee
- SON Supplemental Application
- Transcripts from all accredited colleges
- Min GPA of 3.0
- Current Hawai'i RN License, in addition to current RN license where you intend to practice
- 3 recommendations (two from faculty, one from employer/professional)
- Professional Goal essay
- Interview with graduate faculty
- Current CV/Resume
- Background check (at the time of acceptance into the program)
- Health Clearance: Tuberculosis clearance documentation, documentation for tetanus/diphtheria vaccination received within the last ten years; documentation for hepatitis-B vaccination series or serological evidence of immunity; serological evidence of immunity to mumps, rubella, rubeola, and varicella (at the time of acceptance into the program)

**Foreign applicants must also submit:**

1. International Graduate Student Supplemental Information Form
2. Official TOEFL score report
3. Completion of the CGFNS Qualifying exam

## Program Entry Points

Students have two program entry points to earn the Doctor of Nursing Practice degree:

- The Post Baccalaureate DNP entry point is intended to allow entry into the DNP program for nurses who are not already advanced practice registered nurses (APRNs).The program will educate registered nurses to be Family Nurse Practitioners (FNP) with foci in Gerontological Nursing, Transcultural Nursing, and Rural Health Care.
- The Post Masters DNP entry point offers nurses with advanced degrees in nursing specialty areas (e.g. education, administration, practice, information systems management, leadership, etc.) a doctoral program, which expands their level of practice expertise.

Further information on the details of fulfilling admissions requirements are available from the DNP Program Admissions office (808) 932-7067, [School of Nursing website](#), or [Graduate Division](#).

## Graduation Requirements

1. Completion of all graduate courses for the specific entry point enrolled (BSN-DNP or MSN-DNP)
2. Minimum accepted GPA of 3.0 in all graduate courses
3. Successful completion of 1000 practice hours or portion thereof based on previous practice experience
4. Successful completion of Family Nurse Practitioner (FNP) competencies (BSN-DNP entry point only)
5. Successful completion of a Practice Inquiry Project
6. Successful presentation of the Practice Inquiry Project at an oral defense
7. Compliance with UH Hilo rules and regulations for graduation

## Post-BSN to DNP Required Courses (71-73 credits)

- NURS 618 EPI/Environmental Health (3)
- NURS 601 Social Aspects of Health (3)
- NURS 602 Information Systems/Technology (3)
- NURS 603 Adv Clinical Pharmacology (3)
- NURS 604 Advanced Clin Pathophysiology (3)
- NURS 605 Advanced Health Assessment (4)
- NURS 606-606L Rural Health Promotion (3), Rural Health Promotion Lab (3)
- NURS 607-607L Primary Care of Adults (3), Primary Care of Adults Lab (3)
- NURS 608-608L Primary Care of Older Adults (3), Prim. Care of Older Adults Lab (3)
- NURS 609-609L Primary Care of Women (2), Primary Care of Women Lab (2)
- NURS 610-610L Primary Care of Children (2), Primary Care of Children Lab (2)
- NURS 611 Advanced Research Methods (3)
- NURS 612 Evidence Based Practice (3)
- NURS 613 Program Develop/Evaluation (3)
- NURS 614 System-Based Leadership (3)
- NURS 615 Health Policy: Local to Global (4)
- NURS 616 Health Economics (3)
- NURS 617 Practice Inquiry/Project (6)
- Elective (1-3) (A graduate elective is required.)



## MSN to DNP Required Courses (38-40 credits)

- NURS 618 EPI/Environmental Health (3)
- NURS 601 Social Aspects of Health (3)
- NURS 602 Information Systems/Technology (3)
- NURS 606 Rural Health Promotion (3)
- NURS 611 Advanced Research Methods (3)
- NURS 612 Evidence Based Practice (3)
- NURS 613 Program Develop/Evaluation (3)
- NURS 614 System-Based Leadership (3)
- NURS 615 Health Policy: Local to Global (4)
- NURS 616 Health Economics (3)
- NURS 617 Practice Inquiry/Project (6)
- Elective (1-3) (A graduate elective is required.)

## Daniel K. Inouye College of Pharmacy (DKICP) Graduate Programs

**Dean:** Carolyn Ma , Pharm.D., BCOP, CHTP/I  
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**Email:** [pharmacy@hawaii.edu](mailto:pharmacy@hawaii.edu)

**Website:** <http://pharmacy.uhh.hawaii.edu/>

**Associate Dean for Academic Affairs:** Lara Gomez , Pharm.D.

**Chair, Department of Pharmaceutical Sciences:** Dianqing Sun , Ph.D.

**Chair, Department of Pharmacy Practice:** Roy Goo , Pharm.D.

### Professors:

- Julie A. L. Adrian , D.V.M.
- Shugeng Cao , Ph.D.
- Leng Chee Chang , Ph.D.
- Susan Jarvi , Ph.D.
- Dianqing Sun , Ph.D.
- Deborah Taira , Sc.D.
- Ghee Tan , Ph.D.
- Supakit Wongwiwatthanukit , PharmD, Ph.D.

### Associate Professors:

- Roy Goo , Pharm.D.
- Daniela Guendisch , Ph.D.
- Dana-Lynn Ko'omoa-Lange , Ph.D.
- Carolyn Ma , Pharm.D., BCOP, CHTP/I
- Cherie Mehrabian-Sani , Pharm.D., BCPS
- Jarred Prudencio , Pharm.D.
- Wesley Sumida , Pharm.D.
- Sheri Tokumaru , Pharm.D., BCPS

### Assistant Professors:

- Abhijit Date , Ph.D.
- Bryce Fukunaga , Pharm.D.
- Chad Kawakami , Pharm.D., BCPS, CDE
- Ingo Ko'omoa-Lange , Ph.D.
- Aryn Meguro , Pharm.D.
- Nicole Young , Pharm.D.

### Associate Specialists:

- Lara Gomez , Pharm.D.
- Patricia Juszczak , R.Ph.
- Camlyn Masuda , Pharm.D., BCACP, CDE

### Assistant Specialists:

- Michelle Kim , Pharm.D.

**Director of Continuing Education/Distance Education and Strategic Planning:** Karen L. Pellegrin , Ph.D., M.B.A.

**Director of Student Services:** Daryl Masanda

**Director of PhD Program in Pharmaceutical Sciences:** Ghee Tan , Ph.D.

## Programs

- Doctor of Pharmacy (Pharm.D.)
- Ph.D. in Pharmaceutical Sciences
- Pharmaceutical Science (PHPS) Post-Baccalaureate Courses
- Pharmacy Practice (PHPP) Post-Baccalaureate Courses

## Doctor of Pharmacy (Pharm.D.)

**Dean:** Carolyn Ma , Pharm.D., BCOP, CHTP/I

**Associate Dean for Academic Affairs:** Lara Gomez , Pharm.D.

**Department of Pharmaceutical Sciences:** Dianqing Sun , Ph.D.

**Department of Pharmacy Practice:** Roy Goo , Pharm.D.

Daniel K. Inouye College of Pharmacy (DKICP)

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**Website:** [pharmacy.uhh.hawaii.edu](http://pharmacy.uhh.hawaii.edu)

## Program Description

The University of Hawai'i at Hilo's Daniel K. Inouye College of Pharmacy (DKICP) is a four-year educational and experiential program through which students pursue the Doctor of Pharmacy (Pharm.D.) degree. The Pharm.D. program prepares the student for entry into the pharmacy profession. During the four years at DKICP, students will complete a total of 137 semester hours of credit; 88 hours in required courses, 4 credit hours in elective professional courses, and 45 credit hours in clinical/experiential education.

## Mission

The mission of the University of Hawai'i at Hilo DKICP is the traditional mission of academic healthcare—education, research, and service with emphasis on patient care. More specifically, our mission is:

- To educate pharmacy practitioners and leaders.
- To serve as a catalyst for innovations and discoveries in pharmaceutical science and practice for the promotion of health and wellbeing.
- To provide community service, including quality patient care



## Program Goals

The DKICP mission is predicated on four overarching goals:

- Implement academic curricula that lead to a flagship Pharm.D. program, which produces graduates committed to serving people via science-based practice.
- Accountability to the Institute of Medicine's core competencies for the health professional workforce.
- Conduct research that advances pharmaceutical sciences and makes a difference for humanity inclusive of effects on global health.
- Cultivate culturally competent, intellectually inquisitive, self-directed, caring pharmacists who are critical thinkers, problem solvers and life-long learners in a changing healthcare environment.

## Student Learning Outcomes

At the conclusion of the four year PharmD program a graduate will be able to:

1. Think critically and solve problems effectively.
2. Communicate effectively with patients and other health care providers in all matters related to providing pharmaceutical care.
3. Make ethical decisions concerning pharmaceutical care.
4. Demonstrate professional and social responsibility.
5. Engage in self-directed learning.
6. Manage all aspects of pharmacy related activities.
7. Promote public health and provide drug information and education to patients and other health care providers.

## Values

A values framework underpins the DKICP mission and vision in its commitment to building a culture of quality and excellence in pharmacy practice and pharmaceutical sciences via enactment of five values:

- **Ethics** underlies responsibility and accountability to standards in ensuring safe, quality, healthy environments for education, conducting research, providing pharmaceutical healthcare services, and sustaining livelihood. The DKICP thrives upon ethical decision-making and morality.
- **Community** is cultivated through spaces of collaborations and places of meaning, respect, openness, freedom and creativity. The DKICP is rooted in humanism.
- **Diversity** among people, cultures, theories, practices, institutions permeate 21st century healthcare. The DKICP embraces and celebrates diversity, with a niche in cultural diversity.
- **Scholarship** is the passion and outcomes of academic and professional life. The quest of the DKICP for quality and excellence affirms scholarly pursuits.
- **Life-long learning** is the pathway to stimulating pharmacy practice on a continuum of development and advancing pharmacy as a science and profession. The DKICP is nurtured via the continuum of lifelong education.

## Vision

The vision of the DKICP at the University of Hawai'i at Hilo is to drive improvement in the quality of healthcare in Hawai'i and throughout the Pacific Basin. We are achieving this vision by focusing on Hawai'i's unique cultural, physical, and geographic features, by employing world-class faculty, and by graduating exceptional professionals.

## Prospects for Graduates

Graduates of the Pharm.D. program at the University of Hawai'i at Hilo will be able to seek employment as pharmacists in a variety of professional settings. Their professional duties may include, but are not limited to, distribution of drugs prescribed by physicians and other health care practitioners, providing information about prescriptions and their use to their patients and customers, advising health care professionals on the prescription and interaction of drug therapies, compounding, pharmaceutical research, hiring and supervision of staff, business operations of pharmacies, administering of vaccinations, etc. The job outlook for pharmacists remains strong nationwide and in Hawai'i. There is currently a shortage of community, clinical and research pharmacists. It is expected that the field of pharmacy will grow at a "faster than average" rate over the next decade ([Bureau of Labor Statistics Occupational Outlook Handbook: Pharmacists](#)). In order to practice as a registered pharmacist (R.Ph.), state licensure is required.

## Admission Requirements

To be eligible for consideration, students must complete the following:

- Completion of the prerequisite courses including:

Required Pre-Requisite Courses	Credits
General Biology I and II with Labs	8
Microbiology with Lab	4
General Chemistry I and II with Labs	8
Organic Chemistry I and II with Labs	8
Human Anatomy & Physiology I and II with Labs	8
Calculus	3
English (including 3 credits composition)	6
Humanities	6
A course that includes a world/cultural diversity component	3
Social/Behavioral Sciences	6
Economics	3
Communications (with a public speaking component)	3
<i>Total</i>	66

**Please Note:** The most current listings of prerequisite courses can be found on the [DKICP website](#). Prerequisites are subject to change. International applicants must also complete a minimum of 30 semester hours of coursework in the United States at any regionally-accredited college or University. Of the 30 required hours, 15 semester hours must be allocated to non-remedial science courses.

- Completion of the [PCAT](#) is recommended, not required for applying to the DKICP. Select PCAT Code 104 to send score to PharmCAS. Do Not send scores directly to UH Hilo. Results of PCAT exams taken prior to 2012 will not be reviewed.
- Completion and submission of the [PharmCAS](#) application including two professional letters of recommendation and applicable fees.
- Completion and submission of the supplemental application to be requested via email by UH Hilo DKICP.

Meeting the minimum qualification requirements does not guarantee admission. All eligible applications are reviewed by the UH Hilo DKICP Admissions Committee which applies multiple criteria to assess applications and select candidates to be reviewed.



UH Hilo DKICP annually accepts 80-90 students for Fall admissions.

## Application Procedure

UH Hilo CoP operates on a competitive, rolling admissions process. **Early submission is strongly recommended.** Applicants are responsible for tracking the progress of their application and verifying that all necessary documents have been received by the UH Hilo DKICP Office of Student Services. The application review process begins in August 2016 and continues until all seats are filled. Upon receipt of all required application components noted above, the complete file and applicant profile will be reviewed by the UH Hilo DKICP Admissions Committee. At that time, the committee will decide to invite the candidate for an interview, place the candidate on hold for further review, or reject the applicant. Eligible students will be invited for a personal interview and are contacted via email. UH Hilo DKICP conducts closed file interviews. In closed file interviews, the interviewer is not provided with any information about the candidate except for their name. This approach was selected by the Admissions Committee as it helps remove preconceived biases based on students' experiences, grades, test scores, personal statements, etc. Interviews are conducted from December 2016 through May 2017 with additional interviews as needed. Complete applications and interview scores are reviewed by the Admissions Committee for final admission decisions. Accepted students will be notified by email.

## Curricula

### Professional Year 1 Fall Courses (18 credits)

- PHPP 501 Intr Pharm Prac Experiential I (1)
- PHPS 504 Pharmaceutical Immunology (3)
- PHPS 501 Biochemistry - Biomolecules (2)
- PHPS 505 Pharmaceutics I (3)
- PHPP 510 Pharmacy Self Care I (2)
- PHPS 503 Pharmaceutical Calculations (2)
- PHPS 540 Drug Action - Part I (2)
- PHPP 528 Pharmacy Comm & Culture (3)

### Professional Year 1 Spring Courses (15 credits)

- PHPP 502 Int Pharm Prac Experiential II (1)
- PHPP 508 Intro to Biostatistics (2)
- PHPS 509 Applied Pathophysiology (3)
- PHPS 502 Biochemistry - Metabolism (2)
- PHPS 506 Pharmaceutics II (3)
- PHPS 511 Pharmacokinetics (3)
- PHPS 541 Drug Action - Part II (2)

### Professional Year 2 Fall Courses (17 credits)

- PHPP 503 Intr Pharm Prac Experien III (1)
- PHPP 506 Int Pharm Prac Exp - Retail (1)
- PHPP 514 Evidence-Based Medicine (3)
- PHPP 515 Integrated Therapeutics I (7)
- PHPS 511 Pharmacokinetics (3)
- PHPP 527 Drug Information (2)

### Professional Year 2 Spring Courses (17 credits)

- PHPP 504 Intr Pharm Prac Experien IV (1)
- PHPP 520 Pharmacy Law and Ethics (3)
- PHPP 523 Wellness & Disease Prevention (2)
- PHPP 516 Integrated Therapeutics II (7)
- PHPP 519 Health Care Systems (2)
- Elective (2) Choose two credits of electives

### Professional Year 3 Fall Courses (16 credits)

- PHPP 505 Intr Pharm Prac Experiential V (1)
- PHPP 507 Int Pharm Practice Exp - VII (1)
- PHPP 522 Pharm Practice Mgmt & Mktng (2)
- PHPP 517 Integrated Therapeutics III (7)
- PHPP 525 Complementary Medicine (3)
- Electives (2). Choose **two** credits of electives

### Professional Year 3 Spring Courses (17 credits)

- PHPP 509 Intr Pharm Prac Exp - VIII (1)
- PHPP 524 Pharmacoeconomics (2)
- PHPP 518 Integrated Therapeutics IV (7)
- PHPP 521 Applied Pharmaceutical Care (3)
- PHPS 591 Basic & Applied Toxicology (2)
- PHPP 533 Pharmacogenomics (2)

### Professional Year 4 Courses (37 credits)

*Fourth Year (P-4) - Advanced Professional Practice Experiences: 42 weeks*

- PHPP 540 Adv Pharm Prac Exp: Ambulatory (6)
- PHPP 541 Adv Pharm Prac Exp: Community (6)
- PHPP 542 Adv Pharm Prac Exp: Medicine (6)
- PHPP 543 Adv Pharm Pract Exp: Hospital (6)
- PHPP 547 APPE - NAPLEX/MPJE Preparation (1)
- PHPP 544 Adv Pharm Pract Exp: Elect I (6)
- PHPP 545 Adv Pharm Prac Exp: Elect II (6)

### Electives - (6 credits)

- PHPP 546 Adv Pharm Practice Experience (6)

### Electives - (3 credits)

- ECON 430 Quantitative Forecasting (3)
- MGT 490 Strategic Mgt (3)

### Electives - (2 credits)

- PHPP 550 History of Pharmacy (2)
- PHPS 550 Genetics in Medicine (2)
- PHPP 531 Survey, Epidem, Qual Methods (1)
- PHPP 567 Rural Health Science Intro (2)
- PHPP 568 Rural Health Science Advanced (2)

### Variable (1 or 2 credits)

- PHPP 555 Intro to Veterinary Medicine (1-2)
- PHPP 599 Directed Studies (To Be Arranged)
- PHPS 599 Directed Studies (To Be Arranged)

### Electives - (1 credit)

- PHPP 553 Current Topics in Healthcare (1)
- PHPP 557 Personal Finance (1)
- PHPP 554 Zoonotic Diseases (1)
- PHPP 556 Adv Topics in Hypertension (1)
- PHPS 553 Radioactivity in Pharmacy (1)
- PHPP 559 Spanish for Healthcare Profess (1)
- PHPP 560 Pharmacy Leadership (1)
- PHPP 564 Advanced Managed Health Care (1)
- PHPS 554 Herb Med & Hawaiian Med Plants (1)
- PHPS 555 Geographic (Tropical) Medicine (1)
- PHPS 559 Environmental Toxicology (1)



- PHPS 562 Disc & Dev of Blockbuster Drug (1)
- PHPS 563 Curr Adv in Neuropharmacology (1)
- PHPS 565 Genetics & Pharm of Malaria (1)
- PHPS 561 Emerging Trends Drug Discovery (1)
- PHPS 567 Pharmacogenetics (1)
- PHPS 568 Antibiotic Mechanisms & Applic (1)
- PHPS 569 Cancer Prevention (1)
- PHPS 570 Drugs from the Ocean (1)
- PHPP 561 Pharmacy and Therapeutics Comp (1)
- PHPP 530 Basic Research Methods (1)
- PHPP 531 Survey, Epidem, Qual Methods (1)
- PHPP 532 Pharmacy Research (1)
- PHPP 558 Business Admin Overview (1)

## Minimum semester hours required for the Doctor of Pharmacy degree

137 credits.

### Health Sciences Research Certificate

**Coordinator** Deborah Taira , ScD, Associate Professor  
**Email** dtjuarez@hawaii.edu

#### Program Description

This certificate is designed to give Pharm D students an introduction to basic research methods as well as experience completing a research project. Students will receive an introduction to research methodology in pharmacy, including clinical studies, analysis of existing data, program evaluation and big data designs. Students will also receive training in human subjects research and scientific writing. Topics for research projects will vary based on student interest, mentors, and available data. To earn the certificate, 6 semester credits of a P4 academic research rotation must be successfully completed.

Writing skills to be covered include:

- Research abstract
- Biosketch
- Publishable paper
- Survey questions for research

#### Program Mission

The goal is to make PharmD students more competitive for post-graduate residency programs, which are increasingly required for jobs in clinical and academic settings. This program benefits the current curriculum by aligning student coursework to support research activities in both academic departments.

#### Student Learning Objectives

- Discuss different types of experimental/research designs
- Describe advantages and disadvantages of each design
- Display data in different ways to facilitate understanding of main points.
- Interpret different types of graphs
- Demonstrate knowledge of ethical and privacy issues in research by completing CITI training
- Strengthen research-related writing skills through creation of a strong research abstract and poster presentation
- Prepare for a potential research grant submission by completing an

- NIH biosketch
- Discuss the pros and cons of survey research
- Identify the main theoretical and procedural aspects of qualitative research
- Define qualitative research
- Use the language of qualitative research
- Explore rationale for use of qualitative or naturalistic research methods in clinical, social, and behavioral settings
- Define pharmacoepidemiology
- Utilize existing data to examine an issue in pharmacoepidemiology
- Examine how and why people access pharmacy services
- Determine the best resources for finding cost information for medications
- Measure patient outcomes resulting from pharmacy services or medication use
- Conduct a program evaluation of pharmaceutical services or behavioral interventions

#### Program Prerequisite Requirements

- Must have completed P1 (first year) in the PharmD program with a GPA of 3.0 or better
- Must maintain a GPA of 3.0 or better to remain in the certificate program
- Must not be on probation

#### Program Curriculum (19 Credits)

Core Courses for the Certificate: (10 Credits)

- PHPP 530 Basic Research Methods (1)
- PHPP 531 Survey, Epidem, Qual Methods (1)
- PHPP 532 Pharmacy Research (1)
- PHPS 599 Directed Studies (To Be Arranged)
- PHPP 544 Adv Pharm Pract Exp: Elect I (6) or PHPP 545 Adv Pharm Pract Exp: Elect II (6)

Courses Taken by All PharmD Students: (9 Credits)

- PHPS 503 Pharmaceutical Calculations (2)
- PHPP 508 Intro to Biostatistics (2)
- PHPP 514 Evidence-Based Medicine (3)
- PHPP 524 Pharmacoeconomics (2)

### Healthcare Leadership Certificate

**Coordinator:** Karen L. Pellegrin , PhD, MBA  
Director of Continuing Education and Strategic Planning  
**Email:** karen3@hawaii.edu

#### Program Description

The Healthcare Leadership Graduate Certificate provides PharmD students a basic foundation in business administration, with a concentration in healthcare leadership. Students who complete this program will gain an understanding of the business-side of the healthcare industry, with an emphasis on pharmacy practice and the pharmaceutical industry.

#### Mission

This mission of this certificate program is to produce PharmD graduates who are more competitive for a variety of positions in the job market, particularly those involving pharmacy management, leadership, and



innovation.

## Student Learning Objectives

1. Describe basic concepts of accounting, financial statements, human resources functions, compensation and incentives, performance management, production and operations, project management, marketing, strategy, organizational culture, corporate social responsibility, and related federal regulations;
2. Design and track variance from a budget
3. Analyze a variety of industries and competitive situations within the context of a global market environment.
4. Demonstrate knowledge of healthcare systems, legal and ethical issues in pharmacy, pharmacoeconomics, strategic management, and leadership.
5. Integrate the knowledge from previous courses in the certificate program and demonstrate the appropriate use of this knowledge within an unstructured case.
6. Apply knowledge from previous courses to address a real-world pharmacy leadership issue in an advanced experiential setting.

## Requirements (19 Credits)

Elective Courses (10 credits):

- PHPP 558 Business Admin Overview (1)
- PHPP 557 Personal Finance (1)
- PHPP 535 Healthcare Leadership (1)
- PHPP 536 Strategic Management (1)
- PHPP 544 Adv Pharm Pract Exp: Elect I (6) or PHPP 545 Adv Pharm Pract Exp: Elect II (6)

Core PharmD Courses (9 credits):

- PHPP 519 Health Care Systems (2)
- PHPP 520 Pharmacy Law and Ethics (3)
- PHPP 522 Pharm Practice Mgmt & Mktng (2)
- PHPP 524 Pharmacoeconomics (2)

## Program Requirements

- Student must have completed P1 (first year) in the PharmD program with a cumulative GPA of 3.0 or better
- Student must maintain a cumulative GPA of 3.0 or better to remain in the certificate program
- Student must not be on probation

## Rural Health Graduate Certificate (PharmD)

### Mission

This mission of this certificate program is to produce PharmD graduates who are equipped with the knowledge and experience needed to thrive as a pharmacist working in rural settings.

### Student learning objectives

1. Describe basic concepts in rural health science, including measurement, methods, and testing solutions to rural health problems.
2. Analyze rural health issues and make evidence-based recommendations for improvement.
3. Demonstrate knowledge of rural health issues in rural pharmacy practice settings.

4. Apply the knowledge of rural health science to real-world healthcare and community settings.
5. Integrate the knowledge from courses in the certificate program and apply this knowledge to enhance patient care in advanced experiential rotations.
6. Identify and demonstrate ability to implement solutions to rural health problems.

## Required Courses (22 Credits)

- PHPP 567 Rural Health Science Intro (2) , P2 year
- PHPP 568 Rural Health Science Advanced (2) , P3 year
- Review and approval of PHPP 540 Adv Pharm Prac Exp: Ambulatory (6) - PHPP 545 Adv Pharm Prac Exp: Elect II (6) course placement by department.
- Minimum of 18 APPE credits in Experiential Rotations in rural settings, selected from the following, department-approved sites: (18 Credits)
  - PHPP 540R Adv Pharm Prac Exp: Ambulatory (6)
  - PHPP 541R Adv Pharm Prac Exp: Community (6)
  - PHPP 542R Adv Pharm Prac Exp: Medicine (6)
  - PHPP 543R Adv Pharm Pract Exp: Hospital (6)
  - PHPP 544R Adv Pharm Pract Exp: Elect I (6) or PHPP 545R Adv Pharm Prac Exp: Elect II (6) or PHPP 546R Adv Pharm Practice Experience (6)
  - These APPE Credits will be satisfied in rural settings such as:
    - Hawai'i Island
    - Kaua'i Island
    - Rural Areas of Maui County (i.e. Hana, Lana'i, Moloka'i)
    - Other department-approved rural sites

## Ph.D. in Pharmaceutical Sciences

**Program Director:** Ghee Tan , Ph.D.  
Daniel K. Inouye College of Pharmacy (DKICP)  
722 S. A'ohoku St.  
Hilo, HI 96720  
**Email:** [gheetan@hawaii.edu](mailto:gheetan@hawaii.edu)

University of Hawai'i at Hilo  
Daniel K. Inouye College of Pharmacy (DKICP)  
Office of Student Services (OSS)  
Ph.D. Program Admissions  
200 W. Kāwili Street  
Hilo, HI 96720  
**Fax:** (808) 932-8117  
**Email:** [pharmacy@hawaii.edu](mailto:pharmacy@hawaii.edu)

### Faculty:

- Julie Adrian , D.V.M., Professor
- Shugeng Cao , Ph.D., Professor
- Leng Chee Chang , Ph.D., Professor
- Abhijit Date , Ph.D., Assistant Professor
- Daniela Guendisich , Ph.D., Associate Professor
- Susan Jarvi , Ph.D., Professor
- Dana-Lynn Ko'omoa-Lange , Ph.D., Associate Professor
- Ingo Ko'omoa-Lange , Ph.D., Assistant Professor
- Dianqing Sun , Ph.D., Professor
- Ghee Tan , Ph.D., Professor
- Supakit Wongwiwatthanakut , Pharm.D., Ph.D., Professor



## Program Description

Utilizing the extraordinary intellectual, biological, physical and cultural diversity of its geographic region as a focus of investigation and study, the University of Hawai'i at Hilo's College of Pharmacy is proud to offer a Ph.D. program in the Pharmaceutical Sciences.

This program, which is the only program of its type in the Pacific region, provides graduate training in the Pharmaceutical Sciences including Medicinal Chemistry, Pharmacology, Pharmaceutics, and Pharmacognosy. It is aimed at students with B.S., M.S., or Pharm.D. degrees, and those currently working in the field. Studies culminate with the award of a Ph.D. in Pharmaceutical Sciences, with an emphasis on natural products discovery and development and their importance in pharmacy and healthcare.

Students will be prepared for senior leadership positions in the pharmaceutical sciences in academia, research, education, government, industry and related fields and become leaders who can identify, research, and solve problems related to the pharmaceutical sciences. The Ph.D. program is designed to foster student development as critical thinkers, team players, self-directed interdisciplinary scholars and communicators.

## Mission

The mission of the Ph.D. program in Pharmaceutical Sciences is to train students to be skilled researchers and critical thinkers who will play key leadership roles in furthering the development of the Pharmaceutical Sciences and related fields now and into the future.

## Program Goals

- To provide a high-quality graduate program culminating in the award of a Ph.D. in Pharmaceutical Sciences, including the areas of Pharmaceutics, Pharmacognosy, Medicinal Chemistry, and Pharmacology.
- To foster the development of students as critical thinkers, team players, self-directed interdisciplinary scholars, and communicators.
- To prepare students for senior leadership positions in the pharmaceutical sciences in academia, research, education, government, industry, and related fields. These leaders will be able to identify, research, and solve problems related to the pharmaceutical sciences.
- To train students by utilizing the extraordinary intellectual, biological, physical, and cultural assets available on the Island of Hawaii, the State, and the Asia-Pacific region.
- To promote the transfer of cutting-edge technology through developing a community research partnership, process, and protocol for understanding the diversity of natural products originating in Hawaii, the Pacific, and around the world and their applications to healing in a culturally respectful way.

## Student Learning Outcomes

At the conclusion of the PhD program a graduate should be able to:

1. Perform scientific research that will advance knowledge in the interdisciplinary field of Pharmaceutical Sciences.
2. Use advanced technological equipment in order to perform quantitative analysis and be able to interpret complex data.
3. Analyze, apply, and present research findings.
4. Prepare, interpret, and critique scientific publications and proposals.
5. Identify which aspects of their individual program may be usefully

transferred to some applied research program.

6. Complete the seven stages for a successful PhD in any technical discipline, thereby becoming an independent researcher:
  - Identify a problem/question
  - Form an hypothesis
  - Develop a model
  - Design an experimental strategy to test the hypothesis
  - Execute an experimental plan
  - Interpret the data against the hypothesis
  - Report the results in a dissertation and peer reviewed publications

## Admission Requirements

Acceptance is granted at the discretion of the Pharmaceutical Science Ph.D. Admissions Committee based on the criteria below.

1. Successful completion of the Ph.D. in Pharmaceutical Sciences Application process.
2. Each applicant must hold a baccalaureate degree or graduate degree from a regionally accredited U.S. college or university, or its equivalent from a recognized non-U.S. institution of learning
3. Applicants must have a minimum Grade Point Average of 3.0 out of 4.0 or the equivalent in the last 60 semester credits of undergraduate and in all post-baccalaureate work.
4. Applicants are recommended to have successfully completed with a grade "C" or higher: General Biology I and II for Science Majors with Labs, General Chemistry I and II for Science Majors with Labs, Organic Chemistry I and II for Science Majors with Labs, Calculus 1 or Advanced Calculus. Students may have to take additional courses if proficiency cannot be demonstrated.
5. A personal statement of objectives is required which includes applicant's background, professional goals and academic and research interests.
6. Resume.
7. Official Graduate Record Examination (GRE) scores sent directly from ETS.
8. Three Letters of Recommendation using the "Ph.D. Letter of Recommendation Form". The letters should be written by people who can speak to the applicant's educational ability, motivation, and character, and/or leadership experiences. At least one of your letters MUST be written by a Professor of one of the Natural or Physical Sciences. Please allow the Recommenders plenty of time to complete this form, and have them mail the letter directly to the UH Hilo Daniel K. Inouye College of Pharmacy, Office of Student Services, PhD Program Admissions, 200 W. Kawili Street; Hilo, HI 96720-4091.
9. Completed SKYPE or equivalent electronic interview.

### Foreign applicants must also submit:

1. Official TOEFL score report unless the degree was conferred by an institution whose language of instruction is English. International students seeking Graduate Assistant positions with any instructional responsibility must demonstrate proficiency in English, defined as a TOEFL score of at least 600 on paper-based or 100 on internet-based test or its equivalent or an IELTS score of 7.0 or its equivalent. [Graduate Student Employment Policy](#).
2. [International Graduate Student Supplemental Information Form](#).

Further information on the details of fulfilling admissions requirements are available from the Ph.D. Program Admissions Office [pharmacy@hawaii.edu](mailto:pharmacy@hawaii.edu), and on the [DKICP Admissions website](#).



## Graduation Requirements

1. Successful achievement of the requirements for year one of the student's program.
2. Regardless of any previous graduate experience, a minimum of 24 graduate didactic credit hours must be taken at UH Hilo before the Ph.D. degree can be granted.
3. Completion of all first year graduate courses each with a grade no less than a "B" (3.0) and, thereafter, maintenance of a cumulative grade point average of 3.0 or better.
4. Completion of one seminar each year; a minimum grade of "B" (3.0) should be achieved for this presentation. The Proposal Defense and Dissertation Defense seminars will satisfy the seminar presentation requirement for that particular academic year.
5. No later than the fourth semester of the program, successful completion of a written and/or oral Comprehensive Examination to demonstrate competence in the chosen area(s) of Pharmaceutical Sciences.
6. No later than the fifth semester of the program, completion of an original dissertation research proposal, presentation of a public seminar on the student's research proposal, and successful defense in a comprehensive oral examination (Proposal Defense) on the proposal and any other topics that the Graduate Committee deems necessary. In this examination the student's Graduate Committee will determine if the student is sufficiently prepared in the selected field of study to continue with their dissertation. Once the student passes the Comprehensive Examination and the Proposal Defense, he/she will be eligible to be admitted to Candidacy for the Ph. D. degree.
7. Successful completion of a dissertation, with enrollment in a minimum of 56 credits of dissertation research (PHPS 799V Directed Studies (To Be Arranged) and PHPS 800 Resrch Dissertation-Phrm Sci (1-15) ). Upon completion of the dissertation, a final public seminar and oral dissertation defense (Dissertation Defense) will follow.
8. Completion of at least 96 combined credits of graduate courses and dissertation; including PHPS 700-level and PHPS 800-level courses.
9. The publication of one or more first author research manuscripts in peer-reviewed journals.
10. Compliance with UH Hilo rules and regulations for graduation.

## Curricula

To successfully complete the PhD degree candidates must complete; year 1 with a minimum grade of B in each graded course (Minimum GPA = 3.0); after the first year, courses must be completed with a cumulative GPA of no less than 3.0; a minimum of 24 graduate level didactic credits and a minimum of 56 credits of research courses (PHPS 799 and PHPS 800); a minimum of 96 credit hours overall (Minimum cumulative GPA = 3.0).

### 1. PhD Year 1 Fall Courses (minimum 12 credits)

- PHPS 718 Lab Visits & Supervisor Select (1)
- PHPS 749 Overview of Pharm Sciences I (2)
- Area-specific courses (9 credits minimum chosen from among the recommended courses below for a specific area and supplemented with other electives as needed)
  - Cancer Biology Emphasis
    - PHPS 703 Cancer Biology (2)
    - PHPS 710 Lab Animal Care, Mgt & Med I (2)
    - PHPS 751 Biochemistry I - Biomolecules (3)
    - PHPS 735 Cell Cycle Progression (2)
    - Or other appropriate electives to make up a minimum of 9 credits

### ■ Medicinal Chemistry Emphasis

- PHPS 704 Com Chem & High Throughput Tec (2)
- PHPS 709 Inst Meth & Struct Elucidation (2)
- PHPS 713 Organic Medicinal Chemistry I (2)
- PHPS 717 Med Chem CNS Drugs & Develop (2)
- Or other appropriate electives to make up a minimum of 9 credits

### ■ Pharmacognosy Emphasis

- PHPS 709 Inst Meth & Struct Elucidation (2)
- PHPS 723 Pharmacognosy (2)
- PHPS 751 Biochemistry I - Biomolecules (3)
- Or other appropriate electives to make up a minimum of 9 credits

### ■ Pharmaceuticals Emphasis

- PHPS 709 Inst Meth & Struct Elucidation (2)
- PHPS 755 Advanced Pharmaceuticals I (3)
- PHPS 733 Aerosol Physics in Medicine (1)
- Or other appropriate electives to make up a minimum of 9 credits

### ■ Pharmacology Emphasis

- PHPS 703 Cancer Biology (2)
- PHPS 706 Environmental Toxicology (2)
- PHPS 721 Neuropsychopharmacology (2)
- PHPS 724 Pharmacology I (3)
- PHPS 735 Cell Cycle Progression (2)
- Or other appropriate electives to make up a minimum of 9 credits

### 2. PhD Year 1 (Qualifying Year) Spring Courses (minimum 12 credits)

- PHPS 750 Overview of Pharm Sciences II (2)
- PHPS 780 Research Seminar (1)
- PHPS 799 Directed Studies (To Be Arranged)
- Area-specific courses (5 credits minimum chosen from among the recommended courses below for a specific area and supplemented with other electives as needed)
  - Cancer Biology Emphasis
    - PHPS 711 Lab Animal Care, Mgt & Med II (2)
    - PHPS 720 Nat Prod & Cancer Chemoprevent (2)
    - PHPS 729 Receptor Theory & Signal Trans (2)
    - PHPS 752 Biochemistry II - Metabolism (3)
    - PHPS 734 Biotechnology Laboratory (2)
    - Or other appropriate electives to make up a minimum of 5 credits
  - Medicinal Chemistry Emphasis
    - PHPS 714 Organic Medicinal Chemistry II (2)
    - PHPS 720 Nat Prod & Cancer Chemoprevent (2)
    - Or other appropriate electives to make up a minimum of 5 credits
  - Pharmacognosy Emphasis
    - PHPS 702 Bio Dev:Prin&Prac in Drug Disc (1)
    - PHPS 720 Nat Prod & Cancer Chemoprevent (2)
    - PHPS 730 Sample Coll, Documnt & Presrv (1)
    - PHPS 752 Biochemistry II - Metabolism (3)
    - Or other appropriate electives to make up a minimum of 5 credits
  - Pharmaceuticals Emphasis
    - PHPS 756 Advanced Pharmaceuticals II (3)
    - Or other appropriate electives to make up a minimum of 5 credits
  - Pharmacology Emphasis
    - PHPS 725 Pharmacology II (3)
    - PHPS 729 Receptor Theory & Signal Trans (2)
    - Or other appropriate electives to make up a minimum of 5 credits



3. **PhD Year 2 Fall Courses (minimum 12 credits)**
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 7 credits)
  - Electives as needed, electives plus PPHS 780 Research Seminar (1) PPHS 799 should total a minimum of 12 credits
4. **PhD Year 2 Spring Courses (minimum 12 credits)**
  - PPHS 780 Research Seminar (1)
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 7 credits)
  - Electives as needed, electives plus PPHS 799 should total a minimum of 12 credits
5. **PhD Year 3 Fall Courses (minimum 12 credits)**
  - PPHS 780 Research Seminar (1)
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 7 credits)
  - Electives as needed, electives plus PPHS 780 Research Seminar (1) and PPHS 799 should total a minimum of 12 credits
6. **PhD Year 3 Spring Courses (minimum 12 credits)**
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 7 credits)
  - Electives as needed, electives plus PPHS 799 should total a minimum of 12 credits
7. **PhD Year 4 Fall Courses (minimum 12 credits)**
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 7 credits)
  - Electives as needed, electives plus PPHS 799 should total a minimum of 12 credits
8. **PhD Year 4 Spring Courses (minimum 12 credits)**
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 6 credits)
  - For final semester in program: PPHS 800 Resrch Dissertation-Phrm Sci (1-15) (1 credit required)
  - Electives as needed, electives plus PPHS 799 and PPHS 800 should total a minimum of 12 credits
9. **PhD Year 5 and beyond are taken on an as required basis. (minimum 12 credits)**
  - PPHS 799 Directed Studies (To Be Arranged) (minimum 6 credits)
  - For final semester in program: PPHS 800 Resrch Dissertation-Phrm Sci (1-15) (1 credit required)
  - Electives as needed, electives plus PPHS 799 and PPHS 800 should total a minimum of 12 credits

PHPS 711	Laboratory Animal Care, Management and Medicine II	2
PHPS 712	Medical Cell Biology	2
PHPS 713	Medicinal Chemistry I	2
PHPS 714	Medicinal Chemistry II	2
PHPS 715	Medicinal Chemistry III	2
PHPS 716	Medicinal Chemistry IV	2
PHPS 717	Medicinal Chemistry of CNS Drugs and Development of <i>in vivo</i> CNS Tracers	2
PHPS 719	Molecular Biology Techniques and Applications for Healthcare Professionals	2
PHPS 720	Natural Products and Cancer Chemoprevention	2
PHPS 721	Neuropsychopharmacology	2
PHPS 722	Pharmaceutical Marketing	2
PHPS 723	Pharmacognosy I	2
PHPS 724	Pharmacology I	3
PHPS 725	Pharmacology II	3
PHPS 726	Pharmacology III	3
PHPS 727	Pharmacology IV	3
PHPS 728	Phytochemistry of Terrestrial Plants	2
PHPS 729	Receptor Theory and Signal Transduction	2
PHPS 730	Sample Collection, Documentation and Preservation	1
PHPS 731	Toxicants and Toxicity	3
PHPS 732	Toxic Plant Natural Products and Their Therapeutic Potential	2
PHPS 733	Advanced Aerosol Physics in Medicine: Inhaled Drug Therapy	1
PHPS 734	Biotechnology Laboratory	2
PHPS 735	Cell Cycle Progression and Apoptosis, Methodological Approaches	2

## M.S. in Tropical Conservation Biology and Environmental Science

**Program Chair:** Tracy N. Wiegner , Ph.D.,

**Email:** [wiegner@hawaii.edu](mailto:wiegner@hawaii.edu)

**Associate Program Chair:** Rebecca "Becky" Ostertag , Ph.D.,

**Email:** [ostertag@hawaii.edu](mailto:ostertag@hawaii.edu)

**Program Website:** [TCBES Program Website](#)

[College of Natural and Health Sciences \(CNHS\)](#)

### Program Description

The primary purpose of the Master of Science in Tropical Conservation Biology and Environmental Science is to provide graduate training in conservation biology and environmental science to those with baccalaureate degrees and those currently working in the field. The program will utilize the extraordinary biological, physical, and cultural complexity of the island of Hawai'i as a focus of investigation and study. The program will prepare students for technical positions and for entry into Ph.D. programs in related fields.

### Electives-Listed Alphabetically

Alpha/Number	Course Title	Credits
PHPS 701	Apoptosis and Angiogenesis in Disease Processes and Drug Development	1
PHPS 702	Bioassay Development: Principles & Practices in Drug Discovery	3
PHPS 703	Cancer Biology	2
PHPS 704	Combinatorial Chemistry and High Throughput Technologies in Drug Discovery	2
PHPS 705	Designing Clinical Research	3
PHPS 706	Environmental Toxicology	2
PHPS 707	Genetics in Medicine	2
PHPS 708	Isolation Methods for Natural Product Discovery	2
PHPS 709	Instrumental Methods and Structure Elucidation of Mainly Natural Products	2
PHPS 710	Laboratory Animal Care, Management and Medicine I	2



## Mission

- Foster knowledge of theory and techniques in conservation biology and environmental sciences including basic, applied, and socio-ecological research.
- Promote scholarly activities in marine and terrestrial environments that will enable participants to pursue careers in research and natural resource management.

## Student Learning Outcomes

Graduates of the program will be able to:

- Perform, interpret, and communicate scientific research in the interdisciplinary field of conservation biology and environmental science;
- Use advanced technological equipment, perform qualitative and quantitative analysis of complex data.
- Develop skills appropriate for their chosen field of specialization and demonstrate an understanding of the research or natural resource management applications of said specialization.

## Admission Requirements

1. A baccalaureate degree from a regionally-accredited U.S. institution or from a nationally-recognized foreign institution.
2. A personal statement that states whether student is interested in Thesis Track or Internship Track. If Thesis Track, the applicant must list advisor(s) from the TCBES faculty who agrees to sponsor the application and serve as primary advisor upon acceptance to the program. Internship Track students are not required to get sponsorship from an advisor.
3. Three letters of recommendation submitted by references who have observed or supervised the applicant's performance and are able to comment on the quality of the applicant's academic achievement, ability to pursue graduate study, and general character.
4. Grade point average of 3.0 (on a scale where A = 4.0) or the equivalent in the last four semesters of approximately 60 semester credits of undergraduate work and/or in all post-baccalaureate work.
5. A score of 550 TOEFL (paper based), 213 (computer based) or 79 (internet based), or 6.0 IELTS (for students who have not attended an English language university, or for whom English is not the primary language).

Note: In special circumstances acceptance may be granted at the discretion of the selection committee for those students who meet some, but not all, the above requirements.

## Transfer of Credits

Requests for transfer of graduate credits must be made during the first semester in which the student is enrolled in the program. Only credit hours with a grade of B or better from accredited universities are transferable. Transfer credit hours must have been completed within five years preceding the date upon which the advanced degree is to be conferred by UH Hilo. The TCBES program will decide which credits will be transferred.

## International Credentials

A statement describing minimum academic qualifications expected of international applicants may be obtained from the [Graduate Division](#). These qualifications must be completed prior to enrollment.

## M.S. TCBES Checklist

**(Reminder: Priority application deadline is December 1)**

- Completed UH Hilo Graduate application form
- Personal statement of objectives
- Application fee
- Official transcripts from all colleges or universities (must be received directly from the institution, or in a sealed envelope if submitted with your application)
- Three Letters of Recommendation received at UH Hilo by December 1
- Official TOEFL score report, if required
- Verification of financial status (for international applicants) (see [International Graduate Students](#))

## Frequently Asked Questions

1. **Do I need to find a faculty sponsor?** If you are interested in the **Thesis Track** then you are required to contact individual faculty members whose research interests are similar to your own and who agree to sponsor your application to the program. It is recommended that you begin faculty contact well before the application deadline. If you are interested in the **Internship Track** then you are not required to have a sponsor.
2. **How do I find a faculty sponsor?** TCBES Faculty information can be found within this page and on the [TCBES Website](#)
3. **How long does it take to complete the program?** The course work is designed to be completed in 3-4 semesters, with additional time needed for writing the thesis or completing the internship.
4. **What are the entrance requirements?** See Checklist and Admission Requirements sections.
5. **Do I have to take the GRE?** No. The GRE Test Requirement is no longer required.
6. **Can I transfer credits?** Yes, up to 6 credits, subject to program approval.
7. **When will the program start?** Classes for new students begin in the fall of each year.
8. **How much will it cost to live in Hilo?** You should budget approximately \$30,000.00 per year (residents of Hawai'i) and \$39,000.00 (non-residents) for tuition, books, housing, food, and personal expenses.
9. **Is financial aid available?** Graduate assistantship positions may be available (Contact program chair, Dr. Wiegner: [wiegner@hawaii.edu](mailto:wiegner@hawaii.edu)). You may also contact faculty and participating agencies for financial assistance. Students interested in any type of financial aid must have submitted the FAFSA; students who are may qualify for the \$1,000 Graduate Opportunity Grant. Contact the UH Hilo [Financial Aid Office \(FAO\)](#) for more information.
10. **Do I need to write a Master's Thesis?** The Thesis Track requires course work and a thesis of original research. The Internship Track requires course work, an internship, and research papers.

## Program Curriculum

Total Credits Required:

- Thesis Track = 30 credits (9 Core + 3 Required (CBES 677) + 12 Elective + 6 Thesis)
- Internship Track = 36 credits (9 Core + 15 Required + 12 Electives)

## Core Courses (9 credits) required for all M.S.

**TCBES students**

- CBES 600 Conservatn Biol & Environ Sci (3)
- CBES 601 CBES Field & Laboratory Method (4)
- CBES 602 Research Seminar in TCBES (1)
- CBES 603 Natural Resource Mgt Seminar (1)

**Core Courses Required for Thesis Track (9 credits)**

- CBES 677 Quantitative Ecology (3)
- CBES 700 Thesis Research (1-6) (6 Credits Required)

**Core Courses Required for Internship Track (15)**

- CBES 645 Soc Sci Rsch Mthds Envir Cons (3)
- CBES 689 Organiz Mgmt & Logistics (3)
- CBES 690 Professional Internship (1)
- CBES 691 Becoming Environmental Leader (2)
- CBES 692 Proposal Writing (2)
- CBES 695 Becoming Envrnmntl Communicatr (2)
- CBES 696 Emerging Envrnmntl Professionl (2)

**Required Elective Courses**

**Thesis Track:** 12 Elective credits of 600-level CBES courses. From these elective courses, you must take the following:

- Foundations: Choose one course from the following list:
  - CBES 609 Theory/Apps Landscape Ecology (3)
  - CBES 615 Global Environmental Change (3)
  - CBES 633 Biodiversity (3)
  - CBES 635 Physical Environment of Ecosys (3)
  - CBES 655 Ecological Physiology (3)
  - CBES 657 Vegetation of the Hawaiian Isl (3)
  - CBES 658 Insect Systematics and Ecology (3)
  - CBES 660 Molecular Ecology (3)
  - CBES 663 Fisheries Ecology (3)
  - CBES 664 Environmental Microbiology (3)
  - CBES 665 Environmental Toxicology (3)
  - CBES 675 Conservation Genetics (3)
  - CBES 685 Behavioral Ecol & Evol Analyse (3)
  - CBES 687 Speciation (3)
- Methods: Choose one course from the following list
  - CBES 610 Environmental Chem Analysis (3)
  - CBES 620 Rrsch Techniq Molecular C Biol (3)
  - CBES 640 Adv Remote Sensing/Digital Ima (3)
  - CBES 645 Soc Sci Rsch Mthds Envir Cons (3)
  - CBES 670 Geog Info Sys & Visualization (3)
  - CBES 680 Adv Stats Analysis & Rsrch Des (3)
  - CBES 681 Advance Geo-Spatial Techniques (3)
  - CBES 692 Proposal Writing (2)
- Applications: Choose one course from the following list
  - CBES 623 Marine Policy (3)
  - CBES 642 Comm Sci in HI Island Schools (3)
  - CBES 644 Law, Property, and Nature (3)
  - CBES 682 Natural Resource Env Econ (3)
  - CBES 689 Organiz Mgmt & Logistics (3)
  - CBES 695 Becoming Envrnmntl Communicatr (2)

**Internship Track:** 12 Elective Credits of 600-level CBES courses. From these elective courses you must take the following:

- Foundations: Choose one course from the following list
  - CBES 609 Theory/Apps Landscape Ecology (3)

- CBES 615 Global Environmental Change (3)
- CBES 633 Biodiversity (3)
- CBES 635 Physical Environment of Ecosys (3)
- CBES 655 Ecological Physiology (3)
- CBES 657 Vegetation of the Hawaiian Isl (3)
- CBES 658 Insect Systematics and Ecology (3)
- CBES 660 Molecular Ecology (3)
- CBES 663 Fisheries Ecology (3)
- CBES 664 Environmental Microbiology (3)
- CBES 665 Environmental Toxicology (3)
- CBES 675 Conservation Genetics (3)
- CBES 685 Behavioral Ecol & Evol Analyse (3)
- CBES 687 Speciation (3)
- Methods: Choose one course from the following list
  - CBES 610 Environmental Chem Analysis (3)
  - CBES 620 Rrsch Techniq Molecular C Biol (3)
  - CBES 640 Adv Remote Sensing/Digital Ima (3)
  - CBES 670 Geog Info Sys & Visualization (3)
  - CBES 677 Quantitative Ecology (3)
  - CBES 680 Adv Stats Analysis & Rsrch Des (3)
  - CBES 681 Advance Geo-Spatial Techniques (3)
- Applications: Choose one course from the following list
  - CBES 623 Marine Policy (3)
  - CBES 642 Comm Sci in HI Island Schools (3)
  - CBES 644 Law, Property, and Nature (3)
  - CBES 682 Natural Resource Env Econ (3)

**Notes**

1. A maximum of 6 credits of 400-level courses may count towards these elective credits

**Faculty**

- Norman Arancon , Ph.D., Agriculture
- Jonathan Awaya , Ph.D., Biology
- Celia T. Bardwell-Jones , Ph.D, Philosophy
- James Beets , Ph.D., Marine Science
- Kathryn Besio , Ph.D., Anthropology
- John H. R. Burns , Ph.D., Marine Science
- Leng Chee Chang , Ph.D., Pharmacy
- Steven Colbert , Ph.D., Marine Science
- Marta deMaintenon , Ph.D., Marine Science
- Armando García-Ortega , Fisheries and Aquaculture
- Joseph Genz , Ph.D., Anthropology
- Timothy B. Grabowski , Ph.D, Unit Leader, Hawaii Cooperative Fishery Research Unit and Marine Science
- Mazen Hamad , Ph.D., Chemistry
- Patrick Hart , Ph.D., Biology
- Maria Haws , Ph.D., Aquaculture
- Susan Jarvi , Ph.D., Biology
- Matthew Knope , Ph.D., Biology
- Christopher Knudson , Ph.D., Geography
- Yiqing Li , Ph.D., Forestry
- Steven Lundblad , Ph.D., Geology
- Sarah Marusek , Ph.D., Political Science
- Bruce Mathews , Ph.D., Soil Science & Agronomy
- Karla McDermid Smith , Ph.D., Marine Science
- Jon-Pierre Michaud , Ph. D., Chemistry
- Jené Michaud , Ph.D., Geology
- Peter Mills , Ph.D., Anthropology
- Cedric Muir , Ph.D., Biology
- Stan Nakanishi , Ph.D., Biology
- Rebecca Ostertag , Ph.D., Biology



- Adam Pack , Ph.D., Psychology & Biology
- Ryan Perroy , Ph.D., Geography
- Michael “Mike” Peterson , Ph.D., Computer Science
- Matthew Platz , Ph.D., Chemistry
- Jonathan Price , Ph.D., Geography
- Michael Shintaku , Ph.D., Plant Pathology
- Shihwu Sung , Ph.D., Applied Engineering
- Li Tao , Ph.D., Biology
- Jason Turner , Ph.D., Marine Science
- Grady Weyenberg , Ph.D., Mathematics
- Tracy Wiegner , Ph.D., Marine Science

## Affiliate and Adjunct Faculty

These faculty serve on graduate committees, occasionally teach graduate courses, seminars or workshops, and can co-chair graduate committees with a UH Hilo faculty members. For an updated list, see the [TCBES website](#).

## Graduate Courses

- Education and Teaching:
  - Education (ED) Post-Baccalaureate Courses
- Heritage Management:
  - Anthropology (ANTH) Post-Baccalaureate Courses
- Ka Haka ‘Ula O Ke‘elikōlani:
  - Hawaiian Language (HAW) Post-Baccalaureate Courses
  - Hawaiian Studies (HWST) Post-Baccalaureate Courses
  - Ke‘elikōlani Education (KED) Post-Baccalaureate Courses
  - Ke‘elikōlani Hawaiian Language (KHAW) Post-Baccalaureate Courses
  - Ke‘elikōlani Hawaiian Studies (KHWS) Post-Baccalaureate Courses
  - Ke‘elikōlani Indigenous Language (KLAN) Post-Baccalaureate Courses
  - Ke‘elikōlani Indigenous Studies (KIND) Post-Baccalaureate Courses
  - Ke‘elikōlani Linguistics (KLIN) Post-Baccalaureate Courses
- Nursing:
  - Nursing (NURS) Post-Baccalaureate Courses
- Pharmacy:
  - Pharmacy Practice (PHPP) Post-Baccalaureate Courses
  - Pharmaceutical Science (PHPS) Post-Baccalaureate Courses
- Psychology:
  - Psychology (PSY) Post-Baccalaureate Courses
- Tropical Conservation Biology & Environmental Science:
  - Tropical Conservation Biology & Environmental Science (CBES) Post-Baccalaureate Courses

## How to read the course descriptions

Courses are described using the following format:

①CRS ②NUM③Title④(cr.)⑤(contact hrs) ⑥Full course description.  
⑦Pre: pre-requisites. ⑧(Same as X-List) ⑨(Attributes: ATTR)

1. Course subject
2. Course number
3. Course title
4. Number of semester hours (credits)
5. Contact hours type(s) if non-lecture
6. Full description of the course.

7. (if applicable) Prerequisites, co-requisites, recommended preparation or other requirements
8. (if applicable) Cross-listed courses (equivalent courses offered through another subject heading)
9. (if applicable) [General Education](#) Attributes

### Special notations used for credits are as follows:

- (1-3), for example = the number of semester hours, in this example, may be 1, 2, or 3, as determined by the instructor at the time of offering.
- (Arr.) = the number of semester hours is arranged by the instructor.

### Certain number endings are reserved for particular types of courses:

- “94” courses are Special Topics Courses.
- “95” courses are Seminars.
- “96” courses are Internship Courses.
- “97” and “98” courses are Experimental Courses offered only for one year on that basis (“97” is usually offered in the Fall and “98” in the Spring).
- “99” courses are Research and Directed Studies Courses.

## Additional Courses

Also see the list of [undergraduate courses](#).

## Anthropology (ANTH) Graduate Courses

College of Arts and Sciences (CAS)

**ANTH 500 Masters Plan Studies (1)** Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

**ANTH 600 Thesis Design, Method, Theory (3)** Seminar on the mechanics of completing a thesis. Theoretical and applied frameworks of heritage management, essential components of a theoretically founded and searchable research questions, community goals, standards for writing a thesis.

**ANTH 601 Ethics of Heritage Management (3)** Ethical issues raised by archaeological research, data curation and preservation, and public visibility. Global review of laws and ethical codes related to the practice of heritage management as an academic discipline, colonialism and nationalism, looting and the art market, material culture, public engagement and community based research, identity and the world system, and issues of group representation in popular media.

**ANTH 602 Historic Preservation Laws (3)** Paired with ANTH 389 (Cultural Resource Management). Major issues of Heritage Management legislation and the structure of federal and state programs. We'll review some of recent court cases in the U.S. and Pacific Nations. Civil suits over historic preservation. Graduate students will work with ANTH 389 students in the design and implementation of their community based-research.

**ANTH 603 Qualitative & Quant. Methods (3)** Overview of methods used to interpret anthropological fieldwork. Discussion of research design, sampling, scales of analysis, differences between qualitative



analysis and quantitative analysis.

**ANTH 611 Cultural Impact Assessments (3)** Introduction to applied ethnographic studies in Hawai'i, including cultural impact assessments, ethnohistoric studies, regulations, ethics and politics of community-based consultation and research; research in historic-era documents, ethnographies, maps, previous archaeological studies, and texts written in the Hawaiian language.

**ANTH 612 Indigenous Museum Studies (3)** Pared with the undergraduate course ANTH 470 (Museology). Community museum development with a focus on indigenous perspectives of heritage and stewardship. Grant-writing, collections documentation and management, exhibit planning, and public engagement. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 613 Human Paleoecology (3)** Methods and theories pertaining to understanding ancient human interactions with ecosystems, including effects of human colonization on island environments, species introductions and extinctions, geomorphological change and studies of other anthropogenic processes. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 614 Submerged Cultural Resources (3)** Overview of conservation and management issues related to submerged cultural resources with specific attention given to the Abandoned Shipwrecks Act, Admiralty Law, and other regulatory factors pertaining to the management of submerged resources in the Hawaiian Archipelago and the Pacific in general. An overview of methodological issues and ongoing submerged resource issues are discussed. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 623 Archaeology of Oceania (3)** Archaeological overview of cultures of the Pacific both before and after Western contact with an emphasis on research being conducted as a result of regional heritage management programs. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 624 Archaeology of Hawai'i (3)** History, theory, and practice of archaeology in the Hawaiian Islands. Development of the discipline, including ethics and politics, and contemporary Kānaka Maoli concerns. Theoretical topics include the emergence of social complexity, political economy, monumentality, craft production, agriculture and gender relations, and archaeoastronomy. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 625 Pacific Heritage Management (3)** Overview to indigenous heritage management in the Pacific. International conventions and world heritage sites, national historic preservation law, community-based cultural revival projects, and collaborative research and preservation. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 631 Oral History Research (3)** Ethics of applied ethnographic and participatory research, interview protocols, methods of listening, observing and recording, and approaches to interpretive analysis. Methods of interviewing and recording, including the analysis of recorded transcripts while addressing the broader issues that surround oral history and applied ethnographic research, including the epistemological underpinnings of qualitative methods. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 632 Paleobotanical Methods (3)** The identification and analysis of plant remains, particularly in relationship to paleoethnobotany in the Pacific Islands. Palynology, phytolith analysis, starch grain identification, wood charcoal identification. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 633 Material Conservation (3)** Conservation issues that affect

the long-term curation of cultural material. Preservation methods related to paper, textiles, bark cloth, waterlogged objects, ferrous metals, and an assortment of other materials. Special emphasis is placed on working with, and providing stewardship for indigenous cultural materials. Pre: ANTH 600, ANTH 601, ANTH 602, ANTH 612.

**ANTH 634 Lithic Analysis (3)** Analytical methods applied to stone artifacts (lithics) from cultural sites and museum collections. History of lithic analyses in archaeology; current analytical techniques; tool production technologies; use-wear. Course content is intended to be applied to thesis projects; students work with undergraduates in ANTH 484 (stone tools analysis). Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 635 Human Osteology (3)** Analytical methods used in physical and biological anthropology. Practical skills related to physical anthropology in the context of heritage management. Emphasis on ethically grounded research in the context of indigenous heritage. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH 682 Archaeological Field Methods (3-5) (lecture/lab)** Archaeological methods including research design mapping and excavation, and laboratory methods. Normally taught as a summer session course. Credit varies depending on length of field projects (4-6 weeks, 8hrs./day). Pre: ANTH 110; ANTH 600, ANTH 601, ANTH 602.

**ANTH 690 Heritage Management Internship (3)** (a) Archaeology; (b) Museum Studies; (c) Burials Program; (d) Cultural Impact Assessments. Placement and experience in public, private, and/or government agencies involved in heritage management plus completion of related research projects. Pre: ANTH 600, ANTH 601, ANTH 602. May be repeated for credit.

**ANTH 700 Thesis Research (1-6)** Supervised research, data analyses, literature review, and writing up of an original empirical study designed to develop and demonstrate the ability to do research and competence in scholarly exposition. Students are expected to work on their thesis under the supervision of their faculty and have their work reviewed by their thesis committee. Pre: ANTH 600, ANTH 601, ANTH 602.

**ANTH x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ANTH x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [ANTH undergraduate-level courses](#).

## Psychology (PSY) Graduate Courses for the Master of Arts in Counseling Psychology

College of Arts and Sciences (CAS)

**PSY 500 Master's Plan Studies (1)** Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.



**PSY 601 Applied Multivariate Statistic (4) (other)** Advanced statistical techniques used in psychological research and assessment. Strategies of multivariate data screening, transformation, analysis, and interpretation. Computerized statistical packages designed for multivariate analyses.

**PSY 602 Research Meth & Prgm Evaluatn (3)** Basic research methodology including quantitative, qualitative, action research, and context-based research. Theoretical knowledge and practical experience in program design and evaluation. Strong emphasis will be given to the importance of research and program evaluation and the opportunities and difficulties encountered when conducting these in the counseling profession. Pre: PSY 601.

**PSY 603 Psychological Assessment (4)** Principles of psychological assessment. Historical perspective on psychological assessment. Assessment methods. Scales used in psychological assessment: assessment of personality, abilities, achievement, interests, and values. Assessment of environment. Quality of assessment. Assessment design and implementation. Interpretation of the assessment results. Cross-cultural aspects of assessment. Legal and ethical issues. Hands-on training to effectively utilize various assessment tools and write comprehensive assessment reports. Pre: PSY 601.

**PSY 604 Profssnl Identity, Ethics (3)** Ethical issues in counseling and psychological research. Ethical decision making, confidentiality, and ethical obligations. Research ethics and psychologists in the legal system. Ethical standards and guidelines.

**PSY 611 Lifespan Human Development (3)** Psychological, social, and physical development over the life span. Interaction among genetic make-up, human activity, and context in the process of development. Stages and mechanisms of development. Normative development and deviations from the norm. Theories of development. Research on developmental processes in various domains. Cross-cultural perspectives on human development. Current research issues.

**PSY 612 Career Development (3)** Work and work-related behavior over the life span. Relationships between life style and career development. Theories of vocational development. Career development of women and minorities. Occupational information and decision making. Impact of changing technology and job market. Application to career counseling with diverse populations.

**PSY 613 Psychopathology over Lifespan (3)** Abnormal development across the lifespan. DSM classification of disorders and methods of appraisal. Etiology, diagnosis and treatment of child, adult, and geriatric disorders.

**PSY 614 Family System (3)** Family as an open system. Family structure, processes, and context. Family dynamics. Interaction among psychological, social, economic, and biological aspects of family functioning. Reciprocal relationships in the family. Interactions between families and their contexts. Cross-cultural differences in family organization and functioning. Problems in the family and ways of coping.

**PSY 620 Counseling Theories (3)** A pre-practicum course designed to help students gain an in-depth understanding of various counseling theories. Through readings, discussions, in-class exercises and homework assignments, students will learn the theories.

**PSY 621 Counseling Theory and Skills (3)** Theories and techniques of counseling, including processes, applications and outcomes.

**PSY 622 Group Work & Counseling (4) (lecture/lab)** Group purpose,

type, development, dynamics; leadership and diversity; group work and counseling theories, methods and skills; evaluation of group work and counseling; application of group work and counseling in a family, school and workplace settings. Students participate in an experiential learning group over the course of the semester.

**PSY 623 Social & Cultural Foundations (3)** Interaction between society and the individual. Socio-economic status, ethnicity and culture as determinants of behavior. Characteristics of multicultural and diverse societies and their effects on individual and group behavior.

**PSY 624 Counseling Skills (3)** A pre-practicum course designed to help students develop effective counseling skills. Through readings, discussions, in-class exercises and homework assignments, students will learn therapeutic skills.

**PSY 640 Practicum Supervision (3) (other)** Supervision course for a mental health counseling practicum experience in a clinical setting, including 100 hours of supervised client contact. To be taken concurrently with PSY 640F. Repeatable if different field placement. Pre: PSY 602, 603 and consent of instructor.

**PSY 640F Practicum Fieldwork (3) (other)** Fieldwork course for a mental health counseling practicum experience in a clinical setting, including a minimum of 100 supervised client contact hours and 100 indirect hours. To be taken concurrently with PSY 640. Pre: PSY 602, 603 and consent of instructor. Must be taken Credit/No-Credit.

**PSY 641 Schl Behavr, Adjustmt, Pbrlms (3)** School adjustment in children at all school levels. Factors contributing to academic success and effective social interaction. At-risk children. Coping processes. School adjustment among culturally diverse children and children with special needs. The role of school, family, and community in the child's academic performance and school behavior. Prevention and intervention strategies.

**PSY 642 Educatnl & Vocatnl Assessment (3)** Principles and goals of educational and vocational assessment and counseling applications. Assessment settings, populations, and procedures. Educational assessment methods. Vocational assessment methods. Interpretation and use of the assessment results. Cross-cultural, social, legal, and ethical issues. Pre: PSY 601, 603.

**PSY 643 Schl & Career Guidance & Consu (3)** History, principles, and goals of guidance and consultation in educational and work settings. Academic and career guidance. Individual and group guidance. Problem-specific, cultural, and developmental approaches to guidance and consultation. Guidance settings, populations, and procedures. School guidance and K-12 curriculum. Career services. Computerized guidance systems. Social, legal, and ethical issues. Pre: PSY 612, 641, or consent of the instructor.

**PSY 651 Theories Of Family Counseling (3)** Theoretical approaches used by systemic family therapists to assess and treat family problems.

**PSY 653 Treating Families in Crisis (3)** Historical roots of family stress theory and basic theoretical approaches used by family therapists to assess and treat family stress and its symptoms.

**PSY 654 Gender & Culturl Issues in Fam (3)** Gender and cultural issues in the family system; historical aspects of gender; gender systems; gender issues related to marriage and family therapy; development of culture; cultural similarities and differences in human development; multi-cultural and multiracial families.



**PSY 655 Systemic Sex Therapy (3)** Human sexuality from the systems perspective. Common sexual attitudes and behavior problems. Analysis and intervention with sexual dysfunctions. Sex therapy with diverse populations of clients.

**PSY 656 Child Maltreatment (3)** An overview of child maltreatment, including abuse and neglect. Topics include the incidence and prevalence of child maltreatment; scientific theories and findings about the causes and consequences of maltreatment; forensic and clinical assessment; mandated reporting requirements; other legal issues; and psychosocial interventions for maltreated children and their families.

**PSY 657 Psychopharmacology (3)** This course will offer a discussion of psychopathology from a biological perspective including the neurochemical, neuroanatomical, and genetic causes of psychological disease. Emphasis will be placed on the pharmacotherapeutic treatment of psychopathology. Indications, contraindications, effects, and side effects of commonly prescribed psychopharmacological medications will be discussed.

**PSY 659 Internship Supervision (3) (other)** Supervision course for a mental health counseling internship experience in a clinical setting, including 200 hours of supervised client contact. To be taken concurrently with PSY 659F. Repeatable if different field placement. Pre: PSY 640, PSY 640F, and instructor's consent. (Attributes: ALEX)

**PSY 659F Internship Fieldwork (6) (other)** Fieldwork course for a mental health counseling internship experience in a clinical setting including a minimum of 200 supervised client contact hours and 200 indirect hours. To be taken concurrently with PSY 659. Pre: PSY 640, PSY 640F, and consent of instructor. To be taken as Credit/No Credit.

**PSY 693 Cog Behavior Therapy Adult (3)** No prerequisites, corequisites, crosslisting, special grading options. Not repeatable for credit. History, theory, research, and practice of Cognitive Behavior Therapy applied to adults mental disorders and symptoms. Theory and Treatment applications of Cognitive Behavior Therapy for anxiety and mood disorders, stress disorders, couples issues, substance abuse, and personality disorders. Discussions and Practice of the third wave behavior therapy including Acceptance and Commitment Therapy and Mindfulness Based Stress Reduction.

**PSY 695 CBT for Children and Families (3)** This is an advanced skills course on the application of cognitive and behavioral theory to treatment of child and adolescent psychological disorders. This course will briefly cover the theoretical and empirical foundation for cognitive and behavioral approaches and the use of empirical data in treatment selection and measuring outcomes. The majority of the course will cover the practical application of specific cognitive and behavioral techniques for children and adolescents and their families. Pre: PSY 624 or instructor permission.

**PSY 700 Thesis Research (1-6)** Supervised research, data analyses, literature review, and writing up of an original empirical study designed to develop and demonstrate the ability to do research and competence in scholarly exposition. Students are expected to work on their thesis under the supervision of their faculty and have their work reviewed by their thesis committee.

**PSY x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PSY x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [PSY undergraduate-level courses](#).

## Education (ED) Graduate Courses

[College of Arts and Sciences \(CAS\)](#)

**ED 500 Master's Plan Studies (1) (other)** Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

**ED 600 Ed Of Ethnic Groups in Hawai'i (3)** Teacher leader focused course. Survey of social- psychological learning characteristics, heritage, identity problems of Hawai'i ethnic groups, study of prejudice and inter-ethnic hostilities as related to education and teaching. Includes improving outreach and collaboration with families and community.

**ED 602 Technology in Education (3)** Teacher leader focused course. Selection, evaluation and utilization of instructional materials for systematic achievement of curriculum goals; investigation of innovative technological advances for use in teaching and training. Promoting/facilitating improvements in learning for teachers and students. Pre: acceptance into the M.Ed. program or consent of instructor.

**ED 608A Action Research I (3)** Systematic study of the purposes of educational research, evaluation and use of research, and introduction of research design principles with emphasis on classroom applications. Pre: acceptance into the M.Ed. program or consent of instructor.

**ED 608B Action Research II (3)** Advanced academic study and writing processes for analyzing and evaluating current educational research articles. A synthesis and application of research skills which culminates in an original research proposal. Pre: ED 608A or instructor's consent.

**ED 608C Action Research III (3)** Principles of research methodology and analysis as applied to field research. Pre: ED 608A and B or consent of instructor.

**ED 610 Foundations Of Education (3)** Teacher leader focused course. Social and intellectual history of education. Historical and contemporary relationships between schools and society. Foundations of the major philosophies of education. Contemporary educational theory and practice as related to major historical, philosophical and social factors in American culture. Includes advocating for student learning and the profession. Pre: acceptance into the M.ED. program or instructor's consent.

**ED 611 Adv Educ Psychology (3)** Foundations of educational psychology through the vehicle of an exploratory study. Inquiry approach stresses learning theory, measurement techniques, and research skills in education. Pre: acceptance into the M.Ed. program or instructor's consent.

**ED 612 Literature Review in Education (3)** Advanced academic study and writing processes for analyzing and evaluating current educational research articles, literature reviews and graduate student publications. Development of scholarly educational research skills with a



focus in content area discipline. Investigation of theoretical and methodological issues of research. Pre: acceptance into the M.Ed. program or instructor's consent.

**ED 616 Assess & Evaluation in Ed (3)** Teacher leader focused course. Systematic study of the theory of measurement, assessment and evaluation in educational settings. Promotes the use of assessments for classroom and school improvements. Pre: acceptance into the M.Ed. program or consent of instructor

**ED 620 Indiv Differences: Learner (3)** Teacher leader focused course. Systematic study of the conceptual framework of inclusive education which consists of special education, gifted and talented education and compensatory programs. Emphasis will be placed upon individual student characteristics and strategies for effective instruction. Focuses on continuous professional development and building strong home/school connections. Pre: acceptance into the M.Ed. program or consent of instructor.

**ED 622 School Curriculum (3)** Teacher leader focused course. Development and improvement of curriculum. Explanation of contemporary curricular issues which impact teaching and learning in the classroom. Emphasis on school reform and renewal. Pre: acceptance into the M.Ed. program or instructor's consent

**ED 625 Seminar in Teaching Fld (3) (other)** Teacher leader focused course. Culminating study in trends, research, and problems of implementation in interdisciplinary teaching. Capstone course for Teacher Leadership program. Pre: acceptance into the M.Ed. Program or instructor's consent.

**ED 635 Adv Instructional Strategies (3)** Teacher leader focused course. A critical examination of newest trends in instruction. Bridges the gap between academic research and classroom implementation. Pre: acceptance into the M.Ed. program or instructor's consent.

**ED 640 Learner Development (2)** Introduction to theories of learner development, including cognitive, linguistic, emotional, personality, and moral/ prosocial development of students (grades K-12). Exploration of developmentally appropriate and challenging learning experiences. Pre: Admission to MAT program.

**ED 641 Learning Differences (3)** Introduction to legislation for students with disabilities. An overview of areas of exceptionality, the basic principles and practices of inclusive instruction, and how to address the special needs of diverse learners. Pre: Admission to the MAT program and ED 640.

**ED 642 Learning Differences II (2)** Application of inclusive instruction that acknowledges the influence of individual experiences, talents and prior learning, as well as language, culture, family and community values on student learning. Pre: Admission to the MAT program.

**ED 643 Learning Environments I (1)** Introduction to theory and practice of classroom management at the elementary and secondary school level. Exploration of student motivation and communication techniques as related to the establishment of a positive learning environment. Pre: Admission to the Master of Arts in Teaching program. Co-req: ED 640, 650, 660, and 670.

**ED 644 Learning Environments II (1)** Introduction to theory and practice of classroom management at the elementary and secondary school levels. Exploration of student motivation and effective communication techniques as related to the establishment of a positive and caring learning environment. Pre: Admission to the MAT program

and ED 643.

**ED 645 Learning Environments III (2)** Exploration of student behavior and related interventions to promote caring and effective classroom environments. Application of responsible management of student learning. Pre: Admission to the MAT program and ED 644.

**ED 650 Teaching in Hawai'i's Schools (1)** Introduction to culture-based instructional practice, including overview of Nā Hopena A'ō, to integrate Hawaiian history, language, and culture in effective planning, content knowledge, and assessment of student learning experiences. Pre: Admission to the Masters of Teaching program. Co-req: ED 640, 643, 660, and 670

**ED 651 Elem Instructional Practice (2)** Introduction to a variety of instructional strategies to support and expand student learning outcomes. Exploration of instructional planning based on knowledge of content areas, cross-disciplinary skills, learners, the community and pedagogy toward elementary student attainment of rigorous learning goals. Required for elementary candidates. Pre: Admission to the MAT program.

**ED 652 Elem LA/SS Pedagogy (2)** Exploration of the central concepts, tools of inquiry, and multicultural perspectives related to the study of Language Arts and Social Studies. Development of learning experiences that promote learner access and understanding in these disciplines in the elementary classroom. Required for elementary candidates. Pre: Admission to the MAT program.

**ED 653 Elem MT/SC Pedagogy (2)** Exploration of the central concepts, tools of inquiry, and differing perspectives related to the study of Math and Science. Development of learning experiences that promote learner access and understanding of these disciplines in the elementary classroom. Required for elementary candidates. Pre: Admission to the MAT program.

**ED 654 Tech Instruction & Assessment (2)** Introduction to the application of educational multimedia technology in 21st century teaching and learning. Development of relevant learning experiences and authentic assessments incorporating contemporary tools and resources to maximize content learning in varied contexts. Required for both elementary and secondary candidates. Pre: Admission to the MAT program.

**ED 655 Sec Instructional Practice (2)** Introduction to a variety of instructional strategies to support and expand student learning outcomes. Exploration of instructional planning based on knowledge of content areas, cross-disciplinary skills, learners, the community and pedagogy toward secondary student attainment of rigorous learning goals. Required for secondary candidates. Pre: Admission to the MAT program.

**ED 656 Sec LA/SS Pedagogy (2)** Exploration of the central concepts, tools of inquiry, and multicultural perspectives related to the study of Language Arts and Social Studies. Development of learning experiences that promote learner access and understanding of these disciplines in the secondary classroom. Open to secondary candidates. Pre: Admission to the MAT program.

**ED 657 Sec MT/SC Pedagogy (2)** Exploration of the central concepts, tools of inquiry, and differing perspectives related to the study of Math and Science. Development of learning experiences that promote learner access and understanding of these disciplines in the secondary classroom. Open to secondary candidates. Pre: Admission to the MAT program.



**ED 658 Sec Content Literacy (2)** Exploration of the study of literacy processes and strategies for use with 7-12 students within multiple content areas. Required for secondary candidates. Pre: Admission to the MAT program.

**ED 659 Professional Practice (3)** Demonstration of ongoing use of evidence for continual evaluation of practice particularly as related to impact on student learning. Documentation of acquired dispositions and skills of critical reflection that support life-long professional meaning. Required for elementary and secondary candidates. Pre: Admission to the MAT program.

**ED 660 Professional Responsibility I (1)** Overview of professional licensure standards and professional attributes. Professional development through field experiences in local schools. Pre: Admission to the MAT program.

**ED 661 Professional Responsibility II (1)** Professional development through field experiences in local schools. Critical reflection on classroom instruction and student engagement. Pre: Admission to the MAT program and ED 660.

**ED 662 Prof Responsibility III (1)** Professional development through field experiences in local schools. Preparation to meet licensure and employment requirements. Pre: Admission to the MAT program and ED 661.

**ED 670 Field Experience I (1)** Practical application of theories of learner development, learning environments, and instructional planning in local schools. Introduction to schools as learning communities. Pre: Admission to the Master of Arts in Teaching program. Co-req: ED 640, 643, 650, 660.

**ED 671 MAT Field Experience II (2)** Practical application of theories and teaching methods and strategies in local schools. Supervised observation and teaching with emphasis on lessons and unit planning and instruction. Pre: Admission to the MAT program and ED 670.

**ED 672 Clinical Practicum (3)** Supervised student teaching and professional development experiences in local schools. Supervised observation and teaching with an emphasis on advanced unit and lesson planning and instruction. Pre: Admission to the MAT program and ED 671.

**ED 680 Teacher as Researcher I (3)** Introduction to teacher research as a basis for demonstrating impact on student learning. Exploration of effective instructional practices and assessments, IRB approval, and research study elements, including critical analysis of relevant literature and methodology. Pre: Completion of Phase I of the MAT program.

**ED 681 Teacher as Researcher II (3)** Further exploration of teacher research, resulting in an original classroom-based action research project and presentation of findings. Critical reflection on instructional practice based on research findings. Pre: Completion of Phase I of the MAT program and ED 680.

**ED x94 Special Topics in Subject Matter (Arr.) (10)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**ED x99 Directed Studies (Arr.) (10)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [ED undergraduate-level courses](#).

### Hawaiian Language (HAW) Graduate Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**HAW 500 Master's Plan Studies (1) (other)** Used for continuous enrollment purposes. Must be taken for CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

**HAW 630 Research Methods in Hawn Lang (3)** Seminar in which students explore and choose thesis topics.

**HAW 690 Study in Hawn Spking Community (3)** Off-campus field work experience. Pre: HAW 453, 454, and 631.

**HAW 700 Thesis Research (1-6) (other)** Research and writing of thesis. Pre: HAW 630

**HAW x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HAW x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [HAW undergraduate-level courses](#).

### Hawaiian Studies (HWST) Graduate Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

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**HWST 661 Advanced Hawn Music (3)** Examination of indigenous and foreign forms found in acculturated Hawaiian music. Pre: Admission to MA program in Hawaiian Language and Literature. Recommended: KHWS



462, 463.

**HWST 690 Study in Overseas Ind Lg Comm (3)** Individual off-campus field work experience in an overseas endangered indigenous language community. Participant-observation and interviewing to learn about endangered status of the language and ongoing revitalization work. Comparison to Hawaiian as an endangered language.

**HWST x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**HWST x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [HWST undergraduate-level courses](#).

## Ke'elikōlani Education (KED) Graduate Courses

**Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language (KHUOK)**

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KED 550 Coop Tchg Sem Maui Ola (2) (other)** Indigenous teacher education issues for providing effective professional leadership for new teachers. Content focuses on teacher development and support strategies, assessment of performance, and conducting effective conferences for the student teacher. Must be taken CR/NC. Conducted in Hawaiian. Pre: teaching license with a minimum of one year Hawaiian language immersion, Hawaiian Studies, or Hawaiian language teaching experience; minimum of three years college-level Hawaiian language course work; and permission from the College.

**KED 554 Maui Ola: Learning & Teaching (4)** A systematic approach to develop, implement and assess culture-based learning and teaching for the maui ola environment. Content includes understanding of the natural learning cycle; lesson design and delivery; application, alignment, infusion, and assessment of standards; and curriculum cohesiveness. Conducted in Hawaiian.

**KED 620 Fdns Hawn & Indig Medium Ed (3)** Goals of Hawaiian and Indigenous medium education and their cultural, philosophical, historical and legal bases. Basic tools for planning, developing, delivering and evaluating instruction of Hawaiian and Indigenous-speaking children, including techniques for management and age-appropriate development from a Hawaiian and Indigenous cultural base. (A) Hawaiian, (E) Other Language Pre: Permission from the College.

**KED 621 Lng Arts Hwn & Indig Medium Ed (2)** Literacy in Hawaiian and Indigenous language and associated comprehension and speaking

skills. Teaching other languages, including English, to Hawaiian and Indigenous language-literate students. Use and teaching of oral and written literature in dramatized presentations. (A) Hawaiian (E) Other Language Pre: Permission from the College.

**KED 623 Soc Stud Hwn & Indig Medium Ed (2)** Major global and local social processes that affect the lives of Hawaiian & Indigenous language-speaking children and their families. Integration of social studies and practical arts with a Hawaiian & Indigenous historical and cultural perspective. (A) Hawaiian, (E) Other Languages Pre: Permission from the College.

**KED 625 Phys Ed Hwn & Indig Medium Ed (1)** Group and individual expression to convey thoughts and emotions through various media including music, fine arts, dance, fitness and computer technology. Understanding and appreciation of such expressions and their integrations into Hawaiian & Indigenous tradition. (A) Hawaiian, (E) Other Languages. Pre: Permission from the College.

**KED 626 Science Hawn & Indig Medium Ed (2)** Scientific concepts within a Hawaiian & Indigenous cultural and environmental framework. Techniques for teaching content, problem-solving, and critical thinking to Hawaiian & Indigenous language speaking children. (A) Hawaiian (E) Other Languages Pre: Permission from the College.

**KED 627 Math in Hawn & Indig Medium Ed (2)** Mathematical concepts within a Hawaiian and Indigenous cultural and environmental framework. Techniques for teaching content, problem-solving and critical thinking to Hawaiian and Indigenous-speaking children. (A) Hawaiian, (E) Other Language. Pre: Permission from the College.

**KED 628 Arts in Hawn & Indig Medium Ed (1)** Group and individual expression to convey thoughts and emotions through various media including music, fine arts and dance. Understanding and appreciation of such expressions and their integration in Hawaiian and Indigenous tradition. (A) Hawaiian, (E) Other Language. Pre: Permission from the College.

**KED 630 Res Meth in Indigenous Lang (3) (other)** Seminar in which students explore and choose a thesis topic or applied project topic.

**KED 641 Hawn & Indig Medium Fld Exp I (9) (other)** Practical experience and application of teaching methods and strategies in content areas in Hawaiian & Indigenous medium schools. Must be taken CR/NC. (A) Hawaiian (E) Other Languages Pre: KED 620, 621, 623, 625, 626, 627, 628; concurrent enrollment in KED 642A/E and permission from the College.

**KED 642 Hawn & Indig Med Fld Exp I Sem (3) (other)** Problems in application of theory in the delivery of instruction in Hawaiian and Indigenous medium classrooms. The interface between Hawaiian and Indigenous medium and English medium classrooms of an individual school. Must be taken CR/NC. (A) Hawaiian (E) Other Languages. Pre: KED 620, 621, 623, 625, 626, 627, 628; concurrent registration in KED 641 and permission from the College.

**KED 643 Hawn & Indig Medium Fld Exp II (9) (other)** Supervised teaching in Hawaiian and Indigenous language medium schools. Must be taken CR/NC. (A) Hawaiian, (E) Other Languages. Pre: KED 620, 621, 623, 625, 626, 627, 628; concurrent registration in KED 644A/E and permission from the College.

**KED 644 Hwn & Indig Med Fld Exp II Sem (3) (other)** Issues in the delivery, administration, and support of Hawaiian and Indigenous medium education. Must be taken CR/NC. (A) Hawaiian, (E) Other



Languages. Pre: KED 620, 621, 623, 625, 626, 627, 628; concurrent registration in KED 643 and permission from the College.

**KED 651 Coop Tch Sem Haw and Indig Ed (2)** Development of professional leadership knowledge, skills, and dispositions within PK-12 Hawaiian Language/Indigenous Medium-Immersion settings. Focus on characteristics of successful maui ola teacher skills including performance-based assessments and conducting effective conferencing to guide professional development. (A) Hawaiian, (E) Other Language. Conducted in Hawaiian or Other Language. Pre: Teacher license and teaching experience in a PK-12 Hawaiian/Indigenous immersion/medium, Hawaiian Language, or Hawaiian Studies learning environment; or approval from the Graduate Program Chair.

**KED 660 Indigenous Culture-based Educ (3) (other)** Understanding appropriate education of indigenous peoples, through a review of practices that have been described and theories that have emerged from a variety sources.

**KED 661 Curr Dev Maui Ola-based Sch (3) (other)** Seminar in the development of an integrated curriculum from the earliest to the highest levels of Hawaiian language medium schooling, using international research and standards of excellence within a Hawaiian language and culture context and world view.

**KED 662 Indigenous Well-being Thru Edu (3) (other)** Psychological and cultural perspectives of human development and well-being of indigenous peoples. Designed to promote, nurture, explore and understand the influence of culture on the indigenous person. Of special interest to educators in schools serving indigenous students regarding cultural understandings and change in a historical and contemporary context.

**KED 674 Enrich Holistic Lrng & Tching (3)** Advanced level in the development, implementation, and assessment of culturally appropriate and cohesive units of instruction as a systematic approach for the Hawaiian/Indigenous medium-immersion environment. (A) Hawaiian, (E) Other Language. Conducted in Hawaiian/Indigenous language. Pre: KITE certificate; or KED 481I or KED 481H and KHAW 304 or equivalent; or approval of the Division Chair.

**KED 693 Applied Rsrch in Indigenous Ed (3) (other)** Seminar in which students develop projects providing direct application to an aspect of indigenous language and culture education.

**KED x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KED x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KED undergraduate-level courses](#).

## Ke'elikōlani Hawaiian Language (KHAW) Graduate Courses

Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language (KHUOK)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KHAW 603 Grad Level Hawn Lang (3)** Further development of Hawaiian language ability from the B.A. level to a level appropriate for graduate work. B.A. base reviewed with correction of any problem areas. Introduction of additional patterns, vocabulary, and styles in both oral and written form. Use of resources from late monarchy and early territorial periods. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HAW 603)

**KHAW 631 History of Hawaiian Lang & Lit (3)** Hawaiian language and literature since contact with Europeans. Styles of language and types of literature. Relationships between Hawaiian and other languages, especially Hawai'i Creole English. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HAW 631)

**KHAW 632 Hawaiian As Second Language (3)** Teaching Hawaiian to speakers of other languages, particularly Hawaiian Creole English. This includes problems faced by students in acquiring native-like Hawaiian and history of Hawaiian language teaching. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HAW 632)

**KHAW 654 Advanced Hawn Grammar (3)** Advanced aspects of Hawaiian grammar. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HAW 654)

**KHAW 693 Thesis and Proposal Writing (3)** Seminar for writing and presentation of master's thesis proposal or a section of the master's thesis. Must be taken CR/NC. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HAW 693)

**KHAW 751 Ho'oiikaika 'Ōlelo Hawai'i (2)** Comparative analysis of the Hawaiian language spoken by native speakers to that of second language speakers of the doctoral level students. Examine areas to strengthen proficiency of second language speakers including Hawaiian language spoken by native speakers not prevalent among second language speakers and begin to normalize. Pre: Approved PhD Candidate of the Hawaiian and Indigenous Language and Culture Revitalization Program or approval from the Graduate Program Chair.

**KHAW x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KHAW x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.



## Additional Courses

Also see the [KHAW undergraduate-level courses](#).

### Ke'elikōlani Hawaiian Studies (KHWS) Graduate Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

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**KHWS 662 Applied Hawaiian Chant (3)** Applied study of the performance of various Hawaiian chant styles. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HWST 662)

**KHWS 663 Traditional Hawn Literature (3)** Focuses on indigenous oral and written literature forms and their relationship to folk tales. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HWST 663)

**KHWS 664 European Influenced Hawn Lit (3)** Hawaiian literature developed on European models such as biographies, late nineteenth-century histories and journals. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HWST 664)

**KHWS 665 Ethnological & Hist Narratives (3)** Descriptions written in Hawaiian regarding traditional Hawaiian culture and history. Cultural topics range from religion and court life to farming and fishing. Conducted in Hawaiian. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair. (Previously offered as HWST 665)

**KHWS 741 Classical Hwn Ed: Gen Hwn Cult (3)** Further develops one's knowledge-base of classical Hawaiian literature through the study of aspects of traditional Hawaiian educational customs and practices. Pre: Approved PhD Candidate of the Hawaiian and Indigenous Language and Culture Revitalization Program or approval from the Graduate Program Chair.

**KHWS 742 Ka Hoomamau Olelo A Moomeheu (3)** Study of the relationships between society, history, politics, culture, and the economy to further the language and culture revitalization efforts in establishing it as the primary language and culture of the community while overcoming various barriers. Pre: Approved PhD Candidate of the Hawaiian and Indigenous Language and Culture Revitalization Program or approval from the Graduate Program Chair.

**KHAW x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KHAW x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KHWS undergraduate-level courses](#).

### Ke'elikōlani Indigenous Language (KLAN) Graduate Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KLAN 641 Advanced Language Structures I (3)** First semester advanced level study of an indigenous or lesser studied language focusing on structure. Pre: KIND 641 or concurrent enrollment, or approval from the Graduate Program Chair.

**KLAN 642 Advanced Lang Structures II (3)** Second semester advanced level study of an indigenous or lesser studied language focusing on structure. Pre: KIND 641 and KLAN 641, and KIND 642, which may be taken concurrently; or approval from the Graduate Program Chair.

**KLAN 701 Semantic/Pragmatic Indig Lang (1)** Seminar study of meaning and connotations as conveyed by the morphemes and vocabulary of a language, by its idioms and set metaphors and by other features. Focus on the indigenous languages being studied by the enrolled students.

**KLAN 702 Stylistics/Domains Indig Lang (1)** Seminar study of identity, levels of formality, and art as conveyed in languages. Informal peer group language to highly formal language. Highly traditional usages to the most contemporary of usages. Focus on the indigenous languages being studied by enrolled students.

**KLAN 703 Semantics-Prag of Indig Langua (3)** Meaning and connotations as conveyed in a specific indigenous language through morphemes and vocabulary, idioms and set metaphors, and through other features. Alpha varies according to the language, e.g. Hawaiian, Blackfoot, Rapanui. May be repeated if content is different. Pre: KLAN 701.

**KLAN 704 Stylistics-Domain of Indig Lan (3)** Identity, levels of formality and art as conveyed in a specific indigenous language from the informal peer group language to highly formal artistic usages and from very traditional rooted situations to the most contemporary of usages. Alpha varies according to the language, e.g., Hawaiian, Blackfoot, Rapanui. May be repeated if the content is different. Pre: KLAN 702.

**KLAN x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements



may apply depending on subject and topic.

**KLAN x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KLAN undergraduate-level courses](#).

## Ke'elikōlani Indigenous Studies (KIND) Graduate Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

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**KIND 500 Doctoral Plan Studies (1)** Used for continuous enrollment purposes. Must be taken for CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

**KIND 601 Language Maintenance and Shift (3)** Introduction to the study of social, historical, political, cultural and economic factors leading to language shift. Pre: Approved Candidate of the MA in Indigenous Language and Culture Education Program; or the Graduate Certificate in Indigenous Language and Culture Revitalization program; or approval from the Graduate Program Chair.

**KIND 602 Meth Res Indig Lang Comm Bldg (3)** Detailed overview of the various challenges to language and culture revitalization and approaches to solving those challenges, including issues of leadership, goal setting prioritizing and resourcing. Pre: Approved Candidate of the MA in Indigenous Language and Culture Education Program; or the Graduate Certificate in Indigenous Language and Culture Revitalization program; or approval from the Graduate Program Chair.

**KIND 641 Advanced Language in Culture I (3)** First semester advanced level study of an indigenous language focusing on the use of the language in its cultural context. Pre: KLAN 641 or concurrent enrollment; or approval from the Graduate Program Chair.

**KIND 642 Advanced Lang in Culture II (3)** Second semester advanced level study of an indigenous language focusing on the use of the language in its cultural context. Pre: KIND 641 and KLAN 641, and KLAN 642, which may be taken concurrently; or approval from the Graduate Program Chair.

**KIND 690 Fld Stdy Indigenous Community (3)** Off-campus field work experience in an indigenous language other than Hawaiian. Pre: Graduate status in Ka Haka 'Ula O Ke'elikōlani and permission of the instructor. See graduate program chair for overseas minority language study option as substitute for this course.

**KIND 700 Master's Thesis Research (1-6) (other)** Research and writing of thesis. Pre: Permission of college and instructor.

**KIND 730 Rsch Meth Hwn Ind Lang Culture (3) (other)** Seminar in

which students explore and choose a dissertation topic.

**KIND 731 Indig/Minor Autochthonous Lang (3)** Cultural, social, political, economic, and educational uses of indigenous and minority autochthonous languages in society. Historical approach from period of relative isolation and autonomy to contemporary times where minority status is highly evident. Perspectives include those internal to the language community, surrounding dominant community, and supporters of indigenous and minority rights. Pre: Approved PhD Candidate of the Hawaiian and Indigenous Language and Culture Revitalization Program or approval from the Graduate Program Chair.

**KIND 732 Lang Plcy/Pract Endanger/Indig (3)** Study, understand, and consider critical areas of linguistics such as language policy and documentary linguistics that purport to aid in the work of language revitalization. Pre: Approved PhD Candidate of the Hawaiian and Indigenous Language and Culture Revitalization Program or approval from the Graduate Program Chair.

**KIND 733 Hawn and Indig Language Med Ed (3)** Observe full range of programming of the Hawaiian language medium education operations of the P-20 Ku'ikahi 'Ōlelo Hawai'i consortium including its administration and support through Hawaiian. Research and analyze the strengths, weaknesses, history, future directions of the overall structure of the Ku'ikahi 'Ōlelo Hawai'i and Hawaiian language revitalization. Pre: Approved PhD Candidate of the Hawaiian and Indigenous Language and Culture Revitalization Program or approval from the Graduate Program Chair.

**KIND 800 Doctoral Dissertation Research (1-6) (other)** Research and writing of dissertation. Pre: Permission of college and instructor.

**KIND x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KIND x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [KIND undergraduate-level courses](#).

## Ke'elikōlani Linguistics (KLIN) Graduate Courses

[Ka Haka 'Ula O Ke'elikōlani/College of Hawaiian Language \(KHUOK\)](#)

*Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. HAW (Hawaiian), HWS (Hawaiian Studies), IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.*

**KLIN 601 General Ling in Indig Context (3)** A broad overview of contemporary linguistics with a focus on indigenous languages. Pre: Approved Candidate of the MA in Indigenous Language and Culture



Education Program; or the Graduate Certificate in Indigenous Language and Culture Revitalization program; or approval from the Graduate Program Chair.

**KLIN 603 Socioling Analysis Indig Lang (3)** Expansion from KLIN 601 in the study of the relationship between language and society. Topics covered include varieties of languages (e.g., standard languages, varieties/dialects/pidgins/creoles/registers/styles) and types of speech communities (e.g., bi/multilingual, diglossia) and functions of language. Focus on application to indigenous language contexts. Pre: KLIN 601 and Approved Candidate of the MA in Indigenous Language and Culture Education Program or the Graduate Certificate in Indigenous Language and Culture Revitalization program; or approval from the Graduate Program Chair.

**KLIN 604 Field Study in Applied Ling I (3)** Students engage in observational research in sites of language teaching and/or language revitalization efforts with a focus on minority and/or indigenous languages. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair.

**KLIN 605 Field Study in Applied Ling II (3)** Students participate actively in sites of language teaching and/or language revitalization efforts with a focus on minority and/or indigenous languages. Pre: Approved MA Candidate of the Indigenous Language and Culture Education Program or approval from the Graduate Program Chair.

**KLIN x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**KLIN x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Nursing (NURS) Graduate Courses

College of Natural and Health Sciences (CNHS) , School of Nursing

**NURS 500 Masters Plan Studies (1)** Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

**NURS 601 Social Aspects of Health (3)** Complex interactions among the physical and social environment; health status; education; culture; and human capital in urban and rural communities are examined. Issues related to quality of life as the outcome of micro and macro-determinants of health, consequences of health that operate at the individual, family, neighborhood, community, national and global levels, and the influence of sociopolitical agendas and community organizations are addressed through a multidisciplinary framework.

**NURS 602 Information Systems/Technology (3)** Examines emerging health information resources including: 1) the theory and conceptual base for healthcare information systems and technology; 2) design, selection, and use of current and developing health information technology applications; and 3) approaches to evaluating the effectiveness of health information systems used in health care systems, for patient care and in education.

**NURS 603 Adv Clinical Pharmacology (3)** Focus on the pharmacotherapeutic principles of drugs most commonly used by advanced practice nurses. Emphasis on the process of selecting appropriate agents for therapy, and monitoring adverse drug reactions or interactions with prescription, over-the-counter and alternative therapies. Emphasis on integration of pharmacy, physiology and physical assessment in developing evidence-based primary clinical management skills for patients across the lifespan with regard to their medication use. Foundations of prescriptive authority will be addressed.

**NURS 604 Advanced Clin Pathophysiology (3)** Advanced pathophysiological concepts and clinical manifestations of diseases necessary to support clinical decision-making of advanced practice nurses in the management of common acute and chronic diseases of adults, older adults and children are presented. Internal and external causative factors for disease expression including genetic, autoimmune, environmental, and biochemical will be addressed and rational therapies to prevent or control illness will be offered. Analysis of the interrelated effects of genes, environment, and lifestyle on patterns of disease in populations will be an integral part of developing evidence-based care. Relevant screening and diagnostic laboratory evaluation methods will be presented.

**NURS 605 Advanced Health Assessment (4) (lecture/lab)** Focus of this course is on the integration and synthesis of knowledge from natural and behavioral sciences, humanities and nursing in order to conduct a comprehensive history and physical examination. Diagnostic reasoning for the purpose of clinical decision-making and problem solving will be stressed. Interview techniques will address developmental, psychosocial, cultural and occupational concerns as well as symptoms. Advanced examination skills and analysis of pertinent diagnostic data will support critical thinking and selection of accurate differential diagnoses. Faculty and preceptors facilitate laboratory and clinical experiences in a variety of settings (90 clock hours).

**NURS 606 Rural Health Promotion (3)** Focus is on the responsiveness of organizational health services to health needs of populations, individuals, and families in rural communities. The impact of political, ecological, economic and cultural factors on community health in rural areas will be analyzed. Utilization of evidence-based processes and collaborative leadership in designing and structuring health promotion services to address rural community needs are emphasized.

**NURS 606L Rural Health Promotion Lab (3) (lab)** This is a supervised advanced practice practicum focusing on health promotion and clinical management of the health concerns of adult clients as commonly encountered in diverse and rural primary care settings. Emphasis will be placed on culturally appropriate evidence-based practice, consultation, research and evaluation. Three (3) semester hours of supervised practicum hours (135 clock hours) are required.

**NURS 607 Primary Care of Adults (3)** Course focus is on primary care of adults addressing the evidence-based strategies for health promotion and disease prevention. Integration and application of advanced pathophysiology and pharmacology will aid in addressing the management of common acute, episodic and chronic health problems. Transcultural and bibehavioral assessments are used in the diagnosis and evidence-based management of health problems and are integrated into patient education and evaluation of care.

**NURS 607L Primary Care of Adults Lab (3) (lab)** This supervised advanced practice practicum focuses on health promotion and clinical management of the health concerns of adult clients as commonly encountered in diverse and rural primary care settings. Emphasis will be placed on culturally appropriate evidence-based practice, consultation



research and evaluation. Three (3) semester hours of supervised practicum hours (135 clock hours) are required.

**NURS 608 Primary Care of Older Adults (3)** Building on the management of acute and chronic illness of the adult, this course emphasizes special needs of the older adult. The focus on quality of life will be supported utilizing theories of aging, management of complex chronic health problems, polypharmacy, dementia and frailty. Evidence-based management plans incorporating transcultural and functional assessments are used to address issues of self-care, family care giving, surrogate decision-making and end of life care.

**NURS 608L Prim. Care of Older Adults Lab (3) (lab)** This supervised advanced practice practicum focuses on promotion and clinical management of the health concerns of older adult clients as commonly encountered in diverse and rural primary care settings. Emphasis will be placed on culturally appropriate evidence-based practice, consultation, research and evaluation. Three (3) semesters of supervised practicum hours (135 clock hours) are required.

**NURS 609 Primary Care of Women (2)** The provision of comprehensive and culturally competent primary care to women including the maturation process from menarche, through pregnancy, childbearing period and menopause is presented. Emphasis is on evidence-based health assessment, diagnosis, health education, health promotion, disease prevention, perinatal care, clinical management and evaluation of common gynecologic and obstetric health care needs of women commonly encountered in diverse and rural settings.

**NURS 609L Primary Care of Women Lab (2) (lab)** This supervised advanced practice practicum focuses on health promotion and clinical management of the health concerns of female clients as commonly encountered in diverse and rural primary care settings. The health and wellness, perinatal care, gynecologic aspects of care and occupational health concerns of women will be specifically addresses. Emphasis will be placed on culturally appropriate evidence-based practice, consultation, research and evaluation. Two (2) semester hours of supervised practicum hours (90 clock hours) are required.

**NURS 610 Primary Care of Children (2)** Using normal development and physiology as the foundation of care, evidence-based management of the health and social needs of children will be addressed. Management of acute and episodic illnesses in children commonly encountered in diverse primary care settings is emphasized. Health education, health promotion and disease prevention of children are addressed.

**NURS 610L Primary Care of Children Lab (2) (lab)** This supervised advanced practice practicum focuses on health promotion and wellness for infants, children and adolescents. Students will focus on clinical management of common acute and chronic health conditions encountered in diverse and rural primary care settings related to infants, children and adolescents. Emphasis will be placed on culturally appropriate evidence-based practice, consultation, research and evaluation. Two (2) semesters hours of supervised practicum hours (90 clock hours) are required.

**NURS 611 Advanced Research Methods (3)** This course focuses on the systematic examination and application of the qualitative, quantitative, and outcome processes used in nursing research. The interrelationships among research theory, research ethics and evidence-based nursing practice are explored. Uses of culturally appropriate research database tools consistent with specific patients or populations are included.

**NURS 612 Evidence Based Practice (3)** Focus is on culturally appropriate evidence-based practice (EBP) used to produce best outcomes for diverse populations. Steps of the EBP process, implementation and evaluation of EBP, practical strategies and information systems approaches are explored. Proposal development for the practice inquiry project will be a primary objective of the course and will address issues and practices relevant to culturally diverse and rural populations.

**NURS 613 Program Develop/Evaluation (3)** This course builds on the synthesis of evidence-based knowledge for a specific culturally diverse clinical target population/practice. Students will identify and propose appropriate strategies for organizational/practice program development and evaluation. An innovative policy action plan for a population of interest based on an understanding of the cultural, financial, legal, and human resource needs of the health care environment is developed.

**NURS 614 System-Based Leadership (3)** Leadership and management concepts used to address complex microsystem and macrosystem issues within selected health organizations are explored. The role of the DNP within complex health organizations will be addressed using the interrelationships of special theoretical frameworks and models of care. Emphasis is on the application of advanced communication skills necessary to serve on collaborative and interdisciplinary teams within health care organizations.

**NURS 615 Health Policy: Local to Global (4)** Emphasis will be on exploration and analysis of health policy from the perspective of evidence development, analysis, and socio-economic context. The leadership role of the DNP in developing and implementing health policy is examined. Social justice, access equity, and delivery of health care services will be discussed. Opportunities are provided to participate in the political processes impacting nursing and health care policy. Includes two semester hours of a specialty focused practicum (90 clock hours).

**NURS 616 Health Economics (3)** Basic economic theory, market drivers and restraints, cost/ benefit analysis, and reimbursement are analyzed. Theory and application are integrated with a focus on the role of the DNP in complex healthcare organizations, the delivery of healthcare in rural settings, and the DNP as entrepreneur. Issues of equity, fairness, ethics, and efficacy in health care resource allocation and management are explored.

**NURS 617 Practice Inquiry/Project (6) (lecture/other)** Emphasis is on the synthesis, critique and application of evidence to support quality clinical or organizational practices in complex health care organizations. Students will implement an evidence-based clinical study or project on a topic of practice interest targeting a culturally diverse and vulnerable population, present an oral presentation of the study or project, and submit a scholarly paper from the study or project. Includes six semester hours of cognate residency.

**NURS 618 EPI/Environmental Health (3)** Epidemiological concepts and quantitative research techniques used in modern epidemiology will be examined as well as the health effects on the general population associated with selected environmental exposures. The course emphasizes analytical studies, quantitative measures of association, and critical readings of current literature. Epidemiology approaches estimating the burden of disease and evaluation of primary, secondary and tertiary prevention strategies are presented.

**NURS 619 Mentorship in Nursing Educ (3)** Supervised practicum in instructional planning and teaching in nursing education. Students may choose between two pathways: mentorship and teaching in a didactic course or clinical practicum.



**NURS 620 Contemp Health Care Ethics (3)** Contemporary Health Care Ethics provides a thorough grounding in ethical principles and theories as evidenced in current healthcare issues and policies. Introduction of various frameworks for ethical decision-making and policy analysis, as well as current trends in the political, economic and legal spheres of the contemporary health care arena.

**NURS 621 Practice Residency Elective (3-5) (lab)** This clinical residency elective is designed for DNP students to add clinical hours after finishing required clinical coursework. The clinical residency, under the supervision of a preceptor and UHH SON faculty, emphasizes culturally appropriate evidence-based practice, consultation, research and evaluation consistent with the APRN role. Three to five (3-5) semester hours of supervised practicum hours (135-225 clock hours) will be approved. This course is repeatable up to 10 credit hours.

**NURS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**NURS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [NURS undergraduate-level courses](#).

### Pharmacy Practice (PHPP) Post-Baccalaureate Courses

Daniel K. Inouye College of Pharmacy (DKICP)

**PHPP 501 Intr Pharm Prac Experiential I (1) (other)** First year pharmacy students will spend a semester in either the retail pharmacy setting or hospital pharmacy setting to observe pharmacy practice. Graded: P/NP. (Attributes: ALEX)

**PHPP 502 Int Pharm Prac Experiential II (1) (other)** The second course in the IPPE sequence will build on the skills and the knowledge of PHPP 501 to develop pharmaceutical care practice. Graded: P/NP. (Attributes: ALEX)

**PHPP 503 Intr Pharm Prac Experien III (1) (other)** Second year students will begin to develop their patient interview, chart gathering and case development and presentation skills. Students will spend one semester in community health care clinics and one semester in a long term care facility. Students will present actual patient care cases in a seminar format throughout the semester. Graded: P/NP. (Attributes: ALEX)

**PHPP 504 Intr Pharm Prac Experien IV (1) (other)** Second year pharmacy students will begin to develop patient interview, chart gathering and case development and presentation skills. Students will spend the semester either in a community health care clinic or in a long term care facility. Student will present actual patient care cases in a seminar format throughout the semester. Graded P/NP. (Attributes: ALEX)

**PHPP 505 Intr Pharm Prac Experiential V (1)** This course is the fifth

course in a sequential series. Content encompasses exposure to institutional hospital pharmacy. Pre: Acceptance in the UH Hilo CoP (Attributes: ALEX)

**PHPP 506 Int Pharm Prac Exp - Retail (1) (other)** This course is third in a sequential series. Content encompasses an introduction to pharmacy practice in a community setting through observational and direct delivery of care to patients. Types of patients encountered-adolescents, adult and geriatric patients in retail/community setting. All students must begin the application process for a valid Hawai'i intern license. (Attributes: ALEX)

**PHPP 507 Int Pharm Practice Exp - VII (1) (other)** This six week rotation focuses on pharmaceutical care in the ambulatory care environment where students will interface with their pharmacist preceptor, physicians, nurses and other health professional to provide services to ambulatory care patients. Some examples of ambulatory care practices will include hypertension clinics, medication therapy management (MTM) services and disease state management.

**PHPP 508 Intro to Biostatistics (2)** This course introduces the pharmacy students to statistical concepts and research methods important to the practice of pharmacy and medicine. Students will learn the various research designs and methods, evaluate their strengths their weaknesses, and when each is appropriate and inappropriate to use. Statistical concepts include descriptive and inferential statistics, measurement, sampling, probability, normal distribution, sampling distributions, parameter estimation including point and confidence interval estimation, hypothesis testing, sample size, statistical power, common inferential statistical tests including parametric and nonparametric tests being used in research. Students will be developed familiarity with reading excerpts from articles published in the medical literature and will be well versed in the interpretation of statistical principles and methods being used as well as results of analyses. The goal of this course is to give the student an appreciation for the role of statistics in health care (medical) research.

**PHPP 509 Intr Pharm Prac Exp - VIII (1) (other)** This course is the eighth in a sequential series designed to support active participation in pharmacy practice activities for pharmacy students and provide opportunity to observe and demonstrate entrustable professional activity (EPA) in actual practice.

**PHPP 510 Pharmacy Self Care I (2)** This course serves as an introduction to patient-focused pharmacy practice through the topic of self-care, including identification and use of appropriate drug information resources and in-depth study of nonprescription medications for a variety of self-treatable conditions. This course also demonstrates the importance of professionalism in the communicative consultation process. In addition, this course introduces the Top 100 prescription medications. Content from this course will continue into the Self-Care II course.

**PHPP 511 Pharmacy Self Care II (2)** This course continues the in-depth examination of self-care and over-the-counter (OTC) medications, and development of Top 200 prescription drug knowledge, begun in PHPP 510. Additionally, this course provides a foundation for organizing patient-specific information necessary in the management of medical conditions, as well as identifying and interpreting laboratory test values commonly used in the management of medical conditions, in preparation for the Integrated Therapeutics course series. Pre: Admissions to the PharmD program.

**PHPP 514 Evidence-Based Medicine (3)** This course will allow students to apply their knowledge of clinical research study designs,



epidemiology, evidence-based medicine, and biostatistical principles to interpret and evaluate the findings published in the medical literature, and translate evidence to support patient-care decisions. Students are expected to read, interpret, evaluate, and synthesize information published in medical literature. Objective and rational conclusions are drawn from the analysis of information and applied to patient care. Examinations and literature evaluation project assignment are based on materials from didactic lectures and published articles. Evaluation of medical literature is a cornerstone of clinical pharmacy practice and is an important component of integrated therapeutics courses and experiential rotations. Pre: PHPP 508.

**PHPP 515 Integrated Therapeutics I (7)** This is the first in a sequence of four courses. Pathophysiology, medicinal chemistry, pharmacology and therapeutics will be integrated into the teaching of pharmacotherapy based on organ systems and disease states. Students will learn to apply knowledge of the basic sciences to drug treatment of specific disorders. Topics covered in this course include autonomic, renal and cardiovascular systems.

**PHPP 516 Integrated Therapeutics II (7) (lecture/other)** This is the second course in the four-part integrated therapeutics series. It will cover the integrated pathophysiology, pharmacology, medicinal chemistry, and therapeutics of disease states including endocrine and metabolic disorders, pulmonary diseases, and infectious diseases. Pre: PHPP 515

**PHPP 517 Integrated Therapeutics III (7)** This is the third course in the four-part integrated therapeutics series. An integrated approach to the following topics will be covered: disease states associated with the genitourinary, gastrointestinal, reproductive, and hematologic systems, pain management, and oncology. Pre: PHPP 516

**PHPP 518 Integrated Therapeutics IV (7)** This is the fourth and final course in the integrated therapeutics series. An integrated-discipline approach to the following topics will be covered: the central nervous system, pediatrics and geriatrics, neurological disorders, anesthetics, and critical care medicine. Pre: PHPP 517

**PHPP 519 Health Care Systems (2)** This course is designed to give students a history and overview of the American health care system. Roles of the major drivers in health care including government, employer groups, HMO's, hospitals, providers, and payors will be examined. Market components of prescription drug utilization will be discussed in detail. Additionally, the European health care model will be compared to the American system.

**PHPP 520 Pharmacy Law and Ethics (3)** This course provides the student with a working knowledge of the legal and ethical responsibilities of pharmacists. Content includes: Federal and State Statutes; the legislative and regulatory process that produce statutes, rules and regulations; and discussion of the nature and influence of moral and ethical dimensions on decisions and actions taken in the delivery of patient-centered health care.

**PHPP 521 Applied Pharmaceutical Care (3)** This course will be the capstone course for the Pharmacy Practice curriculum before the Advanced Pharmacy Practice Experiential rotations and will emphasize critical thinking and evaluation for multi-disease state patient cases as well as patient education. This course will consist of workshops and case presentations to incorporate previously taught material in order to prepare students for experiences across all patient-care settings, including acute care, ambulatory care, and community pharmacy. Students will work individually and in various sized groups to review patient cases and present in the structured SOAP format.

**PHPP 522 Pharm Practice Mgmt & Mktng (2)** The first part of the course, marketing of pharmacy services, programs or products, is intended to use the marketing skills learned, to effectively collaborate in groups to develop a two market plan for innovative pharmacy services, programs or products. In developing these market plans, topics covered in lecture including consideration of economic, environmental, marketing and financial factors are stressed along with the use of appropriate outcome measures to determine success of the plans. Group interaction and activities will further help build upon principles learned in the course and ultimately culminate in the completion of a formal business proposal which will be presented to an executive committee. The second part of this course deals with practice management and is designed to introduce concepts and encourage further development of essential managerial skills, specific areas of focus includes personnel management, dealing with conflict in the work place, and continuous quality improvement. Communicating, understanding, and collaborating with fellow employees or colleagues are vital to any practice and are demonstrated through activities over the duration of the course. This section also includes certain standard practice that is carried out as managerial responsibilities in the health care setting. Pre: Admission to PharmD.

**PHPP 523 Wellness & Disease Prevention (2)** This course provides students with an overview of what constitutes a healthy lifestyle and how it contributes to the prevention of chronic disease. Pharmacists are key providers in helping to educate patients about wellness and disease prevention. Disease State Management (DSM) is an organized, coordinated process to manage specific disease states over the entire course of the disease to improve clinical and economic outcomes for the patient. Students will be exposed to important DSM models such as the Asheville Project in North Carolina and utilize this information in creating a disease management program.

**PHPP 524 Pharmacoeconomics (2)** This course introduces pharmacy students to the basic concepts, terminology, and applications of pharmacoeconomics and its usefulness in making informed decisions in health care.

**PHPP 525 Complementary Medicine (3)** This course is designed as an overview of complementary medicine. Students will be presented a balanced unbiased view of the theory and practice of some of the more popular complementary therapies such as acupuncture, traditional Chinese medicine, homeopathy, herbal medicine, and other dietary supplements.

**PHPP 527 Drug Information (2)** This course will introduce the students to different types of drug literature and drug information resources; primary, secondary and tertiary resources; evidence-based medicine resources; adverse drug reactions and medication error reporting systems; formulary management; investigational drugs; and tools to keep pharmacists knowledgeable of current advancements. In addition, student pharmacists will gain skills to evaluate drug information resources, systematically approach drug information requests, communicate health information and create a drug monograph.

**PHPP 528 Pharmacy Comm & Culture (3)** This course serves as an introduction to pharmacy practice. The multi-cultural State of Hawai'i will serve as a practical laboratory for students to begin practicing the skills necessary to provide and communicate pharmaceutical care. This course is designed to introduce student pharmacists to the skills needed to communicate effectively with patients and the interprofessional skills needed to communicate with other healthcare providers and professionals. The course is also designed to enhance student confidence in public speaking. The culture component of the course is designed to



introduce student pharmacists to the skills needed to communicate effectively with patients and other healthcare providers, and understanding the impact of cultural diversity. In-class exercises will facilitate cultural self-awareness, disparities in healthcare, exploration of cultural diversity, and methods to apply communication skills in practice.

**PHPP 530 Basic Research Methods (1)** This course is designed to give students an introduction to basic research methods, including measurement and designs as well as research ethics and writing skills for research. This course is required for pharmacy students in the Certificate Program in Health Science Research.

**PHPP 531 Survey, Epidem, Qual Methods (1)** This course is designed to give students an introduction to survey, epidemiology, and qualitative research methods. This course is required for students enrolled in the Health Science Research certificate program.

**PHPP 532 Pharmacy Research (1)** This course is designed to give students an introduction to research methodology in pharmacy practice, including program evaluation and big data designs. This course is required for students enrolled in the Health Sciences Research certificate program.

**PHPP 533 Pharmacogenomics (2)** Pharmacogenomics is the study of genetics variations that may influence an individual's response to drug therapy. Knowing whether a patient carries any of these genetic variations can help prescribers and pharmacists individualize drug therapy, decrease the chance for adverse drug events, and increase therapy effectiveness.

**PHPP 535 Healthcare Leadership (1)** This course will provide a focused review of the research on effective leadership and application of this research to healthcare settings, anchoring students in the science of leadership with an opportunity to assess their own strengths and weaknesses. Based on this foundation, students will lead and participate in discussions of actual leadership cases. Pre: PHPP 557 and PHPP 558

**PHPP 536 Strategic Management (1)** This course will provide a focused review and application of evidence-based approaches to strategic management, including strategy formulation and implementation. Starting with an evaluation of the research and current theories on strategic management, this course will anchor students in the science of organizational effectiveness. Based on this foundation, students will then apply this knowledge to real-world strategic issues, taking on the role of Chief Strategy Officer or strategic consultant. Pre: PHPP 557 and PHPP 558

**PHPP 540 Adv Pharm Prac Exp: Ambulatory (6)** This six week rotation focuses on pharmaceutical care in the ambulatory care environment where students will interface with their pharmacist preceptor, physicians, nurses and other health professional to provide services to ambulatory care patients. Some examples of ambulatory care practices will include hypertension clinics, anticoagulation clinics, hyperlipidemia clinic, medication therapy management (MTM) services and disease state management. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program. (Attributes: ALEX)

**PHPP 540R Adv Pharm Prac Exp: Ambulatory (6)** This six week rotation focuses on pharmaceutical care in the ambulatory care environment where students will interface with their pharmacist preceptor, physicians, nurses and other health professional to provide services to ambulatory care patients. Some examples of ambulatory care practices will include hypertension clinics, anticoagulation clinics,

hyperlipidemia clinic, medication therapy management (MTM) services and disease state management. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 541 Adv Pharm Prac Exp: Community (6)** This six week rotation focuses on pharmaceutical care in the community pharmacy setting where students will work with pharmacy preceptors to learn about dispensing techniques, pharmacy databases, community pharmacy management, patient counseling, over the counter (OTC) medications, medication therapy management (MTM), and disease state management. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD program. (Attributes: ALEX)

**PHPP 541R Adv Pharm Prac Exp: Community (6)** This six week rotation focuses on pharmaceutical care in the community pharmacy setting where students will work with pharmacy preceptors to learn about dispensing techniques, pharmacy databases, community pharmacy management, patient counseling, over the counter (OTC) medications, medication therapy management (MTM), and disease state management. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 542 Adv Pharm Prac Exp: Medicine (6)** This six week rotation will place students in a hospital or other acute care facility to learn about pharmaceutical care in an inpatient environment. Students will work closely with physicians and clinical pharmacists to provide services to acutely ill patients and provide clinical pharmacy services. Students may round with medical teams or be partnered with other physicians to learn more about the interface between medicine and pharmacy. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) Courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program. (Attributes: ALEX)

**PHPP 542R Adv Pharm Prac Exp: Medicine (6)** This six week rotation will place students in a hospital or other acute care facility to learn about pharmaceutical care in an inpatient environment. Students will work closely with physicians and clinical pharmacists to provide services to acutely ill patients and provide clinical pharmacy services. Students may round with medical teams or be partnered with other physicians to learn more about the interface between medicine and pharmacy. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) Courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 543 Adv Pharm Pract Exp: Hospital (6) (other)** Six week rotation will place students in a hospital pharmacy where they will learn about unit dose systems, automated dispensing units, parenteral drugs, intravenous mixture systems, sterile produce preparation, hospital pharmacy computer systems, physician order entry, crash cart systems and DRG/ICD-9 systems used in tracking patient diagnoses and reimbursement for services. (R) Rural Placement. Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program. (Attributes: ALEX)

**PHPP 543R Adv Pharm Pract Exp: Hospital (6) (other)** Six week rotation will place students in a hospital pharmacy where they will learn about unit dose systems, automated dispensing units, parenteral drugs,



intravenous mixture systems, sterile produce preparation, hospital pharmacy computer systems, physician order entry, crash cart systems and DRG/ICD-9 systems used in tracking patient diagnoses and reimbursement for services. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 544 Adv Pharm Pract Exp: Elect I (6) (other)** Six-week rotation will place students in the many different areas of pharmacy practice including: adult medicine, pediatrics, geriatrics, infectious disease, critical care, oncology, cardiology, psychiatry, ambulatory care, community practice, drug information, pharmacy compounding, home health care, clinical or basic sciences, research and pharmacy administration. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program. (Attributes: ALEX)

**PHPP 544R Adv Pharm Pract Exp: Elect I (6) (other)** Six-week rotation will place students in the many different areas of pharmacy practice including: adult medicine, pediatrics, geriatrics, infectious disease, critical care, oncology, cardiology, psychiatry, ambulatory care, community practice, drug information, pharmacy compounding, home health care, clinical or basic sciences, research and pharmacy administration. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 545 Adv Pharm Prac Exp: Elect II (6)** This six week rotation will place students where they may spend time in the many different areas of pharmacy practice including: adult medicine, pediatrics, geriatrics, infectious disease, critical care, oncology, psychiatry, ambulatory care, community practice, drug information, pharmacy compounding, home health care, clinical or basic sciences research, and pharmacy administration. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program. (Attributes: ALEX)

**PHPP 545R Adv Pharm Prac Exp: Elect II (6)** This six week rotation will place students where they may spend time in the many different areas of pharmacy practice including: adult medicine, pediatrics, geriatrics, infectious disease, critical care, oncology, psychiatry, ambulatory care, community practice, drug information, pharmacy compounding, home health care, clinical or basic sciences research, and pharmacy administration. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) courses PHPP 501-509 and successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 546 Adv Pharm Practice Experience (6) (other)** This course is an advanced pharmacy practice experiential elective that directly involves patient care activities. Types of patients encountered-patients of all ages in the acute, ambulatory and community setting. Level of student responsibility - all students must have a current Hawai'i Pharmacy Intern License, successfully completed the APhA immunization delivery course and accept all accountability for patient care. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) Courses PHPP 501-509 AND successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 546R Adv Pharm Practice Experience (6) (other)** This course is an advanced pharmacy practice experiential elective that directly

involves patient care activities. Types of patients encountered-patients of all ages in the acute, ambulatory and community setting. Level of student responsibility - all students must have a current Hawai'i Pharmacy Intern License, successfully completed the APhA immunization delivery course and accept all accountability for patient care. (R) Rural Placement. Pre: Successful completion of all Introductory Pharmacy Practice Experience (IPPE) Courses PHPP 501-509 AND successful completion of all didactic components of the DKICP PharmD Program.

**PHPP 547 APPE - NAPLEX/MPJE Preparation (1)** This course will introduce students to the North American Pharmacist Licensure Examination (NAPLEX) and the Multistate Pharmacy Jurisprudence Examination (MPJE) used by the National Association of Boards of Pharmacy (NABP) as part of the assessment of a pharmacy graduate's competence to practice as a pharmacist. In order to prepare students for their licensure examinations, this course reviews content taught in the didactic curriculum and offers guidance on creating a study plan to cover content assessed in the NAPLEX. The MPJE will also be addressed through supplemental material pertaining to both federal and Hawai'i state pharmacy laws. Pre: Acceptance and fourth year standing in the Daniel K. Inouye College of Pharmacy

**PHPP 550 History of Pharmacy (2)** This elective is of value to appreciate the origin of pharmacy and the manner in which ancestors of the field practiced their art. These historical aspects will be discussed as well as techniques, tools, symbols, and art in pharmacy.

**PHPP 553 Current Topics in Healthcare (1)** Healthcare is no longer defined as a patient seeking the service of a provider. Healthcare inflation is exacerbated by the cost of government programs such as Medicare, unemployment, fraud, defensive medicine and changing technology in healthcare. Pending healthcare reform promises to change some of the healthcare delivery system as we know it today. This course will focus on the healthcare issues facing providers of healthcare with a focus on pharmacy, payers of healthcare, and users of the healthcare delivery system. Current events will be the basis of topics for discussion. Pre: PHPP 519.

**PHPP 554 Zoonotic Diseases (1)** This course is designed to introduce students to the definition, history, origin and transmission of zoonoses; commonly encountered zoonotic diseases as well as those commonly encountered in Hawai'i. Covered are bacterial, tick-borne bacterial, fungal, parasitic, viral and prion zoonoses. Emphasis will be made on those that are life-threatening to humans, for example, leptospirosis, rabies, transmissible spongiform encephalopathies, etc. Pre: acceptance and second year standing in the College of Pharmacy.

**PHPP 555 Intro to Veterinary Medicine (1-2)** This course is designed to introduce students to the profession of veterinary medicine and how it is dependent on pharmacology. Lectures include veterinary medical education; and practicing small animal medicine, large animal medicine (equine and food animal), and exotic animal medicine, inclusive of the daily challenges encountered in practicing medicine. Introductions to diseases, whether infectious or non-infectious, of various etiologies will be made. The realms of veterinary medicine, for example, diagnostic tools (physical examination, imaging, clinical pathology, etc.), treatment options (medicinal, surgical, physical therapy, conservative, etc.) and career opportunities will be emphasized. Pre: Acceptance and second year standing in College of Pharmacy.

**PHPP 556 Adv Topics in Hypertension (1)** High blood pressure affects over 70 million people in the United States today. This disease carries significant morbidity and mortality which will only increase with our aging population. The treatment of hypertension is highly complex and frequently changes based on new clinical evidence. Students will



discuss in depth the diagnosis and various treatments (both pharmacologic and non-pharmacologic) of hypertension. Pre: PHPP 515.

**PHPP 557 Personal Finance (1)** This course will provide an introduction to the basic principles and skills of personal financial management, including saving, borrowing, insurance, investment, and budgeting. Special emphasis will be given to the issues most relevant to new pharmacists, such as student loan repayment, financial implications of career mobility, and retirement options based on type of healthcare employer.

**PHPP 558 Business Admin Overview (1)** This course will provide an overview of the basic concepts and functions involved in managing a business, including accounting, human resource management, production and operations management, organizational behavior and culture, and project management.

**PHPP 559 Spanish for Healthcare Profess (1)** This course provides a unique opportunity in developing culturally aware clinical language skills for the Spanish speaking patient population, optimizing all aspects of medication therapy management for this patient population. Pre: Second year standing in College of Pharmacy

**PHPP 560 Pharmacy Leadership (1)** Leadership skills is one of the determining factors in the success of many new pharmacy graduates. This course will incorporate current literature, management theory and viewpoints of academic and practice community leaders to understand leadership at different levels in pharmacy practice environment. This course will focus on raising awareness of leadership and exercising core leadership skills in pharmacy students. Pre: admission to PharmD.

**PHPP 561 Pharmacy and Therapeutics Comp (1)** This course is designed to inform pharmacy students about the importance and functions of Pharmacy and Therapeutics Committees. All hospitals and managed care organizations use P and T committees to make therapeutically appropriate pharmacoeconomic decisions about their formularies. This course will serve to navigate the mechanics of a P and T. All students will present a drug to the committee with a rationale for its inclusion or exclusion from a formulary. A competition will be held at the end of the course. Pre: Admission to the Pharm D.

**PHPP 564 Advanced Managed Health Care (1)** This course will provide an introduction to the basic principles and alphabet soup of managed healthcare, to include MCO's, PBM's, PPO's, HMO's, CDH, VA, and DoD. We will present and discuss topics of particular interest to the future of Pharmacy management including Pay-for Performance, Medicare, and Medicaid along with a discussion on the Obama Health Care Reform. Special emphasis will be given to providing students a better understanding of the financial drivers of healthcare management within each segment. A discussion of taxonomy and functional differences between managed health care segments provide the framework for the operational differences. Pre: Acceptance in the College of Pharmacy and second or third year standing.

**PHPP 567 Rural Health Science Intro (2)** Introduction to basic concepts in rural health science, including measurement, methods, and testing solutions to rural health problems.

**PHPP 568 Rural Health Science Advanced (2) (lab)** In-depth consideration and analysis of special topics in rural health science to advance student thinking and application of the topics covered in the introductory course.

**PHPP 571 Story-telling in Healing (1)** Examine the role of narrative medicine and story-telling in health and health systems. The goal is to

increase empathy and to better understand how story-telling can be incorporated into healing, through discussion, active learning, and sharing the student's own stories.

**PHPP 572 Intro to Residency Application (1)** Introduction to post-graduate residency training and the process of preparing for the application process for post-graduate residency training programs during the P4 year or upon graduation. Pre: Third year standing in PharmD program at DKICP

**PHPP 575 Drug Info Veterinary Medicine (1)** Improve safety and efficacy of pharmacotherapeutics in veterinary patients by enabling pharmacists to be an integral part of the veterinary healthcare team. Drug information resources to answer drug information questions pertaining to veterinary pharmacy. Pre: Enrollment in PharmD program at DKICP

**PHPP x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PHPP x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Pharmaceutical Science (PHPS) Post-Baccalaureate Courses

Daniel K. Inouye College of Pharmacy (DKICP)

**PHPS 501 Biochemistry - Biomolecules (2)** This course lays the biochemical foundation for the understanding of medicinal chemistry, pharmaceuticals, pharmacology and pathophysiology. Topics include physical and chemical properties of amino acids, structure and physical properties of proteins, structure and function of hemoglobin, enzyme kinetics, types of inhibitors, and the catalytic triad of chymotrypsin. This course also covers DNA and RNA function, nucleotide biosynthesis and its regulation in disease, DNA replication, damage, mutation and repair, and transcriptional control of gene expression. Roles of cytochromes P450 as phase I enzymes in the biotransformation of xenobiotics drug and their regulation will also be addressed.

**PHPS 502 Biochemistry - Metabolism (2)** This course will delve into metabolism and the interrelationships of metabolic processes. The biochemistry of metabolism focuses on glycolysis, the tricarboxylic acid cycle, gluconeogenesis, and the synthesis and breakdown of biomolecules (carbohydrates, lipids, and amino acids). Metabolic control and regulation of pathways will be examined. Clinical correlates and metabolic diseases will be discussed.

**PHPS 503 Pharmaceutical Calculations (2)** In this course, students will learn the fundamentals of pharmaceutical calculations, including use of the SI system of units, methods of measurement and expressions of concentration. In addition they will learn what constitutes an accurate, understandable and legal prescription or medication order. Through a series of lectures and exercises based on intensive problem solving, students will learn to perform the calculations required for the preparation of a range of pharmaceutical dosage forms as well as for their proper administration to the patient. Emphasis will be placed on accuracy and prevention of medication errors.



**PHPS 504 Pharmaceutical Immunology (3)** Basic concepts of immunology, including innate immunity, antigen recognition, lymphocyte development and adaptive immunity will lay the groundwork for understanding immunity in a clinical context. Students will learn the role of the immune system in allergy, auto-immune disease, graft rejection and tumor immunogenicity. Methods of manipulating the immune system pharmacologically will be discussed as well as biotechnology applications.

**PHPS 505 Pharmaceutics I (3) (lecture/lab)** This course will introduce principles applied in the preparation of different dosage forms and drug delivery systems, theory and practice involved in the rational choice of drugs, and the legal and professional issues in drug compounding. Discussion of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of the class. Hands-on experience will involve preparation, mixing, assembling, and labeling drugs for dispensing. Students will become comfortable with equipment, procedures, and records used in the compounding of various dosage forms with a focus on capsules and ointments. Students will also practice clinical dispensing skills.

**PHPS 506 Pharmaceutics II (3) (lecture/lab)** This course is a continuation of the concepts and practical applications introduced in Pharmaceutics I (PHPS 505). In lectures, students will learn about solutions, dispersion systems, and parenteral dosage forms. Pharmaceutical analysis will include electronic and vibrational spectroscopy, HPLC, and radiopharmaceuticals. Compounding lab will involve solutions, suppositories, suspensions, and emulsions. Students will be trained in sterile compounding, including parenteral solutions, ophthalmics, and the common supplies and devices used in their preparation.

**PHPS 509 Applied Pathophysiology (3) (lecture/lab)** This course will review the pathophysiology of the major disease states giving students the background knowledge necessary to understand subsequent therapeutics classes. Pre: Enrollment in the DKICP PharmD Program.

**PHPS 511 Pharmacokinetics (3)** Students will learn about the time course a drug occupies in the human body. Topics to be covered include drug bioavailability, drug absorption, distribution, metabolism and elimination, pharmacokinetics of various dosage forms, routes of administration and drug effects over time. The effects of patient weight, gender and age on drug pharmacokinetics will be discussed along with the therapeutic variation that occurs with these patient parameters. Students will use pharmacokinetic calculations to be able to solve problems in clinical pharmacokinetics. Emphasis will be placed on using pharmacokinetic principles to decrease the risk of toxicity and improve therapeutic outcomes using a variety of commonly used medications.

**PHPS 512 Intro to the Pharm Sciences (3)** This course is designed to introduce first year pharmacy students to the areas included in Pharmaceutical Sciences. Areas that will be presented are Introduction to Pharmacology, Medicinal Chemistry and Pharmacognosy. This course will allow students to successfully transition into the integrated Therapeutics sequences of courses taught in years 2 and 3.

**PHPS 540 Drug Action - Part I (2)** This course will introduce the student to the pharmaceutical sciences, including basic principles of medicinal chemistry and pharmacology. Topics include: the physicochemical properties of drugs, organic functional group chemistry, basic pharmacokinetics and pharmacodynamics, as well as the chemistry of drug-target interactions.

**PHPS 541 Drug Action - Part II (2)** This course will draw on the basic

principles of drug design, development and drug action (medicinal chemistry and pharmacology) to provide an introduction to the basics of the pharmaceutical sciences. Topics covered include: drug discovery, pharmacogenetics, architecture of drugs, ADME, structural changes during drug metabolism, chemical mutagenesis, carcinogenesis, teratogenesis, drug-drug interaction, drug allergy, drug resistance, tolerance and dependence. Pre: First year standing in DKICP

**PHPS 545 Intro Pharm Chemistry Research (2) (lecture/lab)**

Introduction to key concepts and laboratory techniques in pharmaceutical chemistry research, including drug delivery, absorption, and metabolism. Special emphasis on research laboratory methods related to pharmaceutical analysis, quality control, and medicinal chemistry. Pre: Enrollment in PharmD program at DKICP

**PHPS 546 Intro Pharm Biology Research (2) (lecture/lab)**

Introduction to key concepts and laboratory techniques in pharmaceutical biology research, including preparing plant extracts and identifying major components and biological activity. Special emphasis on research laboratory methods related to antioxidant, anti-inflammatory, and antimicrobial activity. Pre: Enrollment in PharmD program at DKICP

**PHPS 550 Genetics in Medicine (2)** This elective course will introduce the student to the basics of genetics and molecular mechanisms of inheritance as they apply to the treatment of disease and to the response of patients to drug therapy. Students will learn how genetics may lead to new strategies in drug development and treatment, how genetics may be used to predict patient response to specific treatments, and how responses are mediated. Emphasis will be placed on clinical and research applications.

**PHPS 551 Substances of Abuse/Addiction (2)** This elective course will provide an in-depth review of the neuropharmacology of substances of abuse including stimulants, depressants, hallucinogens and anabolic steroids. Other types of addiction will be discussed including gambling addiction. Special emphasis will be given to basic pharmacokinetic and pharmacodynamic mechanisms as they relate to the effects of the individual substances of abuse. Current theories of addiction and tolerance will be discussed.

**PHPS 552 Dietary Supplements (1)** A wide range of products are used in the United States and other parts of the world as aids for better health rather than as therapeutics for the treatment of disease. These products range from vitamins and minerals to herbal supplements used for a variety of purposes. In this course, the rationale for the use of these products will be examined as well as their safety and efficacy.

**PHPS 553 Radioactivity in Pharmacy (1)** Radiopharmaceuticals are playing a more and more important role worldwide. Particularly, the development of radiolabeled compounds for in vivo biochemical imaging tools like PET (positron emission tomography) and SPECT (single photon emission computed tomography) increased considerably.

**PHPS 554 Herb Med & Hawaiian Med Plants (1)** This elective course will cover the most popular herbal medicines, their chemistry (natural products), information resources, part(s) of plant origin, use, efficacy, safety, and potential drug interactions. A small student-centered research project is assigned with approval by the chair of the department.

**PHPS 555 Geographic (Tropical) Medicine (1)** This elective course will cover: policy makers and public health experts who have emphasized the growing need for global health literacy and global health capacity among U. S. healthcare professionals. The Institute of Medicine defines



global health as health problems, issues, and concerns that transcend national boundaries, may be influenced by circumstances or experiences in other countries, and are best addressed by cooperative actions and solutions.

**PHPS 556 Drugs from Natural Sources (1)** This elective course will discuss original drugs used by man for the treatment of himself and his animals were all of natural origin and in some parts of the world the natural environment still provides the majority, if not all, of medications used on a day to day basis for the treatment of common and not so common ailments. Today the natural world is still the source of over 50% of pharmaceuticals either as direct products, derivatives thereof, or as lead structures.

**PHPS 558 Drug Development & Regulation (1)** The mechanism by which drug products are developed and approved for use in a global market is an evolving process. Concepts of quality by design employed in other industries such as aerospace are being adapted for pharmaceuticals with the intense encouragement of major regulatory agencies.

**PHPS 559 Environmental Toxicology (1)** This elective is designed to introduce students to the field of environmental toxicology. This course will focus more on ecotoxicology, rather than classical toxicology, and include topics such as xenobiotics, toxic and radioactive metal, toxicity of solvents and pesticides, halogenated aromatic compounds, environmental endocrine disruptors, and pharmaceuticals and personal care products in the environment. Pre: Acceptance and second or third year standing in the College of Pharmacy.

**PHPS 561 Emerging Trends Drug Discovery (1)** This one credit elective course is designed to enhance the student's knowledge of emerging drug targets and related efforts in the drug discovery and development process. The emphasis of the course is on unique and emerging drug targets and is intended to reveal: how novel drugs will complement existing treatment options for various disease states. Pre: Admission to PharmD.

**PHPS 562 Disc & Dev of Blockbuster Drug (1)** There is a critical point and an interesting story behind each pioneering breakthrough in medicine, when decisions were made as to whether to continue or terminate the development of a promising new drug. Throughout the lectures, the historical discovery and development of representative blockbuster drugs, which changed the world and saved millions of lives, will be discussed. Pre: Acceptance and second year standing in the College of Pharmacy.

**PHPS 563 Curr Adv in Neuropharmacology (1)** This elective is designed to cover the current literature and latest discoveries in neuropharmacology. Course topics are from a variety of areas and can have a clinical or basic science emphasis but must cover the most recent findings in that field. The effect of a drug on the brain is a paramount concern for pharmacists. The action of drugs on the nervous is the science of neuropharmacology. It comprises several areas of investigation of critical importance to science and medicine. Neuropharmacology involves studies aimed at understanding the mechanism by which drugs alter brain function. These include medications used to treat a wide range of neurologic and psychiatric disorders as well as drugs of abuse. Neuropharmacology uses this information to develop new medications with ever-improving efficacy and safety for diseases of the nervous system. Neuropharmacologic agents are valuable tools with which to probe the molecular and cellular basis of nervous system functioning. Pre: Acceptance and third year standing in the College of Pharmacy.

**PHPS 565 Genetics & Pharm of Malaria (1)** This course will provide students with a better understanding of the role that genetic variation plays in disease susceptibility at both the individual and population levels. Genetic variation of human hosts and parasites will be covered with an emphasis on co-evolution. Drug action and mechanisms of drug resistance will be explored. The contemporary role of molecular genetic techniques in the detection of genetic variation, with applications toward vaccine development, will also be covered. Pre: Second year standing in the College of Pharmacy.

**PHPS 566 Emerging Trends Drug Discovery (1)** This 1 credit elective course is designed to enhance the student's knowledge of emerging drug targets and related efforts in the drug discovery and development process. The emphasis of the course is on the drug development process, focusing on the phases of target identification and validation. This elective is intended to reveal: a) how novel drug modalities will complement existing treatment options for various disease states; b) scientific basis for the selection of a particular target; c) the validation of target choice through experimental methods; and, d) methods to integrate a novel target into the drug development pipeline. Pre: Acceptance into the College of Pharmacy and concurrent registration in PHPP 518.

**PHPS 567 Pharmacogenetics (1)** This elective is designed to introduce students to the field of pharmacogenetics, the study of the genetic basis for variation in drug response. This course will discuss the development of pharmacogenetics, genetics and epigenetics within pharmacogenetics, age-related and ethnic factors in pharmacogenetics, some genomic tools used in pharmacogenetic research, cancer and HIV treatment and pharmacogenetics, and the future of pharmacogenetics research and discoveries. Pre: Acceptance and third year in the College of Pharmacy.

**PHPS 568 Antibiotic Mechanisms & Applic (1)** This course will provide an exposition of the fundamental mechanisms of antibiotic action. The basic differences between prokaryotes and eukaryotes that provide for specific antibiotic targets will be emphasized. Mechanisms of antibiotics will include those that affect cell wall biosynthesis and metabolism, membrane structure and function, nucleotide biosynthesis, DNA replication and other nucleic acid transactions, transcription, and protein synthesis, as well as novel mechanisms. For each biological mechanism, the biological process, for example protein synthesis, will be reviewed to provide a framework for understanding the role of the antibiotic. Classes of antibiotics will include, but are not limited to,  $\beta$ -lactams,  $\beta$ -lactamase inhibitors, glycopeptides, isoniazid, aminoglycosides, tetracyclines, macrolides, lincomycin, streptogramins, oxazolidinones, fluoroquinolones, nitroimidazoles, rifamycins, sulfonamides, DHFR inhibitors, and polymyxins. Antibiotics from natural sources as well as synthetic antibiotics will be addressed. In addition, mechanisms by which microbes develop antibiotic resistance will be discussed. Pre: Second or third year standing in the College of Pharmacy.

**PHPS 569 Cancer Prevention (1)** This course will discuss the 1) genetic risk profiles and early detection (biomarkers) and 2) the prevention of cancer by reducing risk behavior (sun exposure, alcohol consumption cigarette smoking, heavy metals in environment, physical exercise) as well as chemoprevention and vaccination against cancer-inducing viruses (HPV, HBV). Completion of this course will provide the Pharm D student with a comprehensive understanding of the current status in preventative cancer medicine. Pre: Second or third year standing in the College of Pharmacy

**PHPS 570 Drugs from the Ocean (1)** This course will focus on the chemical aspects of natural products from marine, microorganisms, and



other sources. Natural products are normally classified according to their chemical properties, or their origins, or core structural skeletons that are related to their biosynthetic origins.

**PHPS 591 Basic & Applied Toxicology (2)** This course will provide a general foundation in the understanding of basic toxicological principles. The mechanisms of toxicity and contemporary treatment plans for the most common chemical, environmental and pharmaceutical agents will be presented. Additionally this course will provide an in-depth review of the neuropharmacology of substances abuse including stimulants, depressants, hallucinogens and anabolic steroids. This course will provide a general foundation in the understanding of basic toxicological principles. The mechanisms of toxicity and contemporary treatment plans for the most common chemical, environmental, household toxins and pharmaceutical agents will be presented.

**PHPS 601 Integrated Pharmacotherapy I (7)** In this first of a series of three courses, pathophysiology, pharmacology, toxicology, and therapeutics will be integrated into one discipline that will examine pharmacotherapy based on organ systems of the body. The course will begin with a discussion of SOAP notes and an introduction to pharmaceutical principles. Students will learn to blend their factual knowledge of the basic sciences and apply this knowledge to drug treatment of specific disorders in disparate patients. Synchronous video chats will tie in the pharmacotherapy discussed in lecture with the treatment of CNS disorders. On-site workshops will occur at various times during the semester. Pre: Acceptance into the program.

**PHPS 602 Integrated Pharmacotherapy II (5)** This course focuses on the pathophysiology, pharmacology, toxicology, and therapeutics of CNS disorders. Students will apply didactic learning to drug treatment in this patient population. Assessments include exams, SOAP notes, a research paper and presentation on a CNS disorder. Pre: Acceptance into the Program.

**PHPS 603 Integrated Pharmacotherapy III (4)** The course will begin with an overview of Toxicology, then proceed to conclude the discussion of the pharmacotherapy based on organ systems of the body by integrating the pathophysiology, pharmacology, toxicology, and therapeutics. Students will learn to blend their factual knowledge of the basic sciences and apply this knowledge to drug treatment of specific disorders in disparate patients. Additional topics discussed will be professional, legal, ethical, and interprofessional issues that relate to ethics, standards of care, laws, and regulations relevant to the practice of psychology involving psychopharmacology. During the semester students will submit three SOAP notes covering patients with both somatic and CNS related disorders. The course will culminate with each student presenting their research paper. Pre: Acceptance in the Program.

**PHPS 604 Adv Psychopharmacology I (2)** This course serves as the first of two capstone courses that will provide an in-depth coverage of psychopharmacology associated with the treatment of mental disorders. Students will present patient cases in weekly seminars that are based on patients seen in clinical settings from the Psychopharmacology Practicum course taught concurrently. This course will require students to demonstrate competence in medication therapy management specific to psychopathology. In addition, recent literature will be discussed that covers synergistic interactions between psychotherapy and pharmacotherapy and will examine the single practitioner vs. the split-treatment model. Pre: Acceptance into the MSCP or Clinical Psychopharmacology Certificate programs. Co-req: PHPS 607 or PHPS 609.

**PHPS 605 Adv Psychopharmacology II (2)** Students will present patient cases in weekly seminars that are based on patients seen in

clinical settings from the Psychopharmacology Practicum courses taught concurrently. This course will require students to demonstrate competence in medication therapy management specific to psychopathology. In addition, current and future pharmacotherapy of CNS disorders will be discussed: including methodology, standards and conduct of research of psychoactive substances. Drugs classes to be covered include: antipsychotics, antidepressants, mood stabilizers, anti-anxiety agents, sedative/hypnotic agents, narcotic analgesics, drugs used to treat the cognitive and behavioral effects of Alzheimer's disease, and drugs used to treat ADHD. Pre: Acceptance into the MSCP or Clinical Psychopharmacology Certificate programs. Co-req: PHPS 607 or PHPS 609.

**PHPS 606 Human Physiology (3)** This course is designed to provide an in-depth overview of topics in human physiology that provide a basis for understanding of pharmacology. The course will begin with a review of basic physiological topics including the autonomic nervous, central nervous, and the cardiovascular systems. Following this will be an introduction to the discipline of pathology with an emphasis on diseases of the nervous system. This course will be composed of recorded lectures, live workshops, and synchronous video chat sessions. There is also a requirement of a research paper on a topic of physiology chosen by the student with approval of the Course Coordinator. Pre: Acceptance into the program.

**PHPS 607 Psychopharmacology Practicum (2) (lecture/other)** Students will participate in a psychopharmacology practicum for eight hours per week for at least one-year. The total amount of hours per year is at least 400 hours. They will be supervised by a qualified clinical practitioner with demonstrated skills and experience in clinical psychopharmacology in accordance with the prevailing jurisdictional law. Clinical supervision will be for one hour per week or one hour per eight hours of patient contact. Students will be actively involved in consultation with physicians and/or appropriately credentialed psychologists regarding prescribing of psychoactive medications. The Clinical Psychopharmacology Practicum components will be consistent with APA Recommendations. The Psychopharmacology Practicum courses will require students to demonstrate competence in medication therapy management specific to psychopathology. Students will present cases from this practicum in the Advanced Psychopharmacology I and II courses taught concurrently. At the end of the training program, a capstone competency evaluation will be completed. Students will need to arrange their own practicum according to the guidelines listed in the course syllabus. Pre: Acceptance into the program. Co-req: PHPS 604, 605.

**PHPS 608 Law and Pharmacotherapy (2)** This course will focus on the pathophysiology, pharmacology, toxicology and therapeutics of infections and respiratory processes. Students will learn the issues that relate to ethics, standards of care, laws and regulations relevant to the practice of psychology involving psychopharmacology.

**PHPS 609 Clinical Psychopharm Practicum (1)** Preceptor is a practitioner with demonstrated experience in clinical psychopharmacology in accordance with the prevailing jurisdictional law. Advanced Psychopharmacology I and II courses taught concurrently. Pre: Enrollment in the Program. Co-Req: PHPS 604 and 605.

**PHPS 701 Apoptosis & Angiogenesis (1)** The course will cover mechanisms of apoptosis, or programmed cell death, and angiogenesis, or new vessel growth, and mechanisms of their regulation in different cell types. Students will learn how unbalanced angiogenic and apoptotic responses contribute to a wide variety of disease conditions, including cancer, neurodegenerative, cardiac, inflammatory and autoimmune



diseases. The course will discuss experimental techniques that are used in the studies of these processes. Part of the course is devoted to approaches to development of drugs that will modulate apoptotic and angiogenic processes, and discussions of critical signaling molecules in these pathways as potential targets for drug development efforts. Pre: Approval of Major Professor.

**PHPS 702 Bio Dev:Prin&Prac in Drug Disc (1)** This course will explore the biological activities of secondary metabolites that are central to the process of drug discovery and development from nature. This course will emphasize the chemically-driven approach that seeks biological activities for purified compounds. Pre: Approval of Major Professor

**PHPS 703 Cancer Biology (2)** An introduction to cancer biology covering the processes involved in tumorigenesis (oncogenes, mutagenesis, proliferation, apoptosis, angiogenesis, invasion and metastasis). There will be discussion of active areas of interest such as cancer stem cells and the role of inflammation in cancer. Lectures will include descriptions of current therapeutics, describe efforts to design new drugs and recent clinical trials. Pre: Approval of Major Professor.

**PHPS 704 Com Chem & High Throughput Tec (2)** This course is designed to teach students the essential elements of combinatorial chemistry and evolving high throughput technologies in drug discovery. Combinatorial chemistry and high throughput chemistries are dynamic, rapidly evolving fields that have an important role in drug discovery. Most pharmaceutical companies have now incorporated combinatorial and high throughput platforms into their drug discovery research program. Combinatorial chemistry is a relatively new approach to the synthesis of compound libraries in a highly efficient and automated fashion. The topics of this course will include, but not limited to, combinatorial chemistry and parallel synthesis; solid-phase organic synthesis; solution-phase synthesis with solid supported reagents and scavenger resin technology; diversity-oriented synthesis; dynamic combinatorial chemistry; high throughput screening of combinatorial libraries; microwave-assisted organic synthesis; fluoros technology, fragment-based drug discovery; and automation and instrumentation. Pre: Approval of Major Professor.

**PHPS 705 Designing Clinical Research (3)** The course introduces the science and methodological principles of undertaking clinical research. Emphasis is placed upon clinical trials of complementary and alternative medicine therapies. Topics include research question/problem/objective, research hypothesis, research processes, types of clinical research design, strengths and weaknesses of each design, measurements, concepts of reliability and validity, sampling designs, recruitment, sample size determinations, chance and bias, threats to the internal and external validity, monitoring safety and efficacy data, statistical tests and data management, ethical and regulatory considerations, translational research and funding agency. Students will be given the opportunity to identify a researchable idea/ question and design his/her own clinical or translational research project by preparing a written mini-proposal and then its presentation. Pre: Approval of Major Professor.

**PHPS 706 Environmental Toxicology (2)** This course is designed to introduce students to the field of environmental toxicology. The emphasis will focus more on ecotoxicology, rather than classical toxicology. Topics that will be covered include toxic and radioactive metal, toxicity of solvents and pesticides, halogenated aromatic compounds, environmental endocrine disruptors, and pharmaceuticals and personal care products in the environment. The environmental impact of global warming will also be addressed. Course format will include student lead discussions and presentations, lectures, and general

discussion. Pre: Approval of Major Professor.

**PHPS 707 Genetics in Medicine (2)** This course will provide an exposition of the fundamental principles of human and medical genetics with emphasis on the genes and molecular mechanisms operating in human diseases. The contributions made by genetic variation to disease susceptibility and treatment outcomes will be discussed. Clinical cases will be used to demonstrate and reinforce the general principles of disease inheritance, pathogenesis, diagnosis, management, and genetic counseling. Students will learn how understanding genetics can lead to new strategies in drug development and treatment. A combined laboratory and seminar experience will provide students with hands-on experience and keep students abreast of recent developments in the field by presenting current literature. Pre: Approval of Major Professor.

**PHPS 708 Isolation Meth for Nat Pro Dsc (2)** This course will examine the theory and practice of the various types of chromatographic and non-chromatographic methods that are commonly used for the isolation of biologically active natural products from plants, microorganisms and marine organisms on scales ranging from microgram to kilograms of pure compound. Starting with simple extraction methods, the course will progress through liquid-liquid interactions to liquid-solid interactions and then to gas-solid interactions. Completion of this course will provide the student an understanding of the application of each of the techniques discussed, as well as their relative advantages and disadvantages. Pre: Approval of Major Professor.

**PHPS 709 Inst Meth & Struct Elucidation (2)** This course will introduce many of the pieces of spectroscopic equipment relevant to solving the three dimensional structure of organic molecules. Hands on use of the equipment to obtain spectroscopic data will be an emphasis of this course. The other emphasis of this course will be how to interpret the recorded information to enable a viable chemical structure to be proposed. During each session it is anticipated that prepared examples and examples arising from current research will be used to enhance participants' knowledge. Pre: Approval of Major Professor.

**PHPS 710 Lab Animal Care, Mgt & Med I (2)** This course is part one of a two part lecture series and is designed to introduce students to the care and use of laboratory animals in accordance with the National Research Council and the Institutional Animal Care and Use Committee (IACUC). Included in this course are alternatives to traditional use of live animal species and the laws, regulations and guidelines important to laboratory animal research. Emphasis will be placed on the use of rats and mice, rodent anesthesia and analgesia and rodent surgery. Pre: Approval of Major Professor.

**PHPS 711 Lab Animal Care, Mgt & Med II (2)** This course is part two of a two part lecture series and is designed to introduce students to the care and use of laboratory animals in accordance with the National Research Council and the Institutional Animal Care and Use Committee (IACUC). Included in this course is a review of Laboratory Animal Care, Management and Medicine I. Emphasis will be placed on rabbits, Mongolian gerbils, guinea pigs, Syrian hamsters, dogs and cats, and primates. Pre: Approval of Major Professor.

**PHPS 712 Medical Cell Biology (2)** This course focuses on the scientific aspects of cell biology important to graduate students with primary focus on eukaryotic cell biology. The course will provide a basis to general cell biology principles in the context of organ systems and human and animal disease. Clinical cases will be used to build a framework for the basic concepts of medical cell biology and help reinforce conceptual understanding. Pre: Approval of Major Professor.

**PHPS 713 Organic Medicinal Chemistry I (2)** Organic Medicinal



Chemistry I provides the chemical and structural basis for the interdisciplinary field of therapeutics related to diuretics, autonomic nervous system and cardiovascular systems. The topics will include the drug discovery and development process of these important medicines, the chemical and structural basis for the pharmacological and therapeutic action drugs, structural classifications, molecular mechanism of actions, structure activity relationship and how the physicochemical properties of drug molecules affect their route of administration stability, and absorption, distribution, metabolism and excretion. Synthesis of important molecules from each drug class will also be presented. Pre: Approval of Major Professor.

**PHPS 714 Organic Medicinal Chemistry II (2)** Organic Medicinal Chemistry II provides the chemical and structural basis for interdisciplinary field of therapeutics related to diabetes, thyroid/pituitary disorders, hormones/ osteoporosis/adrenal, asthmas/COPD, and infectious diseases. The topics will include the drug discovery and development process of these important medicines, the chemical and structural basis for the pharmacological and therapeutic action of drugs, structural classifications, molecular mechanism of actions, structure activity relationship, and how physicochemical properties of drug molecules affect their route of administration, stability, and absorption, distribution, metabolism and excretion. Synthesis of important drug molecules from each drug class will also be presented. Pre: PHPS 713.

**PHPS 715 Organic Medicinal Chem III (2)** Organic Medicinal Chemistry III provides the chemical and structural basis for interdisciplinary field of therapeutics related to antiviral agents, OA/RA/Gout, migraine, CNS agents including Parkinson/Alzheimer/Seizure. The topics will include the drug discovery development process of these important medicines, the chemical and structural basis for pharmacological and therapeutic action of drugs, structural classifications, molecular mechanisms of actions, structure activity relationship, and how the physicochemical properties of drug molecules affect their route of administration, stability, and absorption, distribution, metabolism and excretion. Synthesis of important drug molecules from each drug class will also be presented. Pre: PHPS 714.

**PHPS 716 Organic Medicinal Chemistry IV (2)** Organic Medicinal Chemistry I provides the chemical and structural basis for the interdisciplinary field of therapeutics related to gastro-intestinal/genito-urinary, chemotherapy, pain management, radiopharmaceuticals. The topics will include the drug discovery and development process of these important medicines, the chemical and structural basis for the pharmacological and therapeutic action of drugs, structural classifications, molecular mechanism of action structure activity relationship, and how the physicochemical properties of drug molecules affect their route of administration, stability, and absorption, distribution, metabolism and excretion. Synthesis of important drug molecules from each drug class will also be presented. Pre: PHPS 715.

**PHPS 717 Med Chem CNS Drugs & Develop (2)** The course will focus on modern aspects of the design and development of compounds for the treatment of central nervous system disorders, and in addition on the development of PET (positron emission tomography) and SPECT (single photon emission computed tomography) tracers to monitor functional processes in vivo in the human body. Important properties and steps for profiling a drug to enhance the access to the brain will be discussed. The course will start with an overview about CNS targets and pharmacophore models for diverse compound families and will provide synthetic aspects of important drug templates. The production of relevant radionuclides, precursor and radiochemical synthesis, quality control and radiopharmacological aspects (in vitro, ex vivo, in vivo experiments) will be discussed. Pre: Approval of Major Professor.

**PHPS 718 Lab Visits & Supervisor Select (1) (lab)** This one credit course is designed to enable all PhD candidates time to become familiar with the research being undertaken by possible dissertation supervisors. Each candidate will visit with and interview at least six possible dissertation supervisors and discuss with them dissertation research projects they will be offering. As required, individual candidates may want to spend a longer period in the laboratory of potential dissertation supervisors to actual gain some hands on experience as to what is going on in given laboratory to assist them in making their decision about whose group they would like to join. At the end of the interview process each candidate will submit a three page paper detailing the overall process they went through to eventually select a dissertation supervisor and dissertation topic. Pre: admission into the PhD program in Pharmaceutical Science.

**PHPS 719 Mol Biol Tech & Appl-Hlth Care (2)** This course will provide students with basic and advanced information regarding DNA, RNA, and proteins, and describe current available techniques used in detecting genetic variation. Potential applications of these techniques to disease screening, drug resistance, and drug discovery and development will be reviewed. Isolation and purification of DNA samples from different cell types and tissues, DNA concentration techniques, restriction digestion and analysis, ligation of DNA to create recombinant molecules and designer genes will be discussed. Students will be provided with access to reference texts and selected online peer-reviewed articles in .pdf format by the instructor. The instructor will conduct lectures for sessions 1 and 15 and provide background materials. Each student will select a topic from the remaining sessions (2-14) and will lead the discussion for that selected topic on the assigned day. Students may work in pairs (or more if necessary), depending on student enrollment. Students will learn to retrieve information from a variety of sources, comprehend and critically evaluate it, and subsequently lead a discussion on the selected topic. There will be no laboratory component. Pre: Approval of Major Professor.

**PHPS 720 Nat Prod & Cancer Chemoprevent (2)** The course will concentrate on the molecular aspects of chemoprevention as a viable strategy in the fight against cancer. The treatment of many diseases is dependent on natural products. Over half of the currently approved anti-cancer and anti-invasive drugs are of natural origin. Active leads from different structural classes such as alkaloids, flavonoids, coumarins, and phenazines will be described. Since carcinogenesis is a multistage process, different approaches to monitor inhibition of cancer initiation, promotion and progression will be characterized. The course will provide the student with an understanding of detailed aspects of research processes leading to the discovery of promising natural as well as synthetic and semi-synthetic chemopreventive compounds. Special attention will be given to ensure students are aware that the science of chemoprevention research is well established and offers great research opportunities. Pre: Approval of Major Professor.

**PHPS 721 Neuropsychopharmacology (2)** This course is designed as an intense, doctoral level class that amalgamates the disciplines of neuroscience, animal behavior, neurochemistry, and pharmacology. The course will cover the major topics of neuropharmacology such as cellular and molecular foundations of neuropsychopharmacology, behavioral pharmacology, receptor biology, major neurotransmitter systems and antidepressants, anxiolytics, antipsychotics, drugs of abuse, and cognitive and movement disorders. Further, this course will integrate some of the principle topics in behavioral neuroscience, including aggression, fear, stress, memory, internal state, and evolution of sex and mating systems, communication, feeding behavior, anti-predator behavior, and the evolution of behavior. Course format will consist of lectures and exams, student presentations, and require a capstone



research review paper. Pre: Approval of Major Professor.

**PHPS 722 Pharmaceutical Marketing (2)** This course has two major areas of emphasis in pharmaceutical marketing. The first part of the course will introduce the basic theory of pharmaceutical marketing and creative thinking behind product development. Students will learn the basic principles of consumer behavior and evaluation, environmental framework, social, and various other marketing theories to provide an understanding of how these concepts can influence product development in laboratories or drug industries. This section will also integrate these principles and concepts to understand issues related to the distribution and design of an innovative drug product development. The second part of the course is intended to use the principles and concepts learned in the first part to effectively develop a market plan for an innovative product. Pre: Approval of Major Professor.

**PHPS 723 Pharmacognosy (2)** Pharmacognosy is a highly interdisciplinary field which is one of five major areas of pharmaceutical education. Its scope includes the study of the physical, chemical, biochemical and biological properties of drugs, drug substances, or potential drugs or drug substances of natural origin as well as the search for new drugs from natural sources. This course will focus on chemical aspects of Pharmacognosy. Natural products are normally classified according to their biosynthetic origins and chemical properties. Thus, the objective of the course is to familiarize students with an introduction to and classification of natural products (terpenoids, alkaloids, phenylpropanoids and allied phenolic compounds). The basic metabolic pathways and the origin of secondary metabolites such as the shikimic acid pathways, the acetate-malonate pathway, the mevalonate pathways will be discussed. It is a core course of Pharmacognosy and enable students to use this knowledge in the future to explore Advanced Pharmacognosy. A special emphasis will be placed on how chemical structure affects physiological function of various natural products. Pre: Approval of Major Professor.

**PHPS 724 Pharmacology I (3)** In this 3 credit, 45 hour lecture course, students will learn pharmacology of specific drug groups. The course uses organ system approach. This course will begin with a discussion of diuretics followed by autonomic nervous system pharmacology and conclude with a discussion of drug groups used for the treatment of cardiovascular disorders. In the autonomic pharmacology unit, students will learn about adrenergic and cholinergic drugs that possess agonist and/or antagonist activities at different types and subtypes of receptors that are present in autonomic nervous system and other tissues in the body. Cardiovascular pharmacology will include drug groups that are used in the management of hypertension, hyperlipidemia, heart failure, disorders of coagulation, cardiac arrhythmias and ischemic heart disease. Pre: Approval of Major Professor.

**PHPS 725 Pharmacology II (3)** In this 3 credit, 45 hour lecture course, students will learn pharmacology of specific drug groups. The course uses organ system approach. This course will begin with a discussion of endocrine disorders pharmacology followed by pharmacology of asthma and chronic obstructive pulmonary disease (COPD), and conclude with a discussion of drug groups used for the treatment of infectious diseases. In the endocrine pharmacology unit, students will learn about drug groups that are used in the treatment of diabetes, thyroid and pituitary disorders, osteoporosis, as well as corticosteroid drugs. Respiratory pharmacology unit will include pathophysiology and pharmacology of drug groups that are used in the treatment of asthma and COPD. Infectious disease pharmacology unit will include discussions of antibacterial, antifungal, antiviral, antiprotozoal and antihelminthic drugs. Pre: Approval of Major Professor.

**PHPS 726 Pharmacology III (3)** This graduate-level course introduces the student to the basis of disease and pharmacology of drugs used to treat viral infections, osteoarthritis, rheumatoid arthritis, gout, and CNS disorders. Course material covers principles of drug action including drug-receptor interactions and mechanism of action, adverse effects, absorption, distribution, metabolism, elimination and pharmacogenomics. The focus of CNS lectures include therapeutics used to treat migraine, schizophrenia, depression, bipolar disorder, attention deficit hyperactivity disorder, sleep disorders, anesthesia, and neurodegenerative diseases. Students will be assigned a scientific article to read in advance of "Special Topics" lectures. For five of these assignments, the student will also be required to write a one-page summary of the article and its main findings. Pre: PHPS 725.

**PHPS 727 Pharmacology IV (3)** This graduate-level course introduces the student to the basis of disease and pharmacology of drugs used to treat gastrointestinal and genitourinary disorders, fertility and contraception, as well as cancer and pain management. Course material covers principles of drug action including drug-receptor interactions and mechanism of action, adverse effects, absorption, distribution, metabolism, elimination and pharmacogenomics. Students will be assigned a scientific article to read in advance of "Special Topics" lectures. For five of these assignments, the student will also be required to write a one-page summary of the article and its main findings. Pre: PHPS 726.

**PHPS 728 Phytochem - Terrestrial Plants (2)** This course will survey the chemical structures, spectroscopic properties, biosynthesis/biogenesis and biological activities of a wide range of major and minor chemical classes occurring in terrestrial plants. These compound classes will include alkaloids, terpenoids, steroids, coumarins, flavonoids, tannins and other polyphenols, pyrones, quinones, phenylpropanoids, lignins, depsides, depsidones, fats, waxes and lipids among others. Completion of this course will provide the student with a basic familiarity with the kinds of chemical structures found in plants enabling her/him to embark on a career in phytochemical research. Pre: Approval of Major Professor.

**PHPS 729 Receptor Theory & Signal Trans (2)** This course is designed to provide the student with knowledge of the historical and practical aspects of receptor theory as it applies to drug action, and to introduce how drug actions are mediated through signal transduction cascades, based on specific examples. Lecture topics include: models for receptor-drug interactions; methods for receptor identification; structure-function analysis of GTP-binding proteins and ligand-operated ion channels; receptor tyrosine kinases; nuclear receptors; and receptor-induced signal transduction cascades. Laboratory component of the course is designed to complement lecture topics. Pre: Approval of Major Professor.

**PHPS 730 Sample Coll, Documnt & Presrv (1)** Participants in this course will learn strategies for sample collection from both the terrestrial and marine environments and for both macro- and micro-organisms. The course will cover permit application, sample collection, and the various ways in which different sample types are preserved for long term storage and how taxonomic voucher specimens are prepared. Pre: Approval of Major Professor.

**PHPS 731 Toxicants and Toxicity (3)** This course will provide a general foundation in the understanding of basic toxicological principles. The mechanisms of toxicity and contemporary treatment plans for the most common chemical, environmental and pharmaceutical agents will be presented. Additionally, this course will provide an in-depth review of the neuropharmacology of substances of abuse including stimulants,



depressants, hallucinogens and anabolic steroids. Other types of addiction will be discussed. Special emphasis will be given to basic pharmacokinetic and pharmacodynamic mechanisms as they relate to the effects of the individual substances of abuse. Current theories of addiction and tolerance development will be discussed. Pre: Approval of Major Professor.

**PHPS 732 Tox Plant Nat Prod-Therap Pot (2)** This course will draw on the basic principles of organic chemistry and biology to provide an understanding of the biosynthesis of toxic natural products in plants, their bioassay-directed fractionation and isolation, structural identification, and mode of action in mammalian systems. Toxins discussed will be those responsible for hepatotoxicity, teratogenicity, cardiotoxicity, lysosomal storage diseases, and reproductive defects. Students will integrate these principles to understand the importance of dose in discriminating between toxicity and therapeutic action, as well as the role of natural products as lead compounds in drug development. The major classes of toxic compounds occurring in plants will be discussed, with particular reference to those occurring in Hawai'i. Discussions of proper experimental design, plant sampling and identification, and structural classification will carry over into the laboratory portion of the class. Students will become familiar with procedures for plant collection, extraction and isolation of pure compounds, and structural identification. Pre: Approval of Major Professor.

**PHPS 733 Aerosol Physics in Medicine (1)** The course is structured in two equal halves. Part 1 focuses on fundamentals concerned with aerosol behavior and assessment of orally and nasally inhaled products (OINDP). Part 2 applies the knowledge gained in the first part to develop an understanding of the current regulatory science and newer methods of assessment to provide more meaningful data to prescribing clinicians and the patients themselves.

**PHPS 734 Biotechnology Laboratory (2) (lab)** Biotechnology continues to play a greater and greater role in pharmacy. Health conditions can be treated with DNA vaccines, RNAi, monoclonal antibodies, recombinant proteins including peptide hormones, etc. This course will provide hands-on experience with biotechnology techniques. Techniques will be covered from DNA manipulations to expression of recombinant proteins.

**PHPS 735 Cell Cycle Progression (2) (lab)** Lecture and mammalian cell culture lab with modern methodological approaches for studying apoptosis (programmed cell death) and the cell cycle. Relationships between the cell cycle and apoptosis in understanding pathological conditions and identifying new therapeutic strategies. Pre: Enrollment in DKICP PhD program.

**PHPS 736 Pharmaceutical Immunology (3)** Basic concepts of immunology including innate immunity, antigen recognition, lymphocyte development and adaptive immunity will lay the groundwork for understanding immunity in a clinical context. Pre: Enrollment in DKICP PhD Program.

**PHPS 737 Cell Physiol in Drug Discovery (2)** The course is geared towards gaining an in-depth understanding of applications and approach using state-of-the-art biotechnology for drug discovery. Pre: Enrollment in DKICP PhD Program.

**PHPS 738 Microbial & Marine Nat Probs (2)** This course will focus on the chemical aspects (including sample collection, isolation, structure determination, biosynthesis, synthesis, medical application and mechanism of actions etc.) of natural products from marine, microorganisms, and other sources. Pre: Enrollment in DKICP PhD

Program.

**PHPS 749 Overview of Pharm Sciences I (2)** Drug discovery, basic principles of drug design, development and action to provide an introduction to the pharmaceutical sciences. Among topics are an introduction to medicinal chemistry, drug targets and interactions, and the architecture of drugs. Pre: Enrollment in DKICP PhD program.

**PHPS 750 Overview of Pharm Sciences II (2)** Drug design, development and action to provide an introduction to the pharmaceutical sciences. Among the topics are ADMC, structural changes during metabolism (chemistry), chemical mutagenesis, carcinogenesis, and teratogenesis, drug-drug interactions, drug allergy, drug resistance, tolerance and dependence, pharmacogenomics, and drug discovery. Pre: Enrollment in DKICP PhD program.

**PHPS 751 Biochemistry I - Biomolecules (3)** Basic foundation for medicinal biochemistry, pharmacology, including the structure and function of amino acids, proteins, nucleic acids, and lipids. Biological processes including signal transduction, DNA, RNA, and protein synthesis for an understanding of disease states and drug action. Pre: Enrollment in DKICP PhD Program.

**PHPS 752 Biochemistry II - Metabolism (3)** Metabolism and the interrelationships. integration of metabolic processes, including glycolysis, the tricarboxylic acid cycle, gluconeogenesis, and the synthesis and breakdown of biomolecules. Metabolic control and regulation of pathways will be emphasized. Clinical correlations and metabolic diseases will be examined. Pre: Enrollment in DKICP PhD program.

**PHPS 755 Advanced Pharmaceutics I (3)** This course will draw on the basic principles of chemistry, biology and physics to provide an understanding of how drug physico-chemical properties at the molecular and macroscopic assembly level are manifest in dosage form properties and performance. Students will integrate these principles to understand issues in the rational selection of dosage forms and drug delivery systems as well as their role in drug product development. Discussions of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of the class. Students will become comfortable with equipment; procedures and records used in the compounding of various dosage forms, and will practice clinical dispensing skills vital to shaping a truly professional pharmacist. Pre: Approval of Major Professor.

**PHPS 756 Advanced Pharmaceutics II (3)** This course will draw on the basic principles and developmental aspects of drug formulation to deliver the active pharmaceutical ingredient through biological membranes to exert the therapeutic effect at site of action. Understanding of physicochemical properties of active pharmaceutical ingredient and additives or excipients, pharmacological properties and processability of drug delivery systems can be utilized for optimal performance of the drug delivery systems. Understanding of active pharmaceutical ingredient and additive or excipients physico-chemical properties at the molecular and macroscopic assembly level are manifest in dosage form properties and performance. Students will integrate these principles to understand issues in the rational choice of dosage forms and drug delivery systems as well as their role in drug product development. Discussions of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of the class. Students will become familiar with procedures and records used in the compounding of various dosage forms, and will practice clinical dispensing skills vital to shaping a truly professional pharmacy professional scientist. Pre: Enrollment in the College of Pharmacy Pharmaceutical Sciences PhD program.



**PHPS 780 Research Seminar (1)** The transfer of information in the pharmaceutical sciences is often achieved through the presentation of seminars. Students will prepare and present the annual research seminar required for partial fulfillment of the PhD degree. Pre: Enrollment in the College of Pharmacy PhD program. Course may be repeated for credit.

**PHPS 800 Resrch Dissertation-Phrm Sci (1-15)** This course outlines the conduct of the dissertation project and preparation of the actual dissertation document for the Doctoral level student. The dissertation is a major undertaking that is a demonstration of mastery of a field of research in the Pharmaceutical Sciences and should represent an original and significant contribution to the field. The dissertation document will usually be no less than 150 pages in length and be based on a research project defined by the candidate's Primary Advisor. The project may take a variety of forms, for example, be quantitative, qualitative, or theoretical, the main criteria being that at the completion of the research the candidate can demonstrate mastery of and excellence in their chosen area of research. Pre: Successful completion of the first, qualifying year of the PhD program progressing to Candidacy, and selection of a Primary Advisor, a Dissertation research topic and a Dissertation Committee.

**PHPS x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**PHPS x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.

## Additional Courses

Also see the [PHPS undergraduate-level courses](#).

## Tropical Conservation and Environmental Science (CBES) Graduate Courses for the Master of Science in TCBS

College of Natural and Health Sciences (CNHS)

**CBES 500 Master's Plan Studies (1) (other)** Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

**CBES 600 Conservatn Biol & Environ Sci (3)** Fundamental principles of ecology, evolution, and environmental sciences, with an emphasis on the conservation, management and restoration of organisms and ecosystems. Discussion will include the physical and biological factors that affect and shape tropical organisms and ecosystems: biodiversity, biogeography, climate, genetics, nutrient cycling, population viability, reproductive systems and topography. Tropical organisms and ecosystems world-wide will be compared with an emphasis on Hawai'i.

**CBES 601 CBES Field & Laboratory Method (4)** A practical course in laboratory and field methods and techniques in conservation biology and environmental sciences. Students will be introduced to methods used for studying, monitoring and experimenting upon animals and plants in a diversity of habitats. Emphasis is placed on the choice of techniques for data collection, followed by rigorous analysis of results with the

application of appropriate statistical analyses. Students will also become familiar with the biological and environmental diversity of the Island of Hawai'i.

**CBES 602 Research Seminar in TCBS (1) (other)** A research seminar in tropical conservation biology and environmental science. Presentations will focus on research related to conservation biology and environmental science. Following the seminar there will be a question and answer discussion session with the seminar speaker and students. These seminars will be critiqued by the instructor and the students for both the content of the project and presentation style.

**CBES 603 Natural Resource Mgt Seminar (1) (other)** Seminars given by TCBS faculty, visiting scientists from other universities, federal, state and non-profit agency personnel working in fields related to TCBS. The seminars will be focused on natural resource management issues. Following the seminar there will be an open question and answer discussion session with the seminar speaker and the students. Student will also give short presentations of their research or internship projects. These seminars will be critiqued by the instructor and the students for both the content of the project and presentation style.

**CBES 604 Tropical Plant Pathology (3)** Principles of plant pathology including major plant diseases in the tropics caused by fungi, bacteria, nematodes, and viruses; their nature, diagnosis and control. This course is dual listed with PPTH 404.

**CBES 609 Theory/Apps Landscape Ecology (3) (lecture/other)** This course explores the theory and application of landscape ecology as a framework for landscape research, analysis and management. Students will become well-versed in concepts, methods and applications of landscape ecology through reading classic and contemporary literature and performing independent research. Topics will include: characterizing landscape patterns and dynamics, application of landscape management, and emerging areas of research.

**CBES 610 Environmental Chem Analysis (3)** Basic concepts of chemical measurements in environmental media. Analysis in environmental matrices with emphasis on water, soil, air and tissue. Topics include basics of calibration and measurement, sample collection, sample lability, chemical interferences, matrix effects and reporting analyses of chemicals in the environment. Pre: CHEM 161, 161L, 162, 162L, 241, 330, 330L. Recommended: CHEM 331.

**CBES 615 Global Environmental Change (3)** Discusses the natural and anthropogenic processes regulating the function of the Earth system. The history and mechanisms of global change processes and the means by which human activities alter Earth system function at local to global scales will be examined, along with potential consequences of and solutions to global change. Focuses on interrelationships of the atmosphere, hydrosphere, geosphere and biosphere. Provides students with an understanding of the role that multidisciplinary science and technology have on research of the Earth system.

**CBES 620 Rrsch Techniq Molecular C Biol (3) (lab)** Major advances in molecular biology important to conservation studies are examined. Molecular techniques that are applied to conservation studies are performed, including PCR, RFLP, AFLP, DNA sequencing, and microsatellite analysis. Data analysis is examined, including a number of popular genetics software packages that enable pairwise comparisons of large data sets and the construction of genetic distance matrices and networks. Pre: BIOL 357L and 481L or equivalent, or instructor's consent.

**CBES 623 Marine Policy (3)** Introduction to marine policy, law, and environmental regulations. Topics include protected species, fisheries,



clean water, clean air, coastal wetlands, pollution, marine protected areas, climate change. Pre: Instructor's consent. This course is dual listed with MARE 423.

**CBES 630 Nearshore Monitoring & Analysis (3) (lecture/lab)**

Theoretical and practical planning and implementation of data collection and analysis of the intertidal and shallow subtidal marine environments. Techniques include measuring geological, chemical, and physical environments and estimating the abundance and diversity of organisms. Pre: MARE 350 & 350L, CBES 610; or instructor's consent.

**CBES 633 Biodiversity (3) (lecture/other)** This lecture and discussion course will examine the primary theories and evidence for the origin and maintenance of species richness in hyper-diverse communities, using tropical rainforests and/or coral reefs as model systems. Topics will include historical biogeography, speciation, coevolution, neutral vs. non-neutral models for the maintenance of species richness, and biodiversity conservation. Methodological approaches will also be discussed.

**CBES 635 Physical Environment of Ecosystems (3)** Examination of the influences of climate, hydrology, geology and soils on terrestrial and aquatic ecosystems. Emphasis on mechanisms of change, anthropogenic impacts and monitoring networks. Pre: GEOL 100 or 111 or GEOG 101; BIOL 281 or GEOG 309 or equivalent; or instructor's consent.

**CBES 640 Adv Remote Sensing/Digital Image (3) (lecture/lab)** Digital image processing of satellite-derived remotely sensed data for earth resource analysis and applications. Specific applications include image enhancement, classification, post classification analysis, special transformations, and multi-temporal analysis for land cover change detection. Pre: GEOG 470 or equivalent; or instructor's consent.

**CBES 642 Comm Sci in HI Island Schools (3)** For graduate students interested in improving their ability to communicate their scientific knowledge and research by designing activities and teaching in local schools or community events. The course combines inquiry-based science teaching methods with teaching experience in a local school classroom or community event. Pre: Acceptance in TCBS Program. This course is dual listed with ED 442.

**CBES 644 Law, Property, and Nature (3)** Examines the relationship between nature, property, space, and legal regulation. Topics will include jurisdiction, the Takings Clause of the Fifth Amendment, land use management and policy (including zoning and conservation), property ownership, environmental justice, and the evolving relationship between culture, law, and the environment. This course is dual listed with POLS 444.

**CBES 645 Soc Sci Rsch Mthds Envir Cons (3)** This course introduces students to social science research strategies that can be applied to explore interactions between society and environment. Methods training includes data collection such as ethnography, in-depth qualitative interviewing, and/or survey methods and the development of analytical skills in grounded theory, content analysis, and/or case studies. Students may also be introduced to methodological perspectives such as action-oriented research, indigenous methodologies, feminism, and/or sustainability. Pre: Enrollment in TCBS program or Instructor's Consent.

**CBES 650 Oceanographic Monitoring & Analysis (3) (lecture/lab)**

Theoretical and practical planning and implementation of data collection and analysis of neritic and pelagic marine environment from an oceanographic vessel platform. Techniques include measuring geological, chemical and physical nearshore properties; estimating the abundance and diversity of plankton, nekton, and benthos; and use of modern data recording and analyzing systems. Pre: MARE 350, 350L, and

CBES 610 or instructor's consent.

**CBES 655 Ecological Physiology (3)** Physiological adaptations to environmental variation including physiological and biochemical mechanisms for food acquisition and digestion, thermal energetics, respiratory gas exchange, activity metabolism and osmoregulation. This course is dual listed with BIOL 443.

**CBES 657 Vegetation of the Hawaiian Is (3)** Develops a methodology for understanding processes shaping major types of vegetation in Hawai'i. Intensive plant taxonomy and identification, field methods in surveying and monitoring vegetation, and application of these to overall research design. This course is dual listed with BIOL/ENVS 457.

**CBES 658 Insect Systematics and Ecology (3)** Gain an appreciation and understanding of insect diversity, taxonomy, evolution, and ecology of major endemic Hawaiian lineages of insects and introduced insects. Identify insect orders and families present in Hawai'i, and the roles insects play as threats and beneficial organisms across all ecosystems. Applied management of insect issues will be emphasized.

**CBES 660 Molecular Ecology (3) (lecture/other)** This lecture and discussion course will examine the molecular genetic applications in current ecological research. Topics will include the fundamentals of molecular biology as they pertain to ecological systems. Theoretical background of modern molecular genetic techniques will also be discussed. The format of the course will include student-led seminar discussions of recent primary literature in molecular ecology. Some genetics background necessary.

**CBES 663 Fisheries Ecology (3)** Case studies, lectures, and class discussions provide an interactive exploration of the ecology of fishes related to management and conservation. Topics include: predator-prey theory, reproduction and early life-history, habitat selection, fish biodiversity, and response to anthropogenic climate change. Pre: MARE 265, BIOL 281, or instructor's consent. This course is dual listed with MARE 463.

**CBES 664 Environmental Microbiology (3)** Role of microorganisms in environmental science. Topics include microbial diversity, environmental applications, bioremediation, antibiotic resistance, and biogeochemical cycling. The course will be discussion based with readings from textbooks and primary literature.

**CBES 665 Environmental Toxicology (3)** Biochemical basis for toxicity. Chemical distribution and fate in the body; molecular mechanisms and effects of toxic action. Emphasis on environmental toxicants. Pre: Upper division courses in biochemistry and physiology, or instructor's consent.

**CBES 670 Geog Info Sys & Visualization (3) (lecture/other)** Key principles and concepts of Geographic Information Systems (GIS) that includes: a theoretical foundation, software training, real-world applications and techniques in visualization of spatial information relevant to conservation biology and environmental science research. This course is dual listed with GEOG 480.

**CBES 675 Conservation Genetics (3)** Basic concepts of population genetics and molecular evolution as it applies to conservation biology. Specific topics include population dynamics and inbreeding depression, and population genetic structure related to ecological parameters and requirements of an organism.

**CBES 676 Applied Wildlife Pop Ecol (3) (lecture/lab)** Principles of



wildlife population ecology, population dynamics, habitat use, including applications to conservation. This course is dual listed with ANSC 476.

**CBES 677 Quantitative Ecology (3)** This course will consist of weekly lectures and computer-based in-class exercises. It will explore multiple regression, General Linear Models including Logistic and Poisson regression, Mixed effects models, and various other analysis of variance approaches, including repeated measures designs. Diagnostics and model selection procedures such as Akaike's Information Criteria (AIC) will be strongly emphasized. By the end of the course, students should have a good general understanding of the ways to design, analyze, and model many types of biological datasets.

**CBES 680 Adv Stats Analysis & Rsrch Des (3)** An advanced examination of statistics and research design in conservation biology and environmental science. Emphasis on specific applications and underlying assumptions, design of experiments, and observational schemes for research project. Extensive computer analysis is employed, including the use of R statistical software. Pre: CBES 677 or instructor's consent.

**CBES 681 Advance Geo-Spatial Techniques (3) (lecture/other)** CBES 681 is an advanced course in spatial analysis and modeling specific to Geospatial Information Science. This course will emphasize the correct application of Geospatial software tools along with the underlying theories and opportunities for applied learning in terrain modeling, suitability modeling, predictive ecosystems mapping and data visualization. Further knowledge and skills will be developed by customization of GIS applications through interface design and automation of geospatial analysis procedures. This course is dual listed with GEOG 481.

**CBES 682 Natural Resource Env Econ (3)** An analytical framework for examining the relationships among environmental quality, natural resource use, and economic and political systems; analysis of circumstances that give rise to environmental problems, resource use conflicts, and possible policy solutions to these problems and conflicts. The course will emphasize issues pertaining conflicts. The course will emphasize issues pertaining climate change. This course is dual listed with ECON 482.

**CBES 685 Behavioral Ecol & Evol Analyse (3)** Principles of behavioral ecology and evolution with a focus on conservation biology. Research techniques in behavioral ecology related to analyzing populations in geographically and age-structured populations. The importance of reproductive strategies, habitat selection, foraging behavior, parental care, social organizations, and the importance of migration and movement patterns on the regulation of population sizes and evolution. Population, quantitative and species genetics as it relates to evolution, speciation, and biodiversity. Pre: CBES 610 or consent of instructor.

**CBES 687 Speciation (3)** This graduate seminar course is designed to examine the processes of speciation and adaptive radiation. Emphasis on the historical context of Darwin's work and what has (and has not) changed in the ~160 years since his seminal work. We will also place emphasis on where the field is currently going and what are likely to be hot areas of research in coming years in speciation and adaptive radiation research. Students will be active learners and participants in all

activities and will present to the class on selected topics. This course is designed as an advanced course for students interested in speciation. Recommended preparation: general courses in ecology and evolution.

**CBES 689 Organiz Mgmt & Logistics (3)** This course covers topics related to working within a natural resource management field, whether as an individual consultant, a researcher, or a manager working within a government agency, a non-government organization (NGO), or other entity. Focus will be on business acumen in terms of budgeting, marketing, and human resources; on project and organizational management in terms of scheduling, seeking funding, inter-agency communication; on legality in terms of permitting, and understanding state and federal laws regarding environmental conservation; and on communication in terms of public outreach. Pre: Enrollment in TCBES Program or Instructor's Consent.

**CBES 690 Professional Internship (1) (other)** Graduate-level conservation or environmental science internship with a federal, state, or non-government agency. Pre-approved proposal serves as a guideline for specific activities. Check-ins, site visits, other meetings, and writing assignments. Pre: Instructor's Consent

**CBES 691 Becoming Environmental Leader (2)** Explores fundamentals of effective conservation leadership and development of personal and professional skills needed by natural resource scientists and managers to contribute to the greater good as authentic agents of positive change.

**CBES 692 Proposal Writing (2) (lecture/lab)** Explore proposal formats. Develop and complete a well-written, well-conceived, proposal for the Professional Internship or Thesis. Taught as a combination lecture/lab. The lab portion is loosely designed as a writing group.

**CBES 695 Becoming Envrnmntl Communicatr (2) (lecture/lab)** Communicating science through conceptualizing, planning, scripting or modeling, and presenting well-conceived informal science exhibit, podcast, blog, professional brand, curated online identity, and other trends in popular and emerging science communication media. Taught as a combination lecture/lab.

**CBES 696 Emerging Envrnmntl Professionl (2) (lecture/lab)** The most effective scientists and managers are those who can successfully relay their knowledge and discoveries to any audience. Course provides training in report writing, synthesizing scientific outcomes, evaluation, presentation skills, and professional documents.

**CBES 700 Thesis Research (1-6) (other)** Research in conservation biology and environmental sciences for students in the Thesis Track.

**CBES x94 Special Topics in Subject Matter (Arr.)** Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

**CBES x99 Directed Studies (Arr.)** Statement of planned reading or research required. Pre: instructor's consent.



