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*UNIVERSITY OF HAWAII*



*1965 - 1966 GENERAL CATALOGUE*

# *UNIVERSITY OF HAWAII*

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*1965 - 1966 GENERAL CATALOGUE*

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# 1965—1966 CALENDAR

## FIRST SEMESTER

September 7-18, Tuesday through Saturday.....	Academic advising, registration, orientation of freshmen
September 20, Monday.....	Instruction begins
September 24, Friday.....	Last day of registration for credit
October 8, Friday.....	Last day of withdrawal from courses without grade penalty
November 11, Thursday.....	Veterans' Day (holiday)
November 12, Friday.....	Deficiency reports due
November 24, Wednesday.....	Last day for removal of "Incompletes"
November 25-27, Thursday through Saturday.....	Thanksgiving recess
December 3, Friday.....	Last day for withdrawal from courses
December 6-17, Monday through Friday.....	Pre-registration: currently enrolled seniors, juniors, sophomores, freshmen, classified graduate students, unclassified foreign graduate students, unclassified foreign undergraduate students
December 18, Saturday.....	Last day before Christmas recess
January 3, Monday.....	Instruction resumes
January 15, Saturday.....	Last day of instruction, first semester
January 17, Monday.....	Final examinations begin
January 22, Saturday.....	First semester ends

## SECOND SEMESTER

February 3-5, Thursday through Saturday.....	Academic advising, registration
February 7, Monday.....	Instruction begins
February 11, Friday.....	Last day of registration for credit
February 22, Tuesday.....	Presidents' Day (holiday)
February 25, Friday.....	Last day of withdrawal from courses without grade penalty
March 26, Saturday.....	Prince Kuhio Day (holiday)
April 1, Friday.....	Deficiency reports due
April 7, Thursday.....	Last day for removal of "Incompletes"
April 8, Friday.....	Good Friday (holiday)
April 9-16, Saturday through Saturday.....	Easter recess
April 25-May 27, Mondays through Fridays.....	Pre-registration: currently enrolled juniors, sophomores, freshmen, classified graduate students, unclassified foreign graduate students, unclassified foreign undergraduate students
April 29, Friday.....	Last day for withdrawal from courses
May 26, Thursday.....	Last day of instruction
May 27, Friday.....	Final examinations begin
May 30, Monday.....	Memorial Day (holiday)
June 3, Friday.....	Second semester ends
June 12, Sunday.....	Commencement

## SUMMER SESSION

June 20, Monday.....	Registration for 1st term
July 29, Friday.....	1st term ends
August 1, Monday.....	Registration for 2nd term
September 9, Friday.....	2nd term ends

## 1966-67

September 6-17, Tuesday through Saturday.....	Academic advising, registration, orientation of freshmen
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# GENERAL INFORMATION

THE UNIVERSITY OF HAWAII is the principal institution of higher learning in the state of Hawaii. Its aim is to provide high-caliber instruction, research, and service to Hawaii, the nation, and the world community, especially the Pacific Basin.

In carrying out this aim, the University conducts a wide variety of activities, many of them comparable with those offered by other state universities and land-grant colleges throughout the country. In addition, the University has instituted and developed programs which take special advantage of Hawaii's subtropical mid-Pacific location and its multiracial composition: programs such as those in tropical agriculture, marine biology, biomedicine, geophysics, sociology, linguistics, and cultural and technical interchange among students, scholars, and technicians from Asia, the Pacific, and the Americas.

The main campus is located in the Manoa Valley section of Honolulu, the capital of the state. The University maintains a second campus in Hilo, on the island of Hawaii, where its Peace Corps training facility is also based. Space observatories and associated research facilities of the University are on the islands of Maui and Hawaii. Branches of the Hawaii Agricultural Experiment Station are located on four of the major islands of the state.

The University is a federal land-grant institution, founded in 1907 by the Hawaii Territorial Legislature under the provisions of the Morrill Act of 1862 and subsequent legislation. Originally called the College of Agriculture and Mechanic Arts, the University was given its present name in 1920.

Today, the University embraces seven colleges and a graduate school. The colleges are Arts and Sciences, Business Administration, Education, Engineering, General Studies, Nursing, and Tropical Agriculture. Graduate work in all departments is organized under The Graduate School, which includes as well the School of Social Work, the Graduate School of Library Studies, the Overseas Operations Program, and other graduate curricula and programs of study.

On the main campus also are the buildings of the East-West Center (formally, the Center for Cultural and Technical Interchange Between East and West), a project of the federal government operated in association with the University of Hawaii.

**Accreditation.** The University is accredited by the Western Association of Schools and Colleges. Established professional programs in

the curriculum are individually accredited by appropriate agencies.

Students may transfer to other American or to foreign universities on the same basis as students of other accredited American universities.

Classes are open to all academically qualified men and women. The student body in 1964-65 included individuals from all 50 states and from 55 foreign countries.

**Academic Year.** The academic year is divided into two 18-week semesters and a 12-week summer session which offers two 6-week terms (*see* calendar).

**Administrative Organization.** General responsibility for the University of Hawaii is vested in a board of regents appointed by the governor of the state.

The president of the University serves as executive officer of the board of regents and as such is responsible for educational leadership and is the administrative head of the University. His staff includes, among others, vice-presidents for academic affairs and for business affairs, the secretary of the University, and the dean of student personnel.

It is the function of the vice-president for academic affairs to coordinate all academic programs, operating with the deans of the several colleges and other program directors. Academic departments are units of the colleges and are responsible to their respective deans.

The vice-president for business affairs is charged with the coordination and administration of the University's financial affairs, and the secretary of the University maintains the official records of the institution and serves as secretary of the board of regents. The office of the dean of student personnel administers the work of admissions and registration, provides counseling and student personnel services, and maintains student records.

The council of deans advises the vice-president for academic affairs on matters of academic policy. The faculty senate is similarly advisory to the president and board of regents.

**Colors and Seal.** University of Hawaii colors are green and white. The rainbow, a frequent sight in Manoa Valley, is the popular campus symbol, and University teams traditionally are nicknamed "The Rainbows." The University seal contains a torch and book titled *Ma Lama Lama* (The Light of Knowledge) in the center of a circular map of the Pacific, surrounded by the state motto, *Ua Mau Ke Ea o Ka Aina i Ka Pono* (The Life of the Land Is Preserved in Righteousness).

**Inquiries.** Prospective students should address inquiries to the Office of Admissions and Records, Bachman Hall, Room 132, 2444 Dole Street, Honolulu, Hawaii 96822. Summer Session information may be obtained by writing to the Dean of the Summer Session, Crawford Hall, Room 208, 2550 Campus Road, Honolulu. Information

concerning the Hilo Campus should be addressed to the Director, University of Hawaii Hilo Campus, Hilo, Hawaii 96720.

### **RESEARCH AND SERVICE OPERATIONS**

In addition to the instructional program, the University conducts organized research in several fields and offers other forms of public service. The most important of these operations are described below. The Cooperative Extension Service and the Hawaii Agricultural Experiment Station are discussed under the College of Tropical Agriculture. The Engineering Experiment Station is discussed under the College of Engineering.

The **Aquarium** at Waikiki, which is open to the public, is operated by the University as a place of education and entertainment. It also houses some of the research facilities of the Hawaii Marine Laboratory.

The **Communications Center** offers services to all University staff members interested in using existing audio-visual instructional materials or in creating new materials. Services include creation of maps, projectuals, electronic stencils, photographs, slides, charts, models, mock-ups, filmstrips, motion picture film clips, and television materials; locating and scheduling for classroom use of 16 mm films, tape recordings, filmstrips, kinescopes, slide sets, chart sets and equipment, and operators as necessary. Inquiries should be directed to the Communications Center.

The **Economic Research Center** is designed to promote an understanding of the economy of the state of Hawaii. It evaluates economic effects of legislation and performs basic economic research, particularly statistical research relating to Hawaii. In cooperation with the economics department and the College of Business Administration, the Center offers research training to advanced students.

The **Education Research and Development Center** adopts an interdisciplinary approach to the conduct of basic and applied research concerned with instructional and administrative problems, curriculum development and evaluation, educational program evaluation, extension of understanding of human learning and development, the analysis and design of education systems, and advance planning. Cross-cultural research and development to facilitate educational planning and practice in areas of the Pacific Basin and the Far East Pacific Rim is a major concern.

The **Gregg M. Sinclair Library** is the main library of the University. The library's services and its collections are available to faculty, students, adult off-campus borrowers, and visiting scholars.

The main collection is organized in an open-stack arrangement for maximum ease of access. Three special subject collections are also housed in the Sinclair Library: the extensive Hawaiian and Pacific collection, the College of Education collection, and the Japan, China, and Korea collections (administered by the East-West Center). Government documents (including United Nations, U. S. Government Printing Office, and some foreign government publications) form a fourth separate collection.

The Sinclair Library's total collections (exclusive of East-West Center holdings) now number 440,000 bound volumes and about 1,000,000 unbound parts. Over 5,000 serial titles are received, and there are some 18,000 reels of microfilm, 160,000 microcards and microprints, and 38,000 maps.

Other libraries which University students may use include the East-West Center Library (which maintains a rapidly growing collection on Asia), the Library of Hawaii, the State Archives, and the libraries of the Hawaiian Historical Society, the Hawaiian Mission Children's Society, and of several cooperating institutions (listed on pp. 15-16.)

The **Harold L. Lyon Arboretum**, covering 124 acres in the upper portion of Manoa Valley, was presented to the University by the Hawaiian Sugar Planters' Association. Several hundred genera of exotic trees and shrubs are established, inventoried, and well maintained, providing the University and the scientific community with an unrivaled facility for research on living tropical and subtropical woody plants.

The **Hawaii Institute of Geophysics** is organized to take advantage of the unique position of Hawaii as a national laboratory for geophysical research covering the broad field of the earth sciences. A new building now houses the Institute and also provides space for the Statistical and Computing Center. In cooperation with academic departments devoted to the physical sciences, the Institute operates research programs and provides advanced training in meteorology; coastal geology and oceanography including tsunamis; rock, soil, and volcanic gas chemistry and physics; atmospheric, cosmic, and solar physics; geophysics of the earth's crust and mantle, including seismology; and related fields. The Institute also maintains a high-altitude observatory on the summit of Mount Haleakala on Maui, a cloud physics observatory at Hilo, Hawaii, and a seismographic observatory in upper Manoa Valley; plans for an observatory at high elevation on the island of Hawaii are being developed.

The **Hawaii Marine Laboratory** has branches on Coconut Island in Kaneohe Bay and at the Aquarium in Waikiki. It encourages re-

search in the marine biological sciences, including fisheries, by providing facilities and technical services for the faculty, graduate students, and visiting scientists. Its research programs include studies of life histories, the behavior and identification of marine animals, poisonous and toxic marine animals and plants, fish poisoning, and fundamental research on life processes using marine animals for experimentation.

The **Human Relations Area Files** is a research organization which collects, organizes, and distributes to 20 participating universities data on selected countries and tribal societies of the world. This material, housed in Sinclair Library, facilitates basic research and comparative studies in human behavior, social life, and culture.

The **Industrial Relations Center** promotes understanding of personnel and industrial relations. Its library contains information on the basic services in the field, as well as current publications. The Center provides reference service, and assists in conducting conferences, lectures, and group discussions, and in training of advanced students. The Center publishes research studies in basic industrial relations problems, as well as a monthly *Newsletter*, a bimonthly *Selected Acquisitions List*, reprints, reading materials, and bibliographies.

The **Land Study Bureau** develops, assembles, coordinates, and interprets data on the characteristics and utilization of land throughout the state of Hawaii, to the end that the highest and best use of those lands may be ascertained. The primary program involves land classification of the entire state based on soil types, rainfall and climate, economics, and agricultural technology. Secondly, the Bureau provides the governor, the legislature, and other state and county agencies with data and impartial advice on land use.

The **Legislative Reference Bureau**, created by the legislature in 1943 to aid in legislative and governmental problems, is situated on the campus, where it maintains a reference library. It provides the legislature, governor, departments, institutions, and agencies of the state with bill-drafting services, information, and reports. During sessions of the legislature the Bureau maintains an office at Iolani Palace, the capitol.

The **Office of University Relations** provides advice and professional assistance to University personnel and organizations in their dealings with the public. Responsibilities include publication of official catalogues, bulletins, directories, and other printed matter and the provision of general and specific information about all University activities to news media and other agencies.

The **Pacific Biomedical Research Center** encourages investigations

in the areas of subcellular biology, microbiology, cell structure and function, regulatory biology, genetics, behavioral sciences, and epidemiology. Its building provides space; research equipment, such as electron microscopes; and research facilities, such as an animal colony, to faculty members, graduate students, and visiting scientists. The Center contains research laboratories for human genetics, microbiology, physiology, biochemistry, biophysics, pharmacology, and psychology, in which it fosters and facilitates research projects of biomedical interest.

The **Pacific Lexicography Research Center** plans and conducts basic research in general theory related to lexicology, in structural semantic theory with its implications for machine translation, in storage and retrieval techniques, and in linguistic problem-solving by computer. The Center strengthens the instructional programs of the departments of Linguistics and of Asian and Pacific Languages, and supports the programs of the English Language Institute and of the Teaching of English as a Second Language.

The **Social Science Research Institute** facilitates the initiation of faculty research and develops and conducts programs primarily of an interdisciplinary nature in the social sciences. It buttresses instruction in appropriate departments by rendering support to research scholars engaged in directing the work of advanced graduate students. A long-term study of social movements in Asia and the Pacific, conducted by the Institute, provides an opportunity for faculty members to participate in field studies and related research in this area.

The **Speech and Hearing Clinic**, through its staff members and supervised student clinicians, offers diagnostic and therapeutic services for children, University students, and other adults. A registration fee is charged for non-University cases.

The **Statistical and Computing Center** operates an IBM 7040-1401 system (to which an IBM 360 is being added), along with a supporting line of peripheral punched card equipment. It provides services with respect to statistical consultation, system design, data processing, computing, and educational and reference advice to all the divisions and departments of the University.

The **University of Hawaii Press** publishes scholarly books and journals.

The **Water Resources Research Center**, organized in 1964, plans and conducts research of either a basic or practical nature in relation to Hawaii's water resources, and provides for the training of engineers and scientists through such research. Research is interdisciplinary, involving hydrology and hydraulic engineering, geology, geochemistry,

microbiology, public health, climatology, and other related fields. The Center promotes interdisciplinary programs in water resources research among various units of the University.

### **INTERNATIONAL TRAINING**

Through its Overseas Operations Program, the University prepares selected graduate students for service in Asia with international organizations, agencies of the United States government, and private institutions and industries which operate in Asia.

The University maintains a Peace Corps training facility on the island of Hawaii. Operations are year-round.

Programs of training at the East-West Center, available under grants to selected students from Asia, the Pacific area, and the United States, are briefly described in the last section of this catalogue.

University training projects overseas (in early 1965 underway in Thailand, Pakistan, and the U. S. Trust Territory of the Pacific) are under the general supervision of the Director of International Programs.

### **COOPERATING INSTITUTIONS**

Through cooperative agreements with institutions listed below, the University has increased its research facilities and expanded its services to the state. The Bishop Museum, the Pacific and Asian Affairs Council, and the Academy of Arts offer student membership rates.

The **Bernice P. Bishop Museum**, a world-famous storehouse of information, contains an outstanding reference library as well as important biological and anthropological collections relating to Hawaii and other Pacific islands. In addition, this institution holds the combined herbaria of the University and the museum, the most complete collection of Hawaiian plants in existence. The museum's research facilities are available to University students on a reciprocal basis.

The **Fruit Fly Laboratory** is maintained on the campus by the U. S. Department of Agriculture, Entomology Research Division, for the study of fruit fly pests. This division also cooperates with the University in the use of a multi-purpose radiation facility, installed on campus in 1965 to study the disinfestation of agricultural produce.

The **Hawaiian Sugar Planters' Association** provided the funds for a building on the campus to house the Agricultural Engineering Institute, with shop facilities for instruction and research.



The **Honolulu Academy of Arts**, built and endowed by Mrs. Charles M. Cooke, contains valuable collections of both Eastern and Western art. These are available for use by students and instructors.

The **Pacific and Asian Affairs Council** sponsors lectures, seminars, and meetings on international affairs, particularly on Asia and the Pacific. Its library offers research materials on world affairs.

The **Pineapple Research Institute of Hawaii**, supported by the pineapple industry, is affiliated with the University. Offices and laboratories are in Institute buildings in the campus area. Field studies are carried on at a 150-acre experimental farm in Wahiawa, Oahu.

The **Honolulu Biological Laboratory of the U. S. Fish and Wildlife Service** has permanent headquarters on the campus. Senior staff members of the Laboratory cooperate with the departments of zoology, genetics, botany, geosciences, and oceanography in offering advanced courses and in directing research in marine biology and oceanography. Several fellowships are available to citizen students. Requests for information or application forms should be addressed to the Director, U. S. Fish and Wildlife Service, Honolulu Biological Laboratory, Box 3830, Honolulu, Hawaii. Also cooperating in the study of marine life is the Hawaii State Division of Fish and Game.

The universities of **Michigan and Hawaii** jointly use astronomical observatory facilities on the summit of Haleakala, island of Maui.

The **U. S. Geological Survey Volcano Observatory**, located at Kilauea Crater on the island of Hawaii, conducts research relating to the Hawaiian volcanoes. Research facilities are made available on occasion to faculty and students of the University.

## **OFFICE OF STUDENT PERSONNEL**

### **Student Activities**

Student activities are recognized as an important part of a university education. The Bureau of Student Activities is responsible for developing and maintaining a well-balanced program, in which student participation and leadership are encouraged.

Students registered for 12 or more credits (*see* p. 33, Tuition and Fees) are eligible to participate and hold positions in the approximately 80 student scholastic, honorary, professional, religious, social, departmental, special interest, and residence organizations, and in all student government and college union activities.

The two major organizations, of which every student who pays a student activities fee is automatically a member, are the Associated Students of the University of Hawaii (ASUH) and the Hemenway Union Board (HUB).

The ASUH through its elected senate promotes and directs undergraduate extracurricular activities and cooperates with the administration in student affairs. Some of the activities in which it engages are athletics, debate, drama, music, and student publications. The campus newspaper, *Ka Leo*, and the student annual, *Ka Palapala*, are integral parts of the journalism program. (See course listings under English.)

Hemenway Union is the center of many of the campus activities, facilities, and services. Faculty, students, and alumni are represented on the board of governors, which administers the building and sponsors the programs. The board is affiliated with the National Association of College Unions.

Tickets to major productions of the University Theatre are free to ASUH members, and all students of the University may participate in dramatic productions. The Great Plays Cycle, a unique program in the American educational theater, is a permanent repertory of eight plays, two of which are produced each year. Productions are presented in the John F. Kennedy Theatre.

ASUH members are likewise admitted free to varsity athletic events, and are encouraged to participate in intramural sports. The athletic plant, situated on the lower campus, has facilities for a wide variety of indoor and outdoor sports.

Besides the ASUH and HUB activities, a number of departments conduct activities related to their educational programs. The music department sponsors concerts and recitals in the Mae Zenke Orvis Auditorium, a hall of unique acoustical design. The speech department sponsors an annual series of solo and group readings. Lectures, panels, and broadcasts are sponsored by many departments and campus clubs.

## Student Housing

### Campus Housing

Admission to the University is made without reference to the availability of housing. Requests for residence hall accommodations should be made directly to the Student Housing Office. The halls are operated on the American plan. The contract is for the entire academic year or remainder thereof and is for room and board (10 meals per week—breakfast and dinner, Monday through Friday). Dining facilities for all residence hall students except Hale Kahawai are located in Gateway House. Dining facilities for Hale Kahawai are located in Jefferson Hall.

There are no facilities on campus for temporary housing or for married students.

*Undergraduate Women*

MARY DILLINGHAM FREAR HALL has double accommodations for 144 students. Room and board fee is \$335 per semester.

HALE KAHAWAI has double accommodations for 140 students. Room and board fee is \$335 per semester.

*Undergraduate Men*

JOHN A. JOHNSON HALL has double accommodations for 192 men. Room and board fee is \$335 per semester.

*Graduate Students*

GATEWAY HOUSE has double-room accommodations for 104 women and 104 men in two separate towers. Both men and women students share common lounge, dining, and recreational facilities on the first floor. If space permits, selected upper-division undergraduate students will be accepted. Room and board fee is \$360 per semester.

Application-contracts must be accompanied by a \$25 deposit before consideration for space reservation can be made.

**Off-Campus Housing**

The Student Housing Office maintains information files on rooming houses, rooms in private homes, a few apartments, and room and board jobs to supplement campus housing. The Housing Office gives all possible assistance in locating suitable accommodations after the student arrives; because of the rapid turnover the names of landlords cannot be sent through the mail. Negotiations with off-campus landlords must be handled directly by the student. Students arriving in Honolulu without housing reservations are invited to come to the Housing Office for general information and current listings of available accommodations.

For information on campus or off-campus housing write to: Director of Student Housing, Johnson Hall A, 2555 Dole St., University of Hawaii, Honolulu, Hawaii 96822.

**Food Services**

In addition to those in Gateway House mentioned above, dining facilities on the campus include:

HEMENWAY HALL CAFETERIA. Meals a la carte are served.

EAST-WEST CENTER CAFETERIA. A complete food service in Jefferson Hall, including a cafeteria, a snack bar, and private dining rooms.

A snack bar in the northeast section of the campus.

**Expenses**

Minimum expenses are estimated at from \$1,400 to \$1,900 a year for board, room, tuition, registration, course fees, class and student body

fees, and books. Off-campus housing may be higher. These estimates do not include the cost of clothing, laundry, transportation, and other personal items. Students from outside the state should add the cost of transportation to and from Hawaii and additional items for adjustment in a new community.

### **International Student Office**

The International Student Office helps students from outside the United States with their immigration requirements, financial problems, living arrangements, and other non-academic matters. Special orientation programs for new students are held each semester prior to the beginning of classes. Foreign students who have been admitted to the University are notified of these programs by mail and are urged to arrive in time to attend them.

The office also assists persons and groups interested in building international understanding through contact with foreign students. Further information may be obtained from the Foreign Student Adviser, Webster Hall 101.

Foreign students who are graduates of a university and are applying for admission should write to the Dean of The Graduate School. Undergraduates should apply to the Director, Office of Admissions and Records. Other specific inquiries or requests for more detailed information may be addressed to the Foreign Student Adviser, University of Hawaii, 2528 The Mall, Honolulu, Hawaii 96822.

### **University Placement Office**

The University Placement Office is organized to provide assistance to graduating students and alumni who are seeking career employment. The office cultivates the interest of prospective island, mainland, and overseas employers and provides them with facilities to contact students and former students who are available for employment. Recruiting literature, annual statements, graduate and professional school bulletins, copies of the *College Placement Annual*, and other career references are provided. Credential files are established for students who are interested in an academic career.

Campus interviews are scheduled with recruiting representatives of mainland and Hawaii organizations that offer career opportunities in business and industry, education, and government. A number of the recruiting firms are interested in hiring foreign students for employment in their home countries. In addition several hundred employment opportunities are listed with the office by employers who find it impractical to make campus visits.

Early registration is encouraged during the final year of study.

### **Counseling and Testing Center**

The Center's staff consists of professionally trained counselors, psychologists, psychometrists, and psychiatrists who as a team function on the campus in the areas of student service, graduate training, and academic research. Educational, vocational, and personal counseling is available to students. Various aptitude, interest, and other psychological tests are often used as an aid to the counseling process. The Center also maintains an educational and vocational library and administers a reading improvement program.

### **Student Health Service**

The Student Health Service seeks to maintain a state of optimum health, both physical and mental, among students and to indoctrinate each student with the proper understanding and habits of personal and community health.

The University expects every student to safeguard his health and offers certain aids toward that end. Before admission, every daytime student must have a medical examination by a licensed physician. The student makes his own arrangements and pays the physician. The University provides a form for reporting the examination to the Service. Yearly tuberculin or chest X-ray examinations are required of all daytime students, except for a certain group for whom this is required more than once a year. Failure to comply with these requirements precludes registration for the following semester.

The Service offers a limited medical care program. A clinic provides outpatient physician and nursing care 7:45 a.m. to 4:30 p.m. Monday through Friday. An infirmary is operated on a 24-hour basis with a registered nurse on duty and a physician on call 7 days a week during regular sessions of the University. Bed care for minor illness and injury is provided. Medical care beyond the scope of the medical service provided by the Health Service is the financial responsibility of the student; supplemental insurance coverage, at least equal to that offered by the University to support this care, is essential.

# ACADEMIC INFORMATION

STUDENTS (other than auditors) are classified as undergraduate and graduate.

**Undergraduate** students are designated as *regular* or *unclassified*.

*Regular* students follow organized programs of study and comply with regulations which lead to the bachelor's degree. They ordinarily carry full-time programs (12 semester hours or more), and for registration and classification purposes are divided as follows: freshmen, 1-24 credit hours completed; sophomores, 25-54; juniors, 55-88; seniors, 89 and above. Freshmen and sophomores are *lower division* students; juniors and seniors, *upper division* students. *Changes in class standing are not made between the fall and spring semesters.*

*Unclassified* students are those who, although registered for credit, are not immediate candidates for a degree. No student may use the unclassified status to evade technical or scholastic graduation requirements of a college.

**Graduate** students (graduates of this University or of other institutions of approved standing) are designated as *degree candidates*, *five-year diploma candidates*, and *unclassified*.

*Degree candidates* are those who are pursuing programs of study leading to advanced degrees.

*Five-year diploma candidates* are graduate students following a curriculum leading to the diploma.

*Unclassified graduate* students are those who, although registered for credit, are not degree candidates. Some are working toward the professional certificate of the state Department of Education, and others later become candidates for advanced degrees.

**Auditors** are those who are permitted to attend certain courses as listeners, but who take no part in class work and receive no credit.

Undergraduate students taking fewer than 12 semester hours in any semester are considered "part-time" students for the purpose of determining fees. Graduate students are considered "full-time" or "part-time" in accordance with the regulations of The Graduate School. These classifications have no further significance. Both regular and unclassified students may be either part-time or full-time.

## ADMISSION

Candidates for admission must present satisfactory evidence of ability to do university work. Prospective regular or unclassified students who have not earned credits in an institution of higher learning apply to the Director, Office of Admissions and Records. A high school senior who plans to enter within a year should file his application during the final semester of his high school course. *Applications should be filed by July 15 for the fall semester and by December 15 for the spring semester.* Requests for application forms and questions about admission should be addressed to the Director, Office of Admissions and Records.

**Admission of Regular Students Entering for the First Time.** Admission to first-year standing depends upon performance in college aptitude tests, quality of high school work, and various ratings by the preparatory school. A high rating in one factor alone will not insure admission; nor will poor performance on one measure alone exclude an applicant if other evidence indicates he might be successful. Ordinarily a student should average *B* or better in his high school work, although an applicant with a *C* average who scores above average on the college aptitude test may be admitted. The quality of work done during the last two years in secondary school receives special consideration.

Candidates for fall admission should plan to take the Scholastic Aptitude Test of the College Entrance Examination Board\* in December of the senior year in high school. Candidates for spring admission should also plan to take the test in December.

Every applicant for admission as a regular student who has not previously completed a semester as a regular student in an institution of higher learning must take the Scholastic Aptitude Test and submit evidence that he has satisfactorily completed at least 15 units of work in a four-year high school or at least 12 units of work in a three-year senior high school.

The word *unit* as employed here signifies the satisfactory completion of a course of study pursued for a full school year, with five recitations a week of not less than 45 minutes each, or the equivalent laboratory or shop exercises. For an acceptable distribution of the units required of entering students, see the table below.

Candidates from the continental United States and certain foreign countries take the Scholastic Aptitude Test given by the College Entrance Examination Board\* and submit a certificate covering the results of this examination along with a complete record of work done in preparatory school. Such candidates should meet all admission requirements and await notice of acceptance *before* coming to Hawaii.

\*For information consult a high school counselor or write the College Entrance Examination Board, c/o Educational Testing Service, Box 27896, Los Angeles 27, California, or Box 592, Princeton, New Jersey.

**MINIMUM UNIT REQUIREMENTS FOR ADMISSION**

From a 4-Year High School	Subject	From a 3-Year High School
3	ENGLISH	3
1	ALGEBRA	1 (Not required if the student has had elem. algebra in the ninth grade.)
6	ENGLISH—In addition to the 3-unit minimum requirement in English. SCIENCES—Physical, biological, and social. MATHEMATICS—In addition to the 1-unit minimum requirement in mathematics. FOREIGN LANGUAGES—Entrance credit in foreign language is not granted unless the total number of foreign language units offered includes at least 2 units in some one language.	4 (If applicant offers elementary algebra this requirement is 5 units.)
5	Any other subjects (except physical education and ROTC) credited by the high school toward its diploma (no less than ½ nor more than 2 units in any one subject) provided that these subjects have been pursued in accordance with regular classroom procedure involving a reasonable amount of preparation in addition to the time spent in class.	4
15	. . . . . TOTAL . . . . .	12

**Admission by Examination.** Veterans and other mature individuals may take entrance examinations covering preparatory school subjects. Successful performance on these and the college aptitude tests will admit these candidates. Such individuals, however, must meet all special requirements for admission to such curricula as engineering, agriculture, and nursing.

**Special Requirements for Certain Programs.** Candidates for admission to certain programs must meet special requirements. Each applicant should study the conditions set by the college he intends to enter and for the program he intends to pursue in that college. Special attention is directed to the following requirements.

Students who expect to study mathematics or to take subjects for which college mathematics is a prerequisite should have had plane geometry, two years of algebra, and trigonometry, or their equivalent. Solid geometry is also recommended.

Prospective students of the College of Arts and Sciences are strongly advised to offer at least two years of college preparatory mathematics and two years of a foreign language.



Prospective engineering students must have had plane geometry, two years of algebra, and trigonometry. It is strongly recommended that they also have mechanical drawing and physics. Engineering students who have not completed trigonometry or mechanical drawing in high school should arrange to take these subjects at the University during the summer session preceding their freshman year.

Prospective students of nursing and dental hygiene should have completed two years of college preparatory mathematics. Prospective students of medical technology should have completed two years of algebra and plane geometry, or their equivalent.

Prospective students of home economics should have completed algebra and plane geometry, or their equivalent.

Prospective students of the College of Business Administration should have completed two years of algebra and plane geometry, or their equivalent.

**Freshman Orientation.** Entering freshmen are expected to be on the campus for the orientation program, the dates of which are stated in the "University Calendar." This program is designed to give help to incoming freshmen and to acquaint them with the University. Examinations, conferences, introductory lectures, and social events occupy the period.

**Early Admission and Advanced Standing for Superior High School Students.** Upon recommendation of their schools and satisfaction of certain University entrance requirements, high school juniors with superior preparation may be admitted to the University for the summer session between their junior and senior years in high school and may carry one or two University courses during their senior year. Students desiring to take advantage of this program should ask their high schools to recommend them for early admission to the Office of Admissions and Records, should arrange to have high school transcripts sent to the Office of Admissions and Records, and should take the Scholastic Aptitude Test of the College Entrance Examination Board. The continuance of these students in the early admission program is reviewable at the end of each term.

Upon demonstration of special achievement on examinations in the College Board's Advanced Placement Test program, freshman students at the University may be granted advanced-standing credit and/or advanced placement. Scores on these tests should be filed with the Office of Admissions and Records before the student enrolls at the University.

**Admission to Advanced Standing.** Applications should be filed at least one month prior to the semester or summer session for which admission is requested. Students who transfer from other accredited universities or colleges may be granted advanced standing. These stu-

dents must have the institutions attended send to the Director, Office of Admissions and Records, an official statement of the studies offered for admission at such institutions, of the studies pursued in college and the grade received in each, and of honorable dismissal. These transcripts become a permanent part of the University files. Candidates transferring at the end of the first semester of the freshman year must also submit high school transcripts and scores on the Scholastic Aptitude Tests of the College Entrance Examination Board. Credit toward graduation is given only in acceptable subjects in which grades of C or better are recorded. No more than 60 semester hours are accepted in transfer from a junior college. Candidates transferring with advanced standing are required to do a minimum of 30 semester hours at the University of Hawaii to qualify for a bachelor's degree.

Students transferring from other than accredited institutions must meet University of Hawaii standards of admission. Upon the completion of a minimum of 30 semester hours with an average grade of C or better, credit will be given for courses at the previous institution. Such credit, however, will not exceed 60 semester hours, and will be granted only for courses usually considered of lower division level.

**Admission of Mature Persons.** Mature persons may register as special students when their backgrounds qualify them for credit work. No such student, however, will be admitted to a degree-granting college or allowed to become a degree candidate until he has satisfied all admission requirements.

Admission as a special student in no case serves as a means of avoiding compliance with requirements laid down for regular students.

**Admission of Auditors.** Persons wishing to audit classes must have the written consent of the instructor of the course, the department chairman, and the Director of the Office of Admissions and Records. In general, auditors are not allowed in laboratory science, mathematics, language, English composition, speech, or studio art courses, or in classes limited in size where credit students might thereby be excluded. By definition auditors are "listeners" and are not allowed to participate in class discussions or examinations.

**Admission of Graduate Students.** Graduates of accredited colleges and universities who wish to undertake graduate study should apply to the Dean of The Graduate School. Each application should be accompanied by an official transcript of undergraduate record and of any graduate work completed at another institution. Admission to graduate study is provisional until such records are on file. These transcripts become a permanent part of the University files.

**Social Security Numbers.** The University uses Social Security numbers for student numbers. Students are required to present Social Security cards at registration.

**Zip Codes.** The University cooperates with the Post Office department in recording zip codes for all registered students. Students should acquaint themselves with zip codes, both for their permanent and local addresses, prior to registration so that the codes may be entered on registration materials.

### **REGISTRATION, WITHDRAWAL, AND OTHER CHANGES**

Registration dates are given in the "University Calendar." Entering students receive circulars telling them how to proceed in registering. Courses are described under "Courses of Instruction," and a schedule stating the time and place of meeting of each course is issued by the Office of Admissions and Records in September for the first semester, and in January for the second semester. The summer session schedule is given in the summer session catalogue.

**Registration of Undergraduate Students.** Before they register, undergraduates must decide which college they wish to enter, and select one of the programs offered by the college. Each undergraduate is assigned at registration time to a faculty member who acts as his adviser in selecting courses. Credit is given only for courses regularly entered upon the registration card.

**Registration of Graduate Students.** Graduate students follow the same procedure in registration as do undergraduates.

**Registration of Auditors and Unclassified Students.** Auditors and unclassified students register after the period assigned to the registration of regular students, and in accordance with instructions issued at the beginning of each semester.

**Maximum Registration.** Regular students may not register as auditors or for courses in the College of General Studies in excess of the maximum registration allowed by the college in which they are enrolled.

**Arrangement of Credits in Advance.** The number of credits obtainable in most courses is stated in this catalogue and in the time schedule available shortly before registration. However, certain courses in which students carry on individual work are marked "credit by arrangement." Such statements do not signify that the credits are to be determined at the end of the semester. The student registers for a definite number of credits and may earn no more than that number.

**Late Registration.** Registration for credit after the announced registration days is permitted only in exceptional cases and for valid reasons. The following rules govern such late registration: (1) during the first five days following the last official day of registration, written approval must be obtained from the dean concerned; (2) subsequent to the fifth

day, students may register only as auditors and must have the written approval of the dean and the instructor concerned. Corresponding restrictions apply to summer session registration and are stated in the summer session catalogue.

These same rules apply to students who wish to register for courses in addition to those signed for during the official registration period.

Auditors need not comply with these regulations, except that they cannot change to credit status after the above late registration periods.

**Withdrawal from Courses or from the University.** To withdraw from a course an undergraduate must have the written consent of the dean of his college on a form available at the dean's office. Complete withdrawals must be applied for on a form available at the Office of Admissions and Records; signatures as indicated on the form must be obtained, and the completed application returned to the Business Office.

During the first three weeks of a semester, a formal withdrawal is marked *W* on the student's record. After the first three weeks a formal withdrawal is marked *W-F* if the work was failing; otherwise it is marked *W* (not failing). No withdrawals from individual courses are permitted during the last four weeks of instruction in a semester, but a dean may approve complete withdrawal for legitimate reasons. A student who ceases to attend a course without complying with the official procedure for withdrawing receives an *F* in the course. The effective date of withdrawal is the date recorded by the Business Office.

**Transfers Within the University.** A student may apply for transfer from one college to another during either semester. Application for transfer must be made on a form supplied by one of the deans concerned. The application must be approved by the deans of the two colleges and returned to the Office of Admissions and Records within 60 days of the beginning of the semester. No changes of college, curriculum, or major are permitted during registration.

### **CREDITS, GRADES, GRADE POINTS, GRADE-POINT RATIOS**

Work accomplished by students is recognized in terms of *credits*, *grades*, *grade points*, *grade-point ratios*, and *honors*.

A *credit* (also called a *semester hour* and a *credit hour*) is given to a student for work satisfactorily accomplished during three hours a week spent in the preparation and recitation of assignments in a course, or in the field or laboratory. The normal division of time in non-laboratory courses is one hour in the classroom and two hours in preparatory work.

*Grades* given in all courses are *A*, *B*, *C*, *D*, *F*, and *I*, except for 800 (thesis research) in which grades of *S* (satisfactory), or *H* (honors), are given upon acceptance of the thesis. The lowest passing grade is

**D.** An *I* is given to a student who has failed to complete a small but important part of a semester's work before the semester grades are determined, if the instructor believes that failure was caused by conditions beyond the student's control and not by carelessness or procrastination. Instructors will send a report of Incomplete to each student receiving an *I*, indicating the steps to be taken to receive a passing grade. To receive credit for a course in which an *I* has been reported, the student must make up the incomplete work before the Thanksgiving or Easter recess of the next semester in which the student is in residence. If the work is not thus completed, the *I* will be changed to *F* at the end of the semester. If the work is completed, the instructor will report a semester grade, taking the completed work into consideration. Credit in a course for which an *F* is given may be obtained only by passing the course, or its equivalent, either at the University of Hawaii or at some other accredited institution of higher education.

At the end of each semester and the summer session, grades are sent to students by campus mail. Those desiring the report forwarded should leave a stamped self-addressed envelope at the campus mail office. Students in evening classes should leave stamped self-addressed envelopes at the office of the Dean of the College of General Studies.

Copies of the grade reports of all classified undergraduate students are sent to parents or guardians at the end of each semester. In addition, copies of mid-semester deficiency notices are sent to the parents or guardians of freshmen.

*Grade points* are given for all courses in which grades are reported. They are computed as follows: for each credit received in a course, 4 grade points are granted if the grade is *A*, 3 if *B*, 2 if *C*, 1 if *D*, and 0 if *F*.

Students entering as undergraduates with advanced standing are not given grade points upon work done elsewhere; but on work done in the University of Hawaii such students must gain grade points in the same proportion to credit hours required for graduation as that demanded of other students.

*Grade-point ratios* are determined by dividing the total number of grade points by the total number of credits for which a student has been registered. Courses for which grades of *W* or *I* were recorded are not included in the computation of ratios. Grades of *F* or *W-F* are included until credit is subsequently obtained in the courses in which failures have been reported.

**Transfers to Other Institutions.** Accredited American institutions of higher learning, including the University of Hawaii, give students who transfer credit toward graduation only in those courses in which they have received a grade of *C* or better and the content of which is consistent with requirements for the degree sought. (See "Tuition and Fees" for further information about transfers.)

## REQUIREMENTS FOR CONTINUED REGISTRATION

Scholastic accomplishment is determined by the *grade-point ratio* (see above) at the end of any stated period, i.e., at the end of one semester, two semesters, etc.

Further registration is denied to the following undergraduate students:

1. Those who, at the end of any one semester, received failing grades in 50 per cent or more of their registered credits (including courses in which they were failing at the time of withdrawal).

2. Those who have failed to achieve, after two semesters' attendance, a grade-point average of at least 1.7.

After the first two semesters' attendance, students who fail to establish and maintain a 2.0 grade-point ratio (a *C* average), either on an accumulative basis or in the work of any semester, will be placed on academic probation.

Whenever, in the opinion of the dean of a college, a student's work makes such action necessary, the dean may warn the student or place him on academic probation. A student who is readmitted following academic dismissal is also placed on probation.

Those on academic probation who during any semester fail to achieve a grade-point ratio of at least 2.0 for that semester (a *C* average) will be denied further registration.

Students who become ineligible for further registration at the close of the second semester may register for any part of the succeeding summer session.

Students who have been dropped for academic failure may apply for readmission, in writing, to the chairman of the Committee on Scholastic Standing by August 15 for the first semester, by January 5 for the second semester, and by May 15 for the summer session. Readmission will not be granted until at least one semester has elapsed since the student was dropped. Furthermore, such students should have demonstrated through professional counseling, organized high school classes, non-credit college work, or individual study that they have made a constructive effort to strengthen themselves in areas of weakness. Only in unusual circumstances will a student be readmitted after having been dropped for the second time.

Whenever, in the opinion of the dean of a college, a student's work makes such action necessary, the dean may warn the student or place him on academic probation. A student who is readmitted following academic dismissal is also placed on academic probation. A student on such probation must earn twice as many grade points as credits for which he is registered, or a *C* average.

Ordinarily failure in the first semester of a year course bars the student from registering for the second semester of that course.

Warnings of low scholarship are given by instructors and deans, usually at mid-semester, but the student should not assume that his work is of passing grade merely because he has not been warned. The University assumes no responsibility if a warning mailed to a student fails to reach him.

If a student has been in attendance up to the time of the final examination but is absent from the examination, the instructor may give an "Incomplete" for the course. If within one week a legitimate excuse is presented, the Incomplete may be removed by special examination. If the special examination is not taken, the instructor must turn in a removal of the Incomplete, counting the final examination as zero.

*Regular attendance at class and laboratory sessions is expected.* Unavoidable absence should be explained to the instructors concerned.

Upon finding that a student is suffering from a physical or mental condition detrimental to the best interests of the student or the University, the Dean of Student Personnel will, on medical advice, recommend proper action to the appropriate college dean, who then may require that the student be officially withdrawn, without academic penalty, from the University. Readmission will be contingent on review and recommendation by both deans involved.

### **STUDENT CONDUCT**

Students are expected to observe accepted University and community standards of conduct. Disciplinary authority is exercised by the Committee on Student Conduct, composed of the deans of the several colleges, faculty members and students appointed by the president of the University, and the dean of student personnel.

**Financial Obligations to the University.** Students who have not adjusted their financial obligations (traffic violations, library fines, locker fees, laboratory breakage charges, transcript fees, loans past due, etc.) to the satisfaction of the Business Office may be denied graduation and further registration, and in the latter case their transcripts will be notated "Denied further registration. See discipline file."

**Intoxicating Beverages.** Intoxicating beverages are prohibited on the campus and in affiliated buildings, including all fraternities, sororities, and other dormitories.

**Lethal Weapons.** Firearms and spear guns are prohibited in dormitories and environs.

### **UNDERGRADUATE DEGREE REQUIREMENTS**

**University Curricular Requirements.** Baccalaureate programs of the University generally have two purposes: (1) to offer a liberal educa-

tion intended to acquaint the student with his cultural heritage, to help him understand the society in which he lives, and to enable him to relate specialized instruction to broad areas of knowledge; (2) to offer training for work in a profession or calling, or as a preliminary to graduate study in a field of specialization.

A course of study to accomplish these purposes is worked out with each student within the college in which he registers. Curriculum requirements vary considerably from college to college. However, all students intending to receive a baccalaureate from the University are required to take courses, or by examination to demonstrate their competence, in the following fields:

**Humanities:** At least 12 credits in courses which give a broad understanding of the cultural heritage, examined through work in history, philosophy, literature, the arts, or other humanistic studies.

**Natural sciences:** At least 6 credits in courses which instruct the student in science and its methods.

**Social sciences:** At least 6 credits in courses which instruct the student in some broad aspects of the study of social man, and in the applicability of the scientific method to this study.

**Communications:** At least 11 credits in courses designed to help the student attain an ability to write, read and speak English, and to use mathematics or logic, with a facility reasonably to be expected of a university graduate.

These distribution requirements were adopted in 1965 and will be required of undergraduate students entering the University, or becoming classified undergraduates, after June 1, 1965. For students who registered as classified undergraduates before this date, the University requirement of health and physical education courses to be taken by freshmen and sophomores (*see* 1964-65 General Catalogue, p. 40) continues in effect—but not the former requirement of training in the ROTC.

**Credit and Grade-Point Requirements.** The minimum credit requirement for the baccalaureate (bachelor's) degree in all colleges is 130. In addition, the student must have earned at least twice as many grade points as the total of registered credits, i.e., have a C average.

**Kinds of Baccalaureate Degrees.** Upon satisfactory completion of a regular program in the colleges of Tropical Agriculture, Engineering, or Nursing, a candidate is granted the degree of bachelor of science (B.S.); the diploma designates the particular program that has been pursued.

The degrees of bachelor of arts (B.A.), bachelor of fine arts (B.F.A. in Art), bachelor of music (B.M.), and bachelor of science (B.S.) are granted upon the satisfactory completion of prescribed programs in the College of Arts and Sciences.



Satisfactory completion of a regular teacher training program in the College of Education leads to the award of the degree of bachelor of education (B.Ed.); the degree of bachelor of science (B.S.) is granted for the recreation leadership program. Holders of bachelor degrees who complete the five-year program are awarded diplomas.

The degree of bachelor of business administration (B.B.A.) is granted upon the satisfactory completion of a regular program in the College of Business Administration.

The degree of associate in science is granted to students satisfactorily completing the two-year program in nursing.

**Residence Requirements.** Baccalaureate degrees are granted only those students who earn a minimum of 30 semester hours in residence (that is, in class or laboratory work at the University of Hawaii).

Degree candidates must be registered and in attendance during the semester or summer session in which the degree is to be granted. A college dean may modify this requirement, in certain exceptional cases, by granting a leave of absence.

**Time Within Which Work Must Be Completed.** All graduation requirements for baccalaureate degrees must be completed within 10 years of the first registration. The college deans are empowered to extend this period in certain exceptional cases.

**Credit by Examination.** An enrolled student who has been in attendance for the semester with a grade-point average of 2.4 or better, and presents evidence to the dean that he has had the equivalent of a course through experience or training but has not received college credit for the course, may apply for credit by examination. Application must be made within the first six-week period of a semester. Failure in the examination will be entered on the permanent record, and can be removed only by credit earned in a resident course. In no case will the grade received in such examination carry grade points. Graduate students may also obtain credit in this manner for certain undergraduate courses. A fee is charged for each examination. (*See p. 34.*)

Such credit is limited to courses required in the applicant's curriculum or to prerequisites for such courses. In each case the examination must be prepared by the course instructor, must be more comprehensive than the usual "final examination," and must be designed to serve as the scholastic equivalent of the course.

**Course Examinations.** Final examinations are required in all undergraduate courses except directed reading, research, or seminar courses. No examinations (other than short quizzes) are allowed during the two weeks just prior to the final examination period.

### TUITION AND FEES\*

Students (including auditors) registered for 12 or more credit hours in any semester pay \$85.00 for tuition and \$10.00 for registration per semester. Students (including auditors) registered for fewer than 12 credit hours in regular day courses in any semester pay \$8.00 per credit hour. Summer session students pay \$10.00 per credit hour, \$10.00 for registration, and an activities and health fee of \$2.00. Students registered in the College of General Studies pay fees as indicated in the bulletins of that college.

Out-of-state students pay the same fees as resident students.

Persons who register or pay the fees after the announced days of registration pay a late registration fee of \$5.00. *Students who pay their fees by check will be assessed the late registration fee of \$5.00 if the check is not honored by the bank concerned.*

All students registered for daytime courses pay a student health fee of 75 cents each semester.

For registration to be official, all fees must be paid within 24 hours after the close of the final day of regular registration. Exceptions may be made by the Business Office only upon written permission by the dean of student personnel.

Veterans, or orphans of veterans, registering for the first time under any of the various federal veterans' bills, should present a proper Certificate for Education and Training, or Certificate of Eligibility and Entitlement.

Laboratory fees, uniform and awards fees in military science, and special course fees are stated in the description of courses. If the instructor feels it is justified, students may be charged for excessive breakage of equipment.

Tuition, laboratory, and student activities fees may be refunded to students who withdraw from courses, the percentage refunded to be in accordance with the following schedule:

Withdrawal during

first two weeks of instruction	80%	fifth week of instruction	20%
third week of instruction	60%	remainder of semester	0%
fourth week of instruction	40%		

Applications for refunds must be made at the Business Office, and approved by the dean concerned.

In no case is the registration fee, or any part of it, refunded.

A fee of \$2.00 is charged for each change in registration after the initial registration, unless such changes are due to reasons beyond the control of the student. This fee does not apply to complete withdrawals from the University.

\*NOTE: The tuition and fee schedule set forth here may be changed during 1965-66. Adequate notice will be given to students before the new schedule takes effect.

A fee of \$5.00 must be paid to the Business Office before any degree is awarded to a student. A fee of \$2.50 is charged for the five-year diploma awarded by the College of Education.

A graduate student receiving an advanced degree must pay, before the degree is awarded, a fee of \$4.00 to cover the cost of binding two copies of his thesis.

Caps, gowns, and hoods for graduation ceremonies may be rented.

A student who requests the Office of Admissions and Records to send a transcript of his work to another institution is not required to pay for the first copy but is charged \$1.00 for each subsequent copy. Transcripts of students whose records indicate indebtedness to the University carry the following statement: "Denied further registration. See discipline file."

A fee of \$8.00 per credit is charged for "Credit by Examination," payable at the time of application for the examination.

A fee of \$10.00 is charged for any special examination in regularly constituted courses at other than the specified time except for make-up examinations.

Steel book lockers for student use are situated in Wist Hall. The use of a locker for the first and second semesters may be obtained at Room 9, Hawaii Hall. All keys must be returned before Commencement.

At the request of the Associated Students of the University of Hawaii (ASUH), the Governors of the Hemenway Union Board (HUB), and the department of athletics, as authorized by the Regents, the Business Office collects certain student activity and athletics fees at registration time. These fees total about \$13.00 each semester, of which approximately \$8.00 is used to cover membership in the ASUH and HUB for undergraduates taking 12 or more credit hours (if more than 6 are in the day program), class dues, the use of services and facilities in Hemenway Hall, and participation in the social, cultural, and recreational programs provided by the HUB and other student organizations. The remaining \$5.00 is used by the department of athletics for the promotion and support of varsity athletics.

For students taking fewer than 12 credit hours, the fees are optional and the benefits limited. These fees are not collected for the summer session (*see* p. 33). Complete details are available at the Bureau of Student Activities.

### **SCHOLARSHIPS AND FELLOWSHIPS**

Prospective graduate students who need financial assistance should communicate with the Dean of The Graduate School.

**Grants and Other Aids.** The General Motors Corporation provides a grant for an entering freshman good for four years if a satisfactory record is maintained.

The United Airlines Foundation awards four \$500 William A. Patterson scholarships to freshmen from the state of Hawaii.

The Sears Roebuck Foundation grants four \$500 scholarships in general agriculture.

The Charles R. Hemenway Scholarship Trust offers scholarships to undergraduate students.

The Link Foundation provides summer session scholarships of \$300 for secondary school science teachers studying oceanography.

The Matson Navigation Company offers four \$500 scholarships each year to juniors and seniors in the College of Business Administration.

The Ruby Ethel Kono Scholarship is awarded to a woman student majoring in Far Eastern art and culture or in voice.

Government Employees Mutual offers one \$500 scholarship for entering freshmen.

Hawaii Veterans Memorial Fund provides scholarships for undergraduate students.

*Information on the above grants may be obtained from the Scholarship Committee.*

The Kekaha Sugar Company offers a four-year scholarship of \$250 a year to a young man whose family is connected with the company. Information may be obtained from the company.

**State Scholarships.** Sixty-four scholarships, 54 divided among the six senatorial districts and ten held at large. Awarded annually to freshmen. Held four years, provided the beneficiary maintains a satisfactory record.

**Board of Regents Scholarships.** Seventy tuition scholarships each year. Ten reserved for foreign students.

**Other Scholarships Administered by the Scholarship Committee.** Alonzo Gartley (in agriculture); ASUH Scholarship-Leadership grants; The Charles W. Atkinson Real Estate Scholarship; Chinese Community; Emma K. Mossman; Fushiminomiya Memorial Scholarship Endowment Fund; Harry H. Collins; Hawaii Newspaper Agency Scholarships (Journalism); Hawaiian Airlines Scholarship; Hawaii Pharmaceutical Association (pre-pharmacy); Hawaiian Telephone Scholarships; Honolulu Civic Club; ILWU (Social Work); Iota Alpha Fraternity; Kappa Iota Fraternity; Kazuo and Akiyo Totoki Scholarship; Kenji Yamaguma Memorial; Korean Foundation; Korean University Club; Leora Parmlee Dean (sponsored by the Women's Campus Club); Music Department Scholarship; Ruth C. Scudder Memorial (sponsored by the Women's League of Central Union Church); Stephen Spaulding; Theodore R. Rhea Hawaii Cancer Society Memorial.

**Scholarships Administered by Individuals and Private Organizations, with Assistance from the University Scholarship Committee.** Alfred Apaka Memorial; Associated Chinese University Women; Chinese Women's Club; Dole Corporation; Francis H. Kanahale Memorial; Fred Dailey Waikikian Scholarship; Hawaii Hotel Association Scholarship; HGEA, University Chapter; Hawaii Newspaper Agency Scholarships; Hung Wo and Elizabeth L. Ching; Keane Art Scholarship; KeAnuenue Alumni Sorority; Leilehua High School Alumni Association; Leilehua Parent Teachers Association; Miles E. Cary Memorial; Nesta Obermer Music Scholarship; Pacific Concrete and Rock Co.; Palolo Lions Club; Ralston Purina; Society of American Military Engineers; Soroptimist Club; Wahiawa Lions Club; Wahiawa-Waiialua Rotary Club; Standard Oil Company FFA; Theodore Char, CPA Accounting Scholarship; West Honolulu Rotary; Liberty Bank of Honolulu Scholarship.

**Scholarships Administered Entirely by Private Organizations.** The Scholarship Committee has no direct information about the independent awards listed. Aiea Lions Club; Chinese University Club; "Chu" Baldwin Memorial (sponsored by Puunene Community Association); Civic Associates; Filipino Scholarship Foundation; General Henry Arnold Education Fund, U.S. Air Force Aid Society; Harold B. Turney-Dorothy K. Gillett Music Fund; Hawaii Veterans Memorial Scholarship Fund; Hawaiian Civic Club; Honolulu Community Chest; Hui Pookela Honorary; ILWU, Naalehu Unit, Local 42; Kailua Hawaiian Civic Club; Kailua High School Scholarship; Kamehameha School Scholarships; Koko Head Lions Club; Lahainaluna P.T.A.; Leeward Oahu Lions Club; Maui AJA Veterans Club; McKinley High School; Pacific Fellowship (sponsored by the American Association of University Women); Peter H. Fukunaga Scholarship Foundation; Rama Watumull Fund; Star Markets, Ltd.; Waiialua Hawaiian Civic Club; Waiialua High School P.T.A. Scholarship; Waiialua Lions Club; Wallace Rider Farrington (for graduates of Wallace Rider Farrington High School, sponsored by the Honolulu Star-Bulletin); Wong Kong Har Tong Society Scholarship.

### **LOAN FUNDS**

Through the generosity of various organizations and individuals, certain funds have been provided from which students may borrow—either in small amounts to meet emergencies or in larger sums to defer part of tuition costs. The University also participates in the National Defense Student Loan Program. A student wishing to make use of these funds should consult the financial aid officer. Loan funds include the following:

Alumni Fund—Molokai Chapter	Louise S. Jessen Memorial Fund
Andrew J. Salz Fund	Mary L. Kelsey Fund

Carey D. Miller Fund	Minnesota Club Fund
Chinese Students' Alliance Fund	Moir-Ross Health Fund
Commerce Club Fund	National Defense Student Loan Program
Edgar Wood Memorial Fund	N.G.B. Fund
Future Farmers of America, Uniwai Chapter Fund	Ruth Alexander, M.D., Student Fund
George H. Lamy Fund	Representatives Club Fund
Gruscidada Fund	Senior Class Fund
Hawaiian University Association Fund	Student Fund of the College of Education
Helen Strong Carter Dental Fund	Theodore T. Kawahara Memorial Fund
Honolulu Civic Association Fund	United Student Aid Loan Program
Inez Wheeler Westgate Fund	
Japanese Students' Alliance Fund	

### PRIZES AND AWARDS

#### *General*

**Arthur Lyman Dean Prize for Undergraduate Research**, any senior may compete for this prize by presenting a thesis reporting fully his research in any field of intellectual endeavor. The winning paper is placed in the Hawaiian and Pacific Collection of Sinclair Library.

**Bernadine Siu Yin Ho Memorial Speech Award**, a cash prize for excellence, dedication, and service to the University's forensics program. The winner's name is engraved on a perpetual trophy.

**Carl F. Knobloch Prize in Government**, cash prize to the outstanding student in the field of political science.

**Charles Eugene Banks Memorial Prize**, cash prize awarded each year to the student whose manuscript is judged the best in a creative writing contest. This manuscript is placed in the Hawaiian and Pacific Collection of Sinclair Library.

**Charles F. Loomis Prize**, cash award to an undergraduate for outstanding contribution to understanding of people and events in Asia or the Pacific Basin. Entries in the competition may be research or interpretive papers.

**Chemical Rubber Company Award**, to the outstanding freshman in mathematics.

**Departmental Awards, ASUH Certificates**, to students who performed outstanding services for their departments while maintaining excellent scholastic records. Departments include art, drama, elementary education, history, home economics, industrial arts, nursing, political science, psychology, speech, zoology.

**Ernest Hemingway Memorial Award**, annual cash award to junior student, resident of this state, for creative and original writing ability.

**Hawaiian Botanical Society Award**, annual cash award, made to a senior on the basis of a thesis on an announced topic in theoretical or applied botany.

**Library Prize for Pacific Research**, cash award for the best piece of student research in the Pacific area. The prize-winning paper is placed in the Hawaiian and Pacific Collection of Sinclair Library.

**O. C. Magistad Award of the Hawaiian Section of the American Chemical Society**. A one-year membership and subscriptions to several journals to the outstanding senior in chemistry. The winner's name is engraved on a bronze plaque.

**Phi Beta Kappa Recognition Award**, made in recognition of high scholastic standing among sophomores in arts and sciences.

**Phi Kappa Phi Prize**, cash prize awarded by the Hawaii Chapter to the senior who graduates with the highest scholastic record in the class.

**Ralph S. Kuykendall Prize in History** granted to the outstanding history major in the graduating class.

**Real Dean Award of Honor**, medal award in recognition of four years of outstanding service in student activities.

**Sigma Pi Sigma Scholarship Award** presented annually to outstanding students in physics.

**Tarakanth Das Prize in Asian History and Politics**, an annual cash prize, offered by the Tarakanth Das Foundation, to a senior submitting the best essay on a selected topic in the field.

**Theatre Group Annual Award**, medal awarded to undergraduate for outstanding contribution to the University Theatre.

**Theatre Group Playwriting Prizes**, cash prizes awarded annually for the three best original short plays written by Hawaii residents.

### *Business Administration*

**Business Education Award of Merit** for outstanding achievement in the field.

**Dean Wermel Memorial Plaque**, a perpetual plaque honoring the outstanding senior in business administration each year.

**Outstanding Junior in Business Administration**, a plaque awarded to the outstanding junior in the field.

**Outstanding Seniors in Accounting**, cash awards made annually to three outstanding seniors in the field.

**Outstanding Senior in Business Economics and Statistics**, a perpetual plaque honoring the outstanding senior in the field.

**Outstanding Senior in Finance, Insurance, Law, and Real Estate**, a perpetual plaque honoring the outstanding senior in the department.

**Outstanding Senior in Management**, a perpetual plaque honoring the outstanding senior in the field.

**Outstanding Senior in Marketing**, a perpetual plaque honoring the outstanding senior in the field.

**Outstanding Senior in Personnel and Industrial Relations**, a perpetual plaque honoring the outstanding senior in the field.

**Outstanding Sophomore in Business Administration**, a plaque awarded to the outstanding sophomore in the field.

### *Engineering*

**American Society of Civil Engineers Award, Hawaii Section**, a cash prize and a year's membership in the Society to an outstanding senior in civil engineering.

**American Society of Civil Engineers Wives' Auxiliary Award**, to five outstanding graduates in civil engineering.

**American Society of Mechanical Engineers Wives' Auxiliary Award**, to three outstanding seniors in mechanical engineering.

**Chi Epsilon Freshman Award**, to an outstanding engineering freshman.

**Eta Kappa Nu Sophomore Award**, to the engineering sophomore making the highest grade-point ratio.

**Robert Edwin Hughes Award in Engineering**, for outstanding engineering report-design, accomplishment, or achievement by an undergraduate in the field.

### *Home Economics and Agriculture*

**Carey D. Miller Award in Home Economics**, cash award to an outstanding senior for scholastic and leadership abilities in the field.

**Crisco Award**, trophy to an outstanding home economics student selected by a student committee.

**Danforth Summer Fellowship Awards**, given by the Danforth Foundation and Ralston Purina Co. of St. Louis, to outstanding juniors in agriculture and in home economics. Recipients spend two weeks in classes at the Ralston plant and two weeks in a leadership training course at the American Youth Foundation, Shelby, Michigan.

**Hawaii Dietetics Association Award**, annual cash award, to an outstanding senior graduating in dietetics and institutional management.

**Home Economics Staff Award**, to a senior with highest grade-point average, in recognition of outstanding scholarship and leadership ability.

**University of Hawaii Chapter of American Home Economics Association Award**, to the outstanding member of the chapter.

**Zera C. Foster Memorial Award**, to the outstanding graduate in agriculture.

### *Military and Air Science*

**Best Soldier Award** to the sophomore Army ROTC cadet who attained highest ROTC grades for the academic year.

**Best Soldier Award**, medal presented by the Honolulu Star-Bulletin to the freshman cadet who attained the highest grades in ROTC for the academic year.



**Captain H. Gaylord Dillingham Memorial Award**, to the Air Force ROTC cadet having the highest scholastic record at the end of the sophomore year and who is approved for advanced training.

**Major John A. Johnson Memorial Award**, cash award, presented to the Army ROTC cadet with the best scholastic record at the end of the sophomore year and who is approved for advanced training.

**Warrior of the Pacific Trophy**. The Department of the Army supervises an annual rifle marksmanship competition among ROTC infantry units in universities for possession of a bronze statuette of a native Hawaiian soldier. Residents of Hawaii offer the trophy.

### *Nursing*

**Hui Kahu Ma'i Award for Leadership**, in nursing.

**Hui Kahu Ma'i Professional Nurse Award**.

**Hui Kahu Ma'i Scholarship Award**, in nursing.

**Hui Kahu Ma'i Service Award**, in nursing.

**Deans' List**. Shortly after the close of each semester the *Deans' List* gives the names of all full-time undergraduate students who achieved a grade-point average of 3.5 or above for the preceding semester.

**Honorary Societies**. There are at the University chapters of six national honorary societies—Phi Beta Kappa (founded at William and Mary in 1776; Alpha chapter installed in 1952; recognizes high scholastic attainment in liberal arts and sciences; to be eligible for election a student must have pursued a broad course of study, liberal in character including work in foreign languages and mathematics, leading to the bachelor of arts degree; election to Phi Beta Kappa is regarded as one of the highest undergraduate honors); Phi Kappa Phi (founded at University of Maine in 1897; Hawaii chapter established in 1930; recognizes scholarly achievement in all fields; eligibility is dependent upon exceptional achievement leading to a degree, and upon character); Sigma Xi (sciences); Pi Gamma Mu (social sciences); Phi Delta Kappa (education); Sigma Pi Sigma (physics); Delta Sigma Rho (forensics); Chi Epsilon (national civil engineering honor fraternity); Eta Kappa Nu Association (honorary society of electrical engineers); Omicron Delta Kappa (scholarship and leadership in activities); Phi Eta Sigma (freshman honorary fraternity).

### **ENGLISH LANGUAGE INSTITUTE**

Courses at the University of Hawaii as well as most textbooks and reference materials are in English. English is also the language of the community. An effective, practical control of both spoken and written English is thus necessary for every student. The ELI, under the supervision of the department of linguistics, provides training on appropriate

levels for students whose native language is not English, so that they may acquire as rapidly as possible the ability to pursue regular University courses without undue language handicaps.

New students whose native language is not English are required to take an English proficiency examination before the beginning of each semester or summer session. No student may register in an ELI course unless tested and assigned by ELI. Special fees are charged for these courses.

### English Language Institute Courses (ELI)

*See p. 46 for a discussion of course descriptions.*

Associate Professors BENDER, SITTLER; Assistant Professors McCABE, PLAISTER; Instructors ALTER, ARAPOFF, COLLIER, DULLAGHAN, ELLIOTT, GOODMAN, NARDIN, ROBERTS, SEGLEM, SODEN, SOONG, STEINBERG, THIEL, XIGOGIANIS

#### 50 ENGLISH AS A SECOND LANGUAGE (0) I, II

Intensive practice in the fundamentals, oral and written. Meets 4 hours daily, Monday through Friday; additional hour of daily laboratory work required. For full-time ELI students. Pre: ELI consent. Course fee \$70.00.

#### 60 INTERMEDIATE ENGLISH AS A SECOND LANGUAGE (0) I, II

Practice in oral and written usage, designed to develop further fluency and accuracy. Meets 2 hours daily, Monday through Friday; additional laboratory work required. For half-time ELI students. Pre: ELI 50 or equivalent, and consent. Course fee \$35.00.

#### 110 ADVANCED ENGLISH AS A SECOND LANGUAGE (3) I, II

Advanced instruction in spoken and written English, with emphasis on control of complex syntactical constructions, vocabulary development, and aural comprehension of extended narrative. Meets 4 hours weekly; additional laboratory work required. Pre: ELI 60 or equivalent, and consent. Course fee \$25.00.

#### 120 READING PROGRAM FOR FOREIGN STUDENTS (2) I, II

Instruction and practice in techniques for the development of effective reading habits, with emphasis on particular problems relating to reading English as a foreign language. Pre: ELI 110 or equivalent, and consent. Course fee \$20.00.

#### 130 WRITING PROGRAM FOR FOREIGN STUDENTS (3) I, II

Instruction in English composition especially for foreign graduate students; undergraduates by special permission. Practice in techniques of gathering, organizing, and documenting materials for research papers, reports, essays, term papers and theses. Pre: ELI 110 or equivalent, and consent. Course fee \$25.00.

### SELECTED STUDIES PROGRAM

The Selected Studies Program is designed to provide a small group of academically promising freshmen and sophomores with the opportunity to take a greater than usual advantage of University facilities and resources. Each student in the program has his curriculum more nearly "tailor-made" to his own special interests and abilities. Special sections are made available in such freshman and sophomore courses as economics, English, mathematics, history, government, zoology, sociology, science, and foreign languages.

Admission to the Program is by invitation extended to freshmen and sophomores whose aptitude test scores and recommendations, or previous academic records have shown them to possess the qualities needed for success in this Program.

### HONORS

Honors may be granted at graduation to undergraduates who have participated in the University Honors Program. Successful completion of a program of honors work in the upperclass years will entitle the candidate to a bachelor's degree with "honors," "high honors," or "highest honors." Application for admission to candidacy for honors may be made by any regularly registered undergraduate at the end of the sophomore year or at the beginning of the junior year.

Each honors student majors in a given department or curriculum of the University. During the junior year the nature of the honors work will be determined principally by the particular department. In the second half of his junior year and the first half of his senior year, each honors student will participate in an interdisciplinary colloquium held one evening a week. To receive an honors degree, the student must in his senior year (1) pursue a program of independent reading or research culminating in a senior thesis, and (2) pass a written comprehensive examination in his major field.

Full information about the Program may be obtained from the Coordinator of the Undergraduate Honors Program. Seniors who have not participated in the Program but who have a grade-point average of 3.4 or above will receive their degree "with academic commendation." At least 60 semester hours of such work must have been at the University of Hawaii during a period not exceeding six years prior to graduation.

### Honors Courses

*See p. 46 for a discussion of course descriptions.*

[Major Subject] 394-395 SENIOR HONORS THESIS (2-2) Yr.

Preparation of a research paper under individual faculty supervision. Required for graduation with honors.

IS 397-398 HONORS COLLOQUIUM (2-2) Yr.

Weekly meetings for the discussion of great issues and problems which are of an interdisciplinary nature. Required of, and limited to, candidates for the bachelor's degree with honors.

### Reserve Officers Training Course

Army and Air Force ROTC units at the University offer both a four-year and a two-year commissioning program, on a voluntary basis, under the provisions of the ROTC Vitalization Act of 1964. In the four-year program the student receives basic military training on the campus

during his freshman and sophomore years. Individuals who have participated in training in the junior division ROTC or who have had military service of less than one year may be exempted from a portion of the two-year requirement. The two-year program provides this training at a six-week summer camp. Upon completion of either program the cadet may be accepted for advanced training leading to a commission as a second lieutenant in the U. S. Army or the U. S. Air Force. If accepted for the advanced training, the student must agree to accept a commission if it is offered. While in the advanced program he receives retainer pay specified below.

### **Military Science**

The four-year Military Science program consists of on-campus training during the four semesters of the freshman (MS I) and the sophomore (MS II) years and is referred to as the basic course. The advanced course consists of on-campus training throughout the junior (MS III) and senior (MS IV) years, plus a six-week summer camp between the junior and senior years at a mainland military installation. Training in the advanced course is on a selective basis. Successful completion of the advanced course leads to a regular or reserve commission as a second lieutenant in the U. S. Army. To be eligible for the advanced training under the four-year program a student must:

1. Be a citizen of the United States;
2. Be selected for the advanced training program under procedures prescribed by the Secretary of the Military Department;
3. Complete successfully the first two years (basic course) of a four-year Senior Reserve Officers Training Corps course.

A financial assistance scholarship program provides for payment of tuition fees, cost of books, laboratory expenses, and \$50.00 per month retainer pay over four years for selected students in this program. Inquire at the department of military science for specific information.

The two-year program consists of on-campus training and instruction during the junior and senior years identical with the advanced course four-year program. A prerequisite for this program is successful completion of a basic summer camp at a mainland military installation. The non-scholarship retainer pay is \$40.00 per month, and \$78.00 per month for the basic summer training period. Financial assistance scholarships are available for selected students in the two-year program.

### **Aerospace Studies**

The Air Force ROTC prepares selected college students for duty as professional Air Force officers. Upon successful completion of the program and receipt of a degree, the student must accept a commission and serve on active duty for at least four years. If he completes pilot or navigator training, he must serve five years.

A student electing the four-year program may substitute another University course for one semester of Aerospace Studies in both the freshman and sophomore years. He will attend the leadership laboratory each semester, however. When he completes the general military course, he may apply for the professional officer course. If accepted, he must attend a four-week summer training unit at a mainland Air Force base prior to commissioning, normally, between the junior and senior years.

Under the two-year program the student receives general military training at a six-week course at an Air Force base prior to his junior year. He must apply for this program by January 1 of his sophomore year. He will not have to attend the four-week summer training unit before commissioning.

All cadets accepted for the professional officers course receive \$40.00 per month retainer pay. In addition they are paid while attending either the field training course or the summer training unit. A limited number of financial assistance scholarships are available for those in the four-year program, covering tuition, fees, books, plus \$50.00 per month for the full four years. Competitive examinations will be used to select these students.

### Military Training Courses

*See p. 46 for a discussion of course descriptions.*

### Aerospace Studies (AS)

Professor MEADVILLE; Associate Professor CRAIN; Assistant Professors BRONSON, HO, SNOW; Instructors CATHICART, HAMMERSTROM, NOLL, REIS, SMOKOSKA

*Leadership Laboratory required 1 hour per week for each course listed. Lab fee 75 cents each semester (not refundable).*

#### 100 FIELD TRAINING COURSE (2) SUMMER, TWO-YEAR PROGRAM

Intensive six-week military training course at an Air Force base. Includes classroom work covering material presented in AS 101 & 152.

#### 101 FIRST-YEAR AEROSPACE STUDIES (2) I

Introductory course exploring causes of present world conflict as they affect the security of the United States, and of the armed forces as an instrument of national policy. Two class hours per week and one hour of leadership laboratory.

#### 102 FIRST-YEAR AEROSPACE STUDIES (1) II

Leadership laboratory only for one hour per week.

#### 151 SECOND-YEAR AEROSPACE STUDIES (1) I

Leadership laboratory only for one hour per week.

#### 152 SECOND-YEAR AEROSPACE STUDIES (2) II

Comparative study of world military forces and trends in the development and employment of military power. Two class hours per week and one hour of leadership laboratory.

#### 201-202 THIRD-YEAR AEROSPACE STUDIES (3-3) Yr.

Survey course about development of U.S. airpower and its concepts, doctrine, and employment; and about astronautics and space operations and the future development of aerospace power.

**251-252 FOURTH-YEAR AEROSPACE STUDIES (3-3) Yr.**

Study of professionalism, leadership, and management. Includes leadership theory, functions, and practices as they apply to the Air Force.

**230 SUMMER TRAINING UNIT (2) SUMMER, FOUR-YEAR PROGRAM**

Intensive four-week course at a military base. Applications of academic work. Air operations problems; military aircraft and equipment. Physical training. Pre: AS 201 or AS 202.

**Military Science (MS)**

Professor RIPPLE; Associate Professor CARROLL; Assistant Professors IHARA, RISCASSI, STEELMAN, WRIGHT; Instructors CABRAL, FONG, KIM, MEDLEY, RODRIGUES, STACK, YAGI

*Leadership Laboratory required 1 hour per week for 4 years; fee, 75 cents each semester (not refundable).*

**101-102 FIRST-YEAR MILITARY SCIENCE (1-1) Yr.**

Theory of Army organization; organization and function of infantry squad, platoon, and company; purpose and objectives of ROTC program; missions and responsibilities of the Army as a member of the national defense team and major problems confronting the Army in this role, emphasizing the One-Army Concept; evolution of firearms, stressing marksmanship training.

**151-152 SECOND-YEAR MILITARY SCIENCE (1-1) Yr.**

Survey of American military history from origins of American Army to present with emphasis on the factors which led to organizational, tactical, logistical, operational and strategical patterns found in present-day Army; organization, composition, and mission of infantry-tank teams in nuclear and non-nuclear warfare; map and aerial photograph reading.

**201-202 THIRD-YEAR MILITARY SCIENCE (2-2) Yr.**

Infantry organization, principles of offensive and defensive combat, and their application to units of infantry division battalion in nuclear and non-nuclear warfare; responsibilities and qualities of a leader; special problems of military leadership; role of various branches in over-all missions of the Army; educational psychology as pertains to stages of instructional technique and student preparation, presentation, and evaluation of instruction.

**251-252 FOURTH-YEAR MILITARY SCIENCE (2-2) Yr.**

Staff organization, purpose, and functions using division staff as model, stressing operations of battalion staff in combat theater by using examples from World War II and Korea; role of the United States in world affairs; uniform code of military justice; fundamentals of army administration; fundamental knowledge of supply and troop movements.

**PHYSICAL EDUCATION AND SPORTS**

The University offers instruction in health and physical education and conducts a program of recreation and sports. Individual colleges within the University require specified courses in the field, as may be determined in the succeeding portions of this catalogue.

Intramural sports are planned to supplement the regular courses and students are encouraged to participate in these sports.

University teams compete in the following varsity sports: baseball, basketball, football, golf, swimming, tennis, track (men and women), volleyball, wrestling.

Although the University takes reasonable precautions, it assumes no responsibility for injuries received in sports or games.

## **COURSE NUMBERS AND DESCRIPTIONS**

Courses are listed alphabetically by department under each college. Consult the Table of Contents or the Index to locate a given department. Numbers lower than 100 indicate noncredit courses. Orientation courses carry the number 100. Lower division courses, intended for freshmen and sophomores, are numbered 100-199. Upper division courses are numbered 200 to 599, but only those from 400 to 599 give graduate credit. Graduate courses are numbered 600 to 799. In a few cases, qualified seniors may enroll in a graduate course with the consent of the instructor.

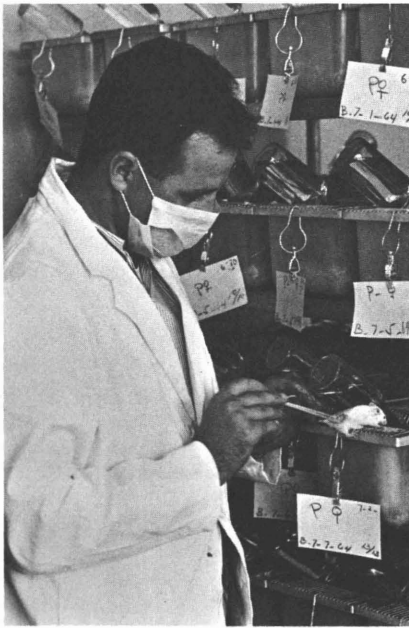
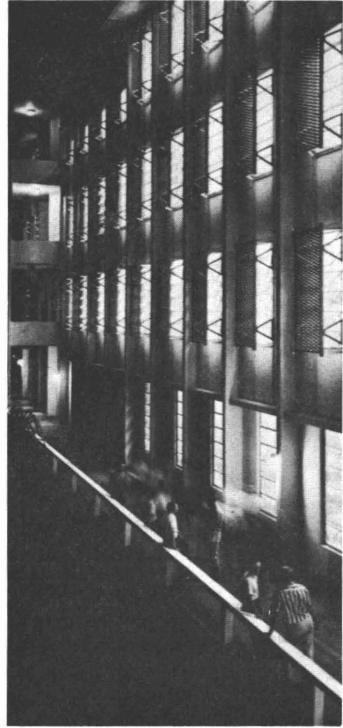
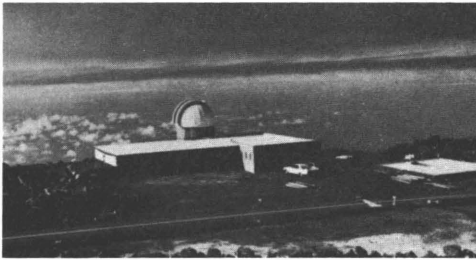
The abbreviation listed after each department is the IBM code used by the University.

Heading each course description are the number and title of the course, the number of credits, and the semester in which the course is given. Credits and semesters are indicated as follows: (3) I means a 3-credit first-semester course; (3) II, a 3-credit second-semester course; (3) I, II, a 3-credit course repeated the second semester; (3-3) Yr., a year course carrying three credits each semester; (Arr.), that the credits are variable and must be arranged with the instructor. The following abbreviations also are used on the title line: Hr., hour; L, lecture(s); Lb, laboratory or laboratories; L-Lb, lecture-laboratory combined. Abbreviations used in the descriptions are: Alt. yrs., alternate years; Lab, laboratory; Pre, prerequisite.

The faculty list heading each department indicates the members of the department and includes other instructors giving courses in the department. The rank and title of each instructor are given under "Faculty and Staff."

**Course Schedules.** A schedule stating the time and place of meeting of all classes is issued prior to the beginning of each semester and the summer session.

The numbering system was changed in 1959. For original numbers see the 1959-60 or earlier catalogues.







# COLLEGE OF ARTS AND SCIENCES

THE PROGRAMS OF THE COLLEGE OF ARTS AND SCIENCES are designed in the conviction that liberally educated persons today must have both a general or comprehensive knowledge of the major fields of learning and an intensive knowledge of a particular field. Thus, in addition to a general education in the humanities, the social sciences, and the natural sciences, the College provides for advanced study in specialized fields.

In general education the College seeks to develop in students:

- an appreciation of our diverse cultural heritage and its relation to everyday life,
- criteria for the assessment of values in different kinds of society and the world community,
- aesthetic standards and a sense of the self-transcending power of beauty,
- a knowledge of themselves and their environment from a humanistic and scientific point of view,
- the ability to make sound judgments on disputed matters,
- an understanding of the interdependence of general and specialized education,
- a desire for continuing intellectual growth.

After a year or two of general education, most students concentrate in a major field of the humanities, the social sciences, or the natural sciences in order to increase their knowledge in depth. Though these programs are aimed at continuing the students' liberal education, they also may serve to prepare them for their chosen careers. Other students transfer into one of the other colleges of the University—e.g., Education and Business Administration.

The geographical position of Hawaii midway between continental America and Asia makes the College more than ordinarily conscious of the importance of the Far East. Therefore, more than usual attention is given to the history, languages, literature, art, institutions, and philosophy of the countries and peoples of this area.

### **ADMISSION AND DEGREE REQUIREMENTS**

Admission requirements for the College are the same as those for the University (pp. 21-25). However, candidates for admission are strongly advised, although not required, to offer a minimum of two years of college preparatory mathematics and two years of a foreign language.

To be entitled to a bachelor's degree offered by the College, a student must:

1. Complete certain basic subjects specified by his degree program.
2. Fulfill the prescribed requirements of a major field of concentration.
3. Offer at least 50 semester hours of credit in other than introductory courses.
4. Acquire an aggregate of 130 semester hours of credit of which no more than 20 hours is acceptable in subjects not offered within the College.
5. Earn at least a 2.0 grade-point ratio (*C* average) for all registered credits, and in the major field.
6. Submit an application for graduation to the Office of Admissions and Records during the semester preceding the award of the degree.

Each student must meet the requirements of his degree program, in addition to those of the major, and no course will satisfy more than one kind of requirement (basic, area, major, etc.).

The Dean of the College may exercise his discretion in modifying some of these requirements in exceptional cases after consultation with the Graduation Committee.

### **CURRICULA**

All programs leading to the bachelor's degree are built around major fields of concentration. A major consists of a specific number of credits and required courses in a particular subject or discipline, together with related courses (usually upper division) in other subjects which are associated with and contribute to the major.

The major must be indicated by the beginning of the third year. For certain preprofessional programs, such as pre dentistry, pre medicine and pre pharmacy; for bachelor of arts degree programs in chemistry, geology, physics, and zoology; and for the bachelor of fine arts, bachelor of music, and bachelor of science degree programs; it should be indicated at the beginning of the first year.

## **BACHELOR OF ARTS DEGREE PROGRAMS**

### **Basic Requirements**

English 101–102 or 105	Foreign language, intermediate
History 151–152 or 251–252	year
Speech 140 or 150	Philosophy 200 or Mathematics
Health and Physical Education, one activity course	100
	English 150–151, 152–153, or 154–155

### **Area Requirements**

- I. *Humanities*: 12 semester hours from the following courses in at least two subjects other than the major, including at least 3 hours from each of the first two sub-groups.
1. Philosophy 100 or 150; Religion 150 or 151.
  2. Art 101, 102, 171 or 181; Drama 140, 150, 151; Music 160.
  3. Asian Studies 301; English courses numbered from 212 to 599, not including 309, 310 and 329; courses in foreign languages beyond the intermediate year; History 171, 341–342; Journalism 239; Speech 210, 230, 270, 350, 440, 470, 480, 485.
- II. *Social Sciences*: 12 semester hours from the following courses in at least two subjects other than the major.
- Anthropology 150, 200; Asian Studies 302; Economics 150; Geography 102, 151, 360, 501, 507, 526, 541, 571; Political Science 110 or 210, 300, 320, 340, 341, 360, 424, 500; Social Sciences 300–301; Sociology 151 or 201.
- III. *Natural Sciences and Mathematics*: 11 semester hours from the following courses in at least two subjects other than the major, including at least 4 hours in courses with laboratory work. Majors in a natural science must obtain credit in subjects other than mathematics.
- Botany 101, 105, 201; Chemistry 103–104, 105–106, or 107; General Science 120–121, 520, 530; Geography 101, 410, 420; Geosciences 101–102, 200; Mathematics 102, 103, 111, 112, 113, 114, 135–136; Microbiology 151; Physics 110, 160–161; Psychology 102; Zoology 101–362, inclusive.

Exemption by examination is possible in expository writing, speech, and foreign language. Credit by examination can be obtained in any course offered in the College which is required in a student's curriculum; it carries a corresponding reduction in the 130 hours required for graduation.

### **Majors (B.A. Degree)**

The following list indicates the major fields of concentration available to students and the requirements of each, viz., the number of semester hours and required courses in the subject, as well as required related

courses. No more than 36 semester hours in one subject may be applied toward the bachelor of arts degree, and no more than 12 hours may be required in related courses. For graduation, a 2.0 grade-point ratio (*C* average) is required in the major field.

**ANTHROPOLOGY.** *Major requirement:* 21 semester hours. *Required courses:* 150, 200, 210, 220, 230, and any two courses numbered above 230.

**ARCHITECTURE.** *Major requirement:* 36 semester hours. *Required courses:* 22 hours of architectural design, 8 hours of professional practice, 6 hours of history of architecture.

**ART.** *Major requirement:* 36 semester hours. *Required courses:* 12 hours of art history, including 171-181; additional courses as needed to complete one of the following: elective studio, with emphasis on one area (drawing and printmaking, painting, weaving and textiles, ceramics, or visual design); history of art, with major emphasis on Eastern or Western art; teaching major in art, meeting the requirements of the College of Education.

**ASIAN STUDIES.** *Major requirement:* 36 semester hours. *Required courses:* 301-302 or equivalent "civilizations" course; 6 hours of a third-year Asian language or equivalent; 15 hours from one of the following fields: anthropology, art, Asian literature, economics, geography, history, philosophy, political science, sociology; 9 hours of Asian courses outside this field of concentration from two or more departments in the humanities or social sciences.

**BIOLOGY.** *Major requirement:* 30 semester hours, including Botany 101, Genetics 451, Microbiology 151, Zoology 101, Botany 470 or Zoology 345, Botany 353 or Zoology 401. Additional non-introductory courses to be selected from offerings in botany, genetics, microbiology, and zoology. As related courses, Mathematics 103 and Chemistry 141 or 143-144 are required.

**BOTANY.** *Major requirement:* 24 semester hours. *Required courses:* 101, 201; at least 15 semester hours in courses numbered above 300. Credit toward the major will be granted for Genetics 451.

**CHEMISTRY.** *Major requirement:* 34 semester hours. *Required courses:* 105-106 or 107, 143-144, 331-332, 551-552. A reading knowledge of scientific German, French, or Russian is required.

**CHINESE.** *Major requirement:* 28 semester hours above the intermediate level.

**DRAMA AND THEATRE.** *Major requirement:* 24 semester hours. *Required courses:* 150, 151, 200, and 6 hours in dramatic literature.

**ECONOMICS.** *Major requirement:* 27 semester hours. *Required courses:* 150–151, 240, 300, 302, 304.

**ENGLISH.** *Major requirement:* 24 semester hours of upper division courses. *Required courses:* 9 hours in “periods” of English literature, 6 hours in single authors, 3 hours in American literature, 6 hours in the English language, writing, and criticism. The language requirement should be met by an ancient or modern European language.

**FRENCH.** *Major requirement:* 24 semester hours, exclusive of 101–102, 151–152.

**GEOGRAPHY.** *Major requirement:* 25 semester hours. *Required courses:* 101, 102, 151, 235, 410, 420, 430, 501. *Related courses required:* 9 non-introductory credits in a related field approved by the department. Majors emphasizing human geography should incorporate in their programs a course in statistics and appropriate courses in the social sciences and history. Majors emphasizing physical geography should take courses in statistics and mathematics, geosciences, and other appropriate natural sciences.

**GEOLOGY.** *Major requirement:* 34 semester hours. *Required courses:* Geosciences 101–102, 205–206, 401–402, 405–406, and 410.

**GERMAN.** *Major requirement:* 24 semester hours exclusive of 101–102, 151–152, 153–154. *Required courses:* 201–202, 205–206, and 411–412 or 413–414.

**GREEK.** *Major requirement:* 24 semester hours exclusive of 151–152. *Required courses:* Latin 101–102; Greek 158.

**HISTORY.** *Major requirement:* 24 semester hours of upper-division courses. *Required courses:* 396 and 397, and 9 hours from two of the three fields—United States, Pacific and Asian, European. Some courses may be applied to either of two of these groups.

**JAPANESE.** *Major requirement:* 28 semester hours above the intermediate language level.

**JOURNALISM.** *Major requirement:* 44 semester hours. *Required courses:* 205, 206, 239, 315, 316, 385; in addition to the college area requirements, 6 credit hours in a third humanities department, 6 in a third social science, and 15 credits in a department of choice.

**KOREAN.** *Major requirement:* 28 semester hours above the intermediate language level.

**LATIN.** *Major requirement:* 24 semester hours exclusive of 151–152. *Required courses:* Greek 101–102; Latin 157.

**MATHEMATICS.** *Major requirement:* 33 semester hours. *Required courses:* 15 semester hours in courses numbered above 400.

**MICROBIOLOGY.** *Major requirement:* 24 semester hours. *Required courses:* 151, 361-362, 415 or 531. Additional work to consist of an integrated group of courses selected from appropriate offerings in biochemistry and biophysics, botany, genetics, microbiology, and zoology. As related courses, Chemistry 331 and Physics 160-161 are required.

**MUSIC.** *Major requirement:* 36 semester hours. *Required courses:* 181-182, 183-184, 163-164, 465-466 and 6 hours in applied music, including 235-236. For emphasis upon theory, 6 hours selected in upper-division theory courses, as advised, and 470. For emphasis upon music literature, 461, 462, 463, 464.

**PHILOSOPHY.** *Major requirement:* 24 semester hours. *Required courses:* 150, 155, 200, 350, 400.

**PHYSICS.** *Major requirement:* 35 semester hours. *Required courses:* 170-173, 174-175, 253, 310, 350, 460, 480-481, 530, 550. As related courses, Mathematics 401, and 402 are required.

**POLITICAL SCIENCE.** *Major requirement:* 27 semester hours. *Required courses:* 110 or 210, and at least one course from five of the following fields, including theory: political theory, American government, comparative government, international relations, politics, public administration, public law.

**PSYCHOLOGY.** *Major requirement:* 24 semester hours. *Required courses:* 102, 230. Further work in mathematics and science is recommended.

**RELIGION.** *Major requirement:* 24 semester hours. *Required courses:* 151, 200, 201, 382-383.

**RUSSIAN.** *Major requirement:* 24 semester hours exclusive of 101-102, 151-152.

**SOCIOLOGY.** *Major requirement:* 24 semester hours. *Required courses:* 151 or 201, and one course from each of the following subdivisions: (1) 210-229, 410-439; (2) 240-269, 440-469; (3) 270-319, 470-519; (4) 320-359, 520-559; (5) 560-599.

**SPANISH.** *Major requirement:* 36 semester hours of which 26 must be in courses numbered 200 or above. *Required courses:* 203-204, 230, 360, or 361, 370 or 371, plus 6 more units of literature or civilization. 400-401, while normally required, may be waived at the discretion of the advisor in the case of students whose command of the language is already excellent. In any case, the candidate must demonstrate a practical competence in oral and written Spanish by an examination to be taken not earlier than the first semester of the senior year.

**SPEECH.** *Major requirement:* 27 semester hours. *Required courses:* 140 or 150, 210, 220, 230, 326, 370, plus 9 additional hours of upper division speech courses. For students wishing to emphasize speech pathology and audiology, Speech 221, 222, 223, 320, 322, 325, and Psychology 250 and 280.

**ZOOLOGY.** *Major requirement:* 30 semester hours. *Required courses:* 101, 390. Credit toward the major will be granted for Genetics 451.

**BACHELOR OF FINE ARTS DEGREE PROGRAM**

This program is designed to provide basic preparation for a career in ceramics, drawing, painting, printmaking, weaving and textiles, and visual design. Requirements include 64 credits in the field of art, of which 18 must be in art history. All students entering a B.F.A. program must take Art 111–112 and 131–132 and are strongly advised to register for both 111 and 131 in their first semester.

**BACHELOR OF MUSIC DEGREE PROGRAM**

*Basic Requirements:* English 101–102, 150–151 or 152–153; French 101–102 (voice only); German 101–102 (voice only); Italian 101–102 (voice only); Health & Physical Education 101 or 102; History 151–152; General Science 120–121; Political Science 110 or History 171; Speech 140 or 150.

*Music Requirements:*

COURSES	SEMESTER HOURS				COURSES	SEMESTER HOURS			
	OBI*	P*	V*	C*		OBI*	P*	V*	C*
181-182, 183-184	14	14	14	14	135-136	6	6	6	2
160, 163-164	5	5	5	5	137-138	6	6	6	2
456-466	3	3	3	3	235-236	6	6	6	2
485-486	4	4	—	4	237-238	6	6	6	—
281, 481	4	—	—	4	113-114, 115-116	4	—	2	4
269, 259	—	4	—	—	111-112, 131, 231	—	2	—	2
487-488, 489-490	—	—	—	8	400, 401, 405, 409	8	6	9	6
483, 484	—	—	—	4	257-258	4	—	4	4

*Music Electives:* OBI, 6 sh; P, 8 sh; V, 8 sh; C, 6 sh.

*Nonmusic Electives:* OBI, 18 sh; P, 18 sh; V, 10 sh; C, 28 sh.

**BACHELOR OF SCIENCE DEGREE PROGRAMS**

**Basic Requirements**

English 101–102 or 105; Math 135–136 and 231; Speech 140 or 150;

\*Possible concentrations: OBI—Orchestral and Band Instruments, P—Piano, V—Voice, C—Composition.



English 150-151, 152-153, or 154-155; Physics 170-175 or, for Chemistry majors only, 160-161; Health and Physical Education: one activity course.

### Distribution Requirements

Twelve semester hours from among the following courses:

Anthropology 101; Art 101; Drama 140; Economics 140 or 150; History 151-152, 171; Music 160; Philosophy 100 or 150; Political Science 110 or 210; Psychology 102; Religion 150 or 151; Sociology 151.

### Majors (B.S. Degree)

**CHEMISTRY.** *Major requirement:* 37 semester hours, in addition to 105-106 or 107, including 143-144, 331-332, 421, 444, 551-552, and a minimum of 6 semester hours from the following: 399, 424, 441, 445, 651, 562, and Biochemistry 601-602.

As a related course, German 153-154 is required.

Recommended electives are Mathematics 401-402 or 431-432, Physics 174, Geosciences 201, one or more courses in biological science, and a minimum of 6 credits in non-science electives.

**GEOSCIENCES.** *Major requirement:* 38 semester hours, including 101-102 or the equivalent, from appropriate offerings in geosciences, chemistry, civil engineering, geography, mathematics, oceanography, and soil science. A student must concentrate in one of the following fields: general, geochemistry, geology, geophysics, hydrology, meteorology, or oceanography. The field of concentration should be stipulated at the beginning of the third year and a suitable program of courses selected with department approval.

### PREPROFESSIONAL AND GRADUATE PREPARATION

By careful planning, students in the College of Arts and Sciences can prepare themselves adequately for admission to professional and graduate schools. This is especially true in view of the increasing emphasis placed upon a liberal arts background by most of the professions.

The College offers the necessary undergraduate courses to meet the entrance requirements of professional schools. Generally the recommendations of the appropriate national professional organizations should be followed. When the student has selected the graduate school which he desires to enter, he can elect the courses to fulfill the specific requirements of the school of his choice.

The College maintains a Life-Sciences Committee prepared to give specific aid to students preparing for schools of dentistry, medicine, osteopathy, or pharmacy. Information regarding the scholastic requirements of the other professions is available at the office of the Dean of the College and at the Counseling and Testing Center.

### Premedical

The following is a recommended program based upon the minimum admission requirements of the most exacting medical schools. The majority of these schools require a bachelor's degree, as well.

#### FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
English 101	3	English 102	3
Foreign language, intermediate year	3	Foreign language, intermediate year	3
Chemistry 105	4	Chemistry 106	4
Mathematics 103	3	Zoology 101	4
Speech 140	2	HPE	1

#### SECOND YEAR

English 150, 152, or 154	3	English 151, 153, or 155	3
Chemistry 143	4	Chemistry 144	4
History 151	3	History 152	3
Mathematics 135	3	Mathematics 136	3

#### THIRD YEAR

Physics 160	4	Physics 161	4
Chemistry 331	4	Zoology 301	3
Zoology 206	3	Philosophy 200	3

It is recommended that premedical students obtain the book entitled *Admission Requirements of American Medical Colleges* (\$4.00; address: AAMC, Dept. 3B, 2530 Ridge Ave., Evanston, Illinois) for detailed information on individual medical schools and their admission policies.

Requirements of dental schools are similar to those of medical schools, with the exception that more do not require a degree from a college.

Schools of pharmacy usually require one year of college study for admission. This must include courses in English, chemistry, zoology, botany, trigonometry, and algebra.

Catalogues of individual schools of medicine, dentistry, and pharmacy with more specific admission requirements and information may be found in Sinclair Library. Interviews with the premedical advisor throughout the program are desirable.

### Prelibrary Science

The majority of library schools offer a basic curriculum consisting of 36 hours of course work and leading to the degree of master of library studies (M.L.S.). In general, these schools require for admission a baccalaureate degree and a good academic record; and they seek students with varying interests, training, and experience.

The student preparing to enter a graduate program in library studies

is advised, although not required, to elect the following courses in his senior year: LS 601 Bibliography and Reference Sources (3 credits) and LS 610 Social Functions of Libraries (3 credits). Credit in these courses is applicable to any B.A. degree offered in the College and generally reduces the requirements of the M.L.S. curriculum accordingly.

Permission to enter this program and further information about it can be obtained from the Office of the Dean of Library Activities.

### **SPECIAL PROGRAMS**

Non-degree programs are offered in the fields of pre dentistry and pre pharmacy. These are administered by the Dean of the College, at whose office detailed information is available.

### **ARTS AND SCIENCES COURSES**

*See p. 46 for a discussion of course descriptions.*

#### **Anthropology (Anth)**

Professors **LEBRA, LUOMALA, MASON**; Associate Professors **JAY, MARETZKI, SOLHEIM**;  
Assistant Professors **COOK, DEWEY, HOWARD**; Instructor **FORCE**

##### **150 INTRODUCTION TO ANTHROPOLOGY (3) I, II**

Human evolution; prehistoric development of culture; recent and contemporary man, common features and principal variations in cultural behavior.

##### **200 CULTURAL ANTHROPOLOGY (3) I**

Nature of culture; basic concepts for analyzing cultural behavior; patterning, integration, and dynamics of culture; culture and the individual.

##### **210 ARCHEOLOGY (3) II**

Introduction to prehistoric archeology; methods and techniques of excavation and laboratory analysis; brief survey of man's cultural growth in prehistoric times. Pre: 150 or 200.

##### **220 ETHNOGRAPHY (3) I**

Comparative study of selected folk, peasant, and urban societies of the world. Pre: 150 or 200.

##### **230 SOCIAL ANTHROPOLOGY (3) II**

Systematic study of human social institutions; general principles of social interaction formulated from ethnographic data. Pre: 150 or 200.

##### **250 OCEANIA (3) I**

Introduction to the native cultures of Polynesia, Micronesia, Melanesia, and Australia. Pre: 150 or 200.

##### **399 DIRECTED READING OR RESEARCH (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in anthropology.

**450 REGIONAL CULTURES OF OCEANIA (3) I, II**

Historical problems and regional developments in ecology, social structure, world view, and other aspects of indigenous cultures. (1) Hawaii, (2) Micronesia, (3) Polynesia, (4) Melanesia. Pre: 200, 250, or consent of instructor. May be repeated.

**460 REGIONAL ARCHEOLOGY (3) I, II**

Regional surveys of prehistoric cultures, based on archeological research. (1) Asia and the Pacific, (2) Europe, Africa, and the Near East, (3) North and South America. Pre: 210, or consent of instructor. May be repeated.

**470 ARTS IN CULTURAL PERSPECTIVE: FOLKLORE (3) I**

Art as an aspect of culture; technique, form, style, and meaning, viewed cross-culturally. Complements Music 471 and Art 473 in which credit towards the major will be granted. Pre: 150 or 200.

**500 ANTHROPOLOGICAL STATISTICS (3) II**

Introduction to statistical methods and their use in the analysis of anthropological data. Pre: 200.

**510 FOUNDATIONS OF ANTHROPOLOGICAL METHOD (3) I**

Empirical and logical bases of the social sciences which are applicable in anthropological inquiry. Pre: 200.

**550 ANTHROPOLOGICAL APPLICATIONS (3) I, II**

Anthropological theory, method, and data applied to problems in specialized fields. Oriented to the needs of students in professional fields who lack anthropological background. (1) Dependency administration, (2) health, (3) education, same as Ed HP 570, (4) overseas operations. Pre: consent of instructor.

**650-651 PROSEMINAR: GENERAL ANTHROPOLOGY (6-6) I, II**

Intensive review of the principal fields of anthropology: biological, archeological, linguistic, social and psychological. Open only to advanced degree candidates in anthropology. Pre: consent of instructor.

**660 SOCIAL ORGANIZATION (3) I**

Analytical study of organized group activity in societies of varied complexity. Theories of kinship and social structure. Pre: 650-651 or equivalent, or consent of instructor.

**665 PSYCHOLOGICAL ANTHROPOLOGY (3) II**

Study of personality in relation to sociocultural systems. Theories and techniques for analysis. Pre: 650-651 or equivalent, or consent of instructor.

**670 ARCHEOLOGY (3) I**

Intensive review of the origin and development of cultures in the Old and New Worlds as revealed by archeology. Pre: 650-651 or equivalent, or consent of instructor.

**675 COMPARATIVE RELIGION (3) II**

Origins and development of magic and religion, primarily among tribal and folk societies. Ritual and symbolism as aids to social and cultural integration. Pre: 650-651 or equivalent, or consent of instructor. (Not offered 1965-66.)

**690 ECOLOGICAL ANTHROPOLOGY (3) II**

Study of the relationship of man with his natural environment, particularly emphasizing the role of culture as a dynamic component in ecological systems. Patterns of production, exchange, property, and consumption. Pre: 650-651 or equivalent, or consent of instructor.

**699 DIRECTED READING OR RESEARCH (Arr.) I, II**

Pre: consent of instructor.

**700 HISTORY OF ANTHROPOLOGY (3) I**

The historical development of anthropology, emphasizing the unity of the diverse fields which constitute the study of man. Pre: 650-651 or equivalent.

**710 ANTHROPOLOGICAL TECHNIQUES (3) II**

Theory construction and research design. Collection of data (objective, subjective, and projective techniques): processing, and evaluation of data. Pre: 510, 650-651 or equivalent, and a course in statistics.

**720-721 ARCHEOLOGICAL TECHNIQUES (3-3) I, II**

Archeological survey and excavation; week-end field trips, mapping, photography, recording. Laboratory analysis and evaluation of field data; preservation and restoration of artifacts. Preparation of materials for publication. Pre: 670 or equivalent, and a course in statistics.

**750 RESEARCH SEMINAR (3) I, II**

Reporting and discussion of selected problems in current research. (1) Archeology, (2) linguistics, (3) ethnography, (4) social anthropology, (5) applied anthropology, (6) psychological anthropology, (7) biological anthropology. Pre: consent of instructor. May be repeated.

**800 THESIS RESEARCH (Arr.) I, II**

## Art

Senior Professor CHARLOT; Professors COX, ECKE, HORAN, KINGREY, NORRIS, ROBINSON, TURNBULL; Associate Professors ANDERSON, ETHERINGTON, NEOGY, TSENG YU-HO; Assistant Professors EVERSON, KIMURA, MCVAY, STASACK; Instructors AIDLIN, BUSHNELL, NELSON, PREBLE

*For art majors Art 171 is prerequisite to other courses in history of Western art and Art 181 to those in Far Eastern art. Others may substitute History 152 or 162 for these prerequisites.*

*Certain courses may be repeated for credit with consent of department chairman.*

*The University reserves the right to retain any student work which may be needed for exhibition or for the art department files.*

## Architecture (Arch)

**116 ARCHITECTURAL GRAPHICS (2) I**

Basic practice in graphic presentation techniques; drafting, orthographic projection, isometric and perspective drawing, shades and shadows, and descriptive geometry. Course fee \$1.00.

**136-137 ARCHITECTURAL DESIGN (2-2) Yr.**

Introduction to the principles of line, form, color, texture, motion, and light. Basic architectural design problems in the creation of form, structure, and space: introduction to elementary industrial designing. Course fee \$1.00.

**138-139 ARCHITECTURAL DESIGN (3-3) Yr.**

Design of simple buildings in relation to environment; discussion, field trips, sketch problems. Pre: Arch 137. Course fee \$1.00.

**171-172 HISTORY OF ARCHITECTURE (3-3) Yr.**

General survey of all periods; reference reading, illustrated lectures, discussions.

**238-239 ARCHITECTURAL DESIGN (3-3) Yr.**

Building programs developed by means of planning, function, group and site; methods of research and analysis; introduction to the elements of landscape architecture. Pre: Arch 139.

**316-317 PROFESSIONAL PRACTICE (3-3) Yr.**

Properties of materials, working drawing, surveying and contemporary drafting room practices. Pre: Arch 116.

**338-339 ARCHITECTURAL DESIGN (3-3) Yr.**

Building complexes as architectural expressions. Civic centers, apartment buildings and shopping centers, their environmental relationships and functions; introduction to the elements of urban planning. Pre: Arch 239.

## Art (Art)

**101 INTRODUCTION TO THE VISUAL ARTS (3) I, II**

Nature of visual art and its expression in various forms. Lectures, demonstrations, museum visits. Course fee \$1.00.

**102 STUDIO IN VISUAL ARTS (3) II**

Elementary problems in various media as an introduction to the basic creative problems in the visual arts. Pre: Art 101. Course fee \$1.00.

**103-104 ART FUNDAMENTALS (2-2) Yr.**

Background material and studio practice to stimulate understanding of the arts. Lectures, museum visits, studio work. Course fee \$1.00 each semester.

**111-112 DRAWING (2-2) Yr.**

Basic principles of drawing in a variety of media. This course or its equivalent is prerequisite to all advanced studio courses. Course fee \$1.00 each semester.

**131-132 VISUAL DESIGN (2-2) Yr.**

Elements and principles of visual organization. This course or its equivalent is prerequisite to all advanced studio courses. Course fee \$1.00 each semester.

**136 WEAVING (2) I, II**

Creative processes of weaving. Warping and threading of simple hand looms and multiple harness looms. Course fee \$7.50.

**137 WEAVING (2) I, II**

Experimentation with techniques and study of pattern drafting. Designing for specific problems. Pre: Art 136. Course fee \$7.50.

**141 CERAMICS (2) I, II**

Methods and principles of creating pottery by hand. Course fee \$10.00.

**142-143 CERAMICS (2) I, II**

Introduction to wheel throwing and emphasis on the designing of utilitarian wares. Pre: Art 141. Course fee \$10.00.

**151-152 SCULPTURE (2-2) Yr.**

A study of the qualities of form and structure in sculpture; methods of construction using a variety of materials and techniques. Course fee \$10.00 each semester.

**171 ASPECTS OF WESTERN ART (3) I, II**

Historical relationship of the major styles in the visual arts of European, African, and post-Colonial American traditions. Course fee \$2.00.

**181 COMPARATIVE ASPECTS OF ASIAN ART (3) I, II**

Historical relationships of the major visual art styles of Asian traditions, including the Pacific area and pre-Colonial Americas. Course fee \$2.00.

**205-206 PHOTOGRAPHY (2-2) I, II**

The camera as a tool of expression and photography as a basic art form. Students are required to have their own cameras. Pre: consent of instructor, Art 131-132. Course fee \$5.00.

**215 INTRODUCTION TO PRINTMAKING (2) I, II**

Introduction to studio practice in intaglio processes. Pre: Art 112, 132. Course fee \$3.00.

**221-222 PAINTING (2-2) Yr.**

Problems in the creation of visual forms. Pre: Art 112, 132, or equivalent. Course fee \$6.00 second semester.

**235 TEXTILE DESIGN (2) I, II**

Execution of individual problems in design on fabrics, utilizing such media as the block print, stencil, silk screen. Pre: Art 132. Course fee \$7.50.

**241-242 ADVANCED CERAMICS (2-2) Yr.**

Wheel throwing, experimentation with form and decorative techniques; exploratory work in field of student's choice. Pre: 143. Course fee \$10.00 per semester.

**251-252 SCULPTURE (2-2) Yr.**

Developing concepts of scale relative to form; techniques of casting, forging and repousse are considered. Pre: Art 152. Course fee \$10.00 each semester.

**281 ART OF SOUTH ASIA (3) I**

The development of the visual arts of Southern Asia, the West Asian context, and the growth of Southeast Asian art.

**311-312 FIGURE DRAWING (2-2) I, II**

Basic principles of drawing the human figure, including the study of anatomy and articulation. The figure as a foundation of knowledge, skill and for its imaginative use. Pre: Art 112. Course fee \$4.00.

**315 PRINTMAKING (2) I, II**

Advanced studio practice in standard and experimental intaglio processes. Pre: Art 112, 132, 311 or equivalent. Course fee \$2.00.

**316 ILLUSTRATION (2) I**

Problems of illustration with emphasis on individual experimentation. Various media for reproduction. Pre: Art 112, 132, or equivalent. Course fee \$2.00.

**321-322 ADVANCED PAINTING (2-2) Yr.**

Continuation of 221-222. Course fee \$6.00 second semester.

**323-324 WATERCOLOR PAINTING (2-2) Yr.**

Technique of watercolor. Studio and outdoor painting. Imaginative expression of form and idea in watercolor. Pre: 112, 132. Desirable preparation: Art 222.

**325 MATERIALS AND TECHNIQUES OF PAINTING (2) II**

Methods emphasizing physical properties and characteristics of materials. Pre: Consent of chairman. Course fee \$10.00.

**326-327 STUDIO: CHINESE PAINTING (2-2) Yr.**

Methods and principles of Chinese painting, landscape, figures, flowers and other subjects; calligraphy. Pre: Art 181. Course fee \$3.00.

**331 THREE-DIMENSIONAL DESIGN (2) I, II**

Development of concepts of visual organization in three dimensions. Pre: Art 112, 132. Course fee \$5.00.

**335 TEXTILE DESIGN (2) I, II**

Originating ideas for fabrics. Printing and execution of individual or collaborative projects. Pre: Art 235. Course fee \$10.00.

**336-337 ADVANCED WEAVING (2-2) Yr.**

Individual problems in weave construction and drafting; yarn and fiber characteristics as structural elements. Pre: Art 137. Course fee \$10.00 per semester.

**343-344 CERAMIC GLAZE CALCULATIONS (2-2) Yr.**

Molecular formulae and the use of raw materials in glaze testing; glaze experimentation, kiln firing, and the care and operation of ceramic equipment. Pre: Art 242. Course fee \$10.00 per semester.

**351-352 SCULPTURE (2-2) Yr.**

Individual projects; the subjective approach to form and experimentation with ideas to achieve or express an individual statement. Pre: Art 252. Course fee \$10.00 per semester.

**363-364 ADVANCED VISUAL DESIGN (2-2) Yr.**

Investigation into the processes of visualization; its expression and control. Pre: Art 112, 132.

**372 ANCIENT ART (3) I**

An historical survey of the visual arts of the Mediterranean Basin from pre-historic times to the Christian era. Course fee \$2.00.

**373 MEDIEVAL ART (3) II**

An historical survey of the visual arts within the Christian sphere from the early Christian era to the Renaissance. Course fee \$2.00.

**374 RENAISSANCE THROUGH ROCOCO (3) I**

An historical survey of the visual arts of Europe during the Renaissance, Mannerist, Baroque, and Rococo periods. Course fee \$2.00.

**375 MODERN ART (3) II**

An historical survey of the visual arts in the West from circa 1790 to contemporary times. Course fee \$2.00.

**382 ART OF CHINA (3) II**

The development of the visual arts in China from pre-historic times to the present. Course fee \$2.00.

**383 ART OF JAPAN AND KOREA (3) II**

The development of the visual arts in Japan and Korea from pre-historic times to the present. Course fee \$2.00.

**390 SENIOR SEMINAR (2) II**

Reports with group discussion to integrate studio practice, art history, theory. Pre: consent of chairman.

**399 DIRECTED WORK (Arr.) I, II**

Criticism and guidance in work of the advanced student's own choosing in the following fields: (1) drawing and printmaking, (2) painting, (3) weaving and textiles, (4) ceramics, (5) sculpture, (6) visual design, (7) Western art, (8) Asian. Course fee \$10.00 for (3), (4), (5). Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in art.



**473 PRIMITIVE ART (3) II**

A survey of the art styles and aesthetic characteristics of Paleolithic and Neolithic societies. Course fee \$2.00. (Alt. yrs.; offered 1965-66.)

**476 ITALIAN RENAISSANCE PAINTING AND SCULPTURE (3) I**

The development of painting and sculpture in Italy during the period of the Renaissance. Course fee \$2.00.

**477 NORTHERN RENAISSANCE PAINTING AND SCULPTURE (3) II**

The development of painting and sculpture in the Netherlands, France, Germany and England during the period of the Renaissance. Course fee \$2.00.

**478 19th CENTURY PAINTING AND SCULPTURE (3) I**

The development of the 19th Century European schools of painting and sculpture. Course fee \$2.00.

**479 20th CENTURY PAINTING AND SCULPTURE (3) II**

The development of painting and sculpture in Europe and the Americas in the 20th Century. Course fee \$2.00.

**487 ARTS OF THE PACIFIC (3) II**

Stylistic and aesthetic characteristics of Arts of Oceania, including Australia, Indonesia, Micronesia and Polynesia. Course fee \$2.00. (Alt. yrs.; not offered 1965-66.)

**565 VISUAL COMMUNICATION (2) II**

Experimental projects of visual design which communicate. Creation of new images and symbols. Pre: Art 264, 363 or equivalent.

**576 ART OF THE UNITED STATES (3) II**

Major developments in the visual arts of the United States from colonial times to the present. Course fee \$2.00. (Not offered 1965-66.)

**585 CHINESE PAINTING (3) II**

Development of Chinese painting. Visits to Academy of Arts. Course fee \$2.00.

**612 FIGURE DRAWING (2) I, II**

Advanced individual problems. Projects in figure composition. Pre: consent of chairman and instructor. Course fee \$4.00.

**615-616 PRINTMAKING (2-2) Yr.**

Individual problems in intaglio, relief, and planographic processes. Pre: Art 415 or equivalent. Course fee \$3.00 per semester.

**621-622 PAINTING (2-2) Yr.**

Individual problems in advanced painting. Pre: consent of chairman and instructor.

**623 WATERCOLOR PAINTING (2) II**

Individual problems in advanced watercolor painting. Pre: consent of chairman and instructor.

**625 MATERIALS AND TECHNIQUES OF PAINTING (2) II**

Advanced problems and experiments in the physical properties of painting materials. Pre: consent of chairman and instructor. Course fee \$10.00.

**636-637 WEAVING (2-2) I, II**

Individual problems in advanced weaving. Pre: consent of chairman and instructor. Course fee \$10.00 per semester.

**641-642 CERAMICS (2-2) I, II**

Individual problems in advanced ceramics, using the potter's wheel and hand building techniques. Pre: consent of chairman and instructor. Course fee \$10.00 per semester.

**643-644 CERAMIC GLAZES AND CLAY BODIES (2-2) I, II**

Individual problems in glazes, clay bodies and firing techniques. Pre: consent of chairman and instructor. Course fee \$10.00 per semester.

**661-662 VISUAL DESIGN (2-2) Yr.**

Individual problems in advanced visual design. Pre: consent of chairman and instructor.

**681 THE ART OF GANDHARA (3) I**

The sphere of Hellenistic influence in India and Central Asia. The origin of the Buddha image. Pre: Art 281. Course fee \$2.00. (Alt. yrs.; offered 1965-66.)

**682 ICONOLOGY IN SOUTH-ASIAN ART (3) II**

Conceptual, symbolic, functional and aesthetic aspects of the icon. Pre: consent of instructor. Course fee \$2.00. (Alt. yrs.; offered 1965-66.)

**683 APPLIED ARTS OF CHINA (3) I**

Ceramics, glyptic arts, metalwork, lacquer, textiles, architecture, furniture, interior design, landscaping. Visits to Academy of Arts. Course fee \$2.00.

**684 CHINESE PAINTING OF MING AND EARLY CHING (3) I**

Historical account of Chinese painting from the 15th to the 17th century. Course fee \$2.00.

**685 CHINESE PAINTING FROM CHING TO THE PRESENT (3) II**

Historical account of Chinese painting from the late 17th century on. Course fee \$2.00.

**686 SPACE AND TIME IN SOUTH-ASIAN ART (3) I**

Determinative concepts in the development of architecture, sculpture and painting. Pre: consent of instructor. Course fee \$2.00. (Alt. yrs.; not offered 1965-66.)

**687 PROBLEMS IN PACIFIC ART (3) I**

Individual projects in the study of Pacific art forms. Pre: consent of instructor. Course fee \$2.00. (Alt. yrs.; offered 1965-66.)

**688 ARTS OF HAWAII (3) I**

Studies in the arts of ancient Hawaii. Analysis and interpretation of Hawaiian sculpture, tapa and feather work. Pre: consent of instructor. Course fee \$2.00. (Alt. yrs.; not offered 1965-66.)

**689 SEMINAR IN ASIAN ART (2) I, II**

Survey of available literature and presentation of papers in fields of the student's choice. Pre: consent of chairman and instructor.

**690 GENERAL SEMINAR (3) I, II**

Historical and critical thought in the visual arts. Taken concurrently with Art 661, 642, 636, or 621. Pre: consent of chairman and instructor.

**699 DIRECTED WORK (Arr.) I, II**

(1) Drawing and printmaking, (2) painting, (3) weaving and textiles, (4) ceramics, (6) visual design, (8) Far Eastern. Course fee by arrangement.

**782 BUDDHIST AND HINDU ART OF INDIA (3) II**

Development of Buddhist and Hindu art in India and the diffusion of Indian art in Asia. Course fee \$2.00.

**783 MEDIEVAL ART OF ORISSA (3) II**

Stylistic development and iconography in Orissa, architecture and sculpture from the 8th to the 13th century. Course fee \$2.00. (Alt. yrs.; not offered 1965-66.)

**784 EARLY CHINESE ART (3) I**

Developments in pottery, jade, bronze, and other arts to the end of Han. Visits to Academy of Arts. Course fee \$2.00.

**786 JAPANESE PAINTING AND SCULPTURE (3) II**

The development of Japanese painting and sculpture from prehistoric times to the present including printmaking. Course fee \$2.00.

**789 MUSEUM STUDIES IN ASIAN ART (3) II**

Detailed critical consideration of the Asian collections of the Academy of Arts. Pre: consent of instructor. Course fee \$2.00.

## Asian and Pacific Languages

Professors ARAKI, ELBERT, SHEN, UYEHARA, YOUNG; Associate Professors LEE, VIGLIELMO, WINTERS; Assistant Professors ARTOLA, CHANG, DE QUELJOE, FUJIOKA, GIBBS, IKEDA, LEE, MAURER, PARK, ROOSMAN, YASUDA; Instructors BAUMER, CHITAKASEM, FUJIKAWA, HASHIMOTO, HIRAI, HO, JENNER, KUOKAWA, MURIKITANI, OKUTSU, SAWADA, SPENCER, TSURUOKA, WAN, WANG, WELLINGTON

### General (AP)

**101-102 DIRECTED ELEMENTARY LANGUAGE STUDY (Arr.)**

Directed study of one of the following languages: Balinese, Cambodian, Cebuano, Fijian, Ilocano, Lao, Marathi, Samoan, Tamil, Trukese, Urdu, Vietnamese, or other Asian and Pacific languages depending on demand and staff. Pre: consent of the chairman.

**161-162 DIRECTED INTERMEDIATE LANGUAGE STUDY (Arr.)**

Continuation of AP 101-102. Pre: consent of the chairman.

**751-752 SEMINAR IN EAST ASIAN COMPARATIVE LITERATURE (3-3) Yr.**

A comparative study of Chinese, Korean and Japanese literature, to explore their interrelations, to trace the influence of one literature on another, to investigate main currents, periods, movements, topics, or themes. Pre: any of the following: Chinese 410 or 418, Japanese 418 or 432, Korean 492.

### Chinese (Chin)

**101-102 ELEMENTARY CHINESE (3-3) Yr.**

Development of four skills, namely listening, speaking, reading, and writing. Structural points introduced inductively. Class meets one hour daily Monday through Friday. Four out of five hours will be devoted to directed drill and practice. Daily laboratory work. Course fee \$3.00 per semester.

**107 ACCELERATED ELEMENTARY CHINESE (6) I**

The class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester the content of Chinese 101-102 will be covered. Course fee \$6.00 per semester.

**151-152 INTERMEDIATE MANDARIN—CONVERSATION (3-3) Yr.**

Advanced conversation with laboratory drill for students who took Chinese 101-102 (Elementary Mandarin—Conversation) prior to Fall 1965. Course fee \$3.00 per semester.

**153-154 INTERMEDIATE MANDARIN—READING (3-3) Yr.**

Selected reading of *Pat-hua* literature. Continuation of Chinese 103-104 (Elementary Mandarin Reading).

**161-162 INTERMEDIATE CHINESE (4-4) Yr.**

Continuation of Chinese 101-102. After completion, the student should have proficiency in using major sentence patterns. Class meets one hour daily Monday through Friday. Four out of five hours will be devoted to directed drill and practice. Daily laboratory work. Course fee \$3.00 per semester. Pre: 102, 107 or equivalent.

**168 ACCELERATED INTERMEDIATE CHINESE (8) II**

Class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester the content of Chinese 161-162 will be covered. Course fee \$6.00 per semester. Pre: 102, 107 or equivalent.

**201-202 ADVANCED CHINESE—CONVERSATION (3-3) Yr.**

Course conducted entirely in Chinese. Lectures, reports, discussions. Pre: 162, 168 or equivalent. Course fee \$3.00 per semester.

**209-210 THIRD-YEAR CHINESE—MODERN (3-3) Yr.**

Reading and discussion of materials related to social sciences. May be taken concurrently with 211-212. Pre: 162, 168 or equivalent.

**211-212 THIRD-YEAR CHINESE—CLASSICAL (3-3) Yr.**

Introduction to classical and contemporary literary styles. May be taken concurrently with 209-210. Pre: 162, 168 or equivalent.

**220 CHINESE COMPOSITION (2) I, II**

Training in modern Chinese composition. Pre: 162, 168 or equivalent.

**231-232 STUDY OF CHINESE CHARACTERS (2-2) Yr.**

Study of the origin, structure and evolution of Chinese characters. Pre: 162, 168 or equivalent.

**251-252 CHINESE FOR READING KNOWLEDGE (3-3) Yr.**

Reading course for those who are not Chinese majors but who are interested in developing their reading skill. Pre: 162, 168 or equivalent.

**401-402 CHINESE LITERATURE IN ENGLISH (3-3) Yr.**

Historical survey of classical Chinese literature (verse and prose) in relation to Chinese culture before 1919. Pre: two semesters of literature in English Department.

**409-410 FOURTH-YEAR CHINESE—MODERN (3-3) Yr.**

Reading and discussion of modern literature: essays, short stories, plays. Pre: 210 or equivalent.

**415-416 CHINESE GRAMMAR (3-3) Yr.**

Linguistic description of modern Chinese-Mandarin: 415—The Morphology of Mandarin Chinese; 416—The Syntax of Mandarin Chinese. Pre: 162, 168 or equivalent.

**417-418 FOURTH-YEAR CHINESE—CLASSICAL (3-3) Yr.**

Readings in advanced classical texts. Pre: 212 or equivalent.

**419 CHINESE PHONETICS AND PHONEMICS (3) I**

Introduction to the basic principles of phonology of Mandarin Chinese and other Chinese dialects representing the Wu, Yueh, and Min families. Lectures in English. Pre: 162, 168 or consent of instructor.

**493 CHINESE BIBLIOGRAPHY (3) I**

Reference materials required for Chinese studies. Pre: 210 and 212 or equivalent.

**611-612 CONTEMPORARY CHINESE LITERATURE (3-3) Yr.**

Representative works of leading modern novelists, poets, and dramatists since 1919. Pre: 210, 212 or equivalent.

**613-614 CHINESE POETRY (2-2) Yr.**

Critical study of classical Chinese poetry in various forms. Pre: 212 or equivalent.

**616 HISTORY OF CHINESE LITERARY CRITICISM (2) II**

Survey of Chinese literary criticism from Confucius to the twentieth century. Pre: 212 or equivalent.

**617 TRADITIONAL CHINESE FICTION (3) I**

Study of major novels of the Yuan, Ming and Ch'ing periods. Pre: 210, 212 or equivalent.

**618 TRADITIONAL CHINESE DRAMA (3) II**

Study of major plays of the Yuan, Ming and early Ch'ing periods (e.g. *Romance of the Western Chamber*, *The Peony Pavilion*, and *The Peach Blossom Fan*). Pre: 210, 212 or equivalent.

**619-620 CHINESE ETYMOLOGY (2-2) Yr.**

Advanced study of relation between Chinese language and writing system, study of characters on oracle bones and bronzes, evolutions and reforms of Chinese characters. Pre: 212, 232 or consent of instructor. (Not offered 1965-66.)

**631 HISTORICAL PHONOLOGY (3) I**

Phonological changes from Archaic Chinese through Ancient Chinese to Modern Chinese represented by Mandarin. Lectures in English. Pre: 419.

**632 MAJOR DIALECTS (3) II**

Study of major Chinese dialects. Lectures in English. Pre: 419.

**641 CONTRASTIVE ANALYSIS OF MANDARIN AND ENGLISH: PHONOLOGY (3) I**

Knowledge of the similarities and differences between English phonology and Mandarin phonology. Pre: 416 and 419.

**642 CONTRASTIVE ANALYSIS OF MANDARIN AND ENGLISH: MORPHOLOGY AND SYNTAX (3) II**

Knowledge of the similarities and differences between English morphology and syntax and Mandarin morphology and syntax. Pre: 641.

**693-694 METHODS IN CHINESE STUDIES (3-3) Yr.**

Main fields of research, special methods evolved, and principal sources of bibliographical information. Pre: 212 or equivalent.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: graduate standing.

**701-702 RESEARCH SEMINAR IN CHINESE (2-2) Yr.**

Specialization in (1) language (2) literature (3) teaching methods. Pre: consent of instructor.

**800 THESIS RESEARCH (Arr.) I, II**

## Hawaiian (Haw)

**101-102 ELEMENTARY HAWAIIAN (3-3) Yr.**

Elements of the language; emphasis on conversation with some attention to Hawaiian songs; laboratory drill. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE HAWAIIAN (3-3) Yr.**

Reading of legends and traditional materials. Conversation with laboratory drill. Conducted in Hawaiian. Course fee \$3.00 per semester.

**211-212 HAWAIIAN TRANSLATION (3-3) Yr.**

Translation of legends, chants, songs, historical documents. English-Hawaiian translation. Pre: 152 or equivalent.

**413-414 HAWAIIAN TRADITIONAL POETRY (3-3) Yr.**

Translation of traditional poetry, including the Pele and Hiiaka cycle, and the Kumu Lipo creation chants. Pre: 152 or equivalent.

### Hindi (Hindi)

**101-102 ELEMENTARY HINDI (3-3) Yr.**

Conversation with laboratory drill. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE HINDI (3-3) Yr.**

Continuation of 102. Reading and conversation with laboratory drill. Course fee \$3.00 per semester.

**211-212 THIRD-YEAR HINDI (3-3) Yr.**

Conversation and advanced reading. Pre: 152 or equivalent.

### Indonesian (Ind)

**101-102 ELEMENTARY INDONESIAN (3-3) Yr.**

Conversation with laboratory drill. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE INDONESIAN (3-3) Yr.**

Continuation of 101-102. Reading and conversation with laboratory drill. Course fee \$3.00 per semester.

**211-212 THIRD-YEAR INDONESIAN (3-3) Yr.**

Conversation and advanced reading. Pre: 152 or equivalent.

**417-418 FOURTH-YEAR INDONESIAN (3-3) Yr.**

Classical Malay literature and reading of Malay texts in Jawi script. Pre: 212.

### Japanese (Jap)

**101-102 ELEMENTARY JAPANESE (3-3) Yr.**

Development of four skills, namely listening, speaking, reading and writing. Structural points introduced inductively. Class meets one hour daily Monday through Friday. Four out of five hours will be devoted to directed drill and practice. Daily laboratory work. Course fee \$3.00 per semester.

**105-106 ELEMENTARY JAPANESE—REVIEW (3-3) Yr.**

Students who already have Japanese background or some degree of Japanese proficiency may enter the course after passing the placement test. Course content similar to Japanese 101-102. Class meets three hours a week. Laboratory drill. Course fee \$3.00 per semester.

**107 ACCELERATED ELEMENTARY JAPANESE (6) I**

The class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester the content of Japanese 101-102 will be covered. Course fee \$6.00 per semester.

**151-152 INTERMEDIATE JAPANESE—CONVERSATION (3-3) Yr.**

Advanced conversation with laboratory drill for students who took Japanese 101-102 (Elementary Japanese—Conversation) prior to Fall 1965. Course fee \$3.00 per semester.

**153-154 INTERMEDIATE JAPANESE—READING (3-3) Yr.**

Continuation of Japanese 103-104 (Elementary Japanese—Reading). More difficult colloquial texts and additional *kanji*.

**161-162 INTERMEDIATE JAPANESE (4-4) Yr.**

Continuation of Japanese 101-102. After completion, the student should have proficiency in using major sentence patterns. Class meets one hour daily Monday through Friday. Four out of five hours will be devoted to directed drill and practice sessions. Daily laboratory work. Course fee \$3.00 per semester. Pre: 102, 106, 107 or equivalent.

**168 ACCELERATED INTERMEDIATE JAPANESE (8) II**

The class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester the content of Japanese 161-162 will be covered. Course fee \$6.00 per semester. Pre: 102, 106, 107 or equivalent.

**201-202 ADVANCED JAPANESE—CONVERSATION (3-3) Yr.**

Course conducted entirely in Japanese. Lectures, reports, discussions. Pre: 162, 168 or equivalent. Course fee \$3.00 per semester.

**211-212 THIRD-YEAR JAPANESE (3-3) Yr.**

Study of modern spoken and written Japanese involving advanced structures, expressions, patterns and *kyoiku kanji*. Must be taken concurrently with Japanese 220 for language concentration students. Pre: 162, 168 or equivalent.

**220 JAPANESE COMPOSITION (2) I, II**

Writing modern compositions following designated patterns, *kanji* and themes. Pre: 162, 168 or equivalent.

**231-232 INTRODUCTION TO MODERN JAPANESE LITERATURE (3-3) Yr.**

Selected readings from modern literary works. May be taken concurrently with 211-212. Required for literature concentration students. Pre: 162, 168 or equivalent.

**251-252 JAPANESE FOR READING KNOWLEDGE (3-3) Yr.**

A reading course for those who are not Japanese majors but who are interested in developing their skill in the reading of textual materials which are pertinent to their areas of research. Pre: 162, 168 or equivalent.

**401-402 JAPANESE LITERATURE IN ENGLISH (3-3) Yr.**

Historical survey of Japanese literature (verse and prose). Comparative study of the literature of Japan and the West to be made when necessary. Pre: two semesters of literature in English department.

**408 STRUCTURE OF JAPANESE (3) I, II**

Phonology, morphology, syntax of modern colloquial Japanese. Pre: a course in general linguistics, 162, 168 or equivalent.

**415-416 JAPANESE GRAMMAR—COLLOQUIAL (3-3) Yr.**

Detailed analysis of modern colloquial grammar. Pre: 154, 162, 168 or equivalent.

**417-418 FOURTH-YEAR JAPANESE (3-3) Yr.**

Study of modern spoken and written Japanese involving complicated structures, expressions, patterns and *Tooyoo kanji*. Must be taken concurrently with 440 for language concentration students. Pre: 212.

**421-422 JAPANESE GRAMMAR—CLASSICAL (3-3) Yr.**

Detailed analysis of the classical language. Pre: 212 or equivalent.

**431-432 INTRODUCTION TO CLASSICAL JAPANESE LITERATURE (3-3) Yr.**

Selected readings from classical literary works. May be taken concurrently with 417-418. Must be taken by students concentrating in literature. Pre: 232 or equivalent. (To be offered in 1966-67.)

**440 ADVANCED JAPANESE COMPOSITION (2) I, II**

Writing advanced modern composition following designated patterns, *kanji* and themes. Pre: 220. (To be offered in 1966-1967.)

**493 REFERENCE MATERIALS FOR JAPANESE STUDIES (3) I**

How to find, use and evaluate reference materials basic to Japanese studies. Pre: 212, 232 or equivalent.

**499 ADVANCED STUDY AND SENIOR ESSAY (2) I, II**

Directed research in an area of Japanese literature, linguistics or dialects. Paper required. Pre: 212, 232 or equivalent.

**611-612 CONTEMPORARY JAPANESE LITERATURE (3-3) Yr.**

Literary movements and representative works since 1868. Pre: 212, 232 or equivalent.

**613-614 EDO LITERATURE (3-3) Yr.**

A survey of the fiction, drama and poetry of the Edo Period. Pre: 418, 432 or equivalent.

**615-616 CLASSICAL JAPANESE LITERATURE (3-3) Yr.**

Study of classical genres and selected readings in representative classical works. Pre: 418, 432 or equivalent.

**619-620 JAPANESE POETRY (3-3) Yr.**

Historical survey of poetical types including *tanka*, *haiku*, *senryuu*, *shi*, and folk songs. Pre: 418, 432 or equivalent.

**631-632 HISTORY OF THE JAPANESE LANGUAGE (3-3) Yr.**

Study of the change and growth of the Japanese language from ancient to modern periods. Pre: 408 or 416, and 422.

**641-642 CONTRASTIVE STUDY OF JAPANESE AND ENGLISH STRUCTURE (3-3) Yr.**

Study of the similarities and differences between English and Japanese structure: phonology, morphology and syntax. Pre: 408.

**643-644 METHODOLOGY IN TEACHING OF JAPANESE AS A SECOND LANGUAGE (3-3) Yr.**

Identification and analysis of problems in language learning and language teaching. Practice in preparing and presenting lessons with materials based on comparative linguistic analysis and using the audiolingual approach. Teaching materials, teaching aids and test construction. Pre: 408.

**694 JAPANESE BIBLIOGRAPHY (3) II**

Advanced studies in historical survey of bibliographic material. Research methods. Pre: 493.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: graduate standing.

**701-702 RESEARCH SEMINAR IN JAPANESE (2-2) Yr.**

(1) Language (2) literature (3) teaching methods. May be repeated. Pre: consent of instructor.

**800 THESIS RESEARCH (Arr.) I, II**

## Javanese (Jav)

**101-102 ELEMENTARY JAVANESE (3-3) Yr.**

Conversation with laboratory drill. Course fee \$3.00 per semester.



## Korean (Kor)

### 101-102 ELEMENTARY KOREAN (3-3) Yr.

Development of four skills, namely listening, speaking, reading, and writing. Structural points introduced inductively. Class meets one hour daily Monday through Friday. Four out of five hours will be devoted to directed drill and practice sessions. Daily laboratory work. Course fee \$3.00 per semester.

### 161-162 INTERMEDIATE KOREAN (4-4) Yr.

Continuation of Korean 101-102. After completion, the student should have proficiency in using major sentence patterns. Class meets one hour daily Monday through Friday. Four out of five hours will be devoted to directed drill and practice sessions. Daily laboratory work. Course fee \$3.00 per semester. Pre: 102 or equivalent.

### 211-212 THIRD-YEAR KOREAN (3-3) Yr.

Advanced conversation, reading, and writing. Additional Chinese characters. Pre: 162 or equivalent.

### 401-402 KOREAN LITERATURE IN ENGLISH (3-3) Yr.

Historical survey of Korean literature (verse and prose). Comparative study of the literature of Korea, China, Japan, and the West to be made when necessary. Pre: two semesters of literature in English department.

### 415-416 KOREAN GRAMMAR (3-3) Yr.

Linguistic description of modern Korean grammar. Pre: Korean 162 or equivalent.

### 417-418 FOURTH-YEAR KOREAN (3-3) Yr.

Introduction to classical and contemporary literary styles. Pre: 212 or equivalent.

### 491-492 CONTEMPORARY KOREAN LITERATURE (3-3) Yr.

A detailed study of modern verse and prose in Korea, with emphasis on different movements and schools. Pre: 212 or equivalent.

### 499 ADVANCED STUDY AND SENIOR ESSAY (2) I, II

Directed research in an area of Korean literature, linguistics, or dialects. Paper required. Pre: 212 or equivalent.

### 693-694 KOREAN BIBLIOGRAPHY (3-3) Yr.

Basic reference and bibliographic materials; their use in Korean studies. Pre: 418 or equivalent.

### 699 DIRECTED RESEARCH (Arr.) I, II

Pre: graduate standing.

### 701-702 RESEARCH SEMINAR IN KOREAN (2-2) Yr.

Specialization in (1) language, and (2) literature. Pre: consent of instructor.

## Pali (Pali)

### 101-102 ELEMENTARY PALI (3-3) Yr.

Reading of basic texts from Pali Canon. Pre: Sanskrit 102.

## Sanskrit (Sansk)

### 101-102 ELEMENTARY SANSKRIT (3-3) Yr.

Elements of grammar and reading.

### 151-152 INTERMEDIATE SANSKRIT (3-3) Yr.

Continuation of 102. Reading of classical texts, with a review of grammar.

**211-212 THIRD-YEAR SANSKRIT (3-3) Yr.**

Reading of Vedic or classical texts. Pre: 152.

**417-418 FOURTH-YEAR SANSKRIT (3-3) Yr.**

Readings in advanced classical texts. Pre: 212 or equivalent.

### Tagalog (Tag)

**101-102 ELEMENTARY TAGALOG (3-3) Yr.**

Conversation and elements of grammar with laboratory drill. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE TAGALOG (3-3) Yr.**

Continuation of 102. Reading and conversation with laboratory drill. Course fee \$3.00 per semester.

### Thai (Thai)

**101-102 ELEMENTARY THAI (3-3) Yr.**

Conversation with laboratory drill. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE THAI (3-3) Yr.**

Reading and conversation with laboratory drill. Course fee \$3.00 per semester.

**211-212 THIRD-YEAR THAI (3-3) Yr.**

Conversation and advanced reading.

### Asian Studies (Asian)

Professors R. ANDERSON, KORNHAUSER, NUNN; Assistant Professor KANG; Instructor JENNER

**301 CIVILIZATIONS OF THE EAST (3) I**

The physical environment and cultural traditions of East, Southeast, and South Asia, before major Western contact.

**302 CIVILIZATIONS OF THE EAST (3) II**

The response of Asian culture to the West; movements of nationalism and modernization; Asia's role today.

**341 TECHNICS OF JAPANESE CIVILIZATION (3) I, II**

Analysis of the technics of Japanese civilization, from an interdisciplinary viewpoint, including a consideration of man's interaction with his environment, interplay of tradition and change, evolution of social patterns, and present economic organization. Pre: consent of instructor.

**521 CIVILIZATIONS OF THE EAST: JAPAN, CHINA, AND KOREA (3) I**

The physical environment and cultural traditions of East Asia.

**522 CIVILIZATIONS OF THE EAST: JAPAN, CHINA, AND KOREA (3) II**

Contemporary East Asia with emphasis on nationalism, economic development, and socio-cultural change.

**523 CIVILIZATIONS OF THE EAST: SOUTHEAST ASIA (3) I**

The physical environment and cultural traditions of Southeast Asia.

**524 CIVILIZATIONS OF THE EAST: SOUTHEAST ASIA (3) II**

Contemporary Southeast Asia with emphasis on nationalism, economic development, and socio-cultural change.

**525 CIVILIZATIONS OF THE EAST: SOUTH ASIA (3) I**

An analysis of divisive and unifying factors in traditional Indian society, including race, religion, class, caste, and language; and an interdisciplinary inquiry into economic development.

**526 CIVILIZATIONS OF THE EAST: SOUTH ASIA (3) II**

Indian thought: great and little traditions; and emergent trends in South Asia.

**699 DIRECTED RESEARCH (Arr.) I, II**

Individual problems and research. Pre: consent of instructor.

**798 SEMINAR IN EAST ASIAN STUDIES (3) I**

Problems of modern Asian nations. Pre: 521-522, or 523-524, or 525-526, or the equivalent.

**800 THESIS RESEARCH (Arr.) I, II**

## Botany (Bot)

Professors BAKER, COOIL, DOTY; Associate Professors GILLETT, LAMOUREUX, PUTMAN, J. LOCKHART; Assistant Professor MUELLER-DOMBOIS

**101 GENERAL BOTANY (4) I, II (2 L, 2 Lb)**

Basic principles of plant biology. This course and Zoology 101 comprise an introduction to biology. Course fee \$5.00.

**105 ETHNOBOTANY (3) I**

Plants and their influence upon the culture of Hawaii and the Pacific; uses of cultivated and wild plants.

**160 IDENTIFICATION OF TROPICAL PLANTS (2) II**

A nontechnical course in identification of common plants of the tropics. Not open to students who have had 360; not credited for the botany major.

**201 THE PLANT KINGDOM (4) II (2 L, 2 Lb)**

Comparative studies of the structure and physiology of plants with reference to their distribution and classification. Pre: 101. Course fee \$5.00.

**353 ECOLOGY I (3) I (2 L, 2 Lb)**

Plant-environmental relations (autecology) with emphasis on tropical conditions. Pre: 201 or consent of instructor. Recommended: 360. Course fee \$3.00.

**360 TAXONOMY OF VASCULAR PLANTS I (3) I (1 L, 2 Lb)**

Identification and classification of vascular plants. This course provides an introduction to systematic botany. Pre: 101. Course fee \$3.00.

**399 BOTANICAL PROBLEMS (Arr.) I, II**

May be repeated. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in botany.

**410 PLANT ANATOMY (3) I (2 L, 1 Lb)**

Structure of vascular plants; origin and differentiation of tissues; relation of structure to function. Pre: 101. Course fee \$5.00.

**412 MICROTECHNIQUE (3) I, II (2 L, 1 Lb)**

Preparation of plant materials for histological and cytological study, photomicrography. Pre: 410 or consent of instructor. Course fee \$8.00.

**418 CYTOLOGY (3) I (2 L, 1 Lb)**

Structure and function of cell components. Pre: 101 or Zoology 101. Course fee \$4.00.

**430 MYCOLOGY (3) I (1 L, 2 Lb)**

The morphology, physiology, and ecology of the fungi, and their identification. Pre: 101 or consent of instructor. Course fee \$4.00.

**436 MEDICAL MYCOLOGY (3) II (1 L, 2 Lb)**

Diagnostic morphology and cultural characteristics of fungi pathogenic to man. Pre: Microbiology 151 or Botany 430. Course fee \$4.00.

**454 ECOLOGY II (4) II (2 L, 2 Lb)**

Community ecology (synecology), ecological land classification, and experimental ecology. Field trips to develop local examples. Pre: 101 or consent of instructor. Recommended: 360. Course fee \$4.00.

**461 TAXONOMY OF VASCULAR PLANTS II (3) II (1 L, 2 Lb)**

Identification and classification of vascular plants. Field studies and herbarium methods. Pre: 360. Course fee \$3.00.

**470 PRINCIPLES OF PLANT PHYSIOLOGY (4) II (3 L, 1 Lb)**

Introduction to plant physiology. Pre: 101; Chemistry 104 or 106; Physics 160 or consent of instructor. Rec: 410 and Chemistry 144. Course fee \$6.00.

**480 PHYCOLOGY (3) II (1 L, 2 Lb)**

Morphology, taxonomy, and ecology of algae. Identification of common algae. Pre: 101 or consent of instructor. Course fee \$4.00.

**610 BOTANICAL SEMINAR (1) I, II**

Study and discussion of significant topics and problems in botany.

**612 ADVANCED BOTANICAL PROBLEMS (Arr.) I, II**

Investigation of any botanical problem; reading and laboratory work. May be repeated. Pre: consent of instructor. Course fee \$2.00.

**615 MORPHOLOGY SEMINAR (2) II**

Recent developments in morphology, anatomy, cytology. Pre: consent of instructor.

**620 EVOLUTION (2) I**

Discussion of principles of evolution with emphasis on plant evolution. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**650 PHYTOGEOGRAPHY (2) II**

Plant geography and general ecology with emphasis on tropical areas. Pre: 101 or consent of instructor. Recommended: 360.

**662 ADVANCED TAXONOMY (3) I (2 L, 1 Lb)**

Modern techniques in plant taxonomy with emphasis on methods utilizing cytogenetics, anatomy, morphology, and physiology. Pre: consent of instructor. Course fee \$3.00.

**665 NOMENCLATURE SEMINAR (2) II**

The code of botanical nomenclature and its application; determination of correct scientific names. Pre: 360. (Alt. yrs.; not offered 1965-66.)

**670-671 ADVANCED PHYSIOLOGY (3-3) Yr.**

Biochemical and physical aspects of plant physiology. Pre: 470; Chemistry 144; Physics 161.

**672 TECHNIQUES IN PHYSIOLOGY (2) I (2 Lb)**

Nutrient absorption and composition; osmotic relations. Pre: 470; Chemistry 144; Physics 161; consent of instructor. Course fee \$5.00.

**673 TECHNIQUES IN PHYSIOLOGY-BIOCHEMISTRY (2) II (2 Lb)**

Determining substances of physiological significance in plant materials. Pre: 672; consent of instructor. Course fee \$5.00.

**675 PHYSIOLOGY SEMINAR (1) I, II**

Significant topics and problems in physiology. May be repeated. Pre: consent of instructor.

**681 PHYCOLOGY—CHLOROPHYTA (2) I (2 Lb)**

Systematics, function, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**682 PHYCOLOGY—PHYTOPLANKTON (2) II (2 Lb)**

Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**683 PHYCOLOGY—MYXOPHYTA AND PHAEOPHYTA (2) I (2 Lb)**

Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; not offered 1965-66.)

**684 PHYCOLOGY—RHODOPHYTA (2) II (2 Lb)**

Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; not offered 1965-66.)

**686 BIOLOGICAL PRODUCTIVITY OF THE SEA (3) I**

Qualities and functions of the sea; relationships to marine organisms. Pre: consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: candidacy for the M.S. degree; consent of instructor. Course fee \$2.00.

**799 DIRECTED RESEARCH (Arr.) I, II**

Pre: candidacy for the Ph.D. degree; consent of instructor. Course fee \$2.00.

## Chemistry (Chem)

Professors NAUGHTON, SCHEUER; Associate Professors FRODYMA, IHRIG, INSKEEP, LARSON, WAUGH, ZEITLIN; Assistant Professors BARNES, KIEFER, MANN, SCHALEGER, WRATHALL

**101-102 SURVEY OF CHEMISTRY (4-4) Yr. (3 L, 1 Lb)**

Survey of general and organic. Pre: high school algebra and plane geometry. Course fee \$10.00 each semester.

**103-104 GENERAL CHEMISTRY (4-4) Yr. (3 L, 1 Lb)**

Fundamental laws, principles, and methods. Pre: high school algebra and plane geometry. Course fee \$10.00 each semester.

**106 QUALITATIVE ANALYSIS (5) II (3 L, 2 Lb)**

Principles, theories, and elementary analytical methods. Pre: 103. Desirable preparation for all subsequent courses. Course fee \$12.00.

**107 GENERAL CHEMISTRY—QUALITATIVE ANALYSIS (5) I (3 L, 2 Lb)**

Principles, theories, and elementary analytical methods. A one semester course which may be substituted for 105-106 by the well-prepared entering student. Pre: Outstanding performance on the chemistry achievement examination. Course fee \$12.00.

**141 ELEMENTS OF ORGANIC CHEMISTRY (4) I (3 L, 1 Lb)**

Intensive course. Chemistry of carbon compounds. Pre: 104 or 106. Course fee \$12.00.

**143-144 ORGANIC CHEMISTRY (4-4) Yr. (3 L, 1 4-Hr. Lb)**

Carbon compounds: Classification, structure, reactions. Laboratory techniques. Pre: 106. Course fee \$12.00 each semester.

**331 ELEMENTARY QUANTITATIVE ANALYSIS (4) I (2 L, 2 Lb)**

Beginning gravimetric and volumetric analysis. Pre: 106; Mathematics 103. Course fee \$11.00.

**332 INTERMEDIATE QUANTITATIVE ANALYSIS (4) II (2 L, 2 Lb)**

Analysis of inorganic mixtures; introductory instrumental analysis. Pre: 331. Course fee \$11.00.

**399 DIRECTED READING OR RESEARCH (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio or 3.0 grade-point ratio in chemistry. Course fee \$5.00 per credit.

**421 INTERMEDIATE INORGANIC CHEMISTRY (3) I**

Classification, description, and fundamental theory. Pre: 552.

**424 PREPARATIVE INORGANIC CHEMISTRY (3) II (1 L, 2 Lb)**

Preparation, properties, selected reactions of representative inorganic compounds. Pre: 421. Course fee \$10.00.

**441 PREPARATIVE ORGANIC CHEMISTRY (3) II (1 L, 2 Lb)**

Techniques and reagents; their application in organic synthesis. Pre: 331, 144. Course fee \$15.00.

**444 QUALITATIVE ORGANIC ANALYSIS (4) I (2 L, 2 Lb)**

Identification and characterization of organic compounds and mixtures. Pre: 331, 144. Course fee \$10.00.

**445 INTERMEDIATE ORGANIC CHEMISTRY (3) I**

Organic reactions with emphasis on modern synthetic methods. Pre: 331, 144.

**551-552 PHYSICAL CHEMISTRY (4-4) Yr. (3 L, 1 Lb)**

Principles and theories; physicochemical procedures. Pre: 106; Mathematics 137; Physics 161. Course fee \$8.00 each semester.

**580 OCEANOGRAPHIC CHEMISTRY (3) II (2 L, 1 Lb)**

Chemistry of oceans. Analytical oceanographic methods. Pre: 331. Course fee \$8.00.

**582 CHEMICAL LITERATURE (2) II**

Use of literature. Library problems. One lecture, one library period. Open to chemistry seniors and graduates.

**621 ATOMIC STRUCTURE (3) I**

Electronic energy states in atoms; x-ray and line spectra, ionization potentials, wave mechanics. Pre: 421, 552.

**622 IONIC COMPOUNDS AND COMPLEXES (3) II**

Electrostatic bond theory; ionic crystals and complexes, crystal structure. Pre: 421, 552.

**623 ATOMIC AND MOLECULAR COMPOUNDS AND COMPLEXES (3) I**

Atomic bond theory; 1-electron, 2-electron and 3-center-electron pair bonds; atomic compounds and complexes. Pre: 421, 552.

**624 METALS AND INTERMETALLIC COMPOUNDS (3) II**

Theory of metals; nature and properties of intermetallic compounds. Pre: 421, 552.

**631 INSTRUMENTAL METHODS OF ANALYSIS (4) I (2 L, 2 Lb)**

Electrical methods, theory instrumentation, application. Pre: credit or registration in 551-552. Course fee \$10.00.

**632 INSTRUMENTAL METHODS OF ANALYSIS (4) II (2 L, 2 Lb)**

Optical methods, theory, instrumentation, applications. Pre: credit or registration in 551-552. Course fee \$10.00.

- 633 ADVANCED CHEMICAL ANALYSIS (4) I (2 L, 2 Lb)**  
Theory and design of analytical determinations. Pre: 552. Course fee \$10.00.
- 642 ORGANIC CHEMISTRY THEORY (3) II**  
Structural theory; reaction mechanisms. Pre: 331, 445.
- 646 QUANTITATIVE ORGANIC ANALYSIS (3) II (1 L, 2 Lb)**  
Elemental and functional group analysis by semimicro and micro methods. Pre: 144, 332. Course fee \$10.00.
- 651 INTERMEDIATE PHYSICAL CHEMISTRY (3) I**  
Chemical thermodynamics. Pre: 552.
- 652 INTERMEDIATE PHYSICAL CHEMISTRY (3) II**  
Chemical reaction kinetics. Pre: 651.
- 655 RADIOCHEMISTRY AND NUCLEAR REACTIONS (3)**  
Isotopes, isobars, isotones, and nuclear isomers; nuclear radiations, their interactions and characteristics; nuclear phenomena. Pre: 552.
- 656 RADIOCHEMICAL TECHNIQUES (3) (1 L, 2 Lb)**  
Modern radiochemical practice; use of radioisotopes as tracers and in activation methods. Pre: 655. Course fee \$10.00.
- 691-692 SEMINAR (1-1) Yr.**  
Current topics in chemistry. Required of graduate students.
- 699 DIRECTED RESEARCH (Arr.) I, II**  
Pre: consent of department chairman. Course fee \$5.00 per credit.
- 731-732 SPECIAL TOPICS IN ANALYTICAL CHEMISTRY (3-3) Yr.**  
Theory, description, and application of modern analytical methods. Pre: 552.
- 741 NATURAL PRODUCTS CHEMISTRY (3) I**  
Recent developments in the field of alkaloids, steroids, terpenes, etc. Pre: 642.
- 742 CHEMISTRY OF CYCLIC COMPOUNDS (3) II**  
Recent developments in carbocyclic and heterocyclic compounds. Pre: 642.
- 743 STEREOCHEMISTRY (3) I**  
Classical concepts, conformational analysis, steric effects. Pre: 642.
- 751 MOLECULAR STRUCTURE (3) I**  
Experimental determination of molecular structure. Electric, magnetic, and spectroscopic methods. Pre: 552.
- 753-754 QUANTUM CHEMISTRY (3-3)**  
Basic ideas of quantum mechanics along with the necessary mathematical tools. Modern theories of the chemical bond. Pre: concurrent registration in Mathematics 401, 422 or 431 or permission of instructor; two years physical chemistry desirable.
- 800 DIRECTED RESEARCH (Arr.) I, II**  
Pre: candidacy for the M.S. or Ph.D. degree; consent of thesis chairman. Course fee \$5.00 per credit.

## Drama and Theatre (Drama)

Senior Professor ERNST; Professor TRAPIDO; Associate Professors BENTLEY, LANGHANS;  
Assistant Professors R. MASON, R. SOLLER; Assistant CALDEIRA

*140 or 150, or the equivalent, is prerequisite to all courses above 429 except as noted. 151, or the equivalent, is prerequisite to all courses in direction, design, stagecraft, and lighting.*

**140 INTRODUCTION TO DRAMA AND THEATRE (3) I, II**

Representative plays from Miller's *Death of a Salesman* to Aeschylus' *Agamemnon*, studied as illustrative of changing forms in the theatre and dramatic literature.

**150 DRAMATIC PRODUCTION (3) I**

Introduction to the process of converting the play into the performance.

**151 BASIC STAGECRAFT AND STAGE LIGHTING (3) II**

Introduction to the theory and practice of stagecraft and lighting.

**200 THEATRE PRACTICE (3) I, II**

Supervised work in one or two areas: stagecraft, lighting, costuming, make-up, business, publicity, acting (only after being cast). A paper is required. May be repeated.

**399 DIRECTED WORK (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in drama and theatre.

**405 PUPPETRY (3) II**

Survey of the history and scope of puppetry. Construction and presentation of puppets for adult and child audiences.

**410 CREATIVE DRAMATICS (3) I**

Intensive study of dramatic activities for children and young people. Designed for teachers, group workers, recreation majors, and others dealing with children.

**415 PLAYWRITING (3) II**

One-act plays; practice in writing in the dramatic form; possibility of production. May be repeated for credit. Pre: 3.0 grade-point or better in English composition.

**420 ACTING (3) I, II**

Individual exercises and group rehearsals. In addition to work in course, students must try out for major productions and must play at least one role in public performance. May be repeated for credit.

**430 DIRECTION (3) I**

Readings, reports, discussion of the theory and practice of stage direction.

**435 DESIGN IN THE THEATRE (3) I**

Principles of design as related to scenery, costume, and lighting for the stage. Pre: consent of instructor.

**440 ADVANCED STAGECRAFT AND STAGE LIGHTING (3) I**

The principles applied, and the techniques used, in contemporary staging and lighting. (Alt. yrs.; offered 1965-66.)

**445 COSTUME FOR THE STAGE (3) II**

A survey of historical costume with special emphasis on the translation of historical styles into theatrical form.

**540 ORIENTAL DRAMA AND THEATRE (3) I**

The principal forms of Oriental drama and the manner of production in the theatre. Pre: consent of instructor. (Not offered 1965-66.)

**550 HISTORY OF THE THEATRE (3) I**

Survey of the development of the theatre from the earliest times to the present.

**620 ADVANCED ACTING TECHNIQUES (3) II**

Individual and group exercises in stage movement and line reading. Research and reports on styles of acting. May be repeated.



**630 PROBLEMS IN DIRECTION (3) II**

Directorial analysis of three plays of different styles and periods; exercises; preparation of prompt books.

**635 ADVANCED DESIGN (3) II**

Advanced study, analytical and creative, of the visual aspects of dramatic art. Pre: consent of instructor.

**640 PROBLEMS IN STAGECRAFT AND STAGE LIGHTING (3) II**

Special topics in the staging and lighting of plays, and in the planning and use of various types of modern theatres. (Alt. yrs.; not offered 1965-66.)

**660 MODERN THEORIES OF STAGE PRESENTATION (3) I**

Theories of production from Antoine to Brecht. Reading, discussion, reports. (Alt. yrs.; offered 1965-66.)

**670 AESTHETICS OF THE THEATRE (3) I**

Consideration of the theatre as an art form. Reading, discussion, reports. (Alt. yrs.; not offered 1965-66.)

**700 ADVANCED THEATRE PRACTICE (3) I, II**

Special projects in one or two areas: stagecraft, lighting, costuming, make-up, business, publicity, acting (only after being cast). A term paper is required. May be repeated for credit.

**710 SEMINAR IN THEATRE RESEARCH (3) I**

Bibliography and research methods; fundamentals of thesis and dissertation writing. Required of all graduate students.

**720 SEMINAR IN DRAMA AND THEATRE (3) II**

Significant topics and problems in the field of drama. Pre: consent of instructor.

**750 SEMINAR IN ORIENTAL THEATRE (3) II**

Special topics in the drama and theatre of the Orient. Pre: consent of instructor. (Not offered 1965-66.)

**799 DIRECTED WORK (Arr.) I, II**

Reading or research in theatre theory or history; reading and practice in particular areas of dramatic production. Pre: consent of instructor.

## Economics (Econ)

Professors GORTER, ICE, KAMINS, MARK, OSHIMA, WISE; Associate Professor SATO, Assistant Professors HOFFMAN, LEFTON, LIM, SARAYDAR, YEH

*Economics 150 and 151 are prerequisite to all other courses.*

**150 PRINCIPLES OF ECONOMICS (3) I, II**

Analysis of functioning of economic systems with emphasis on forces determining levels and changes of national income and employment. Describes basic economic institutions, e.g., markets, money, banks, labor organizations, corporations.

**151 PRINCIPLES OF ECONOMICS (3) I, II**

Analysis of how commodity and factor prices are determined. Discusses policies for efficient allocation of scarce resources. Required of all economics majors.

**240 MONEY AND BANKING (3) I, II**

Study of relation of monetary system to price level, employment and income. Considers the nature and function of money and banking, the role of money in international trade, monetary theories, inflation.

**290 LABOR ECONOMICS (3) I**

Economic analysis applied to the labor market; wages, hours, conditions of work, unemployment, etc.

**300 INTERMEDIATE ECONOMIC THEORY: PRICE THEORY (3) I, II**

Price determination and resource allocation under competition, monopoly, oligopoly, monopolistic competition. Theories of demand, cost, partial, general equilibrium.

**302 INTERMEDIATE ECONOMIC THEORY: NATIONAL INCOME (3) I, II**

Concepts; determination of income, employment, price levels; effects of fiscal, monetary, other policies.

**304 HISTORY OF ECONOMIC THOUGHT (3) I**

Survey of economic thought from Adam Smith to the present with emphasis on the theory of value and distribution. Pre: senior standing.

**399 DIRECTED READING (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in economics, on recommendation by department chairman only.

**410 ASIAN ECONOMIC DEVELOPMENT (3) I**

A general overview of change and growth in economics of major Asian nations. Population and national income growth; savings, investment and consumption patterns. Role of government and private enterprise. Pre: 150.

**416 ECONOMIC DEVELOPMENT OF EUROPE (3) I**

Study of economic growth and changes in economic institutions of Europe since the Industrial Revolution. Pre: 150; 151 highly desirable.

**417 ECONOMIC DEVELOPMENT OF U.S. (3) II**

Emphasizes period since World War I, with growing importance to U.S. economy of international trade and finance. Consideration of changing patterns of investment, consumption and employment. Pre: 150; 151 highly desirable.

**420 QUANTITATIVE METHODS IN ECONOMIC ANALYSIS (3) I**

Designed to give students working knowledge of elements of algebra and calculus, and to apply such mathematics to solution of economic problems. Includes matrix algebra, elements of differential and integral calculus, differential equations and economic model building. Pre: college algebra and 150-151.

**421 QUANTITATIVE METHODS IN ECONOMIC ANALYSIS (3) II**

Includes theory and operations in statistical inference, introduction to econometrics. Covers probability and distribution theory, tests of hypotheses, small sample methods, analyses of variance and regression, correlation analysis, Gauss-Doolittle method, times series and index numbers. Pre: 420 or permission of instructor.

**430 COMPARATIVE ECONOMIC SYSTEMS (3) I**

Analysis of the structure, institutions, operation, performance and growth of private enterprise, socialist, communist and mixed economies, with emphasis on the U.S., U.S.S.R. and underdeveloped economies.

**450 PUBLIC FINANCE (3) I, II**

Considers governmental expenditures, revenues and debt, both descriptively and theoretically. Fiscal policy is considered, as are budgeting and tax administration.

**452 SUBNATIONAL FINANCE (3) I**

Intensive study of fiscal institutions, operations and policy questions within state and local governments in U.S. Consideration of grant program and other links with central government. Pre: 450.

**460 INTERNATIONAL TRADE AND FINANCE (3) I**

Theoretical, institutional and historical aspects of international economic relations are considered, including foreign exchange rates, balance of payments adjustment, tariffs, quotas, and trading blocs.

**462 INTERNATIONAL ECONOMIC POLICY (3) II**

Discussion of problem areas of contemporary interest, such as causes and effects of recent U.S. gold losses, drive for trade liberalization, impact of Common Market, etc. Pre: 460.

**470 GOVERNMENT AND BUSINESS (3) I**

Consideration of economic aspects and consequences of regulation by government of business activity, with emphasis on regulatory boards. Economic analysis is related to policy issues.

**502 AMERICAN ECONOMIC POLICY (3) I**

Analytical techniques are applied to problems of contemporary interest, e.g. effects of automation, regional stagnation, stimulation of investment and consumption.

**600 THEORY OF PRICE AND DISTRIBUTION (3) I**

Develops theoretical apparatus of microeconomics. Pricing of products and of factors of production under partial and general equilibrium is studied, also under varying degrees of competition and monopoly. Pre: 300.

**601 SEMINAR IN PRICE AND DISTRIBUTION THEORY (3) II**

Discussion of selected topics in microeconomic theory, e.g. economics of household; firm and industry; market structure; income distribution; welfare economics; linear programming; decision theory; organization theory. Pre: 301.

**602 THEORY OF INCOME AND GROWTH (3) I**

Keynesian and post-Keynesian theories of aggregative economies, with special attention to factors determining levels of employment, and rates of growth. Also business cycle theories. Pre: 302.

**603 SEMINAR IN ECONOMIC GROWTH AND FLUCTUATIONS (3) II**

Analytical study of aggregate dynamic models of growth and fluctuations: consideration of current literature including the neo-classical and neo-Keynesian models of economic growth, dynamic Leontief models and activity analysis. Pre: 602.

**604 HISTORY OF ECONOMIC THOUGHT (3) II**

Study of the development of economic theories, including classical economics, marginal utility theory, socialism, neo-classical theory, welfare economics, Keynesian and post-Keynesian systems. Pre: 150-151 and 304, or consent of instructor.

**609 ASIAN ECONOMIC HISTORY (3) I**

Discussion of economic history of China, Japan, India and Southeast Asia, with emphasis upon the period after World War II. Consideration of changes in population, labor force, technology, investment, consumption, government. Pre: 410 or consent of instructor.

**619 REGIONAL ECONOMICS (3) II**

Application to problems of regional economics of input-output analysis, linear programming, econometric analysis. Problems include optimal location of economic functions, population and migration, regional income, regional cycle and multiplier analysis. Pre: 420-421, or consent of instructor.

**620 MATHEMATICAL ECONOMICS (3) I**

Application of mathematical methods to economic theory. Partial differentiation, integral calculus, series and expansion, vectors and matrices, determinants, systems of difference and differential equations, stability conditions, inter-industry relations, programming of activities and allocation of resources, aggregation problem, elementary theory of games. Pre: 420-421, or consent of instructor.

**624 ECONOMETRICS (3) II**

Mathematical models of economic behavior and use of advanced statistical methods for testing economic theories and estimating economic parameters. Includes general linear regression models, multivariate analysis, simultaneous equation models, least-square estimation, limited-information technique, identification, auto-correlation and time series analyses. Pre: 620, or consent of instructor.

**626 NATIONAL ECONOMIC ACCOUNTS (3) I**

Theory underlying construction of national economic accounts: methods of estimation of entries in accounts; uses of national accounting statistics. Pre: consent of instructor.

**627 ECONOMIC PROGRAMMING TECHNIQUES (3) II**

Application of input-output analysis, linear programming, and macro-economic models to problems of economic development and planning. Pre: 420, 421, or consent of instructor.

**640 SEMINAR IN MONEY AND BANKING (3)**

Analysis of selected problems in monetary economics, with emphasis on monetary and banking policy. Pre: 240, 302.

**650 SEMINAR IN FISCAL PROBLEMS (3)**

Considers role of public finance in national economy. Examines operation of fiscal devices available to policy makers. Pre: 300, 450.

**660 SEMINAR IN INTERNATIONAL TRADE (3) II**

Modern development in national income theory and welfare economics with relation to international trade. Pre: 300, 302, 460, 462, or consent of instructor.

**662 SEMINAR IN ECONOMIC FOREIGN POLICY (3) II**

Designed to (1) acquaint the student with theories of the design of economic policies as, for example, typified by the work of Jan Tinbergen; (2) demonstrate the use of the economic theory to evaluate economic foreign policies; (3) provide opportunity to undertake research on policy problems. Pre: 300, 302, 460, 462, or consent of instructor.

**670 ECONOMIC DEVELOPMENT (3) I**

Theoretical analysis of factors underlying economic development, with reference to underdeveloped nations. Consideration of policy issues underlying attempts to accelerate economic growth. Pre: 150; 151 or consent of instructor.

**671 ECONOMIC DEVELOPMENT OF JAPAN (3) II**

Analysis of growth from the Meiji period to the present. Problems of population change, capital formation, income distribution, industrial structure. Pre: 670 or consent of instructor.

**672 ECONOMIC DEVELOPMENT OF CHINA (3) II**

Analysis of development from Ch'ing period to present. Special focus on problems of industrialization, economic growth and structural change since 1949. Pre: 670 or consent of instructor.

**673 ECONOMIC DEVELOPMENT OF INDIA (3) I**

Study of recent Indian development, applying theories of development and statistical and analytical techniques.

**690 SEMINAR IN CURRENT LABOR PROBLEMS (3) II**

Pre: consent of instructor.

**699 DIRECTED RESEARCH (2-2) Yr.**

Pre: consent of department chairman.

**710 SEMINAR IN ECONOMIC DEVELOPMENT (3) II**

Case studies, emphasizing research approaches and techniques. Theories of economic development are applied to and checked against experience of certain Asian nations. Pre: 670 or consent of instructor.

**800 THESIS RESEARCH (Arr.) I, II**

## English (Eng)

Senior Professors DAY, STROVEN, WILSON; Professors BOUSLOG, FUJIMURA, HEISER, KORN, LOWERS, STEMPER, SUMMERSGILL; Associate Professors FRIERSON, GEORGE, HUNTSBERRY, LEIB, WINTERS; Assistant Professors BACKUS, BROWN, CRYMES, FRANK, FRIEDSON, GRIFFING, HOLLINGSHEAD, KIRTLEY, E. KRAUSE, LARSON, LESTER, LEVY, MALTBY, MANEY, McCUTCHEON, SCOTT, SIMSON, SINCLAIR, STILLIANS, TEEVAN, THOMPSON, TOPHAM, WELLEIN; Instructors ABRUMS, FOWLER, GAVRELL, GLICK, GLISSMEYER, KENNEDY, LICHTY, LOUGEE, MUSSETTER, NEWTON, SUTLIFF, SWENSON, VELLA, WARREN, WORLEY, WYATT

**101-102 EXPOSITORY WRITING (3-3) Yr.**

101: Training in analysis of expository essays; introduction and practice of principal expository procedures, including assertion, exemplification, definition, classification. 102: Study and practice of argument and persuasion; assembling and organizing research materials; analysis and evaluation of one or two works of imaginative literature; introduction to study of prose style. English 101-102 or 105 is prerequisite to all sophomore literature courses.

**105 EXPOSITORY WRITING (Accelerated) (3) I**

Intensive, one-semester course in the analysis and writing of expository essays, providing practice in different expository procedures, and opportunities for students to improve their prose style. Open only to freshmen who have qualified for the course by their performance on the Freshman English Anticipatory Examination.

**150-151 MAJOR WORKS OF BRITISH AND AMERICAN LITERATURE (3-3) Yr.**

150: Middle Ages to 1800; 151: 1800 to the present. This course or 152-153 or 154-155 is prerequisite to all advanced courses in English.

**152-153 WORLD LITERATURE (3-3) Yr.**

Major works of classical, Oriental, European, American literature. 152: classical times to the Renaissance. 153: 1600 to the present. May be substituted for 150-151.

**154-155 TYPES OF LITERATURE (3-3) Yr.**

Practical criticism in the major genres of European and American Literature. 154: Short story, novel, literary essay, introduction to poetry (narrative). 155: drama, biography, poetry.

**209 WRITTEN COMMUNICATION (3) I, II**

Practice in informative, analytical, and persuasive writing. Open only to students in Business Administration and Home Economics. Pre: 102 and sophomore literature, or equivalents.

**210 TECHNICAL EXPOSITION (3) I, II**

Analysis of selected scientific prose; principles and practice of presenting technical information. Open to juniors and seniors in scientific fields.

**212 LITERARY WRITING (3) I, II**

Writing and criticism of essays, designed to develop effective expression, with emphasis on lively and individual style. Pre: consent of instructor.

**213 NARRATIVE WRITING (3) I, II**

Analysis and writing of short fiction. Pre: consent of instructor.

**215 ADVANCED EXPOSITORY WRITING (3) I, II**

The writing of essays from logical and rhetorical principles, especially modes of definition, assertion, and proof. Emphasis is on clarity, coherence, and style.

**220 STRUCTURE OF AMERICAN ENGLISH (3) I, II**

Introduction to the phonology, morphology, and syntax of present-day American English.

**231 INTRODUCTION TO POETRY (3) I, II**

Written and oral analysis of the imagery, sound, language, and form and structure of poems, leading to increased awareness of the nature of poetry.

**235 BACKGROUNDS OF WORLD LITERATURE (3) I**

The most important sources of European literary themes and allusions, including the King James Bible and Western European myth and legend.

**309-310 JUNIOR HONORS PROGRAM IN ENGLISH (3-3) Yr.**

Individual study of periods of English literature, from Anglo-Saxon times through the 15th century. Tutorial methods. Consult departmental honors advisor.

**313 ADVANCED FICTION WRITING (3) II**

Study of modern fiction; application of principles of narrative craftsmanship. Pre: consent of instructor.

**329 SENIOR HONORS PROGRAM IN ENGLISH (3) I**

Individual study of 16th century English literature. Tutorial method. Consult departmental honors advisor.

**336 INTRODUCTION TO LITERARY PROBLEMS (3) I, II**

Critical evaluation of the genres of literature, of various modes of analysis, and of problems involved in literary perception.

**425 MODERN ENGLISH GRAMMAR (3) I, II**

Survey of the prestructural, structural, and generative-transformational descriptions of modern English grammar.

**440 ENGLISH DRAMA TO 1642 (3) I**

Origins of English drama; medieval drama and theatre; contemporaries and successors of Shakespeare.

**443-444 MODERN DRAMATIC LITERATURE (3-3) Yr.**

443: European, Ibsen and Chekhov to Shaw, 1880-1920. 444: European and American, O'Casey to Miller, 1920 on.

**447 THE ENGLISH NOVEL TO 1832 (3) I**

A historical and critical study of the development of English prose fiction during the 18th and early 19th centuries, with emphasis on the rise of the realistic novel.

**448 THE ENGLISH NOVEL, 1832-1900 (3) II**

A historical and critical study of the development of the English novel from Charles Dickens to Thomas Hardy.

**451 MEDIEVAL ENGLISH LITERATURE (3) I**

Representative Old and Middle English poetry, prose, exclusive of Chaucer, with continental backgrounds; chiefly in translation.

**452 CHAUCER (3) II**

A study of Chaucer's development from the early poems through *The Canterbury Tales*.

**455 SIXTEENTH-CENTURY ENGLISH LITERATURE (3) I**

Poetry and prose of the Tudor period, exclusive of the drama.

**457-458 SHAKESPEARE (3-3) Yr.**

457: Shakespeare's plays from the beginning to *Hamlet*. 458: from *Hamlet* through the last plays.

**460 EARLY SEVENTEENTH-CENTURY ENGLISH LITERATURE (3) II**

Poetry and prose of the 17th century to 1660, exclusive of the drama.

**465 RESTORATION LITERATURE (3) I**

Poetry, prose, and drama from 1660 to 1700, exclusive of Milton.

**466 MILTON (3) I**

Selected poetry and prose.

**470 EARLY EIGHTEENTH-CENTURY ENGLISH LITERATURE (3) I**

Poetry, prose (exclusive of the novel), and drama from 1700 to 1740, with emphasis on the works of Pope and Swift.

**471 LATE EIGHTEENTH-CENTURY ENGLISH LITERATURE (3) I, II**

Poetry, prose (exclusive of the novel), and drama from 1740 to 1780, with emphasis on the works of Johnson and his circle.

**480 THE ROMANTIC MOVEMENT IN ENGLAND (3) I**

Poetry and prose from 1780 to 1832, exclusive of the novel.

**485 VICTORIAN LITERATURE (3) I**

Poetry and prose from 1832 to 1870, exclusive of the novel.

**486 VICTORIAN LITERATURE (3) II**

Poetry and prose from 1870 to 1914, exclusive of the novel.

**490 TWENTIETH-CENTURY BRITISH NOVEL (3) II****571-572 AMERICAN LITERATURE (3-3) Yr.**

571: from the beginnings to the Civil War. 572: from the Civil War to the present.

**573 AMERICAN LITERATURE AND CULTURAL HISTORY (3) II**

Studies in the relations of American literature to American culture before 1900. Pre: 571 or the equivalent.

**585 LITERATURE OF THE PACIFIC (3) II**

Pacific islands, Australia: narratives of voyagers, translations of native literature, fiction by Melville, Stevenson, London, Becke, Nordhoff, Hall.

**590 TWENTIETH-CENTURY AMERICAN NOVEL (3) I**

**592 TWENTIETH-CENTURY BRITISH AND AMERICAN POETRY (3) II****601 THE TEACHING OF ENGLISH COMPOSITION (3) I, II**

Analysis and writing of English prose. Emphasis on methods of teaching composition to students of English as a second language. For MATESL students.

**602 THE TEACHING OF ENGLISH LITERATURE (2) I**

Methods of teaching reading and literature to students of English as a second language. Brief survey of British and American literature. For MATESL students.

**603 TEACHING ENGLISH COMPOSITION AND TEXTBOOK WRITING (3) II**

Survey of methods, procedures, and theory of teaching English composition and introduction to the specialized skills of planning and writing textbooks for the teaching of English as a second language. For TIP only.

**620 SEMINAR IN TEACHING COMPOSITION (3) I**

Theory and observation of the teaching of composition at the college level. Pre: consent of instructor.

**621 STUDENT TEACHING OF COLLEGE COMPOSITION (3) I, II**

Supervised experience in teaching composition at the college level. Pre: 620 or the equivalent.

**622 TEACHING ENGLISH AS A SECOND LANGUAGE (3) II**

Identification and analysis of problems in language learning and language teaching. Practice in preparing and presenting lessons in pronunciation, grammar, and vocabulary with materials based on comparative linguistic analysis and using the oral approach. Survey of materials and teaching aids. For MATESL students.

**623 TEACHING ENGLISH AS A SECOND LANGUAGE AND LANGUAGE TEST CONSTRUCTION (3) II**

Introduction to planning and writing textbooks for teaching of English as a second language. Similar to 622, but for students in Teacher Interchange Program.

**625 HISTORY OF THE ENGLISH LANGUAGE (3) II**

Growth and development of the English language; sources, forms, mutations, and standards of usage.

**630 SEMINAR IN RESEARCH METHODS (3) I, II**

Kinds of research, problems of bibliography, fundamentals of thesis writing. Required of all candidates for the M.A. degree in English.

**635 SEMINAR IN COMPARATIVE LITERATURE (3) II**

Introduction to comparative literature; relationship of English to other European literatures; sources and influences. Pre: consent of instructor.

**636 HISTORY OF LITERARY CRITICISM (3) I, II**

Chief theories of literary criticism, with readings (in English) from Plato to the present.

**640 OLD ENGLISH (3) I**

Structure of the language, relation to present English; reading of selected prose and poetry. Pre: consent of instructor. (Alt. yrs.; not offered in 1965-66.)

**657 SEMINAR IN SHAKESPEARE (3) II**

Intensive study of Shakespeare. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**660 MAJOR AUTHORS (3) I**

Study of one or more authors, English or American.



**675 LITERARY GENRES AND PROBLEMS (3) II**

Study of one area of English or American literature.

**685 SEMINAR IN ENGLISH LITERATURE (3) I, II**

Study of authors or a period. Pre: consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

Individual reading or research. Pre: consent of instructor.

**723 TEXTBOOK AND TEST CONSTRUCTION (3) II**

Introduction to specialized skills of planning and writing language textbooks and constructing language tests for specific native language backgrounds. For MATESL students. Pre: 622.

**780 SEMINAR IN AMERICAN LITERATURE (3) I, II**

Intensive study of one or two writers. Pre: consent of instructor.

**785 SEMINAR IN AMERICAN LITERATURE (3) I, II**

Study of a problem or a period. Pre: consent of instructor.

### Journalism (Journ)

**111 PUBLICATIONS WORKSHOP (1) I, II**

Reporting, copy editing, advertising copywriting, proofreading, and photography under supervision of publications executives and instructor.

**205 NEWS WRITING (3) I**

Fundamentals of news style, reporting, ethics. Pre: English 102.

**206 NEWS EDITING (3) II**

News and photo editing, headline writing, publications makeup. Pre: 205.

**207 EDITORS WORKSHOP (2) I, II**

Restricted to and required of executives of student publications. Pre: 206.

**239 MASS COMMUNICATIONS (3) I**

History of popular literature; mass media in modern society; principles of mass communications.

**315 INVESTIGATIVE REPORTING (2) I, II**

Preparing specialized material for mass media, with emphasis on the problems of objectivity, analysis, and interpretation. Pre: consent of instructor. May be repeated for credit.

**316 EDITING AND PUBLISHING (3) II**

Illustration and typographical design; printing processes; newspaper and magazine management; editorial responsibility; laws of libel and copyright. Pre: Journalism 206.

**385 DIRECTED WORK (3) I, II**

Internship in media operations under professional and faculty supervision. Pre: consent of instructor.

### European Languages

Professors ASPINWALL, MUELLER; Associate Professors HADLICH, HOLTON, JACKSON, KNOWLTON, WISWELL; Assistant Professors S. BACIU, ELLIOTT, JONAS, MICHALSKI, M. MONTES, SARAYDAR, SCHORRIG; Instructors M. BACIU, BURKETT, DOUYERE, HAAS, KELLER, Y. MONTES, MOORE, PHILIPP, SYDOW, THEUMA

## General (EL)

### 630 SEMINAR IN RESEARCH METHODS (2) II

A study of available source material in European languages with emphasis upon basic research tools and methods.

## French (Fr)

### 101-102 ELEMENTARY FRENCH (3-3) Yr.

Conversation, laboratory drill, grammar, reading. Course fee \$3.00 per semester.

### 151-152 INTERMEDIATE FRENCH (3-3) Yr.

Reading, conversation, laboratory drill, composition. Pre: 102 or the equivalent. Course fee \$3.00 per semester.

### 211-212 CONVERSATION AND COMPOSITION (3-3) Yr.

Reading and discussions to develop insight into French literature and culture with major emphasis on strengthening facility with the language; laboratory drill. Pre: 152. Course fee \$3.00 per semester.

### 401 LITERATURE SINCE 1800 IN TRANSLATION (2) II

Rapid reading in translation; lectures, discussion, and reports. Not open to French majors. Pre: two semesters of literature courses in the English department. (Alt. yrs.; offered 1965-66.)

### 411-412 LITERATURE OF THE GOLDEN AGE (3-3) Yr.

Emphasis on Corneille, Descartes, La Fontaine, Moliere, Pascal, Racine. Conducted in French.

### 413-414 THE EIGHTEENTH CENTURY (2-2) Yr.

Voltaire, Rousseau, Marivaux, Montesquieu, Diderot, Prevost, Beaumarchais. Conducted in French. Pre: 202. (Alternates with 415-416; offered 1965-66.)

### 415-416 LITERATURE OF THE NINETEENTH CENTURY (2-2) Yr.

Novels, plays, poetry representative of romanticism, realism, naturalism, symbolism. Conducted in French. Pre: 202. (Alternates with 413-414; not offered 1965-66.)

### 417-418 LITERATURE OF THE TWENTIETH CENTURY (3-3) Yr.

Novels, plays, poetry. Conducted in French.

### 601 SEMINAR IN MODERN FRENCH LITERATURE (2) II

Study of authors and movements of the modern period. Pre: consent of instructor.

### 609 FRENCH RENAISSANCE (3) II

Poetry, theatre, prose. Emphasis on Montaigne and Rabelais. Lectures, discussions, reports. Conducted in French. Pre: consent of instructor.

### 660 ADVANCED COMPOSITION AND STYLISTICS (2) I

Designed to give mastery of structure and phrasing. Translation into French, discussion, composition. Pre: consent of instructor.

### 671 HISTORY OF THE LANGUAGE (2) I

Historical and cultural history of the development of the French language from the classical Latin roots to the present. Examples drawn from readings in pre-medieval literature. Pre: Latin 101 or equivalent.

### 672 MEDIEVAL LITERATURE (2) II

The beginnings of French literature through the 15th century. Emphasis on theatre, prose, satire, and didactic literature.

### 699 DIRECTED RESEARCH (Arr.) I, II

Pre: consent of chairman.

### 800 THESIS RESEARCH (6)

## German (Ger)

### 101-102 ELEMENTARY GERMAN (3-3) Yr.

Reading, conversation, laboratory drill, grammar. Course fee \$3.00 per semester.

### 151-152 INTERMEDIATE GERMAN (3-3) Yr.

Reading, conversation, laboratory drill, composition. Pre: 102 or equivalent. Course fee \$3.00 per semester.

### 153-154 INTERMEDIATE: SCIENCE GERMAN (3-3) Yr.

Accurate reading over a wide range of subjects. Emphasis on sentence construction and vocabulary building. Pre: 102 or equivalent.

### 201-202 INTRODUCTION TO GERMAN LITERATURE (3-3) Yr.

Readings and discussions designed to develop the student's insight into German literature and culture and to strengthen his command of the language; laboratory drill. Pre: credit or concurrent registration in 206. Course fee \$3.00 per semester.

### 205-206 COMPOSITION AND CONVERSATION (3-3) Yr.

Designed to develop proficiency in German sentence structure and phrasing; conversation; laboratory drill; exact composition on literary subjects. Pre: 152. Course fee \$3.00 per semester.

### 411-412 THE CLASSICAL PERIOD (3-3) Yr.

Representative works of Lessing, Goethe, Schiller, interpreted within the literary framework of their time. Pre: 202 or the equivalent. (Alternates with 413-414; not offered 1965-66.)

### 413-414 THE MODERN PERIOD (3-3) Yr.

Poetic realism to naturalism; from New Functionalism to the present. Pre: 202 or equivalent. (Alternates with 411-412; offered 1965-66.)

### 416 RENAISSANCE AND BAROQUE LITERATURE (3) II

Chief works of poetry and prose during the Renaissance and Baroque periods. Pre: 152. (Alternates with 418; not offered 1965-66.)

### 417 THE GERMAN DRAMA (3) II

Representatives from the chief literary periods. Pre: 202. (Alternate years; offered 1965-66.)

### 418 THE ROMANTIC MOVEMENT (3) I

Chief works of poetry and prose during the Romantic Period. Pre: 202. (Alternates with 416; offered 1965-66.)

### 601 HISTORY OF THE GERMAN LANGUAGE (3) I

Development of the language from its beginnings to the present.

### 602 COMPOSITION AND STYLISTICS (3) II

Designed to develop a lucid German idiom and style.

### 615 MIDDLE HIGH GERMAN MASTERPIECES (3) II

Study of the chief works in their original and modern German versions.

**693 SEMINAR IN GERMAN LITERATURE (5) I, II**

Four cycles: (a) German Novel, 18th and 19th centuries; (b) Goethe's *Faust*; (c) German Lyric Poetry; (d) German Novel, 20th century.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of chairman.

**800 THESIS RESEARCH****Greek (Greek)****101-102 ELEMENTARY GREEK (3-3) Yr.**

Vocabulary and grammar with reading of simple Greek.

**151-152 INTERMEDIATE GREEK (3-3) Yr.**

Review of grammar; readings from selected prose and poetry. Pre: 102 or the equivalent.

**158 ADVANCED COMPOSITION (3) II**

A close study of the structure of the language with an opportunity for the student to write prose compositions in Greek. Pre: 152.

**301 NEW TESTAMENT (3) I**

Selections from St. John, St. Luke, St. Mark. Pre: 152. (Alternate years, not offered 1965-66.)

**401 GREEK CIVILIZATION (3) I**

Study of the history, art, and culture of Greece. Pre: History 151 or 161 or Latin 101, or Greek 101 or the equivalent. (Alt. yrs.; not offered 1965-66.)

**403 GREEK LITERATURE (3) I**

Major writers of Greece in translation. Pre: two semesters of literature courses in the English department. Not open to Greek majors.

**410 PLATO (3) I**

Selections from the *Apology*, *Crito*, *Phaedo*. Pre: 152. (Alternate years; not offered 1965-66.)

**421 HOMER (3) II**

Selections from the *Odyssey*. Pre: 152. (Alternate years; not offered 1965-66)

**432 DRAMA (3) II**

Translations of Sophocles' *Oedipous Tyrannos* and Euripides' *Andromache*. Pre: 152. (Alternate years; not offered 1965-66.)

**490 SEMINAR (2) I, II**

Four-year cycle:

- 1) Historians—selections from Herodotos, Thucydides.
- 2) Lyric Poetry—Pindar, Alcaeus, Anacreon, etc.
- 3) Aristophanes—*Clouds*, *Frogs*, *Lysistrata*.
- 4) Pre-Socratics—study of the development of the Ionian and Eleatic schools of philosophy.

Pre: 152. May be repeated for credit.

**Italian (Ital)****101-102 ELEMENTARY ITALIAN (3-3) Yr.**

Reading, conversation, laboratory drill, grammar. Course fee \$3.00 per semester. (Not offered 1965-66.)

**151-152 INTERMEDIATE ITALIAN (3-3) Yr.**

Reading, conversation, laboratory drill, grammar, compositions. Pre: 102. Course fee \$3.00 per semester. (Not offered 1965-66.)

## Latin (Latin)

### 101-102 ELEMENTARY LATIN (3-3) Yr.

Vocabulary and grammar, with reading of simple Latin.

### 151-152 INTERMEDIATE LATIN (3-3) Yr.

Review of grammar, reading of selections from prose and poetry. Pre: 102 or the equivalent.

### 157 ADVANCED COMPOSITION (3) I

A close study of the structure of the language with an opportunity for the student to write prose compositions in Latin. Pre: 152.

### 401 HISTORIANS (3) I

Reading of Livy and Tacitus. Pre: 152. (Alternates with 410; offered 1965-66.)

### 402 ROMAN CIVILIZATION (3) II

Study of the history, art, and culture of Rome. Pre: History 151 or 161, or Latin 101, or Greek 101. (Alt. yrs.; not offered 1965-66.)

### 404 ROMAN LITERATURE (3) II

Major writers of Rome in translation. Pre: two semesters of literature courses in the English department. Not open to Latin majors.

### 410 LYRIC POETS (3) I

Selections from the foremost Latin lyricists, Horace, Catullus, Propertius, Tibullus. Pre: 152. (Alternates with 401; not offered 1965-66.)

### 421 SATIRE (3) II

Selections from Horace, Juvenal, Martial. Pre: 152. (Alternates with 422; not offered 1965-66.)

### 422 DRAMA (3) II

Reading of Plautus and Terence. Pre: 152. (Alternates with 421; offered 1965-66.)

### 490 SEMINAR (2) I, II

Three-year cycle:

- 1) Vergil—a literary study of the *Aeneid*.
- 2) Cicero—*Tusculan Disputations*.

- 3) Patristic Literature—Selections from the early Christian writers: Tertullian, Lactantius, Ambrose, Augustine, Jerome.

Pre: 152: May be repeated for credit.

## Portuguese (Port)

### 101-102 ELEMENTARY PORTUGUESE (3-3) Yr.

Reading, conversation, laboratory drill, grammar. Course fee \$3.00 per semester.

### 151-152 INTERMEDIATE PORTUGUESE (3-3) Yr.

Reading, conversation, writing, laboratory drill. Pre: 102 or the equivalent. Course fee \$3.00 per semester.

## Russian (Rus)

### 101-102 ELEMENTARY RUSSIAN (3-3) Yr.

Conversation, lab drill, reading, writing, grammar. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE RUSSIAN (3-3) Yr.**

Reading, conversation, laboratory drill, grammar and composition. Pre: 102 or the equivalent. Course fee \$3.00 per semester.

**153-154 INTERMEDIATE: SCIENTIFIC RUSSIAN (3-3) Yr.**

Rapid reading and translation; sentence structure and vocabulary. Pre: 102 or equivalent.

**158-159 CONVERSATION AND COMPOSITION (3-3) Yr.**

Further training in oral expression and composition; grammar review; practice in writing; vocabulary building. Pre: 152 or 154.

**201-202 INTRODUCTION TO RUSSIAN LITERATURE AND CIVILIZATION (3-3) Yr.**

Emphasis on strengthening facility with the language through reading and discussion of Russian literature and culture. Pre: 152 or 154.

**402 NINETEENTH-CENTURY NOVEL (3) II**

Survey of important novelists in translation, particularly Gogol, Goncharov, Turgenyev, Dostoevsky, and Tolstoi. Not open to Russian majors. Pre: two semesters of literature courses in the English department. (Alt. yrs.; not offered 1965-66.)

**404 LITERATURE OF THE EIGHTEENTH CENTURY (3) II**

Representative reading and discussion of the more important writers before Pushkin. Pre: 202 or consent of instructor. (Alternates with 420; offered 1965-66.)

**411-412 LITERATURE OF THE NINETEENTH CENTURY (3-3) Yr.**

Reading and discussion of representative writers beginning with Pushkin. Pre: 202 or consent of instructor. (Alternates with 413-414; offered 1965-66.)

**413-414 LITERATURE OF THE TWENTIETH CENTURY (3-3) Yr.**

Representative writers before the revolution and contemporary Soviet writers. Pre: 202 or consent of instructor. (Alternates with 411-412; not offered 1965-66.)

**415 RUSSIAN POETRY (2) I**

Reading and discussion of classical and contemporary Russian poets. Pre: 202 or consent of instructor. (Alternates with 417; not offered 1965-66.)

**417 RUSSIAN DRAMA (2) I**

Representative plays of the 18th, 19th, and 20th centuries. Pre: 202 or consent of instructor. (Alternates with 415; offered 1965-66.)

**420 HISTORY OF THE RUSSIAN LANGUAGE AND EARLY RUSSIAN LITERATURE (2) II**

Study of the development of the Russian language. Representative readings in Russian literature through the 17th century. Pre: 202 or consent of instructor. (Alternates with 404; not offered 1965-66.)

**493 SEMINAR IN RUSSIAN LITERATURE (2) I**

Important literary movement. Pre: consent of instructor.

**699 DIRECTED READING (Arr.) I, II**

Pre: consent of instructor.

## Spanish (Span)

**101-102 ELEMENTARY SPANISH (3-3) Yr.**

Beginning course, primarily emphasizing oral practice. Laboratory drill. Course fee \$3.00 per semester.

**151-152 INTERMEDIATE SPANISH (3-3) Yr.**

Continuation of oral practice, with increasing emphasis on reading and written composition. Laboratory drill. Pre: 102 or the equivalent. Course fee \$3.00 per semester.

**203-204 ADVANCED GRAMMAR AND COMPOSITION (3-3) Yr.**

A more detailed study of problem areas of Spanish grammar. Cultivation of accuracy and elegance in written expression.

**230 PHONETICS AND PRONUNCIATION PRACTICE (2) II**

Analysis of the Spanish phonological system, in contrast with English. Practice designed to perfect the student's own pronunciation; laboratory drill. Course fee \$3.00 per semester.

**260-261 SPANISH AND SPANISH-AMERICAN CIVILIZATION (3-3)**

Survey of the culture and institutions of modern Spain and Spanish America, with some attention to their historical backgrounds. Pre: 152 or the equivalent.

**360-361 PENINSULAR LITERATURE (3-3)**

Survey of Spanish Peninsular literature covering major authors and movements. (Alt. yrs.; offered 1965-66.)

**370-371 SPANISH-AMERICAN LITERATURE (3-3)**

Survey of Spanish-American literature covering major authors and movements. (Alt. yrs.; not offered 1965-66.)

**400-401 ADVANCED ORAL PRACTICE (3-3) Yr.**

Systematic practice designed to continue on an advanced level the student's control of spoken Spanish. Attention to the further development of a vocabulary which will permit accurate and mature expression on a variety of topics. Laboratory drill. Course fee \$3.00 per semester.

**430 SPANISH DIALECTOLOGY (3) I**

Study of the principal regional and social variants from cultured standard Castilian to be encountered in the language of the Iberian Peninsula, America, and the Philippines. (Alt. yrs.; offered 1965-66.)

**440 HISTORY OF THE SPANISH LANGUAGE (2) II**

Pre: Spanish 152 or the equivalent; one semester of college Latin or the equivalent. (Alt. yrs.; offered 1965-66.)

**450 THE STRUCTURE OF SPANISH (3) II**

Phonological, morphological, and syntactic structure of contemporary Spanish, as analyzed by descriptive linguists. Pre: Anthropology 202 or the equivalent and Spanish 152, or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**460-461 MODERN AND CONTEMPORARY SPANISH LITERATURE (3-3)**

Reading and discussion of modern and 20th century peninsular authors. Studies of recent trends. (Alt. yrs.; not offered 1965-66.)

**480-481 SPANISH-AMERICAN NOVEL (3-3)**

Reading and discussion of important Spanish-American prose writers. (Alt. yrs.; offered 1965-66.)

**628-629 STYLISTICS AND ADVANCED COMPOSITION (3-3)**

Study and analysis of representative prose selections which exhibit variations in style such as colloquial, informal, formal expository, poetic, epistolary and the like. Practice in written composition in the various styles analyzed. (Alt. yrs.; offered 1965-66.)

**659 SEMINAR IN SPANISH LINGUISTICS (3) I**

Study of a problem or problems in Spanish linguistics. Pre: consent of instructor. (May be repeated.)

**661 CERVANTES (2) I**

The works of Cervantes. (Alt. yrs.; offered 1965-66.)

**665 SPANISH LITERATURE PRIOR TO THE GOLDEN AGE (3) I**

The major works and trends of periods prior to the Golden Age. The epic, poetry, and prose. (Alt. yrs.; not offered 1965-66.)

**670 SPANISH LITERATURE OF THE GOLDEN AGE (3) II**

Representative readings in poetry, drama, and prose of the 16th and 17th centuries. (Alt. yrs.; not offered 1965-66.)

**675 MODERNISMO (2) II**

Study of the works of the important poets of the Modernist movement in Spanish America. (Alt. yrs.; offered 1965-66.)

**690 HISPANO-PHILIPPINE LITERATURE (2) I**

Study of the important writers in Spanish from the Philippine Islands. (Alt. yrs.; offered 1965-66.)

**698 SEMINAR IN HISPANIC LITERATURE (3) II**

Study of a period, author, genre or region. Pre: consent of instructor. (May be repeated.)

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of chairman.

**800 THESIS RESEARCH**

## General Science (Sci)

Professor BERNATOWICZ; Associate Professor KAY; Instructors DANGLER, FORSTER, LEWIS

**120-121 INTRODUCTION TO SCIENCE (4-4) Yr.**

Characteristics of science and interactions of society with science, illustrated by topics from physical and biological science. The sequence starts in the fall semester. Course fee \$1.50 each semester.

**317 JUNIOR HONORS SEMINAR IN BIOLOGY (1) I**

Orientation, survey of research areas, and specialized reading. Required for graduation with honors in any field of the biological sciences.

**520 CASE HISTORIES IN SCIENCE (3) II (2 L-Lb)**

Emphasis on relations between facts, laws, and theories, on innovations in methods and attitudes, and on historical importance. Pre: 2 semesters of biological science, 2 semesters of physical science. Course fee \$2.00.

**630 HISTORY OF SCIENCE (3) I**

Man's changing ideas concerning the universe reflected against the historical setting. Pre: one year of natural science.

**620 NATURAL SCIENCE AS A HUMAN ACTIVITY (1) I, II**

Seminar. The scientist; productivity in science; comparisons of several fields; anatomy of science; science and society.



**650-651 SEMINAR IN SCIENCE FOR THE SECONDARY SCHOOL TEACHER (3-3) Yr.**

Selected topics in botany, entomology, geochemistry, geology, mathematics, meteorology, microbiology, physics, zoology, and the philosophy of science. Occasional laboratory sessions and field trips.

## Geography (Geog)

Professors BOWERS, MANCHESTER; Associate Professor FUCHS; Assistant Professors PIRIE, STERNSTEIN, STREET; Lecturers CHANG, PIUANAI

*A 100 level course, or consent of the instructor, is prerequisite to all courses numbered over 401.*

### INTRODUCTORY COURSES

**101 ELEMENTS OF PHYSICAL GEOGRAPHY (3) I, II (2 L, 1 Lb)**

Survey of man's natural environment; distribution and interrelationships of climates, vegetation, soils, and landforms. Laboratory problems in map interpretation. Course fee \$1.00.

**102 WORLD REGIONAL GEOGRAPHY (3) I, II**

Geography of the world's major cultural regions; emphasis on geographic aspects of contemporary economic, social, and political conditions. Course fee \$1.00.

**151 ECONOMIC GEOGRAPHY (3) I, II**

Man's use of the earth. World patterns of natural resources, population, economic activity, and development. Elements of location theory; problems of resource management. Course fee \$1.00.

**401 GEOGRAPHIC PATTERNS (4) (3 L, 1 2-hour Lb) I, II**

Physical and cultural principles of geography. Use of maps and other tools of geographic presentation. Special emphasis on local examples; labs include field studies in Honolulu and rural Oahu. Designed for teachers and prospective teachers. Course fee \$1.00. Pre: Ed 221 or equivalent.

### AREA COURSES

Each of the following courses covers, for the region concerned, the physical environment and resource base; evolution and present patterns of settlement, land utilization and economic activity; geographic aspects of population pressure, resource development and international relations.

**501 GEOGRAPHY OF UNITED STATES AND CANADA (3) I**

Emphasis on the evolution of the present patterns of settlement and economic activity of the United States. Course fee \$1.00.

**521 GEOGRAPHY OF EUROPE (3) II**

European geography as a background of present problems. Course fee \$1.00.

**526 GEOGRAPHY OF THE SOVIET UNION (3) I**

The land and its people. Regional differences in physical environment, resources, economic development. Elements of strength and weakness. Course fee \$1.00.

**541 GEOGRAPHY OF ASIA (3) I**

Regional physical and cultural patterns. Emphasis on the geographical background of current Asian problems.

**552 GEOGRAPHY OF JAPAN (3) I**

A regional synthesis of the physical and cultural features which characterize the economic, social, and political geography of Japan. Emphasis on the origin of these patterns. Course fee \$1.00.

**553 GEOGRAPHY OF CHINA (3) II**

Regional differences in land and life. Appraisal of agricultural and industrial development in terms of physical and human resources. Course fee \$1.00.

**555 GEOGRAPHY OF SOUTH ASIA (3) II**

The physical and human use of regions of India, Pakistan, Ceylon, and the Himalayan kingdoms. Geographic factors in the history, politics, and economics of the area. Course fee \$1.00.

**556 GEOGRAPHY OF SOUTHEAST ASIA (3) II**

Physical environment of and human activity in Burma, Thailand, Laos, Cambodia, Vietnam, Malaysia, Indonesia, and the Philippines. Course fee \$1.00.

**561 GEOGRAPHY OF AUSTRALIA AND NEW ZEALAND (2) II**

Emphasis on the transformation of Australia by European settlement. Course fee \$1.00.

**571 GEOGRAPHY OF THE PACIFIC ISLANDS (3) II**

Polynesia (except Hawaii); Micronesia, and Melanesia. Geographic aspects of contemporary social, political, and economic problems. Course fee \$1.00.

**578 GEOGRAPHY OF HAWAII (3) II**

Regional, physical, and cultural geography. Detailed study of the people and resources. Course fee \$1.00.

**660 SEMINAR IN GEOGRAPHY OF JAPAN (3) II**

Pre: 552 and consent of instructor.

**665 SEMINAR IN GEOGRAPHY OF THE PACIFIC (3) II**

Investigation of geographic problems of Melanesia, Micronesia, and Polynesia.

**SYSTEMATIC PHYSICAL GEOGRAPHY****410 PHYSICAL GEOGRAPHY (3) I**

Nature and distribution of vegetation, soils, and landforms. Readings in recent literature. Course fee \$1.00. Pre: 101.

**420 INTRODUCTION TO CLIMATOLOGY (3) I**

Elements and controls of climate. World patterns of insolation, temperature, evaporation, precipitation and atmospheric circulation. Climatic classifications. Course fee \$1.00. Pre: 101.

**421 ADVANCED CLIMATOLOGY (3) II**

Discussion of general circulation. Climatic characteristics of each of the continents. Emphasis on genesis and dynamism of climate. Regional climatic problems. Pre: 420 or equivalent.

**580 GEOGRAPHY OF THE TROPICS (3) II**

Analysis of physical environment and resource potential of the tropics; problems of human use and occupation. Course fee \$1.00.

**630 SEMINAR IN CLIMATOLOGY (3) II**

Methods of determining energy budget and water balance and their applications in agriculture, hydrology, and climatic classifications. Theory of climatic changes. Bibliography of climatological literature. Pre: 420 or equivalent.

**SYSTEMATIC CULTURAL GEOGRAPHY****360 POLITICAL GEOGRAPHY (3) II**

Geographic background of international politics and national power. Case studies of problem areas and boundary problems. Course fee \$1.00.

**450 URBAN GEOGRAPHY (3) II**

Distribution, functions, form, and internal structure of the modern city. Relations with tributary areas. Problems of growth, land use, and transportation. Course fee \$1.00.

**470 POPULATION GEOGRAPHY (3) I**

Areal variation in the distributions, densities, structures, and internal dynamics of human populations. Emphasis on regional problems in the lands adjoining the Pacific.

**507 CONSERVATION AND UTILIZATION OF NATURAL RESOURCES (3) II**

Conservation and utilization of soil, water, mineral, and biotic resources. The role of man in changing the face of the earth. Contemporary problems in United States (especially Hawaii) and underdeveloped areas. Course fee \$1.00.

**601 HISTORY OF GEOGRAPHY (3) I**

Development of geographic thought from early Greece to the present. Emphasis on the origin of current trends.

**605 HISTORICAL GEOGRAPHY (3) II**

A methodological approach to the reconstruction of the physical and cultural geography of an area at a specific time. Pre: consent of instructor, 601, and an adequate background in physical geography and history.

**620 STUDIES IN ECONOMIC GEOGRAPHY (3) I**

Readings and critical discussion on selected topics in agricultural, mineral, industrial, transportation, and resource geography. Recent literature; application of concepts and theory to research.

### TECHNIQUES AND METHODOLOGY

**235 MAP AND AIRPHOTO INTERPRETATION (2) I (1 L, 1 Lb)**

Map projections, topographic map reading, interpretation of physical and cultural features from maps and airphotos. Course fee \$1.00. Pre: 101.

**430 CARTOGRAPHY (3) I (2 L, 1 Lb)**

Study and laboratory practice in presenting geographic, statistical and other data on maps and charts for reproduction. Course fee \$5.00.

**640 QUANTITATIVE METHODS IN GEOGRAPHY (3) II**

The application of quantitative techniques to geographic research. Pre: introductory course in statistics, and 430.

**645 FIELD METHODS (3) II**

Techniques for acquiring geographic data by means of traverses and instrument surveys, field observation, and interviews; presentation of data in field reports. Pre: 430 or consent of instructor. Course fee \$5.00.

### READING, RESEARCH, GENERAL

**399 DIRECTED READING (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in geography.

**680 SEMINAR IN GEOGRAPHY (3) I**

Study and discussion of significant topics and problems. May be repeated.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor.

## Geosciences (Geosc)

Senior Professor MACDONALD; Professors ABBOTT, CHIU, COX, ESTOQUE, RAMAGE; Associate Professors W. ADAMS, BELSHE, MOBERLY, ROSE; Assistant Professors C. ADAMS, FURUMOTO, LAVOIE, MANGHANI, PANKIWSKY, STRANGE, TAYLOR, WAGNER

*101-102 or consent of instructor prerequisite to all courses above 204.*

### 101-102 INTRODUCTION TO GEOSCIENCES (4-4) Yr. (3 L, 1 Lb)

An integrated survey ranging from the center of the earth to the limits of the solar system, emphasizing unifying physical principles.

## GEOLOGY

### 200 GEOLOGY OF THE HAWAIIAN ISLANDS (3) I

Survey of Hawaiian volcanism, rock types, engineering materials, ground water; field trips.

### 205-206 FIELD METHODS (2-2) Yr. (8 hrs. Saturdays in field)

Methods used in geological and geophysical investigations in the field. Pre: 405, or concurrent registration.

### 401-402 PETROLOGY AND GEOCHEMISTRY (4-4) Yr. (2 L, 2 Lb)

Mineral structure and composition, crystal form and symmetry, x-ray techniques, mineral optics, petrology and microscopic petrography, geochemistry. Pre: Chem 105-106 or 107.

### 405-406 DYNAMIC GEOLOGY (4-4) Yr. (3 L, 1 Lb)

The physical basis for investigating the earth's internal structure and external form. Pre: Phys 173.

### 410 HISTORICAL GEOLOGY (3) I

Biological and temporal geology. Origin and evolution of the earth and its life. Pre: credit or registration in 401 and 405.

### 411 PALEONTOLOGY (3) II (1 L, 2 Lb)

Principles of paleozoology and paleobotany. Morphology and identification of fossils. Pre: 410 or Zoology 101.

### 416 GEOMORPHOLOGY (3) II

Study of landforms and their relation to geologic structure.

### 420 MARINE GEOLOGY (3) I

A survey of marine geologic processes and forms. Field work involving marine geologic equipment and techniques.

### 425 GEOCHEMISTRY (3) I (2 L, 1 Lb)

Distribution of chemical elements in the earth's crust and oceans, and their relation to rock types and geologic processes. Pre: 402.

### 426 PETROGRAPHY (3) II (1 L, 2 Lb)

Microscopic and related laboratory studies of rocks. Pre: 402.

### 601 SEMINAR IN VOLCANOLOGY (2) II

Volcanic products and processes; form and structure of volcanoes; nature and origin of volcanism. Pre: 402. (Alt. yrs.; offered 1965-66.)

### 602 SEMINAR IN IGNEOUS PETROLOGY (2) I

Theories of origin of igneous rocks. Pre: 426. (Alt. yrs.; not offered 1965-66.)

**603 PHASE PETROLOGY (3) I**

Genesis of the rock-forming minerals through the interpretation of phase diagrams. Pre: 425 or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**604 SEMINAR IN METAMORPHIC GEOLOGY (2) II**

An examination of the composition and structures of metamorphic rocks and modern theories of metamorphism. Pre: 426, 603. (Alt. yrs.; not offered 1965-66.)

**605 SEMINAR IN ENGINEERING AND GROUND-WATER GEOLOGY (3) I, II**

Geologic controls on the occurrence and development of ground water; geologic effects on man-made structures. Pre: consent of instructor. May be repeated for credit.

**607 SEMINAR IN ORE DEPOSITS (2) II**

A consideration of the physical and chemical processes and structural controls in the formation of metalliferous ore deposits. Pre: 402, 405. (Alt. yrs.; not offered 1965-66.)

**608 ORE GENESIS (3) II (2 2-hr L-Lb)**

Geochemical concepts applied to problems of ore mineral equilibrium and deposition. Pre: 607 and Chemistry 551, or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**609 SEMINAR IN GEOMORPHOLOGY (2) II**

A consideration of special problems and geologic processes in the development of land forms. Pre: 416. (Alt. yrs.; offered 1965-66.)

**614 ADVANCED FIELD STUDY (Arr.) I, II**

Advanced field methods in geological sciences.

**617 SEMINAR IN GEOTECTONICS: CONTINENTS (3) II**

Concepts of continental evolution from regional studies of geochronology, structure, stratigraphy, geophysics, and petrology. Pre: consent of instructor. (Alt. yrs.; not offered 1965-66.)

**618 SEMINAR IN GEOTECTONICS OCEANS (3) I**

Morphology, tectonics, sediments and stratigraphy, and history of the ocean basins and their islands. Pre: consent of instructor. (Alt. yrs.; not offered 1965-66.)

**619-620 SEDIMENTOLOGY AND STRATIGRAPHY (3-3) I, II (2 L-Lb)**

Lectures and seminars on physical, chemical, biological, and temporal controls of sedimentation. Sedimentary petrology and stratigraphic analysis. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**624 TOPICS IN GEOCHEMISTRY (3) I, II**

Discussion and laboratory work in analytical methods. Can be repeated for credit through a two year cycle: X-ray analysis in crystallography and crystal chemistry (Pre: 402), and mineral equilibria at high and at low temperatures and pressures (Pre: 402) and credit or registration in Chem 551-552.

**625 SEMINAR IN CURRENT RESEARCH TOPICS (1) I, II**

- (a) Petrology
- (b) Applied Geology
- (c) Marine Geology

May be repeated for credit.

## METEOROLOGY

**342 METEOROLOGICAL INSTRUMENTS AND OBSERVATIONS (3) I (2 L, 1 Lb)**

Principles of meteorological instruments and their care; instrumental and visual weather observation; coding. (Alt. yrs.; not offered 1965-66.)

**346 PHYSICAL CLIMATOLOGY (3) II**

Climates related to physical processes and their regional variations; synoptic climatology. (Alt. yrs.; not offered 1965-66.)

**542 THEORETICAL METEOROLOGY I (4) I**

Atmospheric statics; optical, acoustical, and electrical phenomena; condensation and precipitation; radiation and heat balance; thermodynamics; kinematics. Pre: Phys 175; 310, concurrently, or consent of instructor.

**543 THEORETICAL METEOROLOGY II (4) II (3 L, 1 Lb)**

Basic concepts of fluid motion applied to the atmosphere. Equations of motion; special cases of balanced motion; principles of numerical weather prediction. Pre: 542.

**545 TROPICAL METEOROLOGY (3) II**

History; tropical clouds and hydrometeors; easterly waves and typhoons; monsoons; local and diurnal effects. Pre: 542. (Alt. yrs.; not offered 1965-66.)

**550 METEOROLOGICAL ANALYSIS LABORATORY (3) I**

Techniques of portraying and analyzing atmospheric structure and weather systems in middle and high latitudes; modern methods of forecasting extra-tropical systems. Pre: credit or registration in 542. (Alt. yrs.; offered 1965-66.)

**551 TROPICAL ANALYSIS LABORATORY (2) II**

Techniques of portraying and analyzing atmospheric structure and weather systems in tropical and equatorial regions; modern methods of forecasting tropical systems. Pre: credit or registration in 543 (Alt. yrs.; not offered 1965-66.)

**560 SATELLITE METEOROLOGY (3) I (2 L, 1 Lb)**

Interpretation and use of data from weather satellites.

**565 ADVANCED TROPICAL METEOROLOGY (6)**

Modern methods of analysis and forecasting in the tropics. Pre: professional experience or graduate standing. Course fee \$12.00.

**742 ATMOSPHERIC TURBULENCE (3) I**

Equations of motion for turbulent flow; turbulent diffusion; atmospheric boundary layer processes. Pre: 543.

**743 CLOUD PHYSICS (3) I**

Physical processes attending formation and subsequent history of clouds and cloud particles.

**744 PHYSICAL METEOROLOGY (3) II**

Advanced treatment of radiation, atmospheric optics, acoustics, electricity, and visibility; radar meteorology. Pre: 542.

**745 NUMERICAL ANALYSIS AND PREDICTION (5) I (1 L, 4 3-Hr Lb)**

Theory and practice of objective analysis and numerical weather prediction; formulation of prediction equations, numerical integration procedures; programming of high-speed electronic computers. Course fee \$12.00.

**746 STATISTICAL METEOROLOGY (3) I**

Frequency distributions of atmospheric variables, probability; correlation and regressions; time series analysis; statistical forecasting. Pre: Mathematics 231.

**750 ADVANCED THEORETICAL METEOROLOGY I (3) I**

The basic equations of meteorology in vector form and in various coordinate systems; circulation and vorticity theorems; classical hydrodynamics. Pre: 543 or equivalent; knowledge of ordinary and partial differential equations.

**751 ADVANCED THEORETICAL METEOROLOGY II (3) II**

Basic theories of the mechanics of compressible fluids; atmospheric waves and tides; stability problems. Pre: 750.

**752 SPECIAL TOPICS IN METEOROLOGY (3) II**

Concentrated studies on selected atmospheric problems. Pre: 751 or consent of instructor.

**753 ADVANCED TOPICS IN SYNOPTIC METEOROLOGY (3) I**

Studies of the structure and development of weather systems.

**765 SEMINAR IN METEOROLOGY (1) I, II**

(a) General. (b) Research Results. May be repeated for credit.

**767 PROBLEMS IN TROPICAL METEOROLOGY (2) II**

Group discussion and evaluation of selected topics in tropical meteorology.

**775 HISTORICAL DEVELOPMENT OF METEOROLOGICAL IDEAS (1) II**

A seminar of directed reading designed to illustrate historical changes in meteorological thinking. Recommended: reading knowledge of French or German.

## SEISMOLOGY

**451 SEISMOLOGY (3) I**

The elastic properties of rocks, and behavior of earthquake waves; earthquake recording instruments; reading of seismograms. Pre: Phys 170. (Alt. yrs.; offered 1965-66.)

**655 SEISMIC SOURCE MECHANISMS (3) II**

Theoretical and observational study of the source mechanisms for explosions and earthquakes in aerial, underwater, or underground environments. Pre: 662. (Alt. yrs.; offered 1965-66.)

**656 SEISMIC PROPAGATION PHENOMENA (3) I**

Propagation of energy through solid media having interfaces with considerations of the effects of heterogeneity and anisotropy. Pre: 662. (Alt. yrs.; offered 1965-66.)

**657 ANALYSIS AND SYNTHESIS OF SEISMOGRAMS (3)**

Development of theoretical seismograms for comparison with observed seismograms utilizing analytical and numerical techniques. Pre: 656. (Alt. yrs.; not offered 1965-66.)

**658 SEISMOMETRY AND SEISMOLOGICAL MODEL STUDY (3)**

Theoretical and practical investigations of seismological instrumentation and the application of seismological model studies to the interpretation of field observations, particularly for environments likely to involve nonlinear phenomena. Pre: 662. (Alt. yrs.; not offered 1965-66.)

## SOLID EARTH GEOPHYSICS

**460 PRINCIPLES OF GEOPHYSICS (3) II**

Physical laws and physical concepts which describe the forces and materials of the earth. Pre: 101-102 (or concurrent registration), Physics 172.

**461 GRAVITY AND GEODESY (3) II**

Introduction to the larger problems in the study of the gravity field of the earth. Development of International Gravity Formula. Concept of geoid and deflection of the vertical. Geodetic significance of gravity anomalies. Relation between earth's gravity field and internal structure of the earth.

**462 GEOMAGNETISM, GEOELECTRICITY, AND THE THERMAL STATE OF THE EARTH (3) I**

Classical field theories for these earth properties, their determination, and their interpretation. Pre: 460 or 465 or 405, Math 231, Physics 174.

**463 PHYSICAL PROPERTIES OF EARTH MATTER (3) II**

Basic concepts of materials behavior, theoretical analysis of stress and strain, deformation of rocks and minerals, and related rheological problems. Physical properties of crystalline and polycrystalline solids with emphasis on their laboratory study; equations of state. Pre: 260 or 405, Physics 175.

**465-466 GEOPHYSICAL EXPLORATION (3-3) Yr.**

Theory and methods of exploration on land and sea by means of gravity, magnetic, seismic, and electrical techniques. Concurrent registration in 205-206 recommended. Pre: consent of instructor.

**660 SEMINAR IN SOLID EARTH GEOPHYSICS (3) II**

Discussions of the crust and internal structure of the earth from various geophysical evidences. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**662 PRINCIPLES OF THEORETICAL GEOPHYSICS (3) II**

Continuum mechanics, potential theory, thermodynamics as applied to tectonics and physics of the interior of the earth. Pre: Math 601.

**663 PRINCIPLES OF THEORETICAL GEOPHYSICS (3) II**

Analytical theory of tectonics, isostasy, deformation of the crust; physics of the interior of the earth. Pre: 662.

**665 NUMERICAL METHODS IN DATA ANALYSIS (2) II**

Representation of observations by numbers, numerical filtering, power spectra, automatic data processing. Pre: Math 431 or consent of instructor. (Alt. yrs.; offered 1965-66.)

**671-672 ADVANCED TOPICS IN GEOMAGNETISM (3-3) Yr.**

The main field of the earth, the external field, hydromagnetism, the magnetism of the earth's crust, paleomagnetism. Pre: 462, consent of the instructor.

**675 TOPICS IN SOLID STATE PHYSICS FOR GEOSCIENCES (3) I**

Semiconductors, ferrites, thermal properties, lattice defects, many particle systems. Pre: Phys. 685, consent of instructor. May be repeated. (Not offered 1965-66.)

**681 PHYSICAL GEODESY I (3) I**

The mathematical theory of physical geodesy. Solutions of the boundary value problems of physical geodesy. Classical solutions involving reduction to the geoid. Modern solutions involving solution of the boundary value problems at the earth's surface. Pre: 462, Math 401, or consent of instructor.

**682 PHYSICAL GEODESY II (3) II**

Problems connected with carrying out practical computations in physical geodesy. Accuracy of available gravity data. Methods of approximating gravity in unsurveyed areas. Numerical methods of computing geoid undulations and deflections of the vertical. Pre: 681, or consent of instructor.

**683 SATELLITE GEODESY (4) I**

Methods of utilization of artificial earth satellites for geodetic purposes. Use of orbital perturbations for determination of gravitational field. Use of satellites in geometric geodesy. Pre: 681, Physics 610, Math 601-602, or consent of instructor. (Not offered 1965-66.)

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: Consent of instructor.



**800 THESIS RESEARCH (Arr.) I, II**

*Credit toward the major may be granted in the following courses:*

Civil Engineering 220, 221, 222, 351, 325.

Geography 430, 580.

Oceanography 505, 508, 510, 511, 515.

Soil Science 481, 484, 486.

## History (Hist)

Professors HUNTER, D. JOHNSON, MURPHY, NUNN, SAKAMAKI, STALKER, VAN NIEL, J. WHITE; Associate Professors AKITA, COWING, GASIOROWSKI, KWOK, MARGULES, SHINODA, VELLA; Assistant Professors ERNEST, MAURER, McCUTCHEON, SHARMA, VARLEY; Instructor DAWS

**151-152 WORLD CIVILIZATION (3-3) Yr.**

Development of civilization from the ancient Orient and classical Greece and Rome to the present; emphasis on Western civilizations. Prerequisite for advanced courses. (Freshmen and sophomores only.)

**161-162 WORLD CULTURES IN PERSPECTIVE (3-3) Yr.**

Problems in world history; development of ideas, institutions. Alternative for 151-152. Admission only by approval of the instructor. (Freshmen only.)

**171 INTRODUCTION TO AMERICAN HISTORY (3) I, II**

An interpretive survey of United States history from the earliest settlements to the present. Prerequisite for advanced courses in American history.

**251-252 FOUNDATIONS OF WORLD CIVILIZATIONS (3-3) Yr.**

Evolution of Eastern and Western civilizations from ancient times to the present; emphasis on Western civilizations. Prerequisite for advanced courses. (Alternative for 151-152; juniors and seniors only.)

**341-342 HISTORY OF THE FAR EAST (3-3) Yr.**

Survey of the political, social, and economic history of the Far East as a unit.

**377 ECONOMIC HISTORY OF THE UNITED STATES (3) I**

Emphasis on the role of techniques, agricultural developments, the entrepreneur and the rise of the labor movement. Economics 150-151 recommended as preparation.

**379 REPRESENTATIVE AMERICANS (3) I or II**

A series of biographical sketches of leading characters in American history from the Revolution to the present. (Alt. yrs.; offered 1965-66.)

**395 SENIOR HONORS THESIS (3-3) Yr.**

Preparation of research paper under individual faculty supervision. Required for graduation with honors in the Departmental honors program.

**396 BASIC PRINCIPLES OF HISTORICAL METHOD (3) I, II**

Critical analysis and evaluation of sources and methods of historical writing. Prerequisite for 397. Required for majors.

**397 SENIOR TUTORIAL IN HISTORY (3) I, II**

Research in a field of special interest. Required for majors. Pre: 396.

**399 DIRECTED READING (Arr.) I, II**

Individual projects in various fields. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point in history.

**401-402 GREEK AND ROMAN CIVILIZATIONS (3) I, II**

Study of the history, art, and culture of Greece and Rome. Cross listed with Language Department.

**405-406 MEDIEVAL EUROPE, 300-1300 (3-3) Yr.**

Cultural, social, economic, and political changes in the development of the European community.

**409 RENAISSANCE AND REFORMATION, 1300-1600 (3) I**

Ideas and institutions in the early period of commercial and national development. (Alt. yrs.; not offered 1965-66.)

**410 EARLY MODERN EUROPE, 1600-1800 (3) II**

Thought and culture of Europe in the age of expansion. (Alt. yrs.; not offered 1965-66.)

**425 EUROPE IN THE NINETEENTH CENTURY (3) I**

Major political, social, economic, and intellectual trends in the evolution of Europe from Napoleon to the end of World War I.

**426 EUROPE SINCE VERSAILLES (3) II**

Problems of contemporary Europe and their historical background.

**431-432 HISTORY OF ENGLAND (3-3) Yr.**

Major trends in the development of English civilization from the origins to the contemporary period.

**435 CONSTITUTIONAL HISTORY OF ENGLAND (3) I or II**

Anglo-Saxon institutions; Norman innovations; legal, administrative, parliamentary development under Angevins; rise of cabinet system. (Alt. yrs.; offered 1965-66.)

**439 AUSTRALIA AND NEW ZEALAND (3) I or II**

Major historical developments from colonization to independent nationhood; present problems and policies. (Alt. yrs.; offered 1965-66.)

**441-442 EAST CENTRAL EUROPE (3-3) Yr.**

A general history of Poland, the Danubian region, and the Balkans from the Middle Ages to the present. (Alt. yrs.; offered 1965-66.)

**443-444 HISTORY OF GERMANY (3-3) Yr.**

Major political, social, economic and intellectual trends in the evolution of Germany. (Alt. yrs.; not offered 1965-66.)

**451-452 HISTORY OF RUSSIA (3-3) Yr.**

Survey of the development of Russian thought and institutions, and of territorial expansion. Impact of revolutionary changes.

**461-462 HISTORY OF THE UNITED STATES TO 1877 (3-3) Yr.**

Expansion of Europe in the Western Hemisphere; establishment of American independence; the Federal Union to the close of the Reconstruction Period.

**463-464 HISTORY OF THE UNITED STATES SINCE 1877 (3-3) Yr.**

A detailed political, economic, and social survey of the history of the American people, 1877 to the present.

**471-472 DIPLOMATIC HISTORY OF THE UNITED STATES (3-3) Yr.**

History of American foreign policy and diplomacy.

**475 CONSTITUTIONAL HISTORY OF THE UNITED STATES (3) II**

The origins and development of the constitution from colonial times to the present. (Alt. yrs.; offered 1965-66.)

**481 AMERICAN THOUGHT AND CULTURE (3) I**

An advanced course in American social customs, institutions, and intellectual pursuits.

**491 THE WEST IN AMERICAN HISTORY (3) I**

Western expansion forces in the development of the economic, cultural, and political trends of the nation. (Alt. yrs.; offered 1965-66.)

**492 THE SOUTH IN AMERICAN HISTORY (3) II**

Southern economic, social, intellectual, and political development, with special attention to race relations. (Alt. yrs.; not offered 1965-66.)

**493 THE CITY IN AMERICAN HISTORY (3) II**

Urban growth as a factor in the shaping of social, economic, political and cultural life in the United States. (Alt. yrs.; offered 1965-66.)

**511-512 HISTORY OF LATIN AMERICA (3-3) Yr.**

Political, economic, and social development of the Latin-American republics from colonial times to the present. (Alt. yrs.; not offered 1965-66.)

**527 RUSSIAN SIBERIA AND THE PACIFIC (3) I**

Russia's eastward expansion; dynamic role as a Far Eastern power; relations with China and Japan. Interchangeable credit: Asian or European. (Alt. yrs.; not offered 1965-66.)

**529-530 HISTORY OF SOUTHEAST ASIA (3-3) Yr.**

Historical survey of southeast Asian civilizations and states, including Burma, Thailand, Laos, Cambodia, Vietnam, Malaysia, Indonesia, and the Philippines.

**531-532 HISTORY OF CHINA (3-3) Yr.**

The course of Chinese civilization from the earliest times.

**541-542 HISTORY OF JAPAN (3-3) Yr.**

Historical survey of Japanese culture, government, economics, institutions.

**543-544 PRE-MODERN JAPAN c.552-1868 (3-3) Yr.**

Political, economic, and social developments. Emphasis on recent interpretations by Japanese scholars. (Not offered 1965-66.)

**545-546 HISTORY OF KOREA (3-3) Yr.**

A detailed political, economic, and social survey of the history of Korea.

**551-552 HISTORY OF SOUTH ASIA (3-3) Yr.**

General historical survey of India, Pakistan, Ceylon, from the earliest times to the present.

**553 RUSSIAN CENTRAL ASIA AND THE CAUCASUS (3) I**

Russia's expansion; impact on Mohammedan and Christian peoples; relations with Middle East and India. Asian or European credit. (Alt. yrs.; offered 1965-66.)

**571 HISTORY OF OCEANIA (3) I or II**

European impact and native response in the major groups from exploration to exploitation to trusteeship. European or Pacific credit. (Alt. yrs.; offered 1965-66.)

**575 THE UNITED STATES IN THE PACIFIC (3) II**

Growth of economic and political interests and policies in the Pacific area. Interchangeable credit: Asian, Pacific, or American.

**577 HISTORY OF THE HAWAIIAN ISLANDS (3) II**

A general course with some detail. Emphasis on the period of the monarchy. Interchangeable credit: Asian, Pacific, or American.

**611 SEMINAR IN EUROPEAN HISTORY (3) I, II**

Selected problems for reading and research; alternating emphasis on medieval and modern.

**618 BRITISH EMPIRE AND COMMONWEALTH (3) II**

The British Empire in modern times. (Alt. yrs.; not offered 1965-66.)

**633 AMERICAN SOCIAL REFORM MOVEMENTS SINCE 1865 (3) I**

A detailed survey of America's quest for social justice. (Alt. yrs.; not offered 1965-66.)

**635 THE COLONIAL PERIOD IN AMERICAN HISTORY (3) I or II**

A reading and research seminar in political, social and intellectual history.

**637 THE PROGRESSIVE PERIOD IN AMERICAN HISTORY (3) I or II**

Research in problems relating to the rise, character, and decline of the Progressive Movement, 1872 to 1924.

**641 SEMINAR IN AMERICAN DIPLOMATIC HISTORY (3) II**

Selected problems in the development of the United States foreign policy and its implementation.

**659-660 CHINESE INTELLECTUAL HISTORY (3-3) Yr.**

Intensive study in selected phases of the history of Chinese thought and institutions. Prerequisites: 531-532 or equivalent with consent of instructor. A knowledge of Chinese is preferred but not required.

**661 SEMINAR IN CHINESE HISTORY (3) I, II**

Problems and reading in the political, social, and cultural history of China.

**663 SEMINAR IN INDIAN HISTORY (3) I, II**

Selected problems and reading in history of India, and the influence of Indian culture in southern Asia. Individual reports.

**664 SEMINAR IN SOUTHEAST ASIAN HISTORY (3) I, II**

Studies in the histories of the peoples and states of southeast Asia. Selected topics and research papers.

**665 SEMINAR IN JAPANESE HISTORY (3) I, II**

Main fields of Japanese historical research; principal sources of bibliographical information; selected problems in modern Japanese history.

**666 SEMINAR IN POLITICAL HISTORY OF MODERN JAPAN (3) II**

Bibliography, controversies and schools of thought among major Japanese political historians, selected topics and research papers. (Reading knowledge of Japanese required.)

**667-668 JAPANESE INTELLECTUAL HISTORY (3-3) Yr.**

Intensive study in selected phases of the history of Japanese thought and institutions. Prerequisites: History 541-542 or consent of the instructor. (Knowledge of Japanese preferred.)

**669-670 SEMINAR ON PRE-MODERN JAPAN c. 850-1800 (3-3) Yr.**

Bibliography, research tools and special problems. Recent controversies among Japanese scholars. (Reading knowledge of Japanese required.) (Not offered 1965-66.)

**671-672 SEMINAR IN RUSSIAN HISTORY (3-3) Yr.****675 SEMINAR IN PACIFIC HISTORY (3) II**

Selected topics and research papers in the history of Oceania, with special emphasis on the British colonies.

**699 DIRECTED RESEARCH (Arr.) I, II**

Individual research topics in special fields.

**711 SEMINAR IN HISTORICAL METHOD (3) I**

Training in the evaluation of sources and the preparation of theses.

**712 SEMINAR IN HISTORIOGRAPHY (3) II**

The history of history and historians.

**713 RESEARCH MATERIALS AND METHODS IN ASIAN HISTORY (3) I**

Training in bibliography and research methods in Asian history. Discussions and special problems.

**731 ADVANCED PROBLEMS AND READING IN AMERICAN HISTORY (3) II**

Interpretations and literature of important problems of American history. (Not offered 1965-66.)

## Interdisciplinary Studies (IS)

**300 FIELD STUDY (Arr.) I, II**

Pre-arranged systematic investigation in the field of selected topics. Primarily for East-West grantees. Pre: permission of appropriate department chairman and dean.

## Mathematics (Math)

**Professor GREGORY; Associate Professors MOOKINI, ROGERS, YAMAUCHI; Assistant Professors APPELBY, BORGES, CLARK, DAVIS, NAGY, SPILLER, STRAUSS, WHITE, WILSON, YEH; Instructors BENNET, GARCIA, IHA, KOEHLER, LIM, LOO, MIURA, SIU, WONG; Lecturers BELL, BOUSLOG**

**100 SURVEY OF MATHEMATICS (3) I, II**

A survey of mathematical ideas and their application, for students with insufficient high school training in mathematics. Fundamental concepts developed intuitively.

**102 PLANE TRIGONOMETRY (3) I, II**

Pre: two years of high school algebra, one year of plane geometry.

**103 COLLEGE ALGEBRA (3) I, II**

Pre: facility in trigonometry or concurrent registration in 102.

**111 INTRODUCTION TO MATHEMATICS (3) I, II**

To acquaint the nonspecialist with the position of mathematics in modern culture.

**112 ALGEBRA (3) I, II**

Deductive treatment of elementary and intermediate algebra, emphasizing the concepts of function, identity, and equation. Pre: 111 or equivalent.

**113 TRIGONOMETRY AND ANALYTIC GEOMETRY (3) I, II**

Periodicity, trigonometric functions, elementary identities; analytic geometry of the line, circle and parabola. Pre: 112 or equivalent.

**114 CALCULUS (3) I, II**

Intuitive introduction to the derivative, the definite integral, and their applications. Pre: 113 or equivalent. (Primarily for non-science majors.)

**135 CALCULUS I (4) I, II**

Basic concepts and techniques, derivatives, conics, and integrals. Pre: 103 or two years of high school algebra and trigonometry.

**136 CALCULUS II (4) I, II**

Exponential, logarithmic, trigonometric, and hyperbolic functions; techniques of integration; vectors; three dimensional space; multiple integration. Pre: 135 or equivalent.

**141 ANALYTIC GEOMETRY AND CALCULUS II (3) I, II**

Continuation of 140 with emphasis on integral calculus. Pre: 140. (Not offered after Fall 1965.)

**142 CALCULUS III (3) I, II**

Techniques of integration with applications. Pre: 141. (Not offered after Spring 1966.)

**143 CALCULUS IV (3) I, II**

Partial differentiation, multiple integration, and elementary differential equations. Pre: 142. (Not offered after Fall 1966.)

**201 FINITE MATHEMATICS (3) I**

Symbolic logic of statements and sets, partitions, permutations, combinations and elementary probability. Pre: 114.

**202 SURVEY OF GEOMETRY AND MATHEMATICAL PHILOSOPHY (3) II**

The nature of mathematical truth as illustrated by a comparative study of type of geometries. Pre: 201.

**231 APPLIED ADVANCED CALCULUS I (3) I, II**

Series, partial derivatives, vector spaces. Pre: 136.

**232 APPLIED ADVANCED CALCULUS II (3) I, II**

Vector fields, Green's theorem, differential equations. Pre: 231.

**351 FOUNDATIONS OF EUCLIDEAN GEOMETRY (3) I**

Development of Euclidean Geometry including solid geometry. Pre: 143 or consent of department.

**352 NON-EUCLIDEAN GEOMETRIES (3) II**

Spherical, hyperbolic, parabolic, and finite geometries. Pre: 231 or consent of department.

**399 DIRECTED READING (Arr.) I, II**

Individual reading in advanced mathematics. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in mathematics.

**401 DIFFERENTIAL EQUATIONS I (3) I, II**

Theory and application of ordinary differential equations. Laplace transforms. Pre: 143.

**402 DIFFERENTIAL EQUATIONS II (3) I, II**

Bessel functions, Legendre functions, Fourier and other series. Theory and application of partial differential equations. Pre: 401.

**415 INTRODUCTION TO NUMERICAL ANALYSIS (3) I, II**

An introductory discussion of high-speed computing methods with applications in algebra and analysis. Pre: 401.

**421 INTRODUCTION TO MODERN ALGEBRA (3) I, II**

Matrices, determinants, groups, properties of number systems, and the theory of fields. Pre: 143.

**422 MATRICES AND THEORY OF EQUATIONS (3) I, II**

Algebra of matrices, linear equations, real vector spaces and transformations. Pre: 143.

**431-432 ADVANCED CALCULUS (3-3) Yr.**

Limits and continuity, functions of several variables, multiple integrals, infinite series, calculus of variations. Pre: 143.

**442 VECTOR ANALYSIS (3) II**

Vector operations and their applications. Vector differential operators. Lines and surface integral. Pre: 143.

**444 THEORY OF FUNCTIONS OF A COMPLEX VARIABLE (3) II**

Residue theory; contour integration; other topics of analysis. Pre: 143.

**471 PROBABILITY (3) I**

Probability laws, discrete and continuous probability distributions, expectations, moments, cumulants, generating functions. Pre: 143.

**472 STATISTICAL INFERENCE (3) II**

Sampling and parameter estimation, tests of hypotheses, correlation, regression, analysis of variance, sequential analysis, rank order statistics. Pre: 471.

**501-502 THEORY OF SETS AND METRIC SPACES (3-3) Yr.**

Sets, mappings, and metric spaces. Normed spaces, Hilbert spaces and the space of continuous functions. Pre: 421, 422, 432.

**601-602 APPLIED MATHEMATICS (3-3) Yr.**

Ordinary and partial differential equations, orthogonal functions, vector analysis, complex variables. Pre: 402.

**611-612 MODERN ALGEBRA (3-3) Yr.**

Groups, vector spaces, matrices, fields, rings, ideals. Pre: 421, 422.

**621-622 TOPOLOGY (3-3) Yr.**

Homeomorphisms, complexes, homology and cohomology groups, manifolds. Pre: 421, 422, 432.

**631-632 THEORY OF FUNCTIONS OF A REAL VARIABLE (3-3) Yr.**

Point sets, function limits, differentiation, Riemann integral, convergence, Lebesgue and Stieltjes integral. Pre: 432.

**644-645 ANALYTIC FUNCTION THEORY (3-3) Yr.**

Infinite series, Cauchy theory, conformal mapping, analytic continuation, application to special functions. Pre: 432.

**650 SEMINAR (1) I, II**

Pre: consent of department chairman.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: graduate standing in mathematics; consent of department chairman.

## Microbiology (Micro)

Professors **BENEDICT, BUSHNELL, CHU**; Associate Professors **CONTOIS, FOLSOME, LOH**;  
Assistant Professor **BERGER**

*151 is prerequisite to all more advanced courses.*

**130 MICROBES AND MAN (2) I, II**

Microorganisms as they affect people and their possessions. Not open to those who have credit in 151.

**140 MICROBIOLOGY LABORATORY (2) II (2 Lb)**

For students in nursing and dental hygiene. Pre: credit or registration in 130. Course fee \$6.00.

**151 GENERAL BACTERIOLOGY (4) I, II (3 L, 2 Lb)**

Fundamentals. Pre: Chem 104 or 106; 4 credits in biological or physical science. Recommended: Chem 141 or 144. Lectures only (3 credits) require instructor's approval. Course fee \$6.00.

**361-362 MEDICAL MICROBIOLOGY AND SEROLOGY (4-4) (3 L, 2 Lb)**

Infectious diseases of man and their diagnosis by laboratory methods. Pre: Chemistry 141 or 144. Course fee \$6.00.

**399 MICROBIOLOGICAL PROBLEMS (Arr.) I, II**

Directed reading and research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 in microbiology. Course fee \$6.00.

**415 ADVANCED GENERAL BACTERIOLOGY (3) II (2 L, 2 Lb)**

Isolation, classification, and physiology of selected groups of bacteria. Pre: Chemistry 141 or 144. Course fee \$6.00.

**531 MICROBIAL PHYSIOLOGY (3) I (2 L, 2 Lb)**

Fundamentals of microbial physiology and metabolism; basic experimental techniques. Pre: Chemistry 141 or 144, or consent of instructor. Course fee \$6.00.

**625 IMMUNOLOGY (3) I (3 L)**

Concepts of the nature and mechanism of immunity and hypersensitivity. Pre: 362 and concurrent registration in 627; Biochemistry 271 or 602 or consent of instructor.

**627 TECHNIQUES OF IMMUNOLOGY (3) I (3 Lb)**

Studies on the nature and mechanism of natural and acquired resistance and hypersensitivity, with emphasis on chemical, physical, and biological methods of characterizing antigens and antibodies. Pre: concurrent registration in 625. Course fee \$6.00.

**632 TECHNIQUES OF MICROBIAL PHYSIOLOGY (3) II (2 L, 2 Lb)**

Advanced techniques for the study of selected topics. Pre: 631 or consent of instructor. Course fee \$6.00.

**655 VIROLOGY (2) II (2 L)**

Concepts of growth, pathogenesis, and epidemiology of animal viruses. Pre: 362, 625; Biochemistry 271 or 602; and consent of instructor.

**657 VIRUS LABORATORY (3) II (2 Lb)**

Techniques used in the growth, purification, and identification of animal viruses. Pre: 362, 625; Biochemistry 271 or 602; and consent of instructor.

**661 ULTRASTRUCTURE OF MICROORGANISMS (2) I (2 L)**

Structural and molecular architecture of cell organelles; concepts of cellular integration. Pre: consent of instructor.

**665 ELECTRON MICROSCOPY (2) II (2 Lb)**

Introduction to the use of the electron microscope and preparative techniques. Pre: 661 and consent of instructor.

**671 MICROBIAL GENETICS (4) I (4 L)**

Directed study and discussion of research literature dealing with bacterial and bacterial virus mutation, genetic recombination, variation, evolution, and control mechanisms. Pre: Biochemistry 271 or 602, and consent of instructor.



**690 SEMINAR (1) I, II**

Significant topics in microbiology. Required of graduate students. May be repeated.

**699 DIRECTED RESEARCH (Arr.) I, II**

Selected problems in microbiology. Pre: consent of instructor. Course fee \$6.00.

*Credit toward the major will be granted in the following courses:*

**Biochemistry 271, 601-602, 611-612**

**Botany 415, 418, 430, 436, 470, 570-571**

**Genetics 451, 518**

**Plant Pathology 310**

**Zoology 410, 425**

## Music (Mus)

Professors RIAN, B. SMITH, R. VAUGHT, VINE; Associate Professors KERR, A. RUSSELL; Assistant Professors HERAND, LANDSMAN, O. F. PAUL, TRUBITT; Instructors GILLET, R. LUM, MUNDY, W. PFEIFFER, SACLAUSA, UCHIMA; Lecturers ARAI, DEMELLO, HARLING, HUH, MIKAMI, MIYAMURA, L. RUSSELL, VALENTIN, K. WONG

**109 UNIVERSITY FIELD BAND (1) I, II**

For ROTC band members but open to others. Two sessions weekly with an additional hour arranged. May be repeated for credit.

**111 GROUP VOICE INSTRUCTION (1) I, II**

Basic principles of voice production and elementary music skills in classes of twenty.

**112 GROUP VOICE INSTRUCTION (1) I, II**

Continuation of 111. Pre: 111 or consent of instructor.

**113-114 GROUP INSTRUCTION IN SECONDARY PIANO (1) I, II**

Basic instruction on the piano as a secondary instrument. Music majors and music minors only.

**115-116 GROUP INSTRUCTION IN SECONDARY PIANO (1) I, II**

Continuation of 113-114.

**117-118 INTRODUCTION TO MUSIC SKILLS (1-1) Yr.**

Experience in singing, reading, and playing of classroom instruments (including recorder and bell-type instruments, autoharp, and fretted instruments). Not open to those who have had 150.

**140 RECREATIONAL MUSIC (2) I**

Elementary music skills including instruction on the ukulele. Not open to those who have had 150 or 117-118. (Not offered 1965-66.)

**150 ELEMENTARY MUSICIANSHIP (3) I, II**

Basic instruction in singing and ukulele playing, covering terminology and notation. Not open to those who have had 140 or 117-118. Pre: Consent of instructor.

**151-152 STRING METHODS (2-2) Yr.**

Basic skills and teaching methods for stringed instruments. For students preparing to teach instrumental music.

**153 WOODWIND METHODS (2) I**

Similar to 151-152.

**154 BRASS METHODS (2) II**

Similar to 151-152.

**155 PERCUSSION METHODS (2) I**

Similar to 151-152, plus marching band techniques.

**160 INTRODUCTION TO MUSIC LITERATURE (3) I, II**

Styles and forms of Western music. From the listener's point of view. Lab section required. Course fee \$2.00.

**163-164 MUSIC REPERTOIRE (1-1) Yr.**

Major works from the Renaissance to the present. Guided listening with discussions of texture and form. To be taken concurrently with 183-184. Pre: 182 or consent of instructor.

**181-182 THEORY (4-4) Yr.**

Basic elements of eighteenth and nineteenth century music, including writing, analysis, keyboard application, sight-singing and ear training.

**183-184 ADVANCED THEORY (3-3) Yr.**

Continuation of 182. Altered chords; modulation. To be taken concurrently with 163-164. Pre: 182.

**200 UNIVERSITY CHORUS (1) I, II**

Three hours a week. May be repeated for credit.

**251-252 MUSIC, ELEMENTARY CURRICULUM (2-2) Yr.**

Organization and direction of music in childhood experience. Materials and procedures. Pre: 150 or 118; junior standing in education. 251 is prerequisite to 252.

**253 MUSIC, ELEMENTARY CURRICULUM (3) I, II**

Organization and direction of music in childhood experience. Materials and procedures. For elementary majors whose minor subject area is not music. Pre: Mus 150 or 118; junior standing in education.

**257-258 CONDUCTING (2-2) Yr.**

Preparation for school, community and church instrumental and choral conducting. Baton skills, group vocal technique and score reading. Pre: 182.

**259 PIANO METHODS (2) I**

Methods and materials for class and private instruction in piano. Pre: 182 or consent of instructor.

**269 PIANO LITERATURE (2) I**

Survey of styles and forms of music for the piano and its forerunners. Pre: 138 (piano) or consent of instructor. (Not offered 1965-66.)

**281 ORCHESTRATION (2) I**

Arranging and composing for band, orchestra, and chamber groups. Pre: 152, 182, or consent of instructor.

**394-395 SENIOR HONORS THESIS (4) Yr.**

*Credit in 160 or 181 or consent of instructor, is necessary for 461, 462, 463, 464, 465, 466, 470, 471.*

**400 UNIVERSITY CONCERT CHOIR (1-1) Yr.**

Performance of a cappella literature and other major choral works including masses and cantatas. Three hours a week. May be repeated for credit. Pre: audition or consent of instructor.

**401 ENSEMBLE MUSIC (1) I, II**

Vocal 11, opera workshop; 12, University singers; 21, keyboard; 31, string; 41, woodwind; 51, brass; 52, stage band; 71, Asian and Pacific. May be repeated for credit. Pre: audition or consent of instructor.

**405 UNIVERSITY ORCHESTRA (1) I, II**

Performance of orchestra literature. May be repeated for credit. Pre: audition or consent of instructor.

**409 UNIVERSITY CONCERT BAND (1) I, II**

Performance of major band literature including works by contemporary composers. Pre: audition or consent of instructor. May be repeated for credit.

**450 MUSIC FOR ELEMENTARY TEACHERS (2) II**

Continuation of 150 with emphasis upon sight singing, melodic and rhythmic dictation, and basic harmony. Pre: 150 or equivalent. Not open to music majors.

**451 ADVANCED STRING METHODS (2) I**

Advanced playing, teaching technique, and materials and of string instruments. Pre: 152.

**452 ADVANCED WOODWIND METHODS (2) II**

Advanced playing, teaching technique, and materials of woodwind instruments. Pre: 153.

**453 ADVANCED BRASS METHODS (2) II**

Advanced playing, teaching technique, and materials of brass instruments. Pre: 154.

**461 MUSIC OF THE BAROQUE PERIOD (2) I**

Music literature 1580-1750, especially Bach and Handel. Oratorio, opera, and instrumental. Course fee \$2.00.

**462 MUSIC OF THE CLASSIC PERIOD (2) II**

Haydn, Mozart, and Beethoven. Opera, choral, and instrumental music. Course fee \$2.00.

**463 MUSIC OF THE ROMANTIC PERIOD (2) I**

Emergence of the romantic style of the nineteenth century. Major composers. Course fee \$2.00. (Not offered 1965-66.)

**464 CONTEMPORARY MUSIC (2) II**

From Debussy to the present. Schoenberg, Bartok, Hindemith, Stravinsky, and contemporary American composers. Course fee \$2.00. (Not offered 1965-66.)

**465-466 HISTORY OF WESTERN MUSIC (3-3) Yr.**

Development of music from its origins to the present. Nationalities, schools, and composers. Course fee \$2.00.

**470 ART MUSIC OF ASIA (2) II**

Aesthetic, composition and performance practice as exemplified in representative major works. Course fee \$2.00.

**471 MUSIC OF NONLITERATE PEOPLES (3) I**

Music of nonliterate people and changes in musical style resulting from contact with Western culture. Emphasis on Pacific islands. Recordings, demonstrations, pictures, etc. Course fee \$3.00.

**481 ADVANCED ORCHESTRATION (2) II**

Arranging and composing for band, orchestra and choral groups. Pre: 281.

**483-484 COUNTERPOINT (2-2) I, II**

Sixteenth and eighteenth century contrapuntal techniques and their implications for contemporary styles. Pre: 184. (Not offered 1965-66.)

**485-486 FORM AND ANALYSIS (2-2) Yr.**

Principles of structural designs and technique of analysis. Pre: 184.

**487-488 COMPOSITION (2-2) I, II**

Creative writing beginning with smaller forms. Pre: 184 or consent of instructor.

**600 SEMINAR (3) I, II**

Selected problems in (1) composition, (2) ethnomusicology, (3) musicology, (4) performance repertory, (5) music education. Pre: consent of instructor. May be repeated.

**650 PROBLEMS IN MUSIC EDUCATION (2) II**

Study of choral instrumental and general music at elementary and secondary school levels. Research, reports, and conferences. Pre: teaching experience.

**651 FOUNDATIONS IN MUSIC EDUCATION (2) I**

Discovery and organization of broad problems in music education. Relating basic concepts of music in the elementary and secondary schools to the total curriculum. Pre: teaching experience.

**654 PACIFIC AND ASIAN MUSIC IN EDUCATION (2) II**

Songs, dances, musical instruments of Hawaii and Asia, for grades 4, 5, 6. Pre: teaching experience or consent of instructor. Rehearsal hours arranged.

**657-658 ADVANCED CONDUCTING (2-2) I, II**

Practical experience with instrumental and choral groups, including public performance. Pre: 258.

**661 BIBLIOGRAPHY AND RESEARCH METHODS IN MUSIC (3) I**

The use of basic research material and techniques in ethnomusicology and historical musicology.

**670 REGIONAL MUSICS (3) II**

Musical content and historico-social context of principal musical traditions. (1) Music of Asia, (2) Oceania. May be repeated for credit. Course fee \$3.00.

**699 DIRECTED WORK (Arr.) I, II**

Reading and research in ethnomusicology, musicology or music education; reading and practice in theory, composition or performance. Pre: candidacy for the M.A. or M.F.A. degree, consent of instructor.

### APPLIED MUSIC

Instruction is given in piano, organ, voice, and orchestral instruments in individual half-hour lessons either once or twice a week. Lessons are not made up unless the instructor is notified a reasonable time in advance of the absence. Lessons occurring on holidays are not made up.

Registration for lessons and choice of teachers must be approved by the department chairman.

One public appearance in both the junior and senior levels is required of all students majoring in music. This requirement is satisfied by successful participation in University student recitals.

Assignment to Applied Music courses is based on tests and auditions given by the department during the freshman Orientation Period. In order to receive credit in Applied Music courses 135-136 and above, the following minimum requirements must be met:

Satisfactory work in Music 181-182, or the equivalent.

*Piano and organ*—play any major or minor scale in the octaves, at a moderate tempo; Bach Two-Part Invention or a dance from one of the suites; a sonata by Haydn or Mozart; a modern composition as difficult as the sonata.

*Voice*—Sing on pitch, with correct phrasing and musical intelligence, standard songs in good English.

*Orchestral instruments*—Entrance requirements may be had by writing the Music Department.

Specific requirements in other applied music courses (137, 138, 235-236, 237-238, 435, 635) may be obtained from the Music Department.

#### FEES PER SEMESTER

One class lesson each week: 121 . . . . .	\$20.00
One class lesson each week: 122, 123 . . . . .	\$10.00
One lesson each week (half hour) . . . . .	\$55.00
Two lessons each week (half hour each) . . . . .	\$90.00

#### 121 CLASS INSTRUCTION (1-1) Yr.

Class instruction at the beginning level in voice and Asian instruments.

#### 122 CLASS PIANO INSTRUCTION (1-1) I, II

Class instruction at the beginning level in piano.

#### 123 INTERMEDIATE CLASS PIANO (1) II

Class instruction at the intermediate level in piano. Continuation of 122.

#### 131 INDIVIDUAL INSTRUCTION (Arr.) I, II

Voice, piano, organ, orchestral or Asian instruments. Nonmusic majors at freshman-sophomore level, or majors as a secondary medium. May be repeated for credit.

#### 135-136 INDIVIDUAL INSTRUCTION (Arr.) Yr.

Voice, piano, organ, or orchestral instruments at the freshman level. For prospective music majors. Pre: 131 or consent of instructor.

#### 137-138 INDIVIDUAL INSTRUCTION (Arr.) Yr.

Voice, piano, organ, or orchestral instruments at the sophomore level. For prospective music majors. Pre: 136 or consent of instructor.

#### 231 INDIVIDUAL INSTRUCTION (Arr.) I, II

Voice, piano, organ, orchestral, or Asian instruments. Nonmusic majors at junior-senior level, or majors as a secondary medium. May be repeated for credit.

#### 235-236 INDIVIDUAL INSTRUCTION (Arr.) Yr.

Voice, piano, organ, or orchestral instruments at the junior level. Recital required second semester (236). For music majors. Pre: 138 or consent of instructor.

#### 237-238 INDIVIDUAL INSTRUCTION (Arr.) Yr.

Voice, piano, organ, or orchestral instruments at the senior level. Recital for graduation (238-81). For music majors. Pre: 236 or consent of instructor.

#### 435 INDIVIDUAL INSTRUCTION (Arr.) I, II

Voice, piano, organ, orchestral, or Asian instruments at the graduate level. May be repeated for credit. Pre: 238 or graduate standing.

**635 ADVANCED INDIVIDUAL INSTRUCTION (Arr.) Yr.**

Vocal or instrumental for M.F.A. candidates. Pre: 435 and consent of instructor. May be repeated for credit.

**800 THESIS RESEARCH (Arr.) I, II**

## Philosophy (Phil)

Senior Professor MOORE; Professors MCCARTHY, NAGLEY, SAKSENA; Assistant Professors CHENG, HAYNES, INADA, RESNIK

*One of the following is generally a prerequisite to each advanced course: 100, 110, 150, 155, or the equivalent.*

**100 INTRODUCTION TO PHILOSOPHY (3) I, II**

Problems, methods, and fields of philosophy.

**110 INTRODUCTION TO ETHICS (3) I, II**

Major philosophies and typical theories of the nature of the good life.

**150 HISTORY OF PHILOSOPHY (3) I**

Western philosophy from the era of great Greek thinkers to the Renaissance. Pre: sophomore standing.

**155 MODERN PHILOSOPHY (3) II**

Western philosophy from the Renaissance to the present. Desirable prep.: 150.

**200 INTRODUCTION TO LOGIC (3) I, II**

Principles of modern deductive logic.

### WESTERN

**350 ETHICS (3) I**

A comparative analysis of ethical theory in theological, legal, literary, scientific, social, as well as philosophical sources indicating the relevance of ethical theory to the process of decision making.

**400 CONTEMPORARY PHILOSOPHY (3) I**

Survey of recent developments in Western philosophy. Pre: one of the following, 100, 150, 155.

**410 AMERICAN PHILOSOPHY (3) I**

Major trends in the development of American philosophy in relation to socio-political background and influence.

**420 PROBLEMS OF PHILOSOPHY (3) II**

Persistent specific problems of philosophy, primarily those concerning nature, man, God.

**431 SYMBOLIC LOGIC (3) I**

Quantification theory. Pre: 200 or permission of instructor.

**432 SYMBOLIC LOGIC (3) II**

Advanced topics in symbolic logic. Goedel's completeness and incompleteness theorems. Church's theorem. Pre: 431.

**433 PHILOSOPHY OF MATHEMATICS (3) II**

Philosophical problems concerning mathematics—mathematical truths, axioms and proof. Emphasis on contemporary research on foundations of mathematics. Pre: 432 or 12 credits in mathematics.

**434 PHILOSOPHY OF LANGUAGE (3) II**

Concepts of meaning, truth, existence, reference, predication, and quantification; analysis of analyticity and modalities, with applications to philosophy, science and art.

**435 BRITISH EMPIRICISM (3) II**

Analysis of the development of empiricism in the writings of Locke, Berkeley, and Hume. Special attention to the concepts of substance, sensation, self, nature, causation, mathematics, morality and religion.

**436 CONTINENTAL RATIONALISM (3) II**

Epistemological, metaphysical, and ethical problems in Continental Rationalism. Particular attention to Descartes and Spinoza.

**440 POLITICAL PHILOSOPHY (3) II**

A combined systematic and historical approach to the major problems of Western political philosophy. Special attention will be given to European political theory.

**475 PLATO (3) II**

Analysis of the theory of ideas, theory of knowledge, ethical and political ideas, and his view of the arts through examination of the Dialogues.

**476 ARISTOTLE (3) II**

Analysis of the fundamental ideas and works including his methodological, metaphysical, ethical, political, logical, and aesthetic theory. (Not offered 1965-66.)

**500 PHILOSOPHY OF ART (3) I**

Study of art from the points of view of creation, appreciation, criticism. Particular attention to painting, sculpture, music, poetry.

**505 PHILOSOPHY OF RELIGION (3) II**

Western religious philosophy: Thomism, Mysticism, Reformationism, Rationalism, Agnosticism, Romanticism, Humanism, Existentialism.

**510 PHILOSOPHY IN LITERATURE (3) II**

Literary expression of philosophical ideas. Consideration of such writers as Beckett, Camus, Hemingway, Kafka, Rilke, Sartre, T. S. Eliot.

**515 PHILOSOPHY OF HISTORY (3) II**

Occidental and Oriental conceptions of the meaning of historical processes. Particular attention to Augustine, Hegel, Marx-Engels.

**520 EXISTENTIAL PHILOSOPHY (3) II**

Survey of the main themes of European existential philosophy. Particular attention to Kierkegaard and Heidegger.

**550 THEORY OF SCIENCE (3) I**

A systematic study of the methods and procedures of reliable knowledge in the formal, natural, and social sciences.

**555 FOUNDATIONS OF SCIENCE (3) II**

Philosophical foundations and implications of modern physical science. Particular reference to Copernicus, Galileo, Newton, Einstein.

## EASTERN

**445 PHILOSOPHICAL FOUNDATIONS OF INDIAN CULTURE (3) I**

Distinctive characteristics of the people of India; intellectual habits and emotions as expressed in art, literature, philosophy, politics, religion.

**450 INDIAN PHILOSOPHY (3) I**

Philosophical systems and movements: the Vedas, Upanishads, Six systems of Hinduism, Charvaka, Jainism, Buddhism.

**451 CONTEMPORARY INDIAN PHILOSOPHY (3) II**

Analysis of recent philosophical movements and tendencies and their significance in present day India.

**453 INDIAN SOCIAL PHILOSOPHY (3) II**

The basic codes of Indian moral and social philosophy (Dharmasastras) and their historical developments and their practical significance.

**454 INDIAN LOGIC (3) I**

A study of the outlines of India's logical concepts and their development. (Not offered 1965-66.)

**460 BUDDHIST PHILOSOPHY (3) I**

Survey of the basic schools and tenets of Buddhist philosophy.

**461 THERAVADA BUDDHIST PHILOSOPHY (3) II**

Analysis of early Buddhist conceptions of the nature of man. Pre: 460; consent of instructor. (Not offered 1965-66.)

**462 MAHAYANA BUDDHIST PHILOSOPHY (3) II**

Basic principles and major schools. Emphasis upon Indian, Chinese, and later Japanese developments. Pre: 460; consent of instructor.

**464 ZEN PHILOSOPHY (3) I**

Origin and development of Zen; influence on Oriental cultural traditions and contemporary scene. Pre: 460; consent of instructor. (Not offered 1965-66.)

**470 CHINESE PHILOSOPHY (3) I**

Historical survey of the important philosophical schools and tendencies in China, ancient and modern.

**471 CONFUCIANISM (3) I**

Doctrinal, ethical, social and institutional problems from Confucius to the present. Pre: 470; consent of instructor.

**472 NEO-CONFUCIANISM (3) II**

An examination of logic, theory of knowledge, metaphysics and ethics of the major Chinese Neo-Confucian philosophers in the period from the 11th to the 16th century. (Not offered 1965-66.)

**473 TAOISM (3) I**

Study and analysis of the philosophical ideas of Lao-tze, Chuangtze, and later Neo-taoists.

### COMPARATIVE

**465 PHILOSOPHY, EAST AND WEST (3) I**

Basic systems and methods of Eastern and Western philosophy, with special attention to similarities and contrasts.

### FOR GRADUATES

*All seminars may be repeated.*

**600 SEMINAR IN PROBLEMS OF PHILOSOPHY (3) II**

Pre: graduate standing; consent of instructor.



**601 SEMINAR IN GREEK PHILOSOPHY (3) I**

Pre: graduate standing; consent of instructor.

**610 SEMINAR IN MODERN PHILOSOPHY (3) I, II**

Pre: graduate standing; consent of instructor.

**620 SEMINAR IN CONTEMPORARY PHILOSOPHY (3) I, II**

Pre: graduate standing; consent of instructor.

**650 SEMINAR IN INDIAN PHILOSOPHY (3) I, II**

Pre: graduate standing; consent of instructor.

**660 SEMINAR IN BUDDHIST PHILOSOPHY (3) I, II**

Pre: graduate standing; consent of instructor.

**670 SEMINAR IN CHINESE PHILOSOPHY (3) II**

Pre: graduate standing; consent of instructor.

**690 SEMINAR IN COMPARATIVE PHILOSOPHY (3) II**

Pre: graduate standing; consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

(1) Greek philosophy, (2) modern classical philosophy, (3) contemporary Western philosophy, (4) Indian philosophy, (5) Buddhist philosophy, (6) Chinese philosophy, (7) East-West philosophy. Available to advanced graduate students; may be repeated; consent of instructor and chairman required, (8) Analytic paper.

## Physics (Phys)

Senior Professor WATANABE; Professors HOLMES, JEFFERIES, MIYAKE, ORRALL, PETERSON; Associate Professors CENCE, KUDAR, McALLISTER, PONG, STEIGER; Assistant Professors DOBSON, HEE, NOSE, STENGER; Visiting Professor TUAN

*Mathematics 231 and Physics 160-161 or 170-173 are prerequisites to all courses numbered 300 or above.*

**110 ASTRONOMY (3) I**

Introduction to the nature of the astronomical universe; survey of observational methods and historical development. Pre: Math 102.

**140 ELEMENTARY PRINCIPLES OF SOUND (2) II**

A study of the physics of sound as related to music and speech, and related problems in acoustics. Pre: Math 112 or equivalent, or consent of instructor.

**160-161 COLLEGE PHYSICS (4-4) Yr. (3L, 1 Lb)**

Fundamental principles, theories, experimental methods. Pre: Math 102 and credit or registration in Math 103. Course fee \$6.00 each semester.

**164 ELEMENTARY MODERN PHYSICS (4) I**

Electromagnetic waves, wave optics, principle of mass-energy conservation, quantum theory of radiation, waves and particles, atomic structure and selected topics of nuclear physics. Special attention will be given to applications of simple mathematical techniques to solve physical problems. Pre: 160-161 or equivalent, Math 136.

**170 GENERAL PHYSICS (3) I, II**

Mechanics of particles, rigid bodies, fluids; properties of matter; wave motion; sound. Pre: credit or registration in Math 136.

**171 GENERAL PHYSICS LABORATORY (1) I, II (1 3-Hr Lb)**

Experiments in statics, dynamics, properties of matter, periodic motion, sound. Pre: credit or registration in 170. Course fee \$6.00.

**172 GENERAL PHYSICS (3) I, II**

Fundamental laws of electricity and magnetism and their applications. Pre: 170, 171; credit or registration in Math 231.

**173 GENERAL PHYSICS LABORATORY (1) I, II (1 3-Hr Lb)**

Experiments in heat, electricity, and magnetism. Pre: credit or registration in 172. Course fee \$6.00.

**174 GENERAL PHYSICS (4) I, II**

Heat, light and modern physics. Pre: 172, 173, or concurrent registration, or 160-161; credit or registration in Math 231.

**175 GENERAL PHYSICS LABORATORY (1) I (1 3-Hr Lb)**

Experiments in light and modern physics. Pre: credit or registration in 161 or 174. Course fee \$6.00.

**253 ELECTRICAL MEASUREMENTS (1) II**

Experimental determination of fundamental electro-magnetic quantities and applications to high vacuum and microwaves. Pre: 173 or 161; Math 231. Course fee \$6.00.

**305-306 MODERN PHYSICS LABORATORY (1-2) I, II**

Selected experiments of importance in modern physics. Measurements of nuclear magnetic resonance, Mossbauer effect, electron spin resonance, lasers, electron diffraction and other phenomena. Pre: 175, credit or registration in 480, or consent of instructor.

**310 THEORETICAL MECHANICS (3) I**

Mechanics of particles, rigid bodies, and elastic media. Generalized methods.

**350 ELECTRICITY AND MAGNETISM (3) I**

Experimental laws, field theory, and mathematical application to special problems.

**399 INDIVIDUAL WORK IN ADVANCED PHYSICS (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio, or 3.0 in physics.

**420 SOUND (3) I**

Theory of sound and its application.

**440 PHYSICAL ELECTRONICS (3) I, II**

Theory of electronic phenomena and devices. Pre: credit or registration in 350.

**460 PHYSICAL OPTICS (3) II**

Geometrical and physical optics. Pre: 174, 350.

**461 OPTICS LABORATORY (1) II (1 Lb)**

Experiments in geometrical and physical optics. Pre: credit or registration in 460. Course fee \$6.00.

**480 ATOMIC AND NUCLEAR PHYSICS I (3) I**

Quantum mechanics, one-electron atom, many-electron atom, perturbation theory, the hydrogen molecule, quantum statistics, and the band theory of solids. Pre: 174 or equivalent; 350; credit or registration in Math 402.

**481 ATOMIC AND NUCLEAR PHYSICS II (3) II**

Basic properties of nuclei, quantum-mechanical theories of alpha and beta decay, gamma emission, dynamics of nuclear reactions, fission and fusion processes, elementary particles. Pre: 480.

**530 THERMODYNAMICS AND STATISTICAL MECHANICS (3) I**

Laws of thermodynamics, heat transfer, kinetic theory, statistical mechanics.

**550 ELECTROMAGNETIC WAVES (3) II**

Field equations, plane and spherical waves, and guided waves. Pre: 174, 350.

**600-601 METHODS OF THEORETICAL PHYSICS (3-3) Yr.**

A study of the mathematical tools of physics, including series, transcendental functions, Fourier and Laplace transforms, integral equations, Green's functions, Group theory. Emphasis is upon applications, with special attention to approximate methods of solution. Pre: 310, 350, 480; Math 402.

**605-606 MODERN PHYSICS LABORATORY (1 or 2) I, II**

Selected experiments of importance in modern physics. Measurements of nuclear magnetic resonance, Mossbauer effect, electron spin resonance, lasers, electron diffraction and other phenomena. Pre: 175, credit or registration in 480 or consent of instructor.

**610 ANALYTICAL MECHANICS I (3) I**

Dynamics of particles, systems of particles, and rigid bodies, Lagrangian and Hamiltonian equations, special theory of relativity. Pre: 310; Math 402.

**611 ANALYTICAL MECHANICS II (3) II**

Invariants, Hamilton-Jacobi equation, Huygen's principle, small oscillations, mechanics of elastic media. Pre: 610.

**620 PHYSICS OF UPPER ATMOSPHERE (3) II**

Basic parameters, experimental methods, absorption and recombination processes, intrusion of extra-terrestrial particles and fields. Pre: 310, 350, or consent of instructor.

**625 MODERN ASTROPHYSICS I (3) II**

A broad survey course covering such topics as stellar atmospheres, interpretation of stellar spectra, stellar interiors and evolution, pulsation and variability. Open to seniors with consent of instructor.

**626 MODERN ASTROPHYSICS II (3) I**

Continuation of Physics 625. The sun and planets, interstellar medium galactic structure and evolution. Pre: 625.

**630 STATISTICAL MECHANICS (3) I**

Probability and statistics, classical and quantum-mechanical statistical mechanics, relation to thermo-dynamical variables, applications. Pre: 530, 610, 670.

**650 ELECTRODYNAMICS I (3) I**

Potential theory, Maxwell's equations, electromagnetic waves, boundary value problems. Pre: 550; Math 402.

**651 ELECTRODYNAMICS II (3) I**

Relativistic electrodynamics, electron theory, radiation by charged particles, Lienard-Wiechert potential, stress-energy tensor, moving media. Pre: 650.

**660 ADVANCED OPTICS (3) I**

Wave motion, interference, diffraction, fundamentals of spectroscopy, optics from the point of view of electromagnetic theory, lasers. Pre: 460.

**670 QUANTUM MECHANICS I (3) I**

Physical basis and formulation, solution of Schroedinger's equation, angular momentum, scattering problems, atomic structure. Pre: 481; Math 402.

**671 QUANTUM MECHANICS II (3) II**

Matrix formulation, spin, approximation methods, relativistic wave equation, quantization of field. Pre: 670.

**677 NUCLEAR PHYSICS I (3) I**

Properties and structure of nuclei, reactions, and nuclear models. Pre: 481, 670.

**678 NUCLEAR PHYSICS II (3) I**

Elementary particles, nuclear forces, meson theory. Pre: 677, and consent of instructor.

**680 ATOMIC AND MOLECULAR SPECTRA (3) II**

Study of atomic and molecular structure by quantum mechanical interpretation of line, band, and continuous spectra. Pre: 670.

**685 SOLID STATE THEORY (3) I**

Crystalline state, lattice vibration, lattices defect, ferroelectrics, ionic crystals, theory of metals, band theory, semiconductors. Pre: 440, 630, 670.

**690 SEMINAR (1) I, II**

Discussions and reports on physical theory and recent development. Pre: graduate standing or consent of the chairman.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor.

**700 SEMINAR ON ELEMENTARY PARTICLE PHYSICS (1) II**

Report and discussion of recent developments in the field of elementary particle physics. Pre: consent of instructor. (Can be repeated for credit for a maximum of 4 semesters.)

**710 QUANTUM THEORY OF FIELDS (3) II**

Quantization of the electromagnetic field; formal and phenomenological meson theories, with applications to elementary particle physics; general relativity. Pre: 610-611, 650-651, 670-671.

**800 THESIS RESEARCH (Arr.) I, II**

## Political Science (PoSc)

Senior Professor SAUNDERS; Professors LEVI, MELLER, SPELLACY, STAUFFER; Associate Professors FRIEDMAN, KARIEL, MIWA, TUTTLE; Assistant Professors BECKER, CAHILL, FERARU, HAAS, LEE, NEFF.

*110, or the equivalent, is prerequisite to all other courses except 215.*

**110 INTRODUCTION TO POLITICAL SCIENCE (3) I, II**

Role of government in modern society. Types and practices of government; processes of political change; citizen participation.

**215 CURRENT POLITICAL AFFAIRS (1) I, II**

Survey of current political topics and problems.

**300 ELEMENTS OF POLITICAL THEORY (3) I, II**

Analysis of some of the major concepts of political theory; their statement by the major political philosophers.

**301 DEMOCRACY (3) II**

Analysis of the concept of democracy.

**320 AMERICAN GOVERNMENT (3) II**

Development, organization, and functioning of national, state, and local government.

**324 CIVIL RIGHTS (3)**

Study of the principal court decisions on freedom of speech, press, assembly, conscience, and other basic civil liberties.

**340 COMPARATIVE POLITICS: POLITICAL PATTERNS (3) II**

Nature and types of political parties; party systems; relation to electoral systems.

**341 COMPARATIVE POLITICS: INSTITUTIONAL DEVELOPMENT (3) I**

Classification of major structural types; levels, range, and "universe" of decision-making; patterns in executive-legislative relations.

**360 INTRODUCTION TO INTERNATIONAL RELATIONS (3) I, II**

A survey of the major historical, political, and social forces which influence the relations among nations.

**362 UNITED NATIONS (3) I**

Problems involved in the development and structure of international organizations, with special emphasis on the United Nations.

**382 CAMPAIGNS AND ELECTIONS (3) I**

Management and conduct of elections, with attention to techniques employed by candidates for public office. Field investigations.

**384 THE LEGISLATIVE PROCESS (3) II**

The lawmaking process in the United States. Role of the representative assemblies, the executive branch, interest groups, and the public.

**394, 395 SENIOR HONORS THESIS I, II**

First semester, selection of topic; second semester, completion of thesis, under direction of selected advisor.

**401 WESTERN POLITICAL THOUGHT (3)**

A study of Western political thought designed to identify and clarify contemporary problems of political thought and public affairs.

**404 MODERN POLITICAL IDEOLOGIES (3) I**

Survey of political ideologies such as communism, fascism, socialism.

**405 AMERICAN POLITICAL THOUGHT (3) II**

Examination of American political ideas from colonial day to the present.

**420 STATE GOVERNMENT AND ADMINISTRATION (3) I**

Constitutions; historical evolution; structure with reference to judicial, legislative, and executive branches; limitations on authority.

**421 MUNICIPAL GOVERNMENT AND ADMINISTRATION (3) II**

The city as a political subdivision and as a municipal corporation; powers and liabilities; forms of government; the metropolitan problem; related matters.

**423 CONSTITUTIONAL LAW (3) I**

Examination of principal cases concerned with state relations, due process of law, interstate commerce, and related subjects.

**424 COURTS AND POLITICS (3) I**

Description and theory of inter-relationship between judicial process and political system using wide array of inter-disciplinary materials.

**425 COURTS AND POLITICS: THE AMERICAN SYSTEM (3) II**

Study of American judicial system: theoretical political functions; impact upon American political process. Pre: 424.

**443 GOVERNMENT AND POLITICS OF CHINA AND JAPAN (3) I**

Changing patterns of government; emphasis on problems faced and the institutional, ideological, and political answers created through time.

**444 GOVERNMENT AND POLITICS OF SOUTH AND SOUTHEAST ASIA (3) I**

Analysis of relevant colonial patterns that have conditioned the newly created governmental structures, followed by a study of present developments.

**446 GOVERNMENT AND POLITICS OF THE USSR (3) I**

Historical, social, political, and ideological factors in the development of political institutions in the Soviet Union.

**450 GOVERNMENT AND POLITICS OF POLYNESIA (3)**

Indigenous government; colonial policy in the Polynesian Triangle; modern government and politics in American (incl. Hawaii), English, and French spheres.

**461 AMERICAN FOREIGN POLICY (3) II**

Historical, institutional, political, and economic influences on the formation and execution of American foreign policy.

**462 INTERNATIONAL RELATIONS OF THE FAR EAST (3) I**

Rise and fall of eastern Asia and the re-emergence of this area as a pivotal factor in world politics.

**463 INTERNATIONAL RELATIONS OF SOUTH AND SOUTHEAST ASIA (3) II**

Emergence from colonialism of these new states. "Neutralism"; intra-regional struggles; cooperation; Afro-Asian bloc; United Nations activities.

**466 FOREIGN POLICY OF THE SOVIET UNION (3) II**

Historical, institutional, political, ideological and personal influences on the formation and execution of the foreign policy of the Soviet Union.

**467 REGIONAL INTERNATIONAL ORGANIZATIONS (3) II**

A study of intergovernmental arrangements and politics within selected regions of the world, with special emphasis on non-global international institutions and the problem of political integration.

**469 PROBLEMS IN INTERNATIONAL RELATIONS (3) I**

Intensive case studies of a limited number of substantive problem areas in international relations.

**481 AMERICAN POLITICAL PARTIES (3) II**

Organization, methods, and functions of political parties, with special attention to the electoral and organizational aspects of party behavior.

**483 PROPAGANDA AND PUBLIC OPINION (3)**

Characteristics, methods, and results of propaganda and pressure group activity. Nature of public opinion; methods of influencing it; techniques for measuring political opinions.

**500 PUBLIC ADMINISTRATION (3) I**

Relationship of administration to policy-forming agencies and to the courts; structure of administration; devices for integration; related materials.

**501 PRINCIPLES OF MANAGEMENT (3) II**

Basic principles of management and techniques of application; human relations in management.

**502 PERSONNEL ADMINISTRATION (3)**

Organization and administration of civil service systems; recruitment, classification, discipline, and status of civil servants. Pre: 500.

**600 CONTEMPORARY POLITICAL SCIENCE (3) I, II**

Analysis of Political Science as a tradition of philosophical, theoretical, and empirical inquiry. (Required of all first-year graduate students.)

**601 SYSTEMATIC POLITICAL ANALYSIS (3) I**

Basic problems in theory-building and research design as these problems manifest themselves in contemporary political analysis.

**602 ASIAN POLITICAL THOUGHT (3) II**

A study of the major political and intellectual thought patterns as they reflect and influence governments in Asia.

**603 FOREIGN POLICY OF MAINLAND CHINA (3) I**

The basic goals of Mainland China's foreign policy, inter-relationship among them, and the resultant strategies and tactics.

**620 THE POLITICAL ORDER: CONSTITUTIONALISM IN AMERICA (3) I**

Study of the practical conditions for the maintenance of a democratic constitutional order.

**640 POLITICS OF NATIONAL DEVELOPMENT (3) I, II**

Processes in building new and larger forms of political association in "old" and "newly emergent" nations; techniques; role of political values.

**651 DEVELOPMENT ADMINISTRATION (3) II**

Theoretical formulations of "modernization" with emphasis on the roles of bureaucracies. Pre: consent of instructor.

**656 REGIONAL AND CITY PLANNING (3) I**

The planning function and its role in government; organization for planning; elements of planning.

**670 INTERNATIONAL LAW (3) II**

Historical and theoretical investigation of the development of an international legal order.

**673 ADMINISTRATIVE LAW (3) II**

Laws relating to public officers, status, rights, and obligations; laws governing relations between government and the public, e.g., rights to notice and hearing, due process.

**680 POLITICAL BEHAVIOR (3) I**

The theory and practice of "behavioral science" research in the study of politics.

**681 PUBLIC POLICY DEVELOPMENT (3)**

Comprehensive review and analysis of the process whereby public policies are formulated.

**699 DIRECTED READING AND RESEARCH (Arr.) I, II**

Individual problems. Pre: consent of instructor.

**700° SEMINAR: CLASSICAL WESTERN POLITICAL THOUGHT (3)****701° SEMINAR: MODERN WESTERN POLITICAL THOUGHT (3) II****720° SEMINAR: AMERICAN NATIONAL GOVERNMENT (3) II****721° SEMINAR: STATE AND LOCAL GOVERNMENT (3) I****740° SEMINAR: EAST ASIA (3) I, II****741° SEMINAR: SOUTH AND SOUTHEAST ASIA (3) II**

- 742° SEMINAR: COMPARATIVE POLITICS (3) I  
 750° SEMINAR: PUBLIC ADMINISTRATION (3) II  
 751° SEMINAR: COMPARATIVE PUBLIC ADMINISTRATION (3) I  
 760° SEMINAR: INTERNATIONAL POLITICS (3) I, II  
 761° SEMINAR: INTERNATIONAL ORGANIZATIONS (3) II  
 762° SEMINAR: INTERNATIONAL RELATIONS OF ASIA (3) II  
 771° SEMINAR: PUBLIC LAW (3) I  
 780° SEMINAR: POLITICS (3) II  
 781° SEMINAR: LEGISLATIVE PROCESS (3) I  
 800 THESIS I, II

\* Consent of instructor prerequisite. With consent, seminar may be repeated for credit.

## Psychology (Psy)

Professors BITNER, CROWELL, DIAMOND, DIGMAN, HERRICK, WEAVER; Associate Professors ARKOFF, DOLE, R. C. JOHNSON, OAKES; Assistant Professors BLANCHARD, DAVIS, INSKO, W. R. WILSON

*102 or 104 is prerequisite to all other courses.*

- 102 GENERAL PSYCHOLOGY (4) I, II (3 L, 1 2-Hr Lb)  
 Principles of human behavior. Individual differences, motivation, emotion, perceiving, learning, etc. Course fee \$1.00. Not open to those who have had 104.
- 104 INTRODUCTION TO PSYCHOLOGY (3) I, II  
 Similar to 102 but without laboratory. Not open to those who have had 102, or Arts and Sciences majors.
- 220 STATISTICAL TECHNIQUES (3) I, II (2 L, 1 2-Hr Lb)  
 Types of data; graphic methods; central tendency; variability; correlation; reliability; tests of significance. Pre: two years of high school algebra or Mathematics 101.
- 226 PSYCHOLOGICAL MEASUREMENTS (3) II  
 Construction, validation, and administration of tests; interpretation of scores; familiarization with types of group tests. Pre: 220.
- 230 INTRODUCTORY EXPERIMENTAL PSYCHOLOGY (3) I, II (2 L, 1 2-Hr Lb)  
 Basic methodology and experimental literature. Sensation, perception, emotion, conditioning, learning, thinking, social phenomena.
- 250 DEVELOPMENTAL PSYCHOLOGY (3) I, II  
 Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels.
- 280 PSYCHOLOGY OF ADJUSTMENT (3) I, II  
 Understanding and improving personal adjustment. Needs, frustrations, conflicts, anxiety, patterns of adjustment. Not open to majors.
- 304 PSYCHOLOGY OF MOTIVATION (3) I  
 Instinct, drive, motives, emotion, attitudes; their biological bases, modification, organization.



**306 PSYCHOLOGY OF LEARNING (3) I**

The major conditions influencing learning and forgetting; the role of motivation, rewards, practice; theoretical interpretations of the learning process.

**356 PSYCHOLOGY OF EXCEPTIONAL CHILDREN (3) II**

Evaluation of physical, emotional, and intellectual deviations and their effects upon the growth and development of children. Pre: 250.

**362 SOCIAL PSYCHOLOGY (3) II**

Psychology of human relations; psychological factors that determine the behavior of an individual in his social relationships.

**372 EDUCATIONAL PSYCHOLOGY (3) I, II**

Major factors of learning and mental health as they apply to the educative process. Pre: 250.

**374 INDUSTRIAL AND BUSINESS PSYCHOLOGY (3) II**

Job motivation, satisfaction, morale, leadership. Job analysis, selection, training, safety, fatigue, efficiency, human engineering. Consumer research.

**399 DIRECTED READING OR RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.

**410 HISTORY OF PSYCHOLOGY (3) I**

The background of modern psychology. Origins and development of contemporary points of view. Relationship to Western thought.

**430 INTERMEDIATE EXPERIMENTAL PSYCHOLOGY (3) II**

Original experiments with emphasis upon laboratory techniques. Control of variables, apparatus design, and statistics in research.

**440 PHYSIOLOGICAL PSYCHOLOGY (3) I**

Physiological explanation of behavior in terms of sense organs, the nervous system, muscles and glands.

**450 SOCIAL DEVELOPMENT OF CHILDREN (3) I**

Survey of the socialization process and acquisition of social behavior. Pre: 250.

**460 PSYCHOLOGY OF PERSONALITY (3) I**

Theory and methods in study of behavioral organization and continuity.

**480 ABNORMAL PSYCHOLOGY (3) I**

Nature and causes of psychoneuroses and psychoses; abnormalities of intelligence; incipient abnormal traits manifested in everyday life; psychotherapy.

**512 COMPARATIVE PSYCHOLOGY (3) I (2 L, 1 2-Hr Lb)**

Significant literature of animal studies in learning and instinct, perception, motivation, physiological mechanisms. Pre: 230 or consent of instructor.

**574 PROBLEMS IN INDUSTRIAL AND BUSINESS PSYCHOLOGY (3) I**

Consideration of special problems in the area. Pre: 374.

**600 SEMINAR (3) I, II**

(1) General, (2) history and theory, (3) statistics and measurements, (4) experimental, (5) physiological, (6) personality, (7) social, (8) developmental, (9) applied-industrial, (10) clinical, (11) counseling, (12) learning. May be repeated.

**614 THEORY I (3) I**

An introduction to current theoretical systems. Special issues treated from various viewpoints, but with a central integrating theme, based on a major theoretical formulation.

**615 THEORY II (3) II**

Major theoretical problems in psychological science, treated from various viewpoints, but with a central integrating theme, based on a major theoretical formulation. Theory I is desirable preparation, but either course may be taken without the other.

**620 QUANTITATIVE METHODS I (3) I**

Basic concepts and techniques in psychological statistics and research design.

**621 QUANTITATIVE METHODS II (3) II**

Advanced statistical techniques, including analysis of variance. Pre: 620.

**626 QUANTITATIVE METHODS III (3) I**

Scaling theory, test theory, factor analysis. Pre: 420, 426 or consent of instructor.

**630 EXPERIMENTAL PSYCHOLOGY I (3) I**

Advanced techniques and research procedures, with a central focus on problems of learning, problem solving, etc.

**631 EXPERIMENTAL PSYCHOLOGY II (3) II**

Advanced techniques and research procedures, with a central focus on problems of perception, motivation, or other basic topics.

**650 DEVELOPMENTAL PSYCHOLOGY I (3) I**

Theoretical movements and research in child and adolescent psychology.

**652 DEVELOPMENTAL PSYCHOLOGY II (3) II**

Theoretical movements and research in the psychology of maturity and old age.

**660 PERSONALITY (3) II**

Theory and research in personality, with an emphasis upon primary sources, such as Freud, Jung, Adler, Rogers, Murray, Lewin, and Murphy. Pre: 460 or equivalent.

**662 SOCIAL PSYCHOLOGY (3) II**

Methods and objective verification of hypotheses; interpersonal relations, group structure and process, social conflict, propaganda, etc.

**670 APPLIED SOCIAL PSYCHOLOGY (3) II**

Survey of basic problems in the use of social psychological principles and techniques in the fields of human relations, business and industry, and communication.

**672 ADVANCED EDUCATIONAL PSYCHOLOGY (3) II**

Application of experimental evidence in psychology to major educational problems; the bearing of recent psychological theories upon education.

**678 PSYCHOLOGY OF OCCUPATIONS (3) II**

Vocational development, determinants of career choice, personality correlates, job requirements and human disabilities, vocational guidance.

**682 PSYCHOLOGICAL APPRAISAL (A) (3) I**

An introduction to the clinical study of the individual. Appraisal theory and practice. Emphasis on individual intelligence tests. Pre: 226; consent of instructor. Course fee \$5.00.

**683 PSYCHOLOGICAL APPRAISAL (B) (3) II**

Advanced clinical study of individual. Emphasis on projective and other personality measures. Pre: 682; consent of instructor. Course fee \$5.00.

**684 PSYCHOLOGICAL APPRAISAL (C) (3) I, II**

Field experience in appraisal. Pre: 682; consent of instructor. May be repeated. Course fee \$5.00.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.

**730 RESEARCH IN EXPERIMENTAL PSYCHOLOGY (1-3) I, II**

Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

**750 RESEARCH IN DEVELOPMENTAL PSYCHOLOGY (1-3) I, II**

Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

**760 RESEARCH IN PERSONALITY (1-3) I, II**

Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

**762 RESEARCH IN SOCIAL PSYCHOLOGY (1-3) I, II**

Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

**779 PSYCHOLOGY OF REHABILITATION (3) II**

Research and theory. Psychological problems associated with disability. Counseling techniques in planning rehabilitation. Case studies. Pre: consent of instructor.

**780 RESEARCH IN COUNSELING PSYCHOLOGY (1-3) I, II**

Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

**782 PSYCHOLOGICAL COUNSELING (A) (3) I**

Theory and technique in psychological counseling. Pre: 226; consent of instructor.

**783 PSYCHOLOGICAL COUNSELING (B) (3) II**

Supervised experience in psychological counseling. Pre: 782; consent of instructor.

**784 PSYCHOLOGICAL COUNSELING (C) (3) I, II**

Intensive supervised experience with a variety of cases and in a variety of settings. Pre: 783; consent of instructor. May be repeated.

## Religion (Rel)

Associate Professor AOKI; Assistant Professors PIEDISCALZI, SEIFERT

**150 INTRODUCTION TO THE STUDY OF RELIGION (3) I, II**

An introduction to the world's living religions—Hinduism, Buddhism, Shinto, Confucianism, Taoism, Judaism, Christianity, Islam.

**151 RELIGION AND THE MEANING OF EXISTENCE (3) I, II**

An introduction to the basic ideas and issues of contemporary religious thought as they are related to the question, "What is the meaning of existence?"

**200 UNDERSTANDING THE OLD TESTAMENT (3) I**

A study of the developing beliefs and practices of the Hebrew religion as set forth in the Old Testament. Emphasis on the meaning of its faith for the modern world.

**201 UNDERSTANDING THE NEW TESTAMENT (3) II**

The origin and development of the early Christian message as set forth in the New Testament, with special attention to Jesus and Paul.

**309 THE LIFE AND TEACHING OF JESUS (3) II**

A critical study of the life and teachings of Jesus. An interpretation of the meaning of Jesus Christ for Christian faith.

**310 THE PROPHETS AND SAGES OF THE OLD TESTAMENT (3) I**

The prophetic and wisdom literature of the Old Testament.

**321 GREAT PERSONALITIES IN CHRISTIANITY (3) II**

An examination of the lives and thought of some outstanding representatives.

**340 WESTERN RELIGIOUS THOUGHT TO 1492 (3) I**

Ideas of major religious thinkers and movements in the history of the Western world to 1492; an evaluation of Roman Catholicism.

**341 WESTERN RELIGIOUS THOUGHT FROM 1500 (3) II**

The period of the Protestant Reformation to the present, with an evaluation of the Protestant movement.

**351 EXISTENTIAL INTERPRETATION OF BIBLICAL FAITH (3) II**

An interpretation of Biblical faith on the basis of critical theological thought and existential analysis with reference to the visual arts and literature.

**361 THE NATURE AND DESTINY OF MAN (3) II**

Religious views of human nature in their bearing on man's activities in politics, education, law, economics, and literature.

**371 CHRISTIAN THOUGHT IN CONTEMPORARY ASIA (3) II**

A study of the Asian contributions in the field of Christian theology, with special emphasis on Indian and Japanese Christian thinkers. (Not offered 1965-66.)

**382-383 THE HISTORY OF LIVING RELIGIONS (3-3) Yr.**

382: Basic beliefs and practices of Hinduism, Confucianism, Taoism, Buddhism, Shintoism. 383: Judaism, Roman Catholicism, Protestantism, their history, beliefs, contributions. Semesters are independent.

**386 CHRISTIAN ETHICS (3) I**

A study of historical and contemporary types of Christian ethics.

**651 SELECTED PROBLEMS OF THEOLOGY (3) II**

Pre: graduate standing; consent of instructor.

## Social Sciences (SocSc)

Professors DENNEY, KAMINS, WEAVER; Assistant Professor SPITZ

**300-301 MAN IN SOCIETY (3-3) Yr.**

Some basic problems and processes of contemporary society, jointly examined by the several social sciences. Pre: junior standing or consent of instructor.

## Sociology (Soc)

Senior Professor LIND; Professors BALL, CHENG, GLICK, HORMANN, YAMAMURA, YANG; Associate Professor WITTERMANS; Assistant Professors BARTOS, KRAUSS, WON, YAMAMOTO; Instructor SAKUMOTO

*151 and 201 are equivalent introductory courses. 201 is specifically set up for juniors, seniors, or graduate students. Either course is a prerequisite to all advanced courses.*

**151 INTRODUCTION TO THE STUDY OF SOCIETY (3) I, II**

Basic social relationships, norms, social structures, and processes affecting social change. Not open to juniors or seniors.

**201 PRINCIPLES OF SOCIOLOGY (3) I, II**

Principles underlying the organization of social groups, communities, institutions, and ecological structures; basic processes of socialization, collective behavior, and social change. Equivalent to 151, and open to juniors, seniors, and graduates only.

**220 HUMAN ECOLOGY (3) I**

Basic concepts, principles, and techniques. Factors affecting distribution of population, utilities, and social institutions.

**232 COMMUNITY FORCES IN HAWAII (3) I, II**

Basic factors and forces in contemporary society as exemplified in Hawaii. Course fee \$2.00.

**258 RACE RELATIONS (3) I, II**

Race relations in world perspective; typical situations; conflict and accommodation; caste; race prejudice; miscegenation; effects upon personality.

**264 SOCIAL INSTITUTIONS (3) II**

Culture as a conceptual tool. Origin, structure, function, and growth of institutions. Interrelation and integration.

**270 SOCIAL CONTROL (3) I, II**

Analysis of the processes by which individuals become amenable to social and mass definitions of conduct and behavior.

**300 SOCIAL DISORGANIZATION (3) II**

Factors in community, institution, and group disorganization; behavioral deviancy and social pathology. An integrated approach to social problems.

**306 CRIMINOLOGY (3) I, II**

Crimes and criminals; causative theories of criminality; institutional problems of apprehension, prosecution, incarceration, correction and rehabilitation.

**324 PERSONALITY AND CULTURE (3) I, II**

Origin and development of personality as the subjective aspect of culture; function of communication; human nature and the mores; personal life organization.

**344 SOCIAL CHANGE (3) I, II**

Structural-functional organization. Impact of technology on institutions, value orientation, power structures, systems of roles, and stratification.

**394 HONORS THESIS****399 DIRECTED READING (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in sociology.

**410 POPULATION AND SOCIETY (3) II**

Society analyzed in terms of quantitative and qualitative aspects of population. Sociological aspects of birth and death rates, natural increase, mobility.

**435 THE AGRARIAN COMMUNITY (3) I**

Community types as affected by the transition from subsistence to commercial and industrial agriculture.

**436 THE URBAN COMMUNITY (3) II**

Sociological principles as applied to the modern city. Structure, growth, social and personal life organization.

**444 PEOPLE AND INSTITUTIONS OF CHINA (3) I, II**

Analysis of social philosophies and their influence on basic institutions and traits of the people. Impact of Western Civilization and Communism. Social change under the People's Democratic Dictatorship.

**446 PEOPLE AND INSTITUTIONS OF JAPAN (3) I, II**

Social structure and social change in contemporary Japan. Special attention to the family, stratification, and mobility.

**451 RACE RELATIONS IN THE PACIFIC (3) I, II**

Dominant conceptions of race and race relations, and factors affecting them; race and culture contacts in Hawaii and other Pacific areas.

**472 THE FAMILY (3) I, II**

Culturally distinctive family types as background for analysis and interpretation of the American family.

**480 SOCIOLOGY OF RELIGION (3) I**

Structure, function, and dynamics of religion in various types of society.

**486 INDUSTRIAL SOCIOLOGY (3) I, II**

Status system in industry. Problems of group adjustment. Factors affecting industrial morale. Sociology of industrial conflict.

**490 SOCIAL STRATIFICATION (3) II**

Analysis of social class; local and national stratification patterns; social mobility in industrial and nonindustrial societies.

**504 JUVENILE DELINQUENCY (3) I, II**

Nature and extent of juvenile delinquency; theories and research; sociology of correction.

**530 SOCIOLOGY OF SMALL GROUPS (3) I**

Practical application of theories and research findings involving face-to-face relations; leadership, prestige, group morale.

**545 COLLECTIVE BEHAVIOR AND SOCIAL MOVEMENTS (3) I, II**

Elementary forms of collective behavior; crowds, publics, and mass behavior; social movements, their development and relation to social change.

**560 METHODS OF SOCIAL RESEARCH (3) I, II**

Values and limitations of methods of research for various types of studies. Pre: 9 credits in sociology or consent of instructor.

**570 SOCIAL STATISTICS (3) I, II**

Introduction to statistical methods and resources as applied to social research data.

**572 ADVANCED SOCIAL STATISTICS (3) II**

Treatment of sociological data, sampling procedures, test of hypotheses, analysis of variance, correlation and regression, scale analysis. Pre: 570 or equivalent.

**580 SOCIOLOGICAL THEORY (3) II**

History of sociology as reflected in writings ranging from early Greek thought to modern authors such as Durkheim, Pareto, Simmel, Parsons, Merton.

**602 GRADUATE SEMINAR (3) I, II**

1. Human Ecology and Demography.
2. Social Organization.
3. Social Disorganization.
4. The Group and the Person.
5. Social Movements and Social Change. Pre: consent of instructor.

**628 SEMINAR IN RACE RELATIONS (3) I**

Major theoretical developments and research problems in the field of race relations. Pre: consent of instructor.

**652 SEMINAR IN SOCIAL CHANGE IN DEVELOPING AREAS (3) I**

Principles, processes, and problems of social change in non-Western societies undergoing industrialization and modernization. Pre: consent of instructor.

**654 SEMINAR IN COMMUNITY DEVELOPMENT (3) II**

Analysis and evaluation of prevailing theories of community development in typical regions of folk or peasant culture undergoing industrialization and urbanization. Pre: consent of instructor.

**656 CULTURE AND COMMUNICATION (3) I**

Theories of communication; interaction between oral traditions, the press and audio-visual mass media in cultural context. Pre: consent of instructor.

**660 SEMINAR IN METHODS OF RESEARCH (3) I**

Fundamentals of research and thesis preparation; application to specific problems. Pre: consent of instructor.

**680 SEMINAR IN SOCIOLOGICAL THEORY (3) II**

Survey of contemporary sociological theory; principles of theory construction, analysis, and criticism. Pre: consent of instructor.

**682 MATHEMATICAL MODELS IN BEHAVIORAL SCIENCE (3) I, II**

Existing mathematical models: learning, kinship structure, dominance processes, social structure, voting behavior. Needed elementary mathematical techniques will be reviewed. Pre: consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: graduate standing; consent of instructor.

**800 THESIS RESEARCH (Arr.) I, II**

## Speech (Sp)

Professors ANSBERRY, CARR, HOSHOR; Associate Professors BENTLEY, BILSBORROW, HIGHLANDER, KLOPF, LEFFORGE, LINN, NEWCOMER, H. WONG; Assistant Professors BRENEMAN, M. GORDON, HERVEY, LARSON, RITTER; Instructors BURGESS, DOMENICO, HALL, HAYNE, HOFFMAN, KOP, KRAUSE, KUNIMOTO, OXFORD, PHELPS, SANDERSON, WATSON, YUHAS

*140 or 150 is prerequisite to all other courses.*

**101 SOUNDS AND RHYTHMS OF SPOKEN ENGLISH (1) I, II**

Sounds and rhythms of General American speech. International Phonetic Alphabet. Conferences required. Course fee \$2.00.

**102 DEVELOPMENT OF ORAL SKILL (1) I, II**

Sounds and rhythms in speaking situations. Idiom and grammar. Individual problems, using laboratory equipment. Conferences required. Course fee \$2.00.

**106-107 PRONUNCIATION AND GRAMMAR FOR PROSPECTIVE TEACHERS (1-1) Yr.**

106: Intensive work on sounds and rhythm, idiom and grammar. Conferences required. Pre: 110. Course fee \$1.00. 107: May be required by recommendation. Continued work on sounds and rhythm; idiom and grammar. Conferences required. Course fee \$1.00.

**110 SOUNDS OF ENGLISH FOR PROSPECTIVE TEACHERS (1) I, II**

Sounds and rhythms of General American speech. Techniques for correction of pronunciation and improvement of rhythm. Conferences for diagnosis required. Course fee \$1.00.

**135 INTERPRETATIVE READING OF CHILDREN'S LITERATURE (1) I, II**

Principles of reading poetry and prose to preschool and elementary school children; intensive classroom practice.

**140 FUNDAMENTALS OF ORAL COMMUNICATION (2) I, II**

Communication for social interaction. Speech production; organization of ideas; training for mastery of speech standards. Personal conferences.

**150 PUBLIC SPEAKING (3) I, II**

Basic principles of speech composition and delivery; preparation and delivery of speeches with attention to principles studied; special attention to individual problems.

**180 PRINCIPLES AND TYPES OF DISCUSSION (2) I, II**

Discussion of problems, using cooperative investigation, round table, panel, symposium, case and incident methods, parliamentary procedure.

**210 PHONETICS (3) I, II**

The phonology of American English; standards of pronunciation; dialects; teaching problems posed by Hawaii's particular linguistic background.

**214 VOICE TRAINING FOR SPEECH (2) I, II**

Improvement of skills in voice emphasizing control of projection, clarity and flexibility.

**220 SPEECH CORRECTION (3) I**

Survey of the field of speech correction; study of defective articulation, delayed speech, voice problems, cleft palate, cerebral palsy, stuttering, and language disorders.

**221 METHODOLOGY OF SPEECH CORRECTION (3) II**

Methods used in clinical procedures for organic and functional disorders of speech; observation of clinical procedures. Pre: 210, 220.

**222 AUDIOLOGY (3) I**

Basic principles of hearing rehabilitation; hearing problems and their treatment.

**223 TESTING OF HEARING (3) II**

Methods of administering screening testing programs; threshold determinations by routine methods and special tests of hearing; interpretation of results. Pre: 222.

**230 READING ALOUD (3) I, II**

Principles of interpretative reading. Practice in textual analysis and in transmitting the intellectual and aesthetic content of literature.

**270 BROADCASTING (3) I**

Analysis and survey of radio and television as communications media and as industries.

**271 RADIO PRODUCTION (3) II**

Programs and analysis of techniques. Announcing and use of equipment; basic control; performance. Pre: 270 or consent of instructor.

**272 BROADCASTING ORGANIZATIONS IN OPERATION (2) I**

Structure and operation of radio and TV stations, networks, agencies, special interest groups; influences which shape the broadcast product.



**285 PUBLIC DISCUSSION AND DEBATE (1) I, II**

Training in debate and discussion; analysis of social, political, and economic problems. Public discussion and debate required. May be repeated for a total of 3 credits.

**320 SPEECH PATHOLOGY (3) I**

Etiology and symptomatology of speech disorders. Pre: 220, 221.

**322 PRACTICUM IN SPEECH PATHOLOGY (3) II**

Clinical experience in the use of diagnostic procedures and rehabilitation techniques with a variety of defects and disorders at various age levels. Pre: 220, 221.

**325 PRACTICUM IN AUDIOLOGY (3) I**

Clinical practice in testing of hearing, hearing conservation, auditory training, speech reading, and speech correction and conservation. Pre: 222, 223.

**326 SPEECH AND HEARING SCIENCE (3) II**

General introduction to the science of speech and hearing, including anatomy and physiology of the organs involved.

**335 STORYTELLING (2) I, II**

The oral story as a device for entertainment and education. Oral tradition; analysis of story types; techniques of preparation and presentation; performance.

**350 PERSUASION (3) I**

Factors influencing audience attitudes, beliefs, actions; logical, psychological, and semantic approaches to preparation and analysis of persuasive discourse.

**365 SPEECH FOR THE CLASSROOM TEACHER (3) I, II**

Pedagogy for the classroom teacher. Integration of speech improvement in the curriculum; speech problems of Hawaii. Pre: (for elementary sections): 110.

**369 TECHNIQUES OF SPEECH IMPROVEMENT (3) I**

Principles of diagnosis; methods of teaching speech improvement; emphasis upon Island speech patterns. Pre: 110, 210, or consent of instructor.

**370 RADIO-TELEVISION SPEECH (3) I, II**

The study of speech forms and principles as adapted for the broadcasting media. Preparation of radio and television program material; performance with emphasis on microphone and camera presentation.

**399 DIRECTED READING (Arr.) I, II**

The same fields as in 598. Limited to senior majors with at least a 2.7 grade-point ratio, or 3.0 grade-point ratio in speech.

**421 ORGANIC DISORDERS OF SPEECH (3) I**

Study of disorders resulting from organic anomalies; cleft palate, cerebral palsy, laryngectomy, and brain injury. Pre: 320.

**424 AUDITORY TRAINING AND SPEECH READING (3) I**

Principles and methods of development of maximum communication ability through training in the use of residual hearing and by observation of visible bodily clues. Pre: 222, 223.

**430 ADVANCED INTERPRETATIVE READING (3) I**

Problems in selected literary forms; structural analysis; reports and recitals. Pre: 230; Eng. 151 or equivalent.

**440 SEMANTICS (3) I, II**

Understanding language; verbal meaning and implication; the roles of perception and assumption (inference and judgment) in human relationships.

**470 BROADCASTING AND THE PUBLIC (3) I, II**

Relationship and interaction between the broadcasting agent, government regulatory agencies, and the public. Development of bases for critical evaluation of educational, cultural, and economic significance and impact of broadcasting.

**475 TELEVISION PROGRAM PLANNING AND PRODUCTION (3) II**

Preparation and production of basic television forms; studio experience in staging and performance; creative and skills functions of the production team; standards for the critical evaluation of programs.

**480 GROUP LEADERSHIP AND DISCUSSION (3) I, II**

Principles and techniques of effective group leadership in human relations; semantic and psychological barriers to communication. Analysis and discussion of social problems.

**485 ARGUMENTATION AND DEBATE (3) I**

Evidence and forms of reasoning; analysis and synthesis of argument; fallacies and refutation; structuring arguments for clarity and force.

**550 SPEECH COMPOSITION (3) II**

Composition and delivery. Synthesis of rhetorical theory applied to proof, style, attention, forms of discourse. Speech criticism. Pre: 150.

**598 SPECIAL PROBLEMS (Arr.) I, II**

(1) General speech education; (2) speech pathology; (3) phonetics; teaching spoken English as a second language; (4) interpretation; (5) forensics, public address; (6) radio-TV; (7) pedagogy; (8) audiology; (9) voice science. Pre: consent of instructor or of department chairman.

**610 SEMINAR IN ENGLISH PHONETICS AND PHONEMICS (3), I, II**

Problems in advanced phonetics and phonemics; contrastive analyses at the phonological level.

**615 PHONETICS AND PHONEMICS OF AMERICAN ENGLISH (3) I, II**

Theory and practice in the formation of segmental and suprasegmental phonemes of American English. (MATESL, TIP, and similar programs.)

**616 SPECIAL PROBLEMS IN PHONETICS AND PHONEMICS (3) II**

Use of contrastive analyses in phonology for preparation of teaching materials including tape-recorded lessons; use of the native speaker as model. Teaching methods for the pronunciation of English. (MATESL, TIP, and similar programs.)

**621 LANGUAGE DEVELOPMENT FOR CHILDREN WITH HEARING DEFICIENCIES (3) II**

Language acquisition by hard-of-hearing and deaf children; methods of stimulating growth. Pre: 222, 223.

**622 ADVANCED AUDIOLOGY (3) II**

Instrumentation; selection of hearing aids; special tests of hearing; functional vs. organic hearing loss; vocational problems of impaired hearing. Pre: 222, 223.

**623 ADVANCED PRACTICUM IN SPEECH PATHOLOGY (3) I**

Clinical practice in diagnostic and therapeutic procedures; emphasis placed upon complex problems such as delayed speech, language problems, aphasia, and stuttering. Pre: 322.

**624 ADVANCED PRACTICUM IN AUDIOLOGY (3) II**

Clinical practice in administering special tests; interpretation of audiograms; counseling of individuals with impaired hearing; use of varied rehabilitation techniques. Pre: 325.

**625 SEMINAR IN SPEECH PATHOLOGY (3) II**

Intensive study of special problems in diagnosis and therapeutic procedures in the field of speech pathology. May be repeated.

**626 SEMINAR IN AUDIOLOGY (3) I**

Review of research and literature in the field of hearing. May be repeated. Pre: 622.

**630 SEMINAR IN INTERPRETATION (3) I, II**

Current literature in interpretation; reports; lecture-recitals. Pre: consent of instructor.

**650 SEMINAR IN RHETORIC AND PUBLIC ADDRESS (3) I, II**

Review on rhetoric and public address. Pre: consent of instructor.

**651 HISTORY AND CRITICISM OF BRITISH ORATORY (3) I**

The analytical and critical study of rhetorical elements in representative British oratory from 1700 to the present. Pre: 450 or consent of instructor.

**652 HISTORY AND CRITICISM OF AMERICAN ORATORY (3) II**

The analytical and critical study of rhetorical elements in representative American oratory from the colonial period to the present. Pre: 450 or consent of instructor.

**653 CLASSICAL RHETORICAL THEORY (3) II**

Significant movements in the development of rhetorical theory and criticism. (Alt. yrs.)

**660 GENERAL SEMINAR (3) I, II**

Significant topics and problems in speech. May be repeated.

**670 SEMINAR IN BROADCAST PROGRAM CRITICISM AND SOCIAL EFFECTS (3) II**

Advanced study in the history, theory, and development of programming; critical analysis of social effects; research literature and original research projects.

**690 SEMINAR IN RESEARCH METHODS (3) I**

Research methods, analysis and reporting of data; bibliography; contemporary research.

**699 RESEARCH (Arr.) I, II**

The same fields as in 598. Four credits may be earned. Pre: recommendation of advisory committee, consent of instructor or of department chairman.

## Zoology (Zool)

Senior Professors HIATT, TESTER; Professors BANNER, BERGER, CHU, FRINGS, GOSLINE, HSIAO, MATTHEWS, TUTHILL, VAN WEEL; Associate Professors KAMEMOTO, TOWNSEND; Assistant Professors MUIR, REESE

*101 is prerequisite to all advanced courses with the exception of 111 and 115.*

**101 GENERAL ZOOLOGY (4) I, II (2 L, 2 Lb)**

Zoological principles; studies of structure, development, relationships, and distribution of animals. Course fee \$6.00.

**111 PRINCIPLES OF HUMAN BIOLOGY (3) I**

Biological principles relating to man; man's place in nature; structure and function of the organ systems. Not open to students who have had 101.

**115-116 ELEMENTARY HUMAN ANATOMY AND PHYSIOLOGY (4-4) Yr. (3 L, 1 Lb)**

General survey of gross anatomy and physiology. Course fee \$3.00. Not open to students who have had 345.

**161 GENERAL ENTOMOLOGY (4) I, II (2 L, 2 Lb)**

Structure, habits, biology, and classification of insects; insects characteristic of Hawaii. Course fee \$3.00.

**205 INVERTEBRATE ZOOLOGY (3) I (2 L, Lb)**

Classification, general ecology, functional anatomy, and life history of invertebrates. Laboratory includes field work. Course fee \$6.00.

**206 VERTEBRATE ZOOLOGY (3) II (2 L, Lb)**

Classification, evolution, functional anatomy, and development of the vertebrates. Course fee \$6.00.

**301 COMPARATIVE EMBRYOLOGY (3) I (2 L, Lb)**

Descriptive and experimental embryology of selected vertebrates and invertebrates. Pre: 205 or 206. Course fee \$6.00.

**317-318 JUNIOR HONORS SEMINAR (1-2) Yr.**

Survey of research areas, specialized reading and preliminary experimentation, definition of a specific research problem.

**345 ANIMAL PHYSIOLOGY (3) I (2 L, 2 Lb)**

Properties of protoplasm; functions of organ systems, fundamental principles. Pre: Chemistry 141; desirable: Chemistry 331; Physics 161. Course fee \$8.00.

**361 INSECT MORPHOLOGY (3) I (2 L-Lb)**

Comparative and gross morphology; homologies of structures; anatomy; development in representative groups. Pre: 161. Course fee \$1.00.

**362 SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)**

Classification of insects; orders and families. Use of taxonomic tools. Pre: 361. Course fee \$2.00.

**390 GENERAL ZOOLOGY SEMINAR (1) I, II**

Reports on research or reviews of literature. Pre: senior standing. Required of students majoring in zoology or entomology.

**394-395 SENIOR HONORS THESIS (2-2) Yr.****399 DIRECTED READING OR RESEARCH (Arr.) I, II**

Limited to senior majors with 2.7 grade-point ratio or 3.0 grade-point ratio in zoology.

**401 PRINCIPLES OF ECOLOGY (2) I**

Subject is introduced from the viewpoint of physical ecology, physiological ecology, population and community ecology, as related to the entire ecosystem.

**410 PARASITOLOGY (3) II (2 L, 2 Lb)**

Parasitology with reference to man and domestic animals; classification, comparative morphology, life history, control. Course fee \$5.00.

**416 HISTOLOGY (3) I (2 L, 2 Lb)**

Studies of tissues, principles of histology, and microscopic anatomy of a limited number of vertebrate animals. Pre: 301. Course fee \$6.00.

**425 MICROTECHNIQUE (3) I, II (2 L-Lb)**

Fixing, staining, mounting of tissues, entire animals and organs. Course fee \$15.00.

**431 BIOMETRY (3) I (2 L-Lb)**

Elementary statistical methods; confidence interval, chi-square, t-test, normal distributions, regression, correlation. Pre: Mathematics 103; desirable: Mathematics 140.

**432 ADVANCED BIOMETRY (3) II (2 L-Lb)**

Analysis of variance and covariance, curvilinear regression, multiple correlation, design of experiments. Pre: 431; desirable: Mathematics 141.

**441 HISTORY OF ZOOLOGY (2) I**

Development of zoological science as a specialized field of human knowledge.

**504 ANIMAL EVOLUTION (2) II**

Processes of evolution; interaction between population genetics and natural selection in animals. Desirable preparation: Genetics 451.

**505 ENDOCRINOLOGY (2) II**

Anatomy and physiology of the organs of internal secretion, role of hormones in metabolism and development.

**525-526 GENERAL ICHTHYOLOGY (3-3) Yr.**

First semester: anatomy, physiology, ecology, distribution. Second semester: classification with reference to Hawaiian species. Course fee \$3.00.

**601 ZOOLOGICAL LITERATURE (1) I**

Survey of zoological literature with stress upon bibliographic tools. Required for advanced degrees in zoology or entomology.

**602 PREPARATION OF SCIENTIFIC MANUSCRIPTS (1) II**

Styles and methods of preparation for publication; proofreading and editing. (Not a course in writing or thesis preparation.) Required for advanced degrees in zoology or entomology.

**603 ZOOGEOGRAPHY (2) I**

Animal distributions; physiographic, climatic, and historic factors. Desirable preparation: 401; Geology 151. (Alt. yrs.; not offered 1965-66.)

**605 COMPARATIVE ENDOCRINOLOGY (4) I (3 L, 2 Lb)**

Biology of hormonal mechanisms, with emphasis on invertebrates and lower vertebrates. Lecture only may be taken for 3 credits. Pre: 345; desirable 505, or consent of instructor. Lab fee \$6.00.

**606 ANIMAL BEHAVIOR (3) I (2 L, 2 Lb)**

Main emphasis on the orientation of animals and the ethological approach to the study of animal behavior. The physiological basis of behavior and learning theory are also discussed. Pre: 345, 205 or 525. Course fee \$6.00.

**607 PHYSIOLOGICAL BASES OF ANIMAL BEHAVIOR (3) I (2 L, Lb)**

Sensory, neural, and endocrine determinants of animal behavior patterns and communication. Pre: 345, 606. Course fee \$10.00.

**611 PRINCIPLES OF SYSTEMATIC ZOOLOGY (3) I**

Taxonomic categories; processes of evolution in their development; taxonomic data; rules of nomenclature. (Alt. yrs.; offered 1965-66.)

**615-616 ADVANCED INVERTEBRATE ZOOLOGY (3-3) Yr. (2 L, 2 Lb)**

Comparative morphology, development, taxonomy, and phylogeny of invertebrate animals. Identification and classification of reef and shore fauna. Desirable preparation: 205 or equivalent. Course fee \$6.00 per semester.

**620 MARINE ECOLOGY (3) II (2 L, 2 Lb)**

Natural history, behavior, and relation of invertebrates and fishes to environment. Pre: 401. Desirable: 616. Course fee \$6.00.

**621 PHYSIOLOGICAL ECOLOGY (3) I (2 L-Lb)**

Physiological adaptations to environmental, physical, and biotic features. Pre: 345, 616; desirable: 401 or 620, 646. Lab fee \$8.00. (Alt. yrs.; offered 1965-66.)

**622 ISOTOPIC TRACERS IN BIOLOGY (3) II (2 L, 1 Lb)**

Chemical and physical features of radioactive isotopes used in biological work. Methods of detection; application to biological systems. Course fee \$10.00.

**629 METHODS OF FISHERIES INVESTIGATION (3) I**

Determining age, growth, spawning success, and life history of fish; emphasis on marine species of the Pacific. Pre: 431, 526; desirable: 432.

**631 POPULATION DYNAMICS (3) I**

Fundamentals of population growth, mortality and equilibrium. Consideration of mathematical models developed for various animal populations, including man. Pre: Mathematics 103; desirable: Mathematics 141.

**645 ADVANCED GENERAL PHYSIOLOGY (3) I (2 L-Lb)**

Major problems in general physiology and methods for their study. Pre: 345; desirable: 646, Physics 161. Lab fee \$8.00. (Alt. yrs.; not offered 1965-66.)

**646 COMPARATIVE INVERTEBRATE PHYSIOLOGY (3) II (2 L, Lb)**

Life processes, with emphasis on marine invertebrates. Pre: 345; desirable: Physics 161. Lab fee \$8.00.

**691 SEMINAR IN ZOOLOGY (1) I, II**

Reports on research or reviews of literature. Graduate students are required to take this course or 692.

**692 SEMINAR IN FISHERIES BIOLOGY (1) II**

Investigations and literature pertaining to fisheries biology; stress on problems relating to pelagic fisheries of the Pacific.

**699 DIRECTED RESEARCH (Arr.) I, II**

Directed research and reading in various fields of zoology.

**732 FISHERIES MANAGEMENT (3) II**

Methods of estimating vital statistics of fish populations. Optimum sustainable yields and management problems, particularly of marine fisheries. Pre: 531; desirable: 631.

## Administrative Theory

**ADMINISTRATION 600: THEORY OF ADMINISTRATION (3) I, II**

This course is an interdepartmental offering, substituting in appropriate curricula for Business Management 600, Political Science 501, Social Welfare 656 or Educational Administration 685. While the course will be taught primarily by one person, faculty members from each of these departments will participate.

A critical review of key current and classic writings in the theory and practice of administration; development of a comprehensive, integrated understanding of the nature of administration.

# COLLEGE OF BUSINESS ADMINISTRATION

THE COLLEGE OF BUSINESS ADMINISTRATION aims to provide an understanding of the structure, functions, and objectives of American business enterprise, preparing students for active participation in business and industrial activities in Hawaii. The four-year program leads to the degree of bachelor of business administration.

A broad foundation of courses in liberal arts, humanities, and physical and social sciences serves as a base for an economics minor, a solid core of basic business subjects, and a specialized field of business activity selected by the individual student.

For the first two years, all students follow a common program of required basic courses. There are additional general requirements during the junior and senior years, but provision is made for specialization in one of the following curricula: accounting, finance, business economics and statistics, foreign trade, insurance, management, marketing, personnel and industrial relations, and real estate. The department of hotel management and tourism offers a four-year program, which includes most of the basic requirements of the College as well as special requirements for a degree in this field.

## ADMISSION AND DEGREE REQUIREMENTS\*

Admission requirements are the same as those for the University (pp. 21-25), except as of September 1, 1964, and thereafter, entering freshmen must have had two years of algebra and one year of plane geometry in high school.

In order to qualify for the degree a student must:

- 1) meet basic requirements of the first two years;
- 2) complete one of the ten curricula of the College;
- 3) earn an aggregate of at least 130 semester hours of credit;
- 4) earn a 2.0 grade-point ratio for all registered credits, and in the major field (*see* "Undergraduate Degree Requirements").

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\*See office of Assistant Dean, College of Business Administration, for regulations and requirements for students under programs prior to July 1, 1965.

**CURRICULA**

All students must complete the following:\*

- Group I. General, non-business requirements (52 credit hours): English 101–102, 154 or 155, 209; Mathematics 103; Business Analysis and Statistics 110; History 151–152, 171; Science 120–121; Speech 150; Health and Physical Education (any two credit hours); and 12 credit hours from two or more of the following areas: architecture, art, drama, anthropology, foreign languages, mathematics, music, philosophy, psychology, political science, and sociology.
- Group II. Economics (12 credit hours): Economics 150; Business Economics 303, 340, and 341.
- Group III. Business Core (30 credit hours): Accounting 100–101; Business Analysis and Statistics 300–301; Finance 300; Law 300; Management 300, 350; Marketing 300; and Personnel and Industrial Relations 350.
- Group IV. A major of 15 credit hours (18 for Accounting). *See below.*
- Group V. Electives (21 credit hours, except for Accounting majors, which are 18). Nine credit hours of the electives must be courses outside of the College of Business Administration, of which *six* credit hours must be upper-division courses. The normal lower-division program follows:

**FIRST YEAR**

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
English 101	3	English 102	3
History 151	3	History 152	3
Science 121	4	Science 120	4
Mathematics 103 or Liberal Arts Elective (Group I)	3	Liberal Arts Elective (Group I) or Mathematics 103	3
Health and Phys. Ed.	1	Health and Phys. Ed.	1
<b>Total</b>	<b>14</b>	<b>Total</b>	<b>14</b>

**SECOND YEAR**

English 155 or Liberal Arts Elective (Group I)	3	Liberal Arts Elective (Group I) or English 155	3
BAS 110 or Liberal Arts Elective (Group I)	3	Liberal Arts Elective (Group I) or BAS 110	3
History 171 or Speech 150	3	History 171 or Speech 150	3
Accounting 100	3	Accounting 101	3
Economics 150 or Liberal Arts Elective (Group I)	3	Liberal Arts Elective (Group I) or Economics 150	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>15</b>

\*Hotel Management and Tourism program is an exception, *see* requirements listed under majors.



During the junior and senior years, the student will complete: English 209; 9 credit hours of Business Economics (Group II); 24 remaining credit hours in the business core (Group III); a major of 15 credit hours (Group IV); and the electives as provided for in Group V.

### MAJORS\*

**ACCOUNTING.** Required: Acc 200-201, Acc 300, 315, 325, 330.

**FINANCE.** Required: Acc 320, 325, Fin 305, 310. Elective: one of BAS 315, Econ 450, Fin 340, Ins 300, Law 310, RE 300.

**BUSINESS ECONOMICS AND STATISTICS.** Required: BAS 320. Electives: four of BAS 310, 315, 396; BEc 305, 350, 351, 360, 361, 372, 375.

**FOREIGN TRADE.** Required: BEc 360, Mkt 315, 380. Electives: Two of BEc 350, 361, Econ 462, Geog 151, Mkt 310, 320, 340, 390.

**HOTEL MANAGEMENT AND TOURISM.** (Specialized Program) *First Year:* Eng 101-102, Mathematics 103, Chemistry 101-102, Geography 102, Microbiology 130, HMT 101, HPE (two credit hours), and 6 credit hours from Group I Electives. *Second Year:* Home Economics 120, English 155, Acc 100-101, BAS 110, Hist 171, Economics 150, Speech 150, and 6 credit hours from Group I Electives. *Upper Division:* BAS 300-301, English 209, BEc 303, HMT 301, Fin 300, Mkt 300, PIR 350, BEc 340-341, Law 300, Mgt 350, and 21 credit hours of electives, Group V. In addition one of the following specializations: (1) *Hotel Management:* Home Economics 234-235, HMT 330, 350; (2) *Tourism:* BEc 350, 351, HMT 320, 321.

**INSURANCE.** Required: Ins 300, 310, 320, 330. Elective: one of BAS 315, Fin 310, PIR 360.

**MANAGEMENT.** Required: Mgt 320, 321, 360. Electives: two of Acc 320, BAS 315, 396, BEc 375, Mkt 315, PIR 300.

**MARKETING.** Required: Any three or four of: Mkt 315, 320, 340, 390. Electives: any one or two of Acc 320, BAS 310, 315, Ins 300, Mkt 310, 330, 380, RE 300.

**PERSONNEL AND INDUSTRIAL RELATIONS.** Required: PIR 300, 351, 360. Electives: two of PIR 310, 320, 330, 340, 380, Psych 374 or Soc 486.

**REAL ESTATE.** Required: RE 300, 310, 330, 340. Elective: one of Acc 325, RE 320, 350.

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\*Any substitutions in major requirements must have the written approval of the department chairman on recommendation of the student's adviser.

## **BUSINESS ADMINISTRATION COURSES**

Senior Professor ROBERTS; Professors ADLER, BAILEY, BUCHELE, CORBIN, DYMSZA, EVANS, FERGUSON, GILSON, GRAYSON, HOSLETT, LAU, LEONG, PENDLETON, SPENCER, R. TAUSSIG, WHITEHILL; Associate Professors PRATT, SASAKI, THEODORE; Assistant Professors BELL, CARLSON, CONGDON, HEYE, HOPKINS, KIRKPATRICK, LEE, MOSELEY, PIERSON, SEO, STELLMACHER, TRINE, WALLENSTEIN; Instructors MARUTANI, MCARDLE, NAJITA; Lecturers BURNS, CANNELORA, HIROKI, ITO, SMITH

### **Accounting (Acc)**

**Acc 100-101 ELEMENTARY ACCOUNTING (3-3) Yr.**

Theory and practice of income determination and asset valuation. Preparation and analysis of statements; uses for decision making. Pre: sophomore standing.

**Acc 200-201 INTERMEDIATE ACCOUNTING (3-3) Yr.**

Critical examination of generally accepted accounting principles as applied to preparation and use of financial statements. Pre: Acc 101.

**Acc 300 ADVANCED ACCOUNTING (3) I**

Consolidated statements, fiduciaries, and other special problems of accounting. Pre: Acc 201.

**Acc 310 SYSTEMS AND PROCEDURES ANALYSIS (3) II**

Cost and value of business information; feasibility applications and equipment studies; analysis and design problems; programming; implications for audits. Pre: Acc 315.

**Acc 315 COST ACCOUNTING (3) I, II**

Cost determination and analysis as a tool of management in such areas as pricing, make, rent, or buy decisions. Job order, process, direct, and standard costs. Pre: Acc 200.

**Acc 320 MANAGEMENT ACCOUNTING (3) I, II**

Use of accounting information for managerial decision making and profit planning. Budget, cost, and other financial analyses to control and measure efficiency of business. For non-accounting majors only. Pre: Acc 101.

**Acc 325 INCOME TAX PROBLEMS (3) I**

Federal income tax laws and related accounting problems; individual, partnership and corporation returns. Pre: Acc 201 or 320.

**Acc 330 AUDITING (3) II**

Principles of conduct of a business audit. Practical aspects of auditing emphasized by means of problems. Pre: Acc 300 and 315.

**Acc 435 GOVERNMENTAL ACCOUNTING (3) II**

Account classification, budgetary procedure, fund accounting, revenues, operating costs. Pre: Acc 201.

**Acc 600 SEMINAR IN MANAGEMENT ACCOUNTING (3) I**

Case studies in the use of accounting reports for planning, policy making and control of business.

**Acc 605 SEMINAR IN ACCOUNTING HISTORY AND THEORY (3) I**

Historical development of accounting theory, emphasizing pronouncements of the American Institute of CPA's and the American Accounting Association.

**Acc 610 SEMINAR IN CONTEMPORARY ACCOUNTING THEORY (3) II**

A consideration of contemporary issues, with emphasis on recent journal literature.

**Acc 620 SEMINAR IN ADVANCED ACCOUNTING (3) I, II**

Special problems in professional accounting: systems, auditing, cost accounting, taxes, etc. Field considered varies and course may be repeated for credit.

## **Business Analysis and Statistics (BAS)**

**BAS 110 APPLIED MATHEMATICS (3) I, II**

Application of mathematical operations to problems in business and economics: linear equations; progressions; theory of sets and functions; elementary matrix notation; differential and integral calculus (including partial differentiation, maxima and minima, and Lagrange multiplier techniques). Pre: Math 103.

**BAS 200 CAREER PLACEMENT (1) I, II**

Preparation for effective career placement; personal inventory, selecting field of interest, the job market, preparation of resumes, employment interviews, employment decisions, initial career experience, and progress. Primarily for juniors and seniors.

**BAS 300-301 BUSINESS STATISTICS (3-3) Yr. (2 L, 1 2-hr Lb)**

Principles of statistical inference including frequency distribution, averages, variation, testing hypotheses, estimation of population mean, index numbers, time series, correlation, probability, sampling chi square and F distribution, analysis of variance. Utilization of statistical data as an aid to managerial decisions.

**BAS 310 SAMPLING METHODS (3) I**

The design and use of random, systematic, stratified, and sequential samples for the estimation of universe characteristics. Pre: BAS 301.

**BAS 315 ELECTRONIC DATA PROCESSING FOR BUSINESS (3) I, II**

Computers and their memories, inputs and outputs, punched card layouts, the possibilities for calculation and decision, program coding, and report writing.

**BAS 320 INTRODUCTION TO QUANTITATIVE ANALYSIS (3) II**

Tools and techniques for elementary operations research studies: introductory analysis of matrices, determinants and vector analysis for input-output, linear programming, and the theory of games. Pre: Math 103, BAS 110.

**BAS 396 METHODS OF SCIENTIFIC RESEARCH APPLIED TO BUSINESS AND ECONOMIC PROBLEMS (3) I, II**

A study of the fundamentals of research methodology, including planning, organizing and executing a research project; techniques of gathering the data; the use of library facilities and other sources of information; the analysis and interpretation of the data; the art and strategy of presenting the findings.

**BAS 600 SEMINAR IN QUANTITATIVE ANALYSIS (3) I**

Development of skills in mathematical analysis with application to business problems. Topics covered include set theory; relation; matrix algebra; differential and integral calculus. Pre: BAS 301.

**BAS 610 SEMINAR IN STATISTICAL DECISION THEORY (3) II**

Modern statistical decision theory as applied to business decision making. Topics covered include probability theory, statistical decision problems including Bayes decision rules. Pre: BAS 301.

**BAS 620 SEMINAR IN OPERATIONS RESEARCH (3) II**

Methods of operation research from an executive or managerial viewpoint, with emphasis on the application of mathematical and statistical techniques to management decision making; linear and non-linear programming, game theory, queueing theory, replacement theory, etc.

**BAS 630 SEMINAR IN QUANTITATIVE METHODS OF BUSINESS AND ECONOMIC FORECASTING (3) I**

Projection and forecasting of Hawaii's and United States' economies with time series and cross-section data using modern statistical and econometric techniques with some reference to the needs of long-range planning. Pre: BAS 301.

## Business Economics (BEc)

Economics 150 is prerequisite to all other courses.

**BEc 303 MONEY, CREDIT AND THE CAPITAL MARKET (3) I, II**

Nature and functions of money, debt and credit, and liquidity; financial institutions and money market analysis; fund flow analysis.

**BEc 305 BUSINESS ENTERPRISE AND BUSINESS FLUCTUATIONS (3) II**

The characteristics and causes of business fluctuations; ways and means of coping with recession and inflation by business firms and government, and of business forecasting.

**BEc 340 MANAGERIAL ECONOMICS I (3) I, II**

Demand analysis; production analysis relating to factors and to products; various forms of imperfect competition; demand creation and selling costs; multiproduct output and technological change; problems of uncertainty. Pre: Mathematics 103, BAS 110.

**BEc 341 MANAGERIAL ECONOMICS II (3) I, II**

Working concepts and case studies relating to demand analysis and production analysis; problems of demand creation, multifactors, and multiproducts, technological change; cases involving working capital, financing and capital budgeting; input-output analysis and programming techniques. Pre: BEc: 340.

**BEc 350 ECONOMICS OF TRANSPORTATION (3) I**

Development of our major transportation systems and their marketing function in the American economy as an integral part of the process of physical distribution.

**BEc 351 PASSENGER TRANSPORTATION (3) II**

Analysis of the modes of passenger transportation, including rates and services in urban, local, intrastate, interstate and international areas of operation; with particular emphasis in the Pacific; impact on areas served; regulations of carrier operation and passenger travel.

**BEc 360 FOREIGN TRADE AND AMERICAN INDUSTRY (3) I**

Introduction to world trade, its development and current status; a study of the principles of foreign trade, including international commercial problems and policies, tariff policies, and exchange controls that affect exporting and importing industries.

**BEc 361 FOREIGN TRADE POLICY AND FINANCE (3) II**

A study of the means and ends of international trade: including international commodity agreements and commercial treaties, international banking facilities, foreign credits, foreign exchange, and foreign investments.

**Bec 372 PUBLIC UTILITIES (3) I**

Economic nature and history of public utilities, critical discussion of their control by governments.

**Bec 375 BUSINESS ENTERPRISE AND PUBLIC POLICIES (3) I, II**

A study of the interrelations between business and government, with special attention to the analysis of public policies affecting business management: problems of regulating monopoly and competition, businesses affected with public interest, use of subsidies to promote public purposes, and the use of government financing to regulate business.

**Bec 600 SEMINAR IN MANAGERIAL ECONOMICS (3) I**

Consideration in depth of the theory of decision making in the enterprise. The market environment measurement of the influence of policy and non-policy variables on sales and costs. Pre: BEc 340.

**Bec 690 SEMINAR IN CURRENT ECONOMIC PROBLEMS (3) II**

## Finance (Fin)

**Fin 300 BUSINESS FINANCE (3) I, II**

A study of the forms and sources of financing business firms large and small, corporate and non-corporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems. Financial policies are also considered in their social, legal, and economic effects. Pre: Acc 101, Econ. 150.

**Fin 305 PROBLEMS OF BUSINESS FINANCE (3) II**

Application of principles of finance to the financial management of business enterprises with particular reference to corporate distributions, mergers, and reorganizations. Pre: Fin 300, BEc 303 or consent of the instructor.

**Fin 310 INVESTMENTS (3) II**

Mechanics of investment banking and markets, corporate and government securities, selection and security analysis, risk programming and establishment of investment policy for individuals and institutions. Pre: Fin 300.

**Fin 340 BANKING ADMINISTRATION AND POLICIES (3) I**

The internal operations of commercial banks with emphasis on organization, sources of bank funds, allocation of bank funds and supervision and regulation of commercial banks.

**Fin 600 SEMINAR IN FINANCIAL PROBLEMS (3) I**

Advanced study of the problems of financial management. Current literature and case studies are examined with particular emphasis on quantitative methods for making financial decision under uncertainty. Pre: Fin 305 or consent of instructor.

**Fin 610 RESEARCH IN FINANCIAL THEORY (3) II**

## Hotel Management and Tourism (HMT)

**HMT 101 INTRODUCTION TO HOTEL MANAGEMENT AND TOURISM (2) I, II**

The broad general principles of hotel management and tourism particularly from the standpoint of the close link between the two and the rapid developments taking place in these fields; guest lectures by leaders of the hotel and travel industries.

**HMT 200-201 INTERNSHIP (0-0) Arr.**

800 hours of paid employment in the hotel or tourist industry. Employment for summer months arranged with department chairman.

**HMT 301 HOTEL MANAGEMENT PRINCIPLES (3) I, II**

Hotel keeping, including concepts of hotel management, management fundamentals and the hotel industry, forecasting, hotel front office management and uniform system of hotel accounting.

**HMT 320 TOURISM PRINCIPLES I (3) I**

Study and application of the basic components of tourism; includes the philosophy and promotion of tourism, travel counseling, use and evaluation of publicity media, development of tourism at regional, national and international levels.

**HMT 321 TOURISM PRINCIPLES II (3) II**

Travel research and statistics, tourism and its economic significance, preparation and control of tourism budgets, immigration and customs procedures, and factors determining priorities in tourist development.

**HMT 330 HOTEL DESIGN, ENGINEERING, AND MAINTENANCE (3) I**

Concepts of the manager's role in architectural design, engineering, and maintenance problems in hotels and resorts, including food service facilities.

**HMT 350 STUDIES IN HOTEL MANAGEMENT (2) I, II**

Procedures, problems, policies, and planning involved in hotel management.

## Insurance (Ins)

**Ins 300 PRINCIPLES OF INSURANCE (3) I**

What insurance buyers should know about protection of income against illness or premature death; protection of home and business against property losses; third-party liability.

**Ins 310 PROPERTY INSURANCE (3) I**

Protection against loss of personal and business property and income occasioned by fire and allied perils, crime, and transportation risks.

**Ins 320 CASUALTY INSURANCE (3) II**

Emphasis on third-party liability coverages: general liability, automobile insurance, and workmen's compensation.

**Ins 330 LIFE INSURANCE (3) II**

Policy forms; calculation of premiums, reserves, and non-forfeiture values; underwriting; regulation of policy provision; and related coverages.

**Ins 600 SEMINAR IN INSURANCE (3) II**

Pre: Ins 300.

## Law (Law)

**Law 300 PRINCIPLES OF BUSINESS LAW (3) I, II**

The American system of jurisprudence, elements of torts, criminal law, property, trusts and estates, law of contracts and agency.

**Law 310 INTERMEDIATE BUSINESS LAW (3) II**

The law of business organizations, with emphasis on partnerships and corporations, and the law of sales, bailments, and negotiable instruments; provisions of the Uniform Negotiable Instrument Law and Uniform Commercial Code. Pre: Law 300.

## Management (Mgt)

**Mgt 300 PRINCIPLES OF MANAGEMENT (3) I, II**

Basic management functions of planning, controlling, organizing, staffing, and

directing; emphasis on human factors and quantitative analysis in developing a sound philosophy of management; critical evaluation of current practices in business firms; primarily text-lecture; a few case studies.

**Mgt 320 OPERATIONS MANAGEMENT I (3) I**

Creating the structure for effective operations: historical development of objectives, functions, principles, and policies of manufacturing and clerical-service organizations; organization relationships of the operations function to other key functions; basic decisions related to the establishment of effective operations—location, layout, machines and equipment, maintenance, records management, research and development.

**Mgt 321 OPERATIONS MANAGEMENT II (3) II**

Problems and issues in the effective management of operations in manufacturing and service-clerical organizations: work simplification and work measurement; process and systems analysis, including operations research and electronic data processing; production planning and control; other controls over operations including inventory control, quantity control, quality control. Pre: Mgt 320.

**Mgt 350 BUSINESS POLICY (3) I, II**

Case studies in assessing alternative risks in solving policy problems; an interdisciplinary approach applying and integrating many of the subjects in the College of Business Administration. Pre: senior standing.

**Mgt 360 ADVANCED MANAGEMENT (3) II**

Critical review of key issues and emerging trends in the field of theory and practice of management and in the business manager's role in society. Pre: senior standing.

**Mgt 600 SEMINAR IN MANAGEMENT (3) I**

Critical evaluation of key current and classic writings in the field of management theory and practice. Development of an integrated, comprehensive philosophy of management. Pre: Mgt 300.

**Mgt 610 RESEARCH IN MANAGEMENT (3) II**

Study of research method; preparation of an individual, original research paper on some significant aspect of management theory and practice. Pre: Mgt 600.

**Mgt 640 SEMINAR IN BUSINESS POLICY (3) II**

An advanced case course, using comprehensive and complex cases, in solving key business operating and policy problems; some applications of techniques of quantitative analysis. Pre: Mgt 300, 350.

## Marketing (Mkt)

**Mkt 300 PRINCIPLES OF MARKETING (3) I, II**

A survey course for all students of business, designed to introduce the fundamental concepts and problems of marketing within the present economic, legal, and social environments; consumer analysis, functional analysis, and marketing institutions.

**Mkt 310 PHYSICAL DISTRIBUTION (3) II**

The examination of physical supply methods and routes, traffic management, warehousing and storage alternatives and problems, and their coordination with the other functions of marketing. Pre: Mkt 300.

**Mkt 315 MARKETING MANAGEMENT (3) I, II**

The marketing function and its role in society from the executive viewpoint; decision making in the areas of pricing, distribution, product design, sales techniques, and sales force control are emphasized. Pre: Mkt 300.

**Mkt 320 MARKETING COMMUNICATION (3) I, II**

The variables that affect or control the communication process; theoretical considerations are stressed in presenting hypotheses, techniques, and research studies from the social sciences; within this framework advertising and personal selling are viewed analytically. Pre: Mkt 300.

**Mkt 330 ADVERTISING MANAGEMENT (3) II**

Advertising decision making, advertising's role in the marketing mix, primary demand stimulation, selective demand stimulation, building complete programs, and advertising agency relationships. Pre: Mkt 320.

**Mkt 340 RETAIL MERCHANDISING (3) I, II**

Principles, functions, and analysis of problems in retailing: location and layout; merchandise planning, buying, and selling; organization; expense analysis and control; coordination of store activities.

**Mkt 380 FOREIGN MARKETING (3) II**

Methods and organization peculiar to international marketing, with emphasis on practical and technical aspects. Pre: Mkt 300.

**Mkt 390 MARKETING RESEARCH (3) I, II**

Research as an aid to marketing management, problem specification, hypotheses formulation, sampling, questionnaire construction, data collection, analysis, and marketing policy recommendations. Pre: BAS 301, Mkt 300.

**Mkt 600 SEMINAR IN MARKETING PROBLEMS (3) I**

Analysis of executive decisions and policies related to securing the optimum competitive position in the marketing structure. Pre: Mkt 300.

**Mkt 610 RESEARCH IN MARKETING THEORY (3) II**

Pre: Mkt 600.

## Personnel and Industrial Relations (PIR)

**PIR 300 LABOR PROBLEMS AND TRADE UNIONISM (3) I, II**

Study of wages, hours and other conditions of employment; development, internal structure and economic function of organized labor in the United States.

**PIR 310 BENEFITS AND SERVICES (3) II**

Safety and health programs; insurance and pension plans; recreation.

**PIR 320 COLLECTIVE BARGAINING (3) I**

Principles and concepts of collective bargaining; analysis of sample contracts including union status, seniority, contract enforcement. Pre: PIR 300.

**PIR 330 COMPENSATION (3) II**

Modern concepts and methods of employee compensation, direct and indirect; wage theories and criteria; job and employee evaluation; incentive systems; fringe benefits and supplementary compensation plans; administrative controls.

**PIR 340 SUPERVISION AND LEADERSHIP (3) II**

Principles of supervision; counseling; appraisal; motivation; conducting effective meetings.

**PIR 350 PERSONNEL AND INDUSTRIAL RELATIONS—PRACTICES AND POLICIES (3) I, II**

Survey of the field of Personnel and Industrial Relations.

**PIR 351 STAFFING (3) I**

Recruitment; selection; interviewing and testing; orientation; training; records.



**PIR 360 SOCIAL AND LABOR LEGISLATION (3) I**

General principles of labor law; emphasis upon applicable statutes and their economic implications. Old age security, workmen's compensation, unemployment insurance.

**PIR 380 ARBITRATION OF GRIEVANCES (3) II**

Purpose and functions of grievance procedure; background and procedure of arbitration; substance of arbitration; illustrative cases. Pre: PIR 300.

**PIR 690 SEMINAR IN CURRENT LABOR PROBLEMS (3) II**

Pre: consent of instructor.

## Real Estate (RE)

**RE 300 REAL ESTATE FUNDAMENTALS (3) I**

Principles of real estate for the customer and home owner, and as a business; real estate law, brokerage, management, appraisal, finance.

**RE 310 REAL ESTATE LAW (3) II**

Application of property law to the real estate business. Pre: RE 300.

**RE 320 REAL ESTATE FINANCE AND INVESTMENT (3) I**

Capital needs and investment opportunities in creating, transferring and holding real property; comparison of the functions and techniques of financing organizations. Pre: Fin 300, RE 300.

**RE 330 PROPERTY VALUATION (3) II**

Economic, social, legal and physical factors influencing property values; emphasis on the local residential market. Pre: RE 300.

**RE 340 LAND ECONOMICS (3) I**

Economic principles and social institutions that influence the use and ownership of lands for urban and rural purposes. Pre: Econ 150.

**RE 350 LAND DEVELOPMENT AND PLANNING (3) II**

Planning and development of lands in process of changing use. Economic concepts, market forces, and institutional factors that influence the dynamics of urban growth. Pre: RE 340.

**RE 600 SEMINAR IN REAL ESTATE (3) II**

Pre: RE 300.

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**Bus 699 DIRECTED RESEARCH (Arr.)**

This course is open only to graduate students in business and with the specific approval of the Chairman of the Graduate Program, College of Business Administration.

# COLLEGE OF EDUCATION

THE FUNCTIONS OF THE COLLEGE OF EDUCATION include the preparation of teachers for elementary and secondary schools and the professional development of teachers in service. Standard preparation for teaching positions in the public schools of Hawaii requires four years of undergraduate and one year of graduate work. The four-year programs lead to the bachelor of education degree, and the year of graduate work to the five-year diploma. Both the degree and the diploma indicate the level—elementary or secondary—of the complete curriculum.

The bachelor of science degree is awarded after the completion of the recreation curriculum.

## ADMISSION AND DEGREE REQUIREMENTS

In addition to University admission requirements (pp. 21-25), applicants must meet certain standards of college aptitude, scholarship, health, personality, and oral English. The National Teacher Examinations are required for graduation for all students enrolled in the College of Education. These examinations must be taken in the second semester of the senior year. Admission to the fifth-year program leading to a five-year diploma requires a grade of C or better in student teaching, and professional preparation equivalent to that represented by the bachelor of education degree or the bachelor of science degree in vocational education.

Admission requirements for the recreation curriculum are the same as those for the University.

To be eligible for the bachelor's degree, a student must:

- 1) Have an aggregate of at least 130 semester hours of credit;
- 2) have a 2.0 grade-point ratio for all registered credits, and in the major field (*see* "Undergraduate Degree Requirements");
- 3) have met all University degree requirements;
- 4) have met course requirements for one of the curricula.

### **FIVE-YEAR DIPLOMA REQUIREMENTS**

To be eligible for the five-year diploma a student must:

- 1) Have the bachelor of education degree or its equivalent, including:
  - a) directed teaching in amount and under conditions comparable to those in the laboratory schools; and
  - b) course background in general and professional education, comparable to the specific requirements of one of the curricula offered by the College;
- 2) have satisfactorily met the intern teaching and course requirements of the fifth-year curriculum.

### **CLASSIFIED PROFESSIONAL CERTIFICATE REQUIREMENTS**

The professional certificate for public school teaching in Hawaii is granted by the state Department of Education. The general requirement for this certificate is five years of college work, including student teaching and other professional courses. In addition, the candidate must have met the specific course and curriculum requirements for the grade of certificate sought, elementary or secondary.

Requirements for admission to the program are: (1) bachelor's degree from an accredited institution; (2) candidates with degrees granted more than 10 years prior to application for admission to CPC program will be required to fulfill deficiencies or take refresher courses in their respective teaching fields as deemed necessary by admissions personnel of College of Education; (3) proficiency in *oral* and written communication; (4) recommendations from former employers and/or college advisers; (5) transcripts of college records, including standardized test scores; (6) meeting standards of academic success as required at the specific curriculum levels, including a teaching field at the secondary level with a g.p.a. of at least 2.5; (7) interview with College of Education admission personnel; (8) submission of written application by (a) April 15 for the following summer session, (b) July 15 for the fall semester, and (c) November 15 for the second semester. All applications must be accompanied by transcript of previous college work.

Requirements for the professional certificate can be met as follows:

- 1) by fulfilling requirements for the five-year diploma; or
- 2) by earning 30 semester hours of credit after receiving the bachelor of education degree or its equivalent. Six of these must be in graduate education courses, of which one must be chosen from Ed HP 650, 660, 670, 671, or 683; or
- 3) by fulfilling requirements for the special programs for graduates

holding degrees other than bachelor of education; specific course requirements are as follows:

- a) Elementary level—child psychology, principles of education, teaching of language arts, arithmetic, social studies, science, tests and measurements, educational psychology, speech, art, children's literature, music, and physical education.
- b) Secondary level—adolescent or developmental psychology, principles of secondary education, a methods course in the teaching field, educational psychology, and tests and measurements.
- c) In addition, at both levels, a semester of student teaching and 6 graduate credits in education.

### CURRICULA

The curricula in elementary and secondary education in general are identical for the first year, and are designed to provide a broad general background. This emphasis on general education continues in the second year; however, some differentiation appropriate to the selected curriculum begins at this point as well as in the freshman year, for certain secondary fields. (Candidates in art education, industrial arts education, mathematics education, music education, and science education should contact the department of secondary education for program exceptions.)

All students in the College of Education are required to have the equivalent of a semester's experience in a leadership role with children or youth in a non-academic group situation prior to the junior year. A performance report by the employer or supervisor and a self-evaluation by the student are sent to the department chairman.

During the third year the professional information and background necessary for public school service are emphasized. Students preparing for secondary school teaching utilize the electives included in the curriculum outline in meeting requirements for teaching field concentrations. Guides for teaching field concentrations (majors) are available in the department office. Beginning with the freshman class of September 1963, students in the elementary curriculum are required to choose an academic field of concentration which usually will require approximately 20 credits. Guides for suggested course sequences are available in the department office.

The fourth-year program consists largely of professional education. One semester is devoted to student teaching, while the other provides necessary professional courses. One half of the students engage in practice teaching the first semester and take courses the second semester, while the other half reverses the order. The criteria for initial placement in student teaching are as follows: (1) evidence of competency in

spoken and written English; (2) evidence of personality adjustment suitable for contact with children and youth; (3) cumulative grade-point average of at least 2.2; (4) cumulative average of at least 2.2 in professional courses in Education; (5) at the secondary level a grade-point average of at least 2.5 in the teaching field or fields; (6) at the secondary level at least two-thirds of the teaching field major completed for those student-teaching in the first semester of their senior year. Those student-teaching in the second semester of their senior year must have their major completed.

The program of the fifth year is practically identical for both curricula, with intern teaching appointments being made at the appropriate level, and, in the case of prospective secondary school teachers, in the appropriate teaching fields. An alternation of supervised teaching and course work, similar to that in the senior year, is followed.

### Teaching Field Requirements—Secondary Education

*Agriculture*: 46 credits in agricultural subjects plus 26 credits in science subjects, and Ed SE 333. *Art*: 36 credits in art, 12 hours in art history including Art 171-181, 24 hours studio courses including Art 111-112; Ed SE 336. *Biological science*: 42 credits including basic laboratory courses in physical sciences and in botany, microbiology, zoology; Ed SE 333. *Commercial*: 36 credits in business, economics, shorthand, typewriting, bookkeeping; Ed SE 348, 349. *English*: 42 credits in composition, linguistics, English and American literature; Ed SE 235, 330, 331. *General science*: 42 credits including basic laboratory courses in chemistry, physics, botany, zoology, earth science; Ed SE 333. *Health and physical education*: 36 credits with a minimum of 12 in health and 16 in physical education; Ed SE 238. *Home economics*: 45 credits in home economics; Home Economics 270. *Industrial arts*: 36 credits in hand and machine woodworking, metalwork, electricity, crafts, general shop; Ed SE 346, 347. *Languages*: 30 credits in advanced courses; Ed SE 335. *Mathematics*: 30 credits at university level; Philosophy 200; Ed SE 237, 334. *Music*: 43 credits including applied music and organizations; Ed SE 337-338. *Physical science*: 42 credits, including basic laboratory courses in biological sciences and in chemistry, geology, physics; Ed SE 333. *Social studies*: (junior high school level) 42 credits including 6 in U.S. history, 6 in world history, a course each in government, economics, geography, sociology, and anthropology, a course in Hawaiian history, Hawaiian government, or Hawaiian culture; 20 in English; Ed SE 235, 331, 332. *Social studies*: (senior high school level) 48 credits including 6 in U.S. history, 6 in world history, 6 in government, 6 in economics, 6 in geography, and 6 in sociology and a course in anthropology, a course in Hawaiian history, Hawaiian government, or Hawaiian culture; Ed SE 331, 332. *Speech*: 36 credits in speech; Ed SE 339.

## Elementary and Secondary Curricula

### FIRST YEAR

FIRST SEMESTER	CREDITS	SECOND SEMESTER	CREDITS
Ed HP 100	1	Ed HP 101	1
English 101	3	English 102	3
HPE 101-107	1	HPE 101-107**	1
History 151	3	History 152	3
Mathematics 111*	3	Psychology 102	4
General Science 120†	4	General Science 121†	4
Speech 140	2	Elective	2
Elective	1		
Total	18	Total	18

### Elementary Curriculum

#### SECOND YEAR

Art 103	2	Psychology 250	3
English 150 or 152	3	Ed EE 220	4
History 171	3	English 151 or 153	3
Music 150‡	3	Political Science 110	3
Philosophy 100	3	Speech 110	1
Elective	4	Electives§	4
Total	18	Total	18

#### THIRD YEAR

Ed EE 221 or 224	4	Ed EE 322	2
Ed EE 225	2	Ed EE 323	2
Ed EE 320	3	Ed EE 324	3
Music 251††	2	Ed EE 326	2
Sociology 232	3	HPE 221	2
Speech 135	1	Music 252††	2
Elective	3	Elective	5
Total	18	Total	18

\*Secondary mathematics and science majors should substitute Mathematics 103 or 135.

†Secondary science majors should substitute Chemistry 105-106.

‡Music 117-118 may be substituted.

§Two of the following for elementary majors who do not choose an academic minor, one for secondary majors: Anthropology 150, Economics 150, Sociology 151.

\*\*Elementary majors take HPE 130.

††Music 253 may be substituted.

## FOURTH YEAR

Ed EP 309	3	Ed EE 390	14
Geography 401	3	Ed EE 391	2
HPE 230	2		
Ed EP 372	3		
Speech 365	3		
Elective	4		
<b>Total</b>	<b>18</b>	<b>Total</b>	<b>16</b>

## Secondary Curriculum

## SECOND YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
English 150 or 152	3	English 151 or 153	3
Political Science 110	3	History 171†	3
HPE 130	1	Psychology 250	3
Philosophy 100	3	Electives§	7-9
Elective†	6-8		
<b>Total</b>	<b>16-18</b>	<b>Total</b>	<b>16-18</b>

## THIRD YEAR

Ed SE 230	4	Ed SE 290**	1
Sociology 232	3	Ed SE 330††	3
Elective§	9-11	HPE 230	2
		Elective§	10-12
<b>Total</b>	<b>16-18</b>	<b>Total</b>	<b>16-18</b>

## FOURTH YEAR

Ed EP 309	3	Ed SE 390	14
Ed EP 372	3	Ed SE 391	2
Speech 365‡‡	3		
Elective§	7-9		
<b>Total</b>	<b>16-18</b>	<b>Total</b>	<b>16</b>

## Elementary and Secondary Curricula

## FIFTH YEAR

Ed Foundations*	3	Ed EE or Ed SE 690	14
Ed Ad 680	2	Ed EE or Ed SE 691	2
Elective (Education)§§	5		
Elective	6		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

\*Ed HP 650, 660, 670, 671, or 683.

†Anthropology 150, Economics 150, or Sociology 151; and other electives.

‡Social Studies majors substitute History 461-462 or 463-464.

§As required to meet teaching field concentrations.

\*\*Concurrent with appropriate methods course.

††For other teaching fields, appropriate methods courses will be substituted.

‡‡Speech majors substitute Speech 369.

§§Must include Ed EE 620 in the elementary curriculum; Ed SE 635 or 636 in the secondary curricula.

### Recreation Curriculum

The department of health and physical education offers a program of study leading to a B.S. degree in Recreation Leadership. This four-year program is centered in training leaders in community recreation and related fields of recreation.

FIRST SEMESTER		FIRST YEAR		SECOND SEMESTER	
	CREDITS				CREDITS
Anthropology 150	3	Botany 105 or 160			2
English 101	3	Economics 150			3
HPE 101 or 102	1	English 102			3
HPE 132	2	Pol Sci 110			3
Elective	1	HPE 102 or 101			1
Sociology 151	3	HPE 170			2
Speech 140	2	Elective			1
Zoology 111	3	Speech, as required			1
	<hr/>				<hr/>
Total	18	Total			16
		SECOND YEAR			
Art 103	2	Art 104			2
English 155	3	HPE 120			2
HPE 103	1	HPE 140			2
HPE 115	1	Music 118			1
History 171	3	Psychology 250			3
Elective	1	Speech 150			3
Music 117	1	Elective			4
Psychology 104	3				
Speech as required	1				
	<hr/>				<hr/>
Total	16	Total			17
		THIRD YEAR			
HPE 215 (for men) or 225 (for women)	2	HPE 217 (for men) or 227 (for women)			2
HPE 221	2	HPE 222			2
HPE 245	2	HPE 246			2
HPE 250	2	HPE 251			2
HPE 280	3	HPE 285			3
Sociology 232	3	Elective			5
Elective	2				
	<hr/>				<hr/>
Total	16	Total			16
		FOURTH YEAR			
Ed SE 238	2	HPE 248			2
HPE 234	2	HPE 249			2
HPE 241	2	HPE 253			5
HPE 252	5	Ed EP 372			3
HPE 263	2	Elective			3
Elective	2				
	<hr/>				<hr/>
Total	15	Total			15



### **Electives**

Eight credits of electives must be selected from Group I. Additional electives from Group II must be selected to complete curriculum requirements of 130 semester hours. Substitutions for suggested electives may be approved by the adviser.

Group I: Art 111-112, 141; Drama 150-151; Health & Physical Education 104, 105, 106, 107, 111, 112, 113, 114, 116, 117, 118, 123, 124, 126, 127, 128, 219, 230, 231, 235, 236, 239, 399; Home Economics 126, 221; Music 200, 300.

Group II: Air Science 95-202, 251-252; Anthropology 300; Art 101; Chinese 101-102; Drama 140; Geography 101; Geology 150; Hawaiian 101-102; History 151-152, 521-522, 577; Japanese 101-102; Military Science 202, 252; Music 160; Philosophy 100; Psychology 270, 420; Religion 150; General Science 120-121; Speech 230.

### **LABORATORY SCHOOLS**

Practical experience in teaching is given in the College laboratory schools and selected public schools. To insure a rich experience for the children enrolled and to set a high standard of achievement for the student teachers, conditions are made as ideal as possible, with small classes, selected children, and a strong supervising staff assisted by specialists in art, drama, health, library science, physical education, music, and speech.

Observation-participation experience in the third year and intern teaching in the fifth year are provided in selected public schools under the joint supervision of the College and the state's Department of Education.

### **READING CLINIC**

The Clinic is a teacher-education laboratory of the department of educational psychology, offering experience to qualified graduate students in diagnosing reading problems and in tutoring children with reading disabilities. It also serves as a materials center in the field of reading: trade books, basal reading series, workbooks, tests, games, and professional books and pamphlets.

### **VOCATIONAL HOME ECONOMICS EDUCATION**

Prospective vocational home economics teachers obtain their undergraduate preparation in the College of Tropical Agriculture. Basic professional education courses and student teaching are required. Selec-

tive standards, including those in English, used in the College of Education apply to prospective vocational teachers. Students in this program register in the secondary curriculum for the fifth (graduate) year. For the work of this year, *see* "Five-Year Diploma Requirements."

### ***CERTIFICATION IN SCHOOL COUNSELING***

The Counseling and Guidance Program is designed for students who wish to develop competency in counseling and guidance in the schools, and to meet certification requirements in Hawaii or other states. The curriculum may be completed as part of the requirements for a master of education degree, or may be taken without completing the degree. Individuals who complete the program satisfactorily are recommended for counselor certification. Those interested should confer with the counselor-educator.

### ***CERTIFICATION IN TEACHING THE MENTALLY RETARDED***

The College offers a one year graduate program for elementary and secondary education majors leading to certification as a teacher of the mentally retarded. Graduates with a degree in an area other than education may also receive certification to teach mentally retarded children upon completion of a two-year program. Courses taken for certification may be counted toward a master's degree in educational psychology with emphasis in special education. Interested students should confer with the instructors in special education.

### ***CERTIFICATION IN LIBRARY STUDIES***

Regulations of the state Department of Education provide that a teacher may have "Qualified School Librarian" placed on the face of the Professional Certificate providing he meets the requirements of 26 credits in library studies and related courses. Individuals interested in the program should confer with one of the instructors in library studies.

### ***CERTIFICATION IN SCHOOL ADMINISTRATION***

School administration credentials—elementary, intermediate, secondary, and technical—are granted by the state Department of Education after the following requirements have been satisfied: (1) possession of a professional teaching certificate; (2) completion of five years of successful teaching experience; (3) 15 graduate credits in administration, supervision, and curriculum; and (4) successful completion of the leadership training program.

The administrative intern program is sponsored by the College and the state Department of Education. To be admitted to the program, the candidate must have five years of teaching experience, hold the professional certificate, and successfully pass annual examinations administered by the state Department of Education. Approved candidates enroll for Ed EA 785.

## **EDUCATION COURSES**

*See p. 46 for a discussion of course descriptions.*

### **Educational Administration (Ed EA)**

Professors CROSSLEY, EVERLY, JACKSON; Associate Professor R. JOHNSON

**EA 670 SUPERVISION OF INSTRUCTION (3) I**

Principles of supervision and development of supervisory programs. Pre: EA 680; EE 622 or SE 636.

**EA 671 SCHOOL PUBLICITY AND PUBLIC RELATIONS (3) I**

Application of principles, techniques, policies, organization of a school-community information program. Pre: EA 680 or consent of instructor.

**EA 680 PUBLIC SCHOOL ORGANIZATION (2) I, II**

Function of the teacher in school administration; state organization of public education; Hawaii school law and State Department of Education regulations. Pre: teaching experience; may include student teaching.

**EA 685 EDUCATIONAL ADMINISTRATION: THEORY AND PRINCIPLES (3) I, II**

Theory and principles of administration and development of administrative programs. Pre: EA 680, teaching experience, or consent of instructor.

**EA 689 THE SCHOOL PLANT (3) I**

Problems and techniques in school plant planning, operation, and maintenance; working with other agencies and with classified personnel. Pre: EA 685 or consent of instructor.

**EA 699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.

**EA 768 RESEARCH SEMINAR IN EDUCATIONAL ADMINISTRATION (3) I, II**

Basic concepts of research in Educational Administration. Study and discussion of significant topics and problems. Required of Plan B Ed. M. candidates. Pre: consent of instructor.

**EA 770 SEMINAR IN SUPERVISION OF INSTRUCTION (3) II**

Application of methods and tools of supervision; faculty meetings; classroom observation; conferences; evaluation. Pre: EA 682 or 683; consent of instructor. May be repeated.

**EA 780 SEMINAR IN EDUCATIONAL ADMINISTRATION (3) I, II**

Analysis of selected problems in school administration. (1) Elementary; (2) intermediate; (3) secondary; (4) adult; (5) technical and vocational; (6) community college; (7) higher education. Pre: EA 670, 680, 685, or consent of instructor. May be repeated.

**EA 782 LEGAL ASPECTS OF SCHOOL ADMINISTRATION (3) I**

Functions, relationships, and responsibilities of school districts and school personnel with interpretations of legal status as shown by statutes and court decisions. Pre: EA 680, 685, 780, or consent of instructor.

**EA 784 FINANCIAL ASPECTS OF SCHOOL ADMINISTRATION (3) II**

School revenues, apportionments, budgetary procedures, costs, and business management. Pre: EA 680, 685, 780, or consent of instructor.

**EA 785 SEMINAR AND INTERNSHIP IN ADMINISTRATIVE LEADERSHIP (Arr.) I, II**

The school administrator as a curriculum and personnel leader in school organization; techniques of administrative control; strategies in leadership functions. Intern experience in schools. Pre: admission into the State Department of Education Administrative Intern Program, admission to the East-West Center program, or consent of instructor.

## Educational Psychology (Ed EP)

Professors ADKINS, R. ALM, BEYERS, CLARK, D. COLLINS, DUNSMOOR, RYANS, WITTICH; Associate Professors LETON, McLINTOSH, REED, SAX; Assistant Professors BORNSTEIN, FUCHIGAMI, NIYEKAWA, SANDERSON; Instructors LUBITZ, YOSHISHICE

*EP 309 and 372 or their equivalents are prerequisites for all graduate courses in Educational Psychology, except for EP 514, 634, 704, 705, 714.*

**EP 309 TESTS AND MEASUREMENTS (3) I, II**

Theory and techniques of evaluation in education. Pre: EE 221, EE S 222, or SE 230. Course fee \$1.00.

**EP 315 ARTS AND CRAFTS FOR MENTALLY RETARDED (2) II**

Construction and use of learning aids for mentally retarded children. May be taken concurrently with EP 615 with consent of instructor.

**EP 372 EDUCATIONAL PSYCHOLOGY (3) I, II**

Major factors of learning and mental health as they apply to the educative process. Pre: Psychology 250.

**EP 374 GENERAL EDUCATIONAL PSYCHOLOGY (5) I, II**

Similar to EP 372 but with laboratory and observations. Not open to those who have had EP 372. Restricted to Ford Program students.

**EP 399 DIRECTED READING (Arr.) I, II**

Individual reading or research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in education. Pre: consent of instructor and department chairman.

**EP 404 EDUCATION OF EXCEPTIONAL CHILDREN (3) I**

A survey of the characteristics of children who deviate from the average in mental, sensory, physical, and social attributes; and reviews adaptations made by schools to the abilities and disabilities of exceptional children.

**EP 405 THE MENTALLY RETARDED (3) I**

A review of the psychological, social, and vocational problems related to mentally retarded children and their families.

**EP 450 PRACTICUM EXPERIENCE WITH THE MENTALLY RETARDED (9) II**

Observation and supervised student teaching with mentally retarded children at two school levels: elementary and secondary. Includes a two-hour seminar each week. Pre: EP 405, 406, 407.

**EP 507 REMEDIAL READING (3) II**

Techniques for motivating and helping children whose reading skills are below their capacity and needs.

**EP 514 AUDIO-VISUAL MEDIA (3) I, II**

Communication, theory, the characteristics of A-V media: automated learning programs, TV, projected and opaque materials (maps and models). Course fee \$4.00.

**EP 601 GUIDANCE IN THE SCHOOL (3) I, II**

Basic principles of guidance; consideration of techniques, organization, materials, resources.

**EP 602 ELEMENTARY SCHOOL GUIDANCE (3) I**

Principles, techniques, and organization of guidance services in the elementary school.

**EP 604 OCCUPATIONAL INFORMATION IN GUIDANCE (3) I**

Occupational research and survey techniques; trends, sources of materials, use of occupational information in vocational guidance. Pre: EP 601.

**EP 605 PROBLEM OF SCHOOL ADJUSTMENT (3) I**

Principles of behavior which affect human relationships in the school, with emphasis upon application to actual situations.

**EP 607 CLINICAL PROCEDURES IN READING (3) I, II**

Diagnosis and improvement of reading in elementary and secondary schools. Pre: course in teaching of reading; consent of instructor.

**EP 609 TESTS AND INVENTORIES IN GUIDANCE (3) II**

Tests and inventories for measuring aptitudes, interests, and modes of behavior. Pre: EP 601.

**EP 613 EDUCATION OF THE MENTALLY RETARDED (3) I**

Characteristics and educational provisions for the mentally retarded. Pre: EP 510.

**EP 614 EDUCATION OF GIFTED CHILDREN (3) II**

Characteristics and educational provisions for gifted children. Particular attention to psychological aspects of creativity. Pre: EP 510.

**EP 615 CURRICULUM DEVELOPMENT FOR MENTALLY RETARDED CHILDREN (3) II**

Development of curricula and use of materials for teaching mentally retarded children. Pre: EP 510.

**EP 616 SEMINAR IN EDUCATION OF MENTALLY RETARDED (3) II**

Advanced problems in the education of mentally retarded children. Pre: 20 credits in MR endorsement plan; teaching experience in mentally retarded classes.

**EP 629 EDUCATIONAL STATISTICS (3) I, II**

Statistical inference including the application of parametric and non-parametric methods to educational problems. Pre: descriptive statistics.

**EP 634 TELEVISION IN EDUCATION (3) I, II**

Research backgrounds, development, and utilization of television in education, including fundamentals of television production and teaching of television with emphasis on the utilization of television in the school. Pre: EP 514, or consent of instructor. Course fee \$5.00.

**EP 672 ADVANCED EDUCATIONAL PSYCHOLOGY: LEARNING (3) I, II**

Application of experimental evidence in learning upon major educational problems; analysis of research methods in classroom learning. Pre: consent of instructor.

**EP 673 ADVANCED EDUCATIONAL PSYCHOLOGY: PSYCHO-SOCIAL DEVELOPMENT (3) I**

Research methods and findings involving classroom group structures, attitude and personality development, and psycholinguistic behavior. Pre: consent of instructor.

**EP 699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.

**EP 701 SEMINAR IN GUIDANCE (3) I, II**

Current issues and problems. (1) General, (2) testing, (3) counseling, (4) vocational, (5) elementary school, (6) administration, (7) group procedures. Pre: 8 credits in guidance courses.

**EP 702 GROUP GUIDANCE (3) II**

Principles, practices, materials, and techniques used in group guidance in schools. Pre: EP 601.

**EP 703 GUIDANCE PRACTICUM (3) I, II**

Supervised experience in guidance activities in schools. Guidance majors only. Pre: consent of instructor.

**EP 704 SEMINAR IN AUDIO-VISUAL EDUCATION (3) I**

Review of general and current audio-visual research. Applications of same to problems in the improvement of instruction. Pre: EP 514 or equivalent.

**EP 705 PRODUCTION OF AUDIO-VISUAL MATERIALS (3) II**

Preparation of overlays, films, slides, simple motion pictures. Utilization of film, television, and automated learning materials. Pre: EP 514 and teaching experience. Course fee \$5.00.

**EP 708 EDUCATIONAL RESEARCH METHODS (3) I, II**

Research techniques and thesis development. Pre: proficiency in statistics; consent of instructor.

**EP 709 ADVANCED PROBLEMS OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) II**

Theory of educational measurement and evaluation; analysis of educational tests and scales emphasizing statistical and psychological analysis of teacher-made and standardized tests and scales. Pre: EP 609, 629 and consent of instructor.

**EP 714 ORGANIZATION OF NEW MEDIA PROGRAMS (3) I**

Current principles and practices in the organization of programs utilizing new learning media: audio-visual, automated learning and educational television. Pre: EP 514.

**EP 768 SEMINAR IN EDUCATIONAL PSYCHOLOGY (3) I, II**

Current issues and problems. (1) General, (2) learning, (3) measurement, (4) research and statistics, (5) psycho-social development. May be repeated for credit. Pre: EP 708.

## Elementary Education (Ed EE)

Professor PORTER; Associate Professors CARR, HAYES, JENKINS, PICKENS; Assistant Professors EZER, FITZSIMMONS, FUJITA, GILLESPIE, INN, YANG; Instructor YAMASHITA

*Credit for 690, 691 does not apply to graduate degree programs.*

### EE 220 ELEMENTARY EDUCATION (4) I, II

Basic course in the education of children ages 3 to 12; guided observation in the laboratory schools for the purpose of developing the ability to apply the principles of growth and development in the learning situation. Pre: Psychology 250.

### EE 221 THE ELEMENTARY SCHOOL PROGRAM (4) I, II

Function of the elementary school in a democratic society with emphasis on the basic concepts of curriculum, the broad concept of method, and the role of the teacher. Includes weekly observation and participation in the public schools. Pre: EE 220.

### EE 224 THE KINDERGARTEN-PRIMARY PROGRAM (4) I, II

Course emphasis is on early childhood education, its function in a democratic society, basic concepts concerning curriculum and method, and the teacher's role. Designed mainly for those interested in teaching at the kindergarten and primary levels. Includes observation and participation for four hours weekly in an assigned classroom. Pre: EE 220.

### EE 225 CHILDREN'S LITERATURE (2) I, II

Acquaintance with a wide range of children's books; criteria for judging literature on the basis of needs and interests. Pre: EE 220.

### EE 290 PARTICIPATION TEACHING (1) I, II

Classroom observation and participation in the public schools. Discussion and analysis of such experience. Required of students who take EE S222.

### EE 320 LANGUAGE ARTS, ELEMENTARY (3) I, II

Modern approach to the teaching of language arts—reading, oral and written expression. Pre: EE 220.

### EE 322 SOCIAL STUDIES, ELEMENTARY (2) I, II

The major purposes of this course are to point out the special contribution of the social studies to the elementary curriculum and to aid students in developing sound instructional programs and procedures in elementary social studies. Pre: EE 220.

### EE 323 SCIENCE, ELEMENTARY (2) I, II

Science education in the elementary school; developing concepts and understandings. Pre: EE 220.

### EE 324 MATHEMATICS, ELEMENTARY (3) I, II

Purposes, procedures, scope, and organization in developing underlying concepts of elementary mathematics; analysis of new elementary mathematics programs; techniques, relative merits, and roles of inductive and deductive approaches to new ideas. Pre: EE 220; Mathematics 111.

### EE 326 CREATIVE ART, ELEMENTARY (2) I, II

Understanding the scope and importance of art in the elementary school curriculum, and the creative use of art media through laboratory experiences. Pre: EE 220; Art 103. Course fee \$7.50.

### EE 330 CREATIVE EXPRESSION IN ELEMENTARY EDUCATION (3) I

The development of communication skills through creative dramatics, rhythmic movement, and the related arts. Pre: EE 220.

**EE 380 CURRICULUM AND INSTRUCTION (10) II**

Basic concepts of curriculum, methodology, the role of the teacher, and the function of the elementary school in a democratic society. To be taken concurrently with student teaching. Pre: Psychology 250; EP 374. Open only to seniors in the Ford program.

**EE 390 STUDENT TEACHING, ELEMENTARY (14) I, II**

Supervised experience in the University Preschool and in off-campus public schools on a semester basis in a particular age or grade level, nursery through grade six. Pre: EE 221, S 222, or 224.

**EE 391 SEMINAR FOR STUDENT TEACHERS (2) I, II**

This course is designed to provide opportunities for student teachers to conceptualize their experiences, to develop group membership skills, and to assume leadership roles. To be taken concurrently with EE 390.

**EE 394 STUDENT TEACHING, ELEMENTARY (6) II**

Supervised experience in elementary public schools part time on a semester basis in a particular age or grade level, kindergarten through grade six. To be taken concurrently with EE 380. Pre: Psychology 250; EP 374. Open only to seniors in the Ford program.

**EE 399 DIRECTED READING (Arr.) I, II**

Individual reading or research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in education. Pre: consent of instructor and department chairman.

**EE 620 TEACHING READING IN THE ELEMENTARY SCHOOL (2) I, II**

Theory and practice in the teaching of reading from the initial readiness stage through the intermediate (upper elementary) grades. Current practices in methodology, organizational patterns and evaluation are examined critically.

**EE 621 MODERN LANGUAGE ARTS PROGRAM, ELEMENTARY (2) II**

Current research; critical examination of educational procedures in teaching the language arts. Pre: basic course in teaching language arts; teaching experience.

**EE 622 ELEMENTARY SCHOOL CURRICULUM (3) I**

Theoretical foundations of curriculum development; curriculum research; critical examination of current practices in curriculum development for the elementary school. Pre: EE 221, 224, or equivalent; teaching experience.

**EE 623 THE ELEMENTARY SCIENCE CURRICULUM (3) I**

Application of recent developments in science, curriculum construction, and learning theory to the elementary school. Science content as well as methodology will be stressed. Pre: EE 323 and teaching experience.

**EE 624 THE ELEMENTARY MATHEMATICS CURRICULUM (2) I**

Application of recent developments in mathematics, curriculum construction, and learning theory to the elementary school. Pre: EE 324 and teaching experience.

**EE 625 THE ELEMENTARY SOCIAL STUDIES CURRICULUM (2) II**

An examination and evaluation of social science content, societal values and research findings as a basis for the development and revision of social studies materials, texts, curriculum guides, and methodology. Pre: EE 322 and teaching experience. (Not offered 1965-66.)

**EE 626 ART IN ELEMENTARY EDUCATION (2) II**

Principles of and problems in teaching art in the elementary school; curriculum development and current approaches in art education; laboratory experiences in art media. Pre: Art 103; EE 326. Course fee \$7.50.



**EE 630 CURRICULUM DEVELOPMENT IN CREATIVE EXPRESSION (3) II**

Leadership training for teachers of creative dramatics, rhythmic movement, and the related arts. Pre: EE 330, Drama 410 or consent of instructor.

**EE 667 CURRICULUM TRENDS IN EARLY CHILDHOOD EDUCATION (3) I**

Study of current issues and problems in kindergarten and early elementary education with emphasis on program planning for curriculum improvement. Pre: EE 221, 224 or equivalent, and teaching experience. (Not offered 1965-66.)

**EE 679 SUPERVISION OF STUDENT TEACHING (2) II**

Principles and methods; role of the supervisor; human relations in supervision of student teaching. Pre: teaching experience; consent of instructor.

**EE 690 INTERNSHIP, ELEMENTARY (14) I, II**

Full-time teaching under special supervision. Restricted to fifth-year students. First semester work begins September 1, 1965; second semester ends June 10, 1966.

**EE 691 SEMINAR FOR INTERN TEACHERS (2) I, II**

Problems arising from classroom experiences of intern teachers. Restricted to fifth-year students. To be taken concurrently with EE 690.

**EE 699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.

**EE 722 SEMINAR IN ELEMENTARY CURRICULUM FOUNDATIONS (3) II**

Advanced study in the development and improvement of the curriculum of the elementary schools. Pre: EE 622; consent of instructor. May be repeated once for credit.

## Health and Physical Education (HPE)

Professor SAAKE; Associate Professors CHUI, GUSTUSON, VASCONCELLOS; Assistant Professors BEAMER, CURTIS, GIBSON, O'BRIEN, SAKAMOTO, VAN DEGRIFT; Instructors ASATO, BRUHN, FURUKAWA

*An activities and locker fee of \$3.00 is assessed in 101-120, except for bowling.*

**HPE 101 AQUATIC ACTIVITIES (1) I, II**

Skill, knowledge, attitudes, and appreciation. Separate sections: swimmers, non-swimmers.

**HPE 102 INDIVIDUAL AND DUAL ACTIVITIES (1) I, II**

Skill, knowledge, attitudes, and appreciation. Separate sections: golf, tennis, badminton, bowling.

**HPE 103 TEAM SPORTS (1) I, II**

Skills, knowledge, attitudes, and appreciation. Combination volleyball and softball; combination basketball and soccer. Separate sections for men and women.

**HPE 104 COMBATIVE ACTIVITIES (1) I, II**

Skills, knowledge, attitudes, and appreciation. Combination judo and wrestling.

**HPE 105 RHYTHMIC ACTIVITIES (1) I, II**

Skills, knowledge, attitudes, and appreciation. Combination social dancing and folk dancing.

**HPE 106 PRESCRIBED EXERCISES (1) I, II**

Exercises adapted to individual needs, capacities, and interests.

**HPE 107 DEVELOPMENTAL AND GYMNASTIC ACTIVITIES (1) I, II**

Skills, knowledge, attitudes, and appreciation. Combination tumbling, trampoline, parallel bars, etc.

**HPE 111 INTERMEDIATE SWIMMING (1) II**

For students who have met basic requirements and desire to develop additional skills in swimming and diving.

**HPE 113 ADVANCED TENNIS (1) II**

For those interested in developing advanced skills and strategy in tennis.

**HPE 114 DEVELOPMENTAL ACTIVITIES (1-1) Yr.**

Exercises with and without apparatus selected to meet personal needs; various forms and systems of exercise surveyed.

**HPE 115 TUMBLING (1) I**

Exercises suitable for use with child and adult groups.

**HPE 116 HEAVY APPARATUS (1) II**

Heavy apparatus, including trampoline, for the development of balance, strength, and skills.

**HPE 118 TRAMPOLINE (1) II**

History, principles, methods, safety procedures. Tumbling and exercises.

**HPE 120 MUSIC AND RHYTHMS IN PHYSICAL EDUCATION (2) II**

The use of music in the activity program. Includes a brief survey of the various rhythmic patterns and their applications.

**HPE 123 FOLK AND NATIONAL DANCES (1) I**

Selected dances of various national groups now in popular use. Square dances included.

**HPE 124 DANCES OF HAWAII (1) II**

Introduction to the hula. The background and fundamentals will be presented, and selected dances given. Activities and locker fee \$3.00.

**HPE 127 INTERMEDIATE GOLF (1) II**

For those with some experience. Introduction to strategy of course-play while improving basic skills.

**HPE 128 ADVANCED GOLF (1) II**

For those with considerable experience. Advanced strategy and techniques, scoring, handicapping, rules and conditions relating to tournament play.

**HPE 130 PERSONAL HYGIENE (1) I, II**

Scientific health information as a basis for hygienic living. Personal health problems.

**HPE 132 PERSONAL HEALTH (2) I**

The proper care of the body and development of desirable health habits and attitudes. Intended primarily for majors in physical education and recreation.

**HPE 140 NATURE AND FUNCTION OF PLAY (2) II**

Place of play in community and school life; applications to the various age groups.

**HPE 170 INTRODUCTION TO PHYSICAL EDUCATION (2) II**

Designed for prospective teachers and leaders in physical education and recreation; objectives, needs, procedures, and outcomes in physical education activities.

**HPE 215 ATHLETIC COACHING, FOOTBALL AND BASKETBALL (2) I**

Fundamentals, position play, team play, and strategy in football and basketball.

**HPE 217 ATHLETIC COACHING, BASEBALL AND TRACK (2) II**

Fundamentals, team play, and strategy in baseball; basic skills; analysis of form, and conditioning in track.

**HPE 219 COACHING OF SWIMMING (2) II**

Designed for those interested in the development of swimming teams in schools and other agencies. Content and method emphasized.

**HPE 221 PHYSICAL EDUCATION, ELEMENTARY (2) I, II**

Content and method for elementary school programs. Adaptations to meet situations with like age groups outside of school. Activities and locker fee \$3.00.

**HPE 222 SKILLS AND ACTIVITIES IN SECONDARY PHYSICAL EDUCATION (2) II**

Analysis of activities and methods for junior and senior high school programs.

**HPE 225 THE TEACHING OF INDIVIDUAL SPORTS (2) I**

Organization and teaching of athletic activities for girls, such as tennis, archery, badminton, golf, etc., on the secondary level.

**HPE 227 THE TEACHING OF TEAM SPORTS (2) II**

Techniques of teaching fundamentals and strategy of team games for girls and women.

**HPE 230 SCHOOL HEALTH PROBLEMS (2) I, II**

Responsibilities of the classroom teacher in recognizing and meeting the health needs of the school child; school and community official and voluntary agencies.

**HPE 231 METHODS AND MATERIALS IN HEALTH EDUCATION (2) II**

Organization and content, methods and materials for health teaching in elementary and secondary schools.

**HPE 234 SAFETY PROCEDURES AND FIRST AID (2) I**

Prevention and emergency treatment of injuries, emphasis upon school, playground, and athletic situations. Practical work in first aid. Red Cross Certificate may be earned.

**HPE 235 THE HEALTH EDUCATION CURRICULUM (2) I**

Procedures for the development and construction of the health education program with emphasis on the health needs and interests of school age children.

**HPE 236 EVALUATION IN HEALTH EDUCATION (2) II**

Processes involved in appraising the effectiveness of health education program. Practice in use and development of evaluation instruments.

**HPE 239 HEALTH OF THE SCHOOL CHILD (2) I**

Deals with various problems in child health and the role of the school in meeting them.

**HPE 241 SOCIAL RECREATION (2) I**

Activities and leadership techniques for parties, socials, etc.

**HPE 245-246 OFFICIATING IN ATHLETICS (2-2) Yr.**

Techniques used by officials in the various sports. Practice in officiating is included.

**HPE 248 HOBBIES IN RECREATION (2) II**

Development of procedures and skills in various hobbies for recreation majors. Others by permission of instructor only.

**HPE 249 CAMP LEADERSHIP (2) II**

Program development; procedures in modern camping; relationships with educational and other agencies. For recreation majors; others with consent of instructor.

**HPE 250-251 RECREATION LEADERSHIP (2-2) Yr.**

Students assigned to recreational agencies for orientation. One hour per week in discussion of individual and group problems. Pre: consent of instructor.

**HPE 252-253 FIELD WORK IN RECREATION (5-5) Yr.**

Students assigned to recreational agencies for experience. One hour per week in discussion of problems. Pre: consent of instructor. For recreation majors only.

**HPE 263 INTRAMURAL ATHLETICS (2) I**

Organization, program, and procedures used in conducting a sports program for students outside of regular class hours.

**HPE 276 CURRENT TRENDS IN HEALTH (2) II**

A critical analysis of current problems and trends in basic health education areas which contribute to healthful living in the community, home, and school.

**HPE 280 ANATOMY IN PHYSICAL EDUCATION (3) I**

Designed to develop an understanding of muscle action during activity. Primarily for leaders in physical education and recreation but open to others.

**HPE 285 PHYSIOLOGY IN PHYSICAL EDUCATION (3) II**

Essentials necessary in teaching health practices; activities to meet individual and group needs. Primarily for leaders in physical education and recreation but open to others.

**HPE 332 THE SCHOOL'S ROLE IN COMMUNITY HEALTH (2) II**

Historical and modern developments of health problems with special emphasis on interpretation of their effect on individual and community life. Promotion of community health programs for the solution of current health problems. Pre: HPE 230, or consent of instructor.

**HPE 399 DIRECTED READING (Arr.) I, II**

Individual problems. Limited to seniors in the recreation leadership curriculum with 2.7 grade-point ratio, or 3.0 grade-point ratio in health and physical education.

**HPE 631 ORGANIZATION AND ADMINISTRATION OF THE SCHOOL HEALTH PROGRAM (2) II**

Underlying principles, organization for health including health services, healthful school living, health and safety instruction; interrelationships with community agencies. Pre: HPE 230, 231, 235, 236, and 239.

## History and Philosophy of Education (Ed H P)

Senior Professor CLOPTON; Professors ANDERSON, AUSTIN; Associate Professors AMIOKA, BOYER, POTTER; Assistant Professor STUEBER; Instructor J. ALM

*Qualified graduate students in other colleges may enroll in courses in this department with consent of instructor.*

**HP 100-101 INTRODUCTION TO EDUCATION (1-1) Yr.**

The teacher as a person; teaching as a profession; choice of a teaching field. Course fee \$1.00 first semester.

**HP 360 FUNDAMENTAL IDEAS IN EDUCATION (2) I**

Examination of basic ideas influencing modern education; sociological, psychological, and philosophical considerations; for juniors in the Honors Program.

**HP 570 ANTHROPOLOGY AND EDUCATION (3) II**

Education as a means of transmitting culture. Socialization in nonliterate societies; universal aspects of the process. Cross-cultural education. (Offered as Anthropology 550 (2).)

**HP 650 HISTORY OF EDUCATION (3) I, II**

History of Western educational thought and practice as a basis for the study of modern school problems.

**HP 660 PHILOSOPHY OF EDUCATION (3) I, II**

Philosophy and science in education; social, psychological, and ethical considerations essential to a philosophy of education. Pre: student teaching.

**HP 670 COMPARATIVE EDUCATION: EUROPE AND AMERICA (3) I**

Comparison of the ways in which contemporary Western societies undertake to meet their educational problems.

**HP 671 COMPARATIVE EDUCATION: THE ORIENT (3) I**

Study of the educational problems, practices, and institutions in the countries of Asia.

**HP 672 EDUCATION AND THE WORLD COMMUNITY (3) I**

The world community and its relationship to education; representative cultures; aims and programs of the U.N.; cross-cultural learning.

**HP 681 (661) THE CHURCH AND THE SCHOOL (2)**

Church, state, and school relationships in the U.S., Canada, Latin America, and Europe. Pre: HP 660.

**HP 683 (663) SOCIAL FOUNDATIONS OF EDUCATION (3) I**

The impact on education of major social trends and forces operating in American society; social change and education. Pre: consent of instructor.

**HP 684 (664) INTERPERSONAL RELATIONSHIPS IN EDUCATION (3)**

Philosophical and psychological considerations in personal relationships in family and school. (Not offered 1965-66.)

**HP 685 (665) EDUCATION IN AMERICA (3) I**

A comprehensive overview of the American educational scene from nursery school to graduate and professional schools, public and private; problems of support, organization, curriculum, methods, teacher preparation. Designed primarily for students who are not Americans.

**HP 699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.

**HP 751 HISTORY OF AMERICAN EDUCATION (3) II**

History of educational thought and practice in America, with major emphasis on the 19th and 20th centuries. Pre: HP 650.

**HP 757 EDUCATIONAL CLASSICS (2) II**

Intensive study of English translations of major contributions to Western educational thought from Plato to Dewey. Pre: HP 650.

**HP 763 SEMINAR IN EDUCATIONAL THEORY (2) I, II**

(1) Educational issues; (2) John Dewey; (3) Contemporary Educational Philosophers; (4) Japanese Educational Philosophy; (5) History of Education. Pre: HP 660. May be repeated.

**HP 765 COMPARATIVE IDEOLOGIES AND EDUCATION (3) I**

Critical analyses of contemporary ideologies and social philosophies with particular reference to implications for educational policies and practices.

**HP 768 SEMINAR IN PROBLEMS IN EDUCATION (2) II**

Study and discussion of significant topics and problems. For Plan B M.Ed. candidates in their final semester or summer session.

**HP 770 SEMINAR IN COMPARATIVE EDUCATION (2) II**

(1) East Asia; (2) South Asia; (3) Southeast Asia; (4) Latin America; (5) Africa; (6) USSR and Eastern Europe; (7) Western Europe; (8) the British Commonwealth. Pre: HP 670 or 671. May be repeated.

## Secondary Education (Ed S E)

Professors R. ALM, IN, MARTIN, MEYER; Associate Professors IHARA, NELSON, NODA, PICKENS, POYZER; Assistant Professors CAMPBELL, DAVIS, DEQUELJOE, FUKUI, FULTZ, MORIWAKI, WHITMAN; Instructors J. ALM, TOMINAGA

*Credit for 690 and 691 does not apply to graduate degree programs.*

**SE 230 SECONDARY EDUCATION (4) I, II**

Basic course dealing with the major problems of secondary education. Pre: Psychology 250.

**SE 235 LITERATURE FOR ADOLESCENTS (2) I**

Literature for the secondary school level; helping students appreciate the significance and meaning of literature; materials suitable for varying levels of ability and interests.

**SE 237 MATHEMATICS IN THE JUNIOR HIGH SCHOOL (2) I**

Arithmetic beyond fundamental processes; "general mathematics" courses; arithmetic in other courses. Pre: SE 230.

**SE 238 PHYSICAL EDUCATION, SECONDARY (2) I, II**

Methods and materials in conduct of the physical activities program; techniques in leadership; selection of activities and program evaluation. Pre: SE 230.

**SE 290 PARTICIPATION TEACHING (1) I, II**

Classroom experiences and discussion and analysis of such experiences. Concurrent registration with major field methods course. May be repeated once for credit. Pre: SE 230.

**SE 330 LANGUAGE ARTS, SECONDARY (3) I, II**

Teaching of speaking, reading, writing, and listening in the secondary school; literature, grammar, usage, spelling. Pre: SE 230.

**SE 331 TEACHING OF READING IN INTERMEDIATE AND HIGH SCHOOL (2) I, II**

Techniques and materials for teaching reading and improving reading skills in the intermediate and high school.

**SE 332 SOCIAL STUDIES, SECONDARY (3) I, II**

Scope and organization of social studies in the secondary school; development of social knowledge and understanding. Pre: SE 230.

**SE 333 SCIENCE, SECONDARY (3) I, II**

Purposes and procedures; development of scientific attitude; review of the major generalizations of the biological and physical sciences. Pre: SE 230.

**SE 334 MATHEMATICS, SECONDARY (3) I, II**

Purposes and procedures; development of basic mathematical concepts. Pre: SE 230; Math 421.

**SE 335 FOREIGN LANGUAGES, SECONDARY (3) I, II**

Techniques and materials; aims, motivation, tests; infusion of cultures; use of instructional aids. Pre: SE 230.

**SE 336 ART, SECONDARY (3) I, II**

Purposes and procedures; the arts in relation to all school subjects. Pre: SE 230; Art 103-104. Course fee \$2.00.

**SE 337-338 SCHOOL MUSIC, SECONDARY (3-2) Yr.**

Objectives, materials, and procedures of general, instrumental, and choral music in the secondary school. Pre: SE 230.

**SE 339 SPEECH AND DRAMATICS, SECONDARY (3) I, II**

Techniques for teaching types of speech and play analysis and direction, production, and management problems. Pre: SE 230.

**SE 346 METHODS OF INSTRUCTION, INDUSTRIAL EDUCATION (3) I**

Techniques of individual and group instruction in laboratory and related classes; evaluation of various methods. Pre: SE 230.

**SE 347 ORGANIZATION AND MANAGEMENT OF INDUSTRIAL EDUCATION (2) II**

Organization of instruction, handling supplies; maintaining equipment and tools; purchasing materials; keeping records; making inventories. Pre: SE 230.

**SE 348 TYPEWRITING AND SHORTHAND (2) I**

Theory and methods of teaching typewriting and shorthand. Pre: SE 230; BE 271, 272.

**SE 349 BOOKKEEPING AND OFFICE PRACTICE (2) II**

Teaching bookkeeping, office practice, and other subjects in the secondary school business education curriculum. Pre: SE 230; BE 273; Accounting 100-101.

**SE 390 STUDENT TEACHING, SECONDARY (14) I, II**

Supervised experience in the University High School or public school. Pre: SE 230 and appropriate methods course. Follows laboratory school or public school calendar.

**SE 391 SEMINAR FOR STUDENT TEACHERS (2) I, II**

Study of problems arising from experience as student teachers. To be taken concurrently with SE 390 or 392.

**SE 392 STUDENT TEACHING IN HOME ECONOMICS (6) I, II**

Observation, supervised teaching, and conferences. Pre: senior standing; credit or concurrent registration in Home Economics 270.

**SE 394 STUDENT TEACHING, SECONDARY (6) II**

Supervised student teaching experience in the public secondary schools. Pre: SE 230 and appropriate methods course. Limited to Ford Program students.

**SE 399 DIRECTED READING (Arr.) I, II**

Individual reading or research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in education. Pre: consent of instructor and department chairman.

**SE 437 CURRICULUM DEVELOPMENT, INDUSTRIAL EDUCATION (2) II**

Curriculum development in industrial arts with special emphasis on the planning of courses of studies for both intermediate and senior high school offerings.

**SE 631 MODERN LANGUAGE ARTS PROGRAM, SECONDARY (2) I**

Survey of research; critical examination of educational procedures in teaching the language arts. Pre: basic course in teaching language arts.

**SE 634 EXTRACLASS ACTIVITIES IN SECONDARY SCHOOLS (2) I, II**

Planning and supervising student government, dramatics, athletics, school journalism, and other activities.

**SE 635 JUNIOR HIGH SCHOOL CURRICULUM (3) I, II**

Programs for the intermediate school; relationship of teachers, administrators, and parents; curriculum problems; evaluation. Pre: teaching experience.

**SE 636 SECONDARY SCHOOL CURRICULUM (3) I, II**

Principles and techniques of curriculum improvement at the secondary school level. Pre: teaching experience.

**SE 637 ART IN SECONDARY EDUCATION (3) I**

Principles of and problems in teaching art in the secondary school; current approaches in teaching art. Pre: SE 336 and consent of instructor. Course fee \$7.50.

**SE 640 SEMINAR IN SPECIAL METHODS (3) I, II**

A study of trends, research data, problems of implementation in special methods of teaching in secondary school fields of study: (1) Business Education, (2) English Education, (3) Foreign Language Education, (4) Health and Physical Education, (5) Home Economics Education, (6) Industrial Education, (7) Mathematics Education, (8) Science Education, (9) Social Studies Education, (10) Speech Education. Pre: undergraduate special methods course in appropriate teaching field; teaching experience. Field of study must be designated at registration.

**SE 672 TEACHING AIDS ON ASIA (2) I**

Methods and materials in teaching about Asian nations, including the screening and suggested use of appropriate films and slides on each country, and a sampling of music and the visual arts. Pre: consent of instructor.

**SE 679 SUPERVISION OF STUDENT TEACHING (2) I, II**

Principles and methods; role of the supervisor; human relations in supervision of student teaching. Pre: teaching experience; consent of instructor.

**SE 690 INTERNSHIP, SECONDARY (14) I, II**

Full-time teaching under special supervision. Restricted to fifth-year students. First semester work begins September 1, 1965; second semester ends June 10, 1966.

**SE 691 SEMINAR FOR INTERN TEACHERS (2) I, II**

Problems arising from classroom experiences of intern teachers. Restricted to fifth-year students. To be taken concurrently with SE 690.

**SE 699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor and department chairman.



**SE 733 SEMINAR IN CURRICULUM, SECONDARY (3) I, II**

Advanced study in the development and improvement of the curriculum of the secondary schools. Required of Plan B M.Ed. candidates in their final semester or summer session. Pre: SE 636; consent of instructor. May be repeated once for credit.

**SE 737 FOUNDATIONS IN ART EDUCATION (3) II**

Advanced study in the development and growth of art in secondary education. Pre: SE 336, 637, consent of instructor; desirable, Philosophy 500.

## Business Education (Ed BE)

Assistant Professor MORIWAKI

**BE 271 ADVANCED TYPEWRITING (2) I, II**

A technical, terminal course for students preparing for teaching and for employment in the office occupations. Stresses advanced typing problems and emphasizes techniques, knowledges, and skills involved in typewriting. Pre: Beginning Typewriting; consent of instructor. Course fee \$2.00.

**BE 272 INTERMEDIATE SHORTHAND (2) I, II**

Comprehensive study of principles and theory of Gregg Shorthand; dictation speed building and vocabulary building emphasized; introduction to transcription. Pre: Beginning Gregg Shorthand; consent of instructor.

**BE 273 BUSINESS AND SECRETARIAL MACHINES (2) I, II**

Operation of adding machines and rotary calculators; application of calculating machines to problems in accounting, payroll, cost calculations, and other business computations; use of machines in statistical computations. Course fee \$2.00.

## Industrial Education (IE)

Associate Professor POYZER

**IE 101 WOOD FABRICATION AND TECHNOLOGY (3) I**

Fundamental operations and technology of wood fabrication. Design and fabrication of projects. Course fee \$10.00.

**IE 102 METAL FABRICATION AND TECHNOLOGY (3) I**

Fundamental operations in metal fabrication. Projects in benchmetal, sheetmetal, tempering, machining. Course fee \$10.00.

**IE 107 BASIC DRAFTING AND DESIGN FOR INDUSTRIAL EDUCATION (3) I**

Drafting and design as the language of industry; basic drafting and design principles and techniques, perspective, orthographic, isometric, and development problems; contemporary design as applied to fabrication.

**IE 108 DRAFTING AND DESIGN FOR INDUSTRIAL EDUCATION (3) II**

Continuation of IE 107. Machine and assembly drafting; auxiliary views and sectioning, architectural and technical illustration.

**IE 201 ELECTRICITY (3) I**

Series and parallel circuits, magnetism, electromagnetism, measuring instruments, generator and motor principles. Course fee \$10.00.

**IE 202 ELECTRICITY (3) II**

Circuits, coils, motors, generators, transformers; inductance; conduit wiring; radio. Course fee \$10.00.

**IE 206 POWER MECHANICS (3) I**

Basic power units: internal combustion engines. Experience with hand tools in repair of two- and four-cycle engines.

**IE 300 INDUSTRIAL CRAFTS—JEWELRY AND LAPIDARY (2) I**

Design, processes, and materials of jewelry making; lapidary processes and materials for polishing semi-precious gemstones; black coral polishing and mounting.

**IE 301 INDUSTRIAL CRAFTS—LEATHER (2) II**

Design and fabrication of leather products. Materials and processes taught through creative projects and problems.

**IE 302 INDUSTRIAL CRAFTS—PLASTICS AND WOOD SCULPTURE (2) II**

Design and fabrication of plastics projects; materials and processes of metal enameling; other industrial crafts native to Hawaii.

**IE 303 ADVANCED WOOD FABRICATION AND TECHNOLOGY (3) II**

Nomenclature, setup, and operation of power equipment. Design, patterns, jigs, and templates; production procedures. Course fee \$10.00.

**IE 304 ADVANCED METAL FABRICATION AND TECHNOLOGY (3) II**

Organization, layout, equipment, management, uses of instructional material. Selected projects in benchmetal, forging, heat-treating, machine shop, oxyacetylene welding, and cutting. Course fee \$10.00.

**IE 307 ADVANCED DRAFTING AND DESIGN (3) II**

Drafting and design principles in fabrication of industrial products; problems of wood, metal, other materials; architectural drafting. Application to instruction.

**IE 309 THE GRAPHIC ARTS (3)**

Survey course for industrial education majors and others desiring experiences in printing and allied industrial processes. Job press, multilithography, photography as applied to printing, and related technical and production processes.

**IE 348 INDUSTRIAL ARTS FOR ELEMENTARY TEACHERS (2)**

Hand and simple machine tool instruction taught through selected elementary education projects and units.

**IE 401 PROBLEMS IN INDUSTRIAL EDUCATION (Arr.) I, II**

A program arranged for specialization in several technical areas. May be repeated for total of 5 credits.

**IE 402 IMPROVEMENT OF INSTRUCTION, INDUSTRIAL EDUCATION (Arr.) I, II**

Consideration of problems in teaching industrial education. May be repeated for total of 5 credits.

**IE 764 SEMINAR IN INDUSTRIAL EDUCATION (2) II**

Individual study of special problems.

# **COLLEGE OF ENGINEERING**

**THE COLLEGE OF ENGINEERING** prepares students for civil, electrical, mechanical, and general engineering.

## **ADMISSION AND DEGREE REQUIREMENTS**

Engineering programs require special preparation in addition to the requirements for admission to the University (pp. 21-25). Students are selected for the College of Engineering on the basis of aptitude tests and high school records. Those who lack the required special preparation, or who are unable to carry heavy academic schedules, or who elect advanced military or air science, usually need more than four years to meet degree requirements, and should plan on a five-year program.

To be eligible for the bachelor of science degree a student must:

- 1) Complete the course requirements for one of the curricula;
- 2) have an aggregate of 130 semester hours of credit;
- 3) have a 2.0 grade-point ratio for all registered credits;
- 4) have a 2.0 grade-point ratio for all upper division courses in the major department.

## **CURRICULA**

Four-year curricula lead to the degree of bachelor of science in civil, electrical, general, or mechanical engineering. These curricula are designed as three integrated programs to prepare the student to undertake the responsibility of an engineer:

- 1) Humanistic and social studies, to promote an understanding of the responsibilities of a free man.
- 2) Mathematics, physical science, and engineering science, to promote an understanding of the sciences underlying engineering.
- 3) Engineering analysis and design, to promote specialization in one field.

The first-year courses are common to all curricula.

### Common First Year

FIRST SEMESTER	CREDITS	SECOND SEMESTER	CREDITS
Chem 103 General Chemistry	4	Chem 104 General Chemistry	4
GE 100 Orientation	0	Eng 102 Expository Writing	3
CE 105 Engineering Graphics	3	Health & Phys. Ed.	1
Eng 101 Expository Writing	3	Math 136 Calculus II	4
Health & Phys. Ed.	1	Phys 170 General Physics	3
Math 135 Calculus I*	4	Phys 171 General Physics Lab	1
Sp 140 Fund. of Oral Comm.	2		
Total	17	Total	16

### Civil Engineering Curriculum

#### SECOND YEAR

CE 111 Surveying I	2	CE 112 Surveying II	3
CE 170 Applied Mechanics I	3	CE 271 Applied Mechanics II	3
CE 110 Computer Programming	1	Hist 171 American History	3
Eng 155 Literature	3	Math 232 Advanced Calculus II	3
Math 231 Advanced Calculus I	3	Phys 174 General Physics	4
Phys 172 General Physics	3		
Phys 173 General Physics Lab	1		
Total	16	Total	16

#### THIRD YEAR

CE 220 Fluid Mechanics I	3	CE 222 Fluid Mechanics II	3
CE 221 Hydraulic Lab	1	CE 274 Mechanics of Materials	3
CE 241 Mechanics of Materials Lab	1	CE 351 Soil Mechanics	3
CE 273 Mechanics of Materials	4	ME 231 Thermodynamics	3
EE 102 Electrical Science	3	Econ 150 Principles of	3
Elective (Human. or Soc. Studies)	3	Elective (Human. or Soc. Studies)	3
Math Elective†	3		
Total	18	Total	18

#### FOURTH YEAR

CE 331 Sanitary Engineering	3	GE 301 Engineering Management	3
CE 360 Transportation Engineering	3	CE Electives†	6 or 7
CE 380 Structural Design	4	Eng 210 or 215	3
CE 321 Hydraulics or CE 385 Structural Analysis	3	Elective (Human. or Soc. Studies)	3
Elective (Human. or Soc. Studies)	3		
Total	16	Total	15 or 16

\*Math 103 may be required if math preparation is inadequate.

†Any math course numbered 200 or above.

‡CE Electives: CE 325, 326; or CE 386, 388; or CE 362, 364; Science Electives. Approved by adviser.

## Electrical Engineering Curriculum

### SECOND YEAR

FIRST SEMESTER	CREDITS	SECOND SEMESTER	CREDITS
CE 170 Applied Mechanics I	3	CE 271 Applied Mechanics II	3
GE 110 Computer Programming	1	EE 211 Circuit Theory I	3
Econ 150 Principles of	3	Hist 171 American History	3
Eng 155 Literature	3	Math 232 Advanced Calculus II	3
Math 231 Advanced Calculus I	3	Phys 174 General Physics	4
Phys 172 General Physics	3	Phys 253 Electrical Measurements	1
Phys 173 General Physics Lab	1		
Total	17	Total	17

### THIRD YEAR

ME 243 Mechanics of Solids	3	EE 221 Electronics I	3
EE 212 Circuit Theory II	5	EE 232 Traveling Waves Lab	1
EE 223 Circuits Laboratory	1	EE 242 Traveling Waves	3
Math 401 Differential Equations	3	EE 351 Energy Conversion	3
Phys 440 Physical Electronics	3	EE 353 Conversion Lab	1
Phys 350 Electricity & Magnetism	3	Phys 550 Electromagnetic Waves	3
		Elective (Human. or Soc. Studies)	3
Total	18	Total	17

### FOURTH YEAR

EE 321 Electronics II	3	EE 373 Electives Lab II	1
EE 323 Electronics Lab	1	ME 231 Thermodynamics	3
EE 322 Electives Lab I	1	Electives (Technical)*	6
Elective (Technical)*	6	Electives (Human. or Soc. Studies)	6
Eng 210 or 215	3		
Elective (Human. or Soc. Studies)	3		
Total	17	Total	16

\*Technical Electives: Any mathematics, physics, or engineering courses numbered 200 or above approved by adviser; at least 6 credits must be in electrical engineering courses.

**General Engineering Curriculum**

**SECOND YEAR**

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
GE 110 Computer Program	1	CE 271 Applied Mechanics II	3
CE 111 Surveying I	2	Econ 150 Principles of	3
CE 170 Applied Mechanics I	3	Hist 171 American History	3
Eng 155 Literature	3	Math 232 Advanced	
Math 231 Advanced		Calculus II	3
Calculus I	3	Phys 174 General Physics	4
Phys 172 General Physics	3		
Phys 173 General Physics Lab	1		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

**THIRD YEAR**

CE 241 Mechanics of		CE 220 Fluid Mechanics I	3
Materials Lab	1	CE 221 Hydraulics Lab	1
CE 273 Mechanics of		CE 274 Mechanics of	
Materials	4	Materials	3
ME 231 Thermodynamics	3	EE 102 or 211	3
Math 401 Differential		ME 232 Adv.	
Equations	3	Thermodynamics	3
Phys 350 Electricity		Elective (Human. or Soc.	
& Magnetism	3	Studies)	3
Elective (Human. or Soc.			
Studies)	3		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>

**FOURTH YEAR**

Eng 210 or 215	3	EE 221 Basic Electronics Lab	3
EE 203 or 223	1	Elective (Human. or Soc.	
EE 301 or 212	3	Studies)	3
ME 366 Materials Science	3	Electives—12 credits	12
Phys 440 Physical Electronics	3	(Schedule a, b, c, or d)*	
Elective (Human. or Soc.			
Studies)	3		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>18</b>

\*(a) EE 223, 232, 242, 351, 353; Phys 550.

(b) ME 234, 367, 371, 373, 374, 382, 475.

(c) CE 112, 222, 321, 331, 351, 360, 380, 385.

(d) GE 301; BAS 301; Mgt 300; PIR 300, 310, 330, 350.

## Mechanical Engineering Curriculum

### SECOND YEAR

FIRST SEMESTER	CREDITS	SECOND SEMESTER	CREDITS
CE 170 Applied Mechanics I	3	CE 271 Applied Mechanics II	3
Econ 150 Principles of	3	GE 110 Computer Programming	1
Eng 155 Literature	3	Hist 171 American History	3
Math 231 Advanced Calculus I	3	Math 232 Advanced Calculus II	3
Phys 172 General Physics	3	Phys 174 General Physics Elective (Human. or Soc. Studies)	4
Phys 173 General Physics Lab	1		3
	16		17
<b>Total</b>		<b>Total</b>	

### THIRD YEAR

ME 230 Mechanics of Fluids	3	ME 232 Applied Thermodynamics	3
ME 231 Thermodynamics	3	ME 234 Measurements Lab	2
ME 243 Mechanics of Solids	3	ME 367 Materials Processing	3
ME 366 Materials Science	3	ME 371 Dynamics of Machinery	3
Math 401 Differential Equations	3	EE 102 Electrical Science Elective (Human. or Soc. Studies)	3
Elective (Human. or Soc. Studies)	3		3
	18		17
<b>Total</b>		<b>Total</b>	

### FOURTH YEAR

ME 333 Mechanical Engr. Lab	2	ME 374 Intro. to Engr. Design	4
ME 373 Optimum Design of Mechanical Elements	3	EE 203 Electr. Science Lab	1
ME 475 Heat Transfer	3	Electives (Technical)*	9
EE 301 Electronics Circuits	3	Elective (Human. or Soc. Studies)	3
Eng 210 or 215	3		
Elective (Technical)*	3		
	17		17
<b>Total</b>		<b>Total</b>	

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\*Technical Electives: Any mathematics, physics, or engineering courses numbered 200 or above approved by adviser, six credits must be ME courses

### **HUMANISTIC—SOCIAL STUDIES ELECTIVES**

The Humanistic—Social Studies Program requires each student to complete English 155, History 171, and Economics 150; and four elective courses. Two of the elective courses may be lower-division courses. Students should select these lower-division courses to meet the departmental prerequisites for the remaining two humanistic—social studies electives of their choice, which must be upper-division courses.

Humanistic—social studies electives may be any combination of courses (other than such technical courses as Economics 420—421, Geography 235, or Psychology 220, 226) from anthropology, art, drama, English, economics, geography, history, music, philosophy, political science, psychology, religion, sociology, or speech which meet the above requirements.

### **ENGINEERING EXPERIMENT STATION**

The functions of the Station are to encourage and administer engineering research. It sponsors research in structural engineering, water resources development, sewage disposal, electronics, microwaves, and atmosphere ionization. In cooperation with the Hawaii Institute of Geophysics, it conducts research in the hydrodynamics of tsunamis.

### **ENGINEERING COURSES**

*See p. 46 for a discussion of course descriptions.*

*Chemistry 104, English 102, and Speech 140, or equivalent, are prerequisite to all courses numbered 200 or above.*

*Students who register in courses for which they have not met all prerequisites may be required to withdraw at any time during the course. Prerequisites may be waived with written permission of the Dean of College.*

### **Civil Engineering (CE)**

Professors CHIU, DANIEL, EVANS, GO, TINNISWOOD; Associate Professors HASSELWOOD, JORDAAN, LAU, MITSUDA, YUEN; Assistant Professors HUMMEL, WILLIAMS; Instructors CHAN, MIKASA, YUASA

#### **CE 111 SURVEYING I (2) I (1 L, 1 Lb)**

Basic principles, computations, and use of instruments involving horizontal and vertical measurements. Pre: Math 102; GE 101 or GE 105. Course fee \$3.00.



**CE 112 SURVEYING II (3) II (2 L, 1 Lb)**

Topographic mapping; curves; earthwork; computer applications; route problems. Pre: Mathematics 140; CE 111, GE 110. Course fee \$3.00.

**CE 170 APPLIED MECHANICS I (3) I, II**

Equilibrium of particles, rigid bodies, frames and machines; vectors, centroids, friction, and moments of inertia. Pre: Mathematics 141; Physics 170.

**CE 220 FLUID MECHANICS I (3) I, II**

Properties of fluids, fluid statics, kinematics and kinetics; principles of momentum and energy; real fluid effects. Pre: CE 271 or Physics 310.

**CE 221 HYDRAULICS LABORATORY (1) I, II**

Experiments and demonstrations in fluid flow in closed conduits, fluid measurements and hydraulic machinery. Pre: credit or concurrent registration in CE 220. Course fee \$1.00.

**CE 222 FLUID MECHANICS II (3) II**

Principles of ideal and real fluid flow applied to incompressible fluids with introduction to compressible fluid motion. Pre: CE 220.

**CE 241 MECHANICS OF MATERIALS LABORATORY (1) I, II (1 Lb)**

Introduction to experimental techniques, observation of materials under various loading conditions. Pre: credit or concurrent registration in CE 273. Course fee \$4.00.

**CE 271 APPLIED MECHANICS II (3) I, II**

Dynamics of particles and rigid bodies, impulse-momentum, work-energy. Pre: CE 170, Mathematics 142.

**CE 273 MECHANICS OF MATERIALS I (4) I, II (3 L, 1 Lb)**

Elastic stress strain relationships and the behavior of structural members under flexural, torsional, and axial loading. Pre: CE 170; Mathematics 143.

**CE 274 MECHANICS OF MATERIALS II (3) II**

Inelastic behavior, unsymmetrical bending, curved beams, torsion, energy methods, buckling. Pre: CE 273.

**CE 311 PHOTOGRAMMETRY (3) I**

Basic principles; photographic equipment; control, method of compilation; mosaics. Pre: CE 112. Course fee \$2.00.

**CE 321 HYDRAULICS (3) I**

Non-uniform flow, hydraulic jump, backwater curves, flood routing, water hammer, pipe networks, hydraulic machinery. Pre: CE 220.

**CE 325 APPLIED HYDROLOGY (3) II**

Occurrence and movement of water by natural processes including rainfall, runoff, evaporation, transpiration and infiltration. Engineering applications. Pre: CE 220.

**CE 326 HYDRAULIC DESIGN (4) II (3 L, 1 Lb)**

Hydraulic design projects; feasibility studies; preliminary and detail design. Dams, canals, gates, energy dissipators and culverts. Pre: CE 321, CE 380, and credit or concurrent registration in CE 325.

**CE 331 SANITARY ENGINEERING (3) I**

Design, construction, and maintenance of water works; water purification and control. Pre: CE 220.

**CE 332 SANITARY ENGINEERING (3) II**

Design, construction, and maintenance of sewage works; sewage and industrial waste treatment. Pre: CE 331.

**CE 351 SOIL MECHANICS (3) I, II (2 L, 1 Lb)**

Soil classification, elementary soil mechanics theory and practice. Pre: CE 273.

**CE 360 TRANSPORTATION ENGINEERING (3) I**

Introduction to the technology of transportation systems. Historical development, economics, planning, administration, geometric design, operation. Pre: CE senior or permission of instructor.

**CE 362 ADVANCED TRANSPORTATION ENGINEERING (3) II**

Highway and airport pavement design and construction, traffic engineering, urban transportation studies. Pre: CE 351 and 360.

**CE 364 SOILS AND FOUNDATION ENGINEERING (4) II (3 L, 1 Lb)**

Application of soil mechanics to highways, airports, dams and foundations. Pre: CE 351.

**CE 380 STRUCTURAL DESIGN (4) I (3 L, 1 Lb)**

Design of elements of steel and reinforced concrete structures. Introduction to ultimate strength theory. Pre: CE 273.

**CE 385 STRUCTURAL ANALYSIS (3) I**

Plane frameworks, graphical methods, influence lines, deflection and stress analysis of structures by classical methods. Pre: CE 273.

**CE 386 STRUCTURAL DESIGN II (4) (3 L, 1 Lb)**

Continuation of CE 380. Design of structural systems in timber, steel and reinforced concrete, introduction to prestressed concrete design. Design project. Pre: CE 380 and credit or concurrent registration in CE 388.

**CE 388 ADVANCED STRUCTURAL ANALYSIS (3) II**

Analysis of indeterminate beams, rigid frames, trusses, arches and space frames by classical methods, moment distribution, introduction to matrix analysis. Pre: CE 385.

**CE 399 SPECIAL PROBLEMS (Arr.) I, II**

Individual investigation in civil engineering topics as approved by instructor. Limited to seniors with 2.7 overall grade-point ratio, or 3.0 grade-point ratio in engineering.

**CE 601-602 ENVIRONMENTAL AND SANITARY ENGINEERING SEMINAR (1-1) Yr.**

Selected topics in environmental and sanitary engineering. Pre: consent of instructor.

**CE 621 ADVANCED FLUID MECHANICS I (3) I**

Ideal and real fluid, potential flow and conformal mapping, vortex motion, theory of waves in deep and shallow water, gas dynamics, laminar and turbulent flow. Pre: Mathematics 401, CE 222 or consent of instructor.

**CE 622 ADVANCED FLUID MECHANICS II (3) II**

Continuation of CE 621. Theory of turbulence, boundary layer, drag diffusion, other topics of advanced fluid mechanics. Pre: CE 621.

**CE 623 GROUND-WATER HYDROLOGY (3) I**

Ground-water occurrence, flow, quality, conservation, development and management. Hydromechanics of ground-water flow and water-well problems. Pre: CE 325 or consent of instructor.

**CE 624 FLOW IN POROUS MEDIA (3) II**

Applications of fluid mechanics to flow of single-phase and multi-phase fluids in porous media. Pre: consent of instructor.

**CE 625 OCEAN ENGINEERING (3) I**

Principles of ocean engineering as an application of the knowledge of fluid mechanics and oceanography to engineering problems encountered in coastal and marine environments. Pre: consent of instructor.

**CE 626 COASTAL AND HARBOR ENGINEERING (3) II**

Solution of practical problems related to planning, design, construction and maintenance of beaches, harbors and other coastal structures. Pre: consent of instructor.

**CE 631 ENVIRONMENTAL AND SANITARY ENGINEERING THEORY I (3) I**

A study of the principles and unit processes involved in water and air resources problems, including water sources purification principles, distribution, and air pollution control. Pre: consent of instructor.

**CE 632 ENVIRONMENTAL AND SANITARY ENGINEERING THEORY II (3) II**

Principles of waste water and solids of waste handling, treatment and re-use, and a study of the factors involved in disposal of waste to natural waters. Pre: CE 631.

**CE 633 ENVIRONMENTAL AND SANITARY ENGINEERING DESIGN I (3) I (1 L, 2 Lb)**

The functional design of modern water and air purification systems. Pre: consent of instructor.

**CE 634 ENVIRONMENTAL AND SANITARY ENGINEERING DESIGN II (3) II (1 L, 2 Lb)**

The functional design of modern waste water and solids waste treatment systems. Pre: CE 633.

**CE 635 ENVIRONMENTAL AND SANITARY ENGINEERING CHEMISTRY (4) I (2 L, 2 Lb)**

The chemistry of water, waste waters and air, including instrumentation and process control evaluations and interpretations of results as used in practice. Pre: consent of instructor.

**CE 636 ENVIRONMENTAL AND SANITARY ENGINEERING MICROBIOLOGY (4) (2 L, 2 Lb)**

Fundamental microbiology involved in environmental engineering processes and research with special emphasis on mixed culture systems, biochemistry, and physiological chemistry. Pre: consent of instructor.

**CE 637 ENVIRONMENTAL AND SANITARY ENGINEERING LABORATORY (3) II (2 L, 1 Lb)**

Studies of the chemistry and physics of the various unit processes and waste water and solids waste treatment, including the laboratory work necessary for the development of design criteria and the operation and control of these systems. Pre: consent of instructor.

**CE 638 ENVIRONMENTAL AND SANITARY ENGINEERING PUBLIC HEALTH (3) II**

Characteristics of diseases, means of transmission and means of prevention through control of environment with special emphasis on public health administration, biostatistics, insect and rodent control, and industrial hygiene. Pre: consent of instructor.

**CE 651 ADVANCED SOIL MECHANICS I (3) I (2 L, 1 Lb)**

Problems in design of retaining walls, footings, piles; loading test on piles and footings; analysis and presentation of soil test data. Pre: consent of instructor.

**CE 652 ADVANCED SOIL MECHANICS II (3) II (2 L, 1 Lb)**

Continuation of CE 651 to include settlement, seepage, embankment stability, sheet piling and tunnels. Pre: CE 651.

**CE 671 THEORY OF ELASTICITY (3) I**

Plane stress and plane strain problems. Equilibrium and compatibility. Stress functions. Bending of beams. Analysis of stress and strain in three dimensions. Pre: consent of instructor.

**CE 672 PLATES AND SHELLS (3) II**

Small deflection theory for rectangular and circular plates with various boundary conditions. Membrane stresses in shells of revolution. Cylindrical shells. Pre: CE 671.

**CE 674 THEORY OF ELASTIC STABILITY (3) II**

Elastic and inelastic buckling of columns. Lateral buckling of beams. Stability of frameworks and elastically supported columns. Pre: CE 671.

**CE 675 THEORY OF VIBRATIONS (3) I**

Principal modes and natural frequencies of discrete and continuous elastic systems. Approximate methods. Forced motions, damping effects and wave propagation. Pre: consent of instructor.

**CE 676 STRUCTURAL DYNAMICS (3) II**

Dynamic disturbances, free and forced vibration of structures with single-degree and multi-degree of freedom, elastic and inelastic beams, response of structures to dynamic loading. Pre: CE 675.

**CE 681 ADVANCED INDETERMINATE STRUCTURES (3) I**

Elastic center, column analogy, indeterminate trusses, arches, influence lines, elements of matrix analysis and introduction to plastic theory. Pre: consent of instructor.

**CE 682 NUMERICAL METHODS OF STRESS ANALYSIS (3) II**

Finite difference, relaxation, and matrix methods applied to analysis of structural systems. Computer applications. Pre: CE 681.

**CE 683 ADVANCED REINFORCED CONCRETE DESIGN I (3) I**

Ultimate strength theory, prestressed concrete, composite beams using precast and cast-in-place concrete, rigid frames and slabs. Pre: consent of instructor.

**CE 684 ADVANCED REINFORCED CONCRETE DESIGN II (3) II**

Continuation of 683. Spherical, cylindrical and hyperbolic paraboloid shells, circular and rectangular tanks, folded plates structures. Pre: CE 683.

**CE 685 ADVANCED DESIGN OF METAL STRUCTURES (3) II**

Theory of limit design. Plastic behavior of structural materials, principles of upper and lower bound, statical method, mechanism method, semi-graphical method. Design of continuous beams, rigid frames, and multi-story structures. Pre: CE 681.

**CE 687-688 SEMINAR (1-1) Yr.**

Selected topics in civil engineering. Pre: consent of instructor.

**CE 699 DIRECTED READING OR RESEARCH (Arr.) I, II**

Pre: consent of instructor.

**CE 800 THESIS RESEARCH (Arr.)**

## Electrical Engineering (EE)

Professors GOTT, MESERVE, PETERSON; Associate Professors GRANBORG, YUEN;  
Assistant Professors NAJTA, ROELOFS, SEO

**EE 102 ELECTRICAL SCIENCE (3) I, II (3 L)**

Development of electrical science concepts from physics of electricity and magnetism. For non-electrical engineers. Pre: Math 142; Phys 172.

**EE 203 ELECTRICAL SCIENCE LABORATORY (1) I, II (1 Lb)**

Application of electric and magnetic field concepts to circuits, machines, and electronics. For non-electrical engineers. Pre: EE 102. Course fee \$2.00.

**EE 211 CIRCUIT THEORY I (3) II (3 L)**

Analysis of electrical circuits. Transform methods. Topology. Pre: Phys. 172; registration in Math 143.

**EE 212 CIRCUIT THEORY II (5) I (5 L)**

Inverse transformations. Complex variables. Circuit synthesis. Pre: EE 211; registration in Math 401.

**EE 221 ELECTRONICS I (3) II (3 L)**

Study of properties of electron tubes and semiconductor devices and their application as circuit elements. Pre: EE 211; Phys 440.

**EE 223 CIRCUITS LABORATORY (1) I (1 Lb)**

Laboratory for EE 212. Pre: EE 211; registration in EE 212. Course fee \$3.00.

**EE 232 TRAVELING WAVES AND NETWORKS LABORATORY (1) II (1 Lb)**

Experiments on the properties of linear active networks and distributed-parameter systems. Pre: registration in EE 221, 242. Course fee \$4.00.

**EE 242 TRAVELING WAVES (3) II (3 L)**

Analysis of distributed-parameter systems. Application to transmission lines and waves in gases, liquids, and solids. Pre: EE 211; Math 401; registration in Phys 550.

**EE 301 ELECTRONICS CIRCUITS (3) I (3 L)**

Analysis and synthesis of electrical networks and systems. For non-electrical engineers. Pre: EE 102.

**EE 321 ELECTRONICS II (3) I (3 L)**

Theory and design of oscillators, waveforming circuits, modulators, demodulators, and logic circuits. Instrumentation. Pre: EE 212, 221.

**EE 322 ELECTIVES LABORATORY I (1) I (1 Lb)**

Laboratory for EE 362 and 372. Pre: registration in EE 362 or 372. Course fee \$2.00.

**EE 323 ELECTRONICS LABORATORY (1) I (1 Lb)**

Laboratory for EE 321. Pre: registration in EE 321. Course fee \$4.00.

**EE 351 ELECTROMECHANICAL ENERGY CONVERSION (3) II (3 L)**

Application of electric and magnetic field principles to energy flow between electrical and mechanical systems. A.c. and d.c. machines. Transformers. Pre: EE 211; Phys 350.

**EE 352 SYNCHRONOUS MACHINES AND POWER SYSTEMS (3) II (3 L)**

Analysis of rotating machines. Relationships of machine characteristics to power system characteristics. Pre: EE 242, 351, 362.

**EE 353 ELECTROMECHANICAL ENERGY CONVERSION LABORATORY (1) II (1 Lb)**

Experiments on electromechanical energy conversion using a generalized machine. Pre: registration in EE 351. Course fee \$4.00.

**EE 362 FEEDBACK CONTROL (3) I (3 L)**

Concept, analysis, and synthesis of feedback control systems. Pre: credit or registration in EE 321, 351.

**EE 372 MICROWAVES (3) I (3 L)**

Theory and techniques for microwave frequencies. Tubes and systems. Pre: EE 242; Phys 550; registration in EE 321.

**EE 373 ELECTIVES LABORATORY II (1) II (1 Lb)**

Laboratory for EE 374 and 376. Field trips. Pre: registration in EE 374 or 376. Course fee \$2.00.

**EE 374 COMMUNICATION SYSTEMS (3) II (3 L)**

Systems approach to communication channels. Modulation and demodulation. Propagation. Pre: EE 242, 321; Phys 550.

**EE 376 ELECTRONIC INFORMATION PROCESSING (3) II (3 L)**

Theory and design of analog and digital computers. Applications. Pre: EE 321.

**EE 396 PROJECT (2) I, II**

Investigation of advanced engineering problems. Pre: senior standing.

**EE 399 SPECIAL PROBLEMS (Arr.) I, II**

Research or development problem. Pre: senior standing with 3.0 grade-point ratio in major field.

**EE 601-602 ELECTROMAGNETIC THEORY AND APPLICATIONS (3-3) Yr. (3 L)**

Solutions and applications of Maxwell's equations to radiation and propagation of electromagnetic waves. Pre: Phys 550; Math 401 or equivalent.

**EE 603 ACTIVE NETWORK ANALYSIS (3) I (3 L)**

Systems using active nonlinear, electron beam, magnetic, superconducting, and quantum-mechanical devices. Pre: EE 372, 374 or equivalent.

**EE 604 MAGNETO-IONIC THEORY (3) II (3 L)**

Electromagnetic waves in ionized media with a superimposed magnetic field. Applications. Pre: EE 601.

**EE 605-606 NETWORK SYNTHESIS (3-3) Yr. (3 L)**

Properties of driving-point and transfer immittances, lossless and lossy. Approximation techniques. Transfer function synthesis and techniques using active elements. Pre: EE 212 or equivalent.

**EE 607 ENERGY-STATE DEVICES (3) I (3 L)**

Devices using quantum-mechanical, electromagnetic, superconduction, and other physical phenomena. Feasibility. Pre: Phys 440, 550, EE 372 or equivalent.

**EE 608 ANALYSIS OF NONLINEAR SYSTEMS (3) II (3 L)**

Properties of stability, singular points, limit cycles. Analysis techniques. Realizability of solutions. Pre: Math 401; EE 321, 362 or equivalent.

**EE 621-622 ADVANCED MICROWAVE THEORY (3-3) Yr. (3 L)**

Advanced topics in microwave theory. Pre: EE 372; Phys 550; or equivalent.

**EE 631 ADVANCED ELECTRONIC INSTRUMENTATION (3) I (3 L)**

Electronic conversion transducers for control and measurements; special-purpose amplifiers; analog and digital components and circuits; applications. Pre: EE 321 or equivalent.

**EE 641 STATISTICAL COMMUNICATIONS THEORY (3) I (3 L)**

Statistical approach to electrical communications theory. Pre: EE 374.

**EE 651 ADVANCED FEEDBACK CONTROL SYSTEMS (3) I (3 L)**

Analytical and numerical methods for the investigation and solution of nonlinear control systems, derivation of z-forms, the phase plane, describing function techniques, relay systems, sampled-data systems, nonlinear compensation techniques, adaptive control systems. Pre: EE 362 or equivalent.

**EE 652 OPTIMIZATION TECHNIQUES IN CONTROL SYSTEMS (3) II (3 L)**

State-space concepts, solution of matrix-differential equations, state vectors and the fundamental matrix, development of the maximum principle, minimum time and minimum energy problem, generalized performance criteria, effects of inaccuracies of components, optimum design of adaptive control. Pre: EE 362 or equivalent.

**EE 655 SAMPLED-DATA CONTROL SYSTEMS (3) II (3 L)**

Theory and applications of sampled-data control systems. Pre: EE 362 or equivalent.

**EE 661 THEORY AND DESIGN OF DIGITAL MACHINES (3) I (3 L)**

The concept of a register, Boolean algebra and simplification techniques. Sequential switching circuit theory. Arithmetic operations. General purpose machines. An introduction to Turing machines. Pre: EE 376 or equivalent.

**EE 663 INFORMATION THEORY (3) I (3 L)**

A measure of information and its properties. Information sources and minimum redundancy coding. Noisy channels and their capacity. Error-correcting codes. Pre: Math 472 or equivalent.

**EE 665 SIGNALS AND RANDOM NOISE (3) II (3 L)**

Spectral analysis, noise, gaussian noise, sampling, filtering prediction, detection. Pre: Math 472 or equivalent.

**EE 672 MAGNETOHYDRODYNAMICS (3) II (3 L)**

Motion of an electrically-conducting fluid in the presence of a magnetic field. Pre: Phys 550 or equivalent.

**EE 697-698 SEMINAR IN ELECTRICAL ENGINEERING (1-1) Yr.**

Pre: graduate standing, consent of instructor.

**EE 699 DIRECTED READING OR RESEARCH (Arr.) I, II**

Pre: graduate standing, consent of instructor.

**EE 800 THESIS RESEARCH (Arr.) I, II**

Pre: candidacy for M.S. in EE.

## General Engineering (GE)

Senior Professor HOLMES; Associate Professors AVERY, CORBA; Instructors LANDSTREET,  
SMITH

**GE 100 ENGINEERING ORIENTATION (0) I**

Nature of the engineering profession and the aims of engineering education.

**GE 101 ENGINEERING GRAPHICS (2) I, II (1 L, 2 Lb)**

Applied geometry, orthographic and pictorial instrument drawing and sketching, dimensioning, auxiliary and section views. Fundamentals in analysis and solution of spatial problems pertaining to points, lines, and planes. Primarily for those students who are deficient in high school mechanical drawing.

**GE 102 ENGINEERING GRAPHICS (2) I, II (1 L, 2 Lb)**

Continuation of GE 101 in analyzing and solving spatial problems pertaining to points, lines, planes and their application to engineering. Surface intersections, vector geometry, and graphical calculus. Pre: GE 101.

**GE 105 ENGINEERING GRAPHICS (3) I, II (1 L, 2 Lb)**

Analysis and solution of spatial problems pertaining to points, lines, and planes, and their application to engineering. Surface intersections, vector geometry, and graphical calculus. Pre: 1 year high school mechanical drawing. Not open to students who have credit in GE 102.

**GE 110 DIGITAL COMPUTER PROGRAMMING (1) I, II**

Introduction to FORTRAN language and application to engineering problems using IBM 7040. Pre: Math 141. Course fee \$2.00.

**GE 301 ENGINEERING MANAGEMENT (3) I, II**

Business, legal and economic aspects of engineering. Pre: Graduation in one calendar year.

## Mechanical Engineering (ME)

Professor DOWNS; Associate Professors CHAI, STUIVER; Assistant Professors CHOU, LARSEN-BADSE, MUNCHMEYER

**ME 230 MECHANICS OF FLUIDS (3) I**

Incompressible and compressible ideal fluids, effects of viscosity. Similitude, boundary layer flow, and elementary gas dynamics. Pre: Phys 172; Math 143.

**ME 231 THERMODYNAMICS (3) I, II**

Basic laws. Work, heat, and the concept of entropy. Perfect gases, mixtures. Availability, irreversibility and efficiency. Pre: Phys 172; Math 143.

**ME 232 APPLIED THERMODYNAMICS (3) II**

Thermodynamic principles of reciprocating machines, turbomachinery, and jet propulsion. Power and refrigeration cycles. Combustion. Pre: ME 230, 231.

**ME 234 MEASUREMENTS LABORATORY (2) II**

Techniques of engineering measurements. Methods, instruments, and computation procedures. Applications to typical problems. Pre: ME 230, 231.

**ME 243 MECHANICS OF SOLIDS (3) I**

Analysis of deformable bodies. Stresses, strains, and criteria for yielding and fracture. Torsion, bending, and buckling. Pre: CE 170; Math 143.

**ME 333 MECHANICAL ENGINEERING LABORATORY (2) I**

Performance analysis and testing of machines, engines, and systems. Experiments in automatic control. Special projects. Pre: ME 234.

**ME 340 INTRODUCTION TO NUCLEAR ENGINEERING (3) II**

Principles of nuclear reactors. Thermal and mechanical design aspects of nuclear power plants. Pre: ME 232, 243.

**ME 341 INTERNAL COMBUSTION ENGINES (3) I**

Principles, performance, and analysis of internal combustion engines. Pre: ME 232.

**ME 342 AIR CONDITIONING AND REFRIGERATION (3) I**

Refrigeration processes, psychrometrics, solar radiation. Applications to air conditioning design. Pre: ME 232.



**ME 343 AUTOMATIC CONTROL (3) II**

Fundamentals of control theory. Components and systems, response and stability. Applications to mechanical and industrial processes. Pre: ME 234, Math 401.

**ME 344 TURBOMACHINERY (3) II**

Theoretical analysis of energy transfer between fluid and rotor; principles, performance, and design of compressors and turbines. Pre: ME 232.

**ME 346 INTRODUCTION TO GAS DYNAMICS (3) II**

One-dimensional compressible flow involving change of area, normal shock, friction, and heat transfer. Pre: ME 230, ME 232, Math 401.

**ME 366 MATERIALS SCIENCE (3) I, II**

Behavior of materials as determined by structure and environment. Interrelationships between microscopic and macroscopic structure and phenomenological properties. Pre: Phys 174.

**ME 367 MATERIALS PROCESSING (3) II**

Development, processing and fabrication of engineering materials. Energy requirements of various manufacturing methods and their effect upon material properties. Pre: ME 366.

**ME 371 DYNAMICS OF MACHINERY (3) II**

Dynamic forces in plane-motion and space mechanisms. Gyroscopic effects. Vibration and balancing. Special topics. Pre: CE 271; Math 401.

**ME 373 OPTIMUM DESIGN OF MECHANICAL ELEMENTS (3) I (2 L, 1 Lb)**

Analysis and design of machine components for strength, rigidity, fatigue, etc. Fastenings, transmission devices and selected topics. Pre: ME 243, 367.

**ME 374 INTRODUCTION TO ENGINEERING DESIGN (4) II (2 L, 2 Lb)**

Analysis and synthesis of integrated systems. Feasibility studies, design and decision processes. Techniques of optimization. Pre: ME 373.

**ME 382 POWER PLANTS (3) I**

Steam generators, prime movers, piping design, and plant economy. Solar energy. Introduction to non-electromechanical energy conversion. Pre: ME 232.

**ME 390 PROJECT (Arr.) I, II**

Investigation of advanced problems in mechanical engineering design or development. Pre: senior standing.

**ME 475 HEAT TRANSFER (3) I**

Steady and transient conduction. Fundamentals of radiation and convection. Heat exchangers. Pre: ME 231; Math 401.

# COLLEGE OF GENERAL STUDIES

THE COLLEGE OF GENERAL STUDIES provides facilities for instruction in the evenings at both the Honolulu and Hilo campuses, and in areas away from the University both day and night, enabling many people other than regular day students to broaden their cultural backgrounds, gain an insight into the demands of responsible citizenship, and better prepare themselves for competent participation in the business and professional affairs of the community.

**Unclassified Students.** Besides the regular and special programs listed below, the College administers the academic affairs of those undergraduate students who are not candidates for a degree in another college of the University. Unclassified students may be day or evening, full or part time. Students whose educational objectives do not include completion of a degree normally enroll as unclassified students.

Inasmuch as there is not a required program of study, unclassified students have great latitude in the selection of day or evening courses; however, these students must comply with the general admission and other requirements and regulations of the University (*see pp. 21-25*) except as specifically noted. Unclassified students may not carry more than 18 credit hours, other than in exceptional circumstances; but in the selection of individual courses they are limited only by the requirement that they have the prerequisites, if any, for the courses of their choice.

**Evening Credit Courses.** Concurrent with University regular and summer sessions, a group of basic courses, including nearly all the requirements for the first two years of any degree curriculum and advanced courses needed by substantial groups of evening students, particularly in business, are offered on the campus, usually after 6 P.M. Admission is governed by general University requirements, and regular residence credit is given, including graduate credit where applicable. Evening students with full-time day employment often take two or more courses per semester.

**Off-Campus Credit Courses.** Accelerated programs of evening credit courses are offered four times a year at Hickam Field, Schofield Barracks, Kaneohe Marine Base, Wheeler Air Force Base, Fort Shafter, Tripler Hospital, and other off-campus locations. Courses, particularly in education, are also offered on Kauai, Maui, Hawaii, and sometimes on Molokai and Lanai, either by faculty members commuting from the Manoa campus or by other qualified personnel. Schedules for off-campus

courses are arranged to fit the needs of students when such adjustments are academically acceptable.

In addition to its programs within the state, the College operates an overseas center at Kwajalein. Here, selected courses for credit are given in an effort to meet the needs of personnel, both military and civilian, stationed in the area.

**Non-credit Courses.** Short courses covering selected college-level material in art, business, English, engineering, foreign languages, mathematics, general culture, and other subjects are offered on the campus. These courses are generally offered in the evening.

Sessions begin in January, April, July, and October. Any person with the equivalent of a high school education who can profit from these courses may enroll. Students who regularly attend receive certificates upon completion of their course of study.

**Conferences, Institutes and Workshops.** A division of the College, the Conference Center, serves as a coordinator between the University and the community for framing and administering programs in various subject matter fields. For the most part, these academic programs are professional and postgraduate in character and are scheduled for relatively concentrated periods of time. The Center works closely with various public and private agencies on all levels of community activity and, on the campus, relies to a great degree on the advice of and cooperative working agreements with the several departments and divisions of the University having an interest in a given program. Services of the Center include assistance in planning educational conferences, determining who should attend, establishing advisory committees to work out program details, and preparing conference budgets. For these Center services, scheduling is kept as flexible as possible to accommodate requests as they arise from campus groups, private concerns, the counties, state and federal organizations operating within the state. The College, under Center auspices, also initiates and presents workshops, institutes, and conferences of varied character.

**Special Services.** Other special courses offering training in specific professional or vocational areas, preparing candidates for professional licensing examinations, or supplying University personnel to assist with special local problems are sponsored by the College as needs arise. The College presents an annual Lyceum Series, which includes plays, lectures, play reading, musical, and other educational and cultural events, on the other islands. Special lectures and occasional radio and television broadcasts are also scheduled by the College in behalf of both civilian and military agencies.

A manuscript criticism service for creative writers of fiction, non-fiction, poetry, and drama is available.

Announcements and other information concerning these varied programs will be made available by the College of General Studies upon request.

# COLLEGE OF NURSING

THE COLLEGE OF NURSING offers programs to prepare students for professional nursing, technical nursing, medical technology, and dental hygiene. Bachelor of science degrees are granted for completion of the undergraduate programs in professional nursing and in medical technology. An associate of science degree is granted for work completed in the technical nurse program and a certificate is granted for the two-year program in dental hygiene.

In all programs, advanced air science courses (AS 201, 202, 251, 252) and advanced military science courses (MS 201, 202, 251, 252) will be accepted as electives toward graduation.

A program leading to the master of science in nursing prepares graduates of professional nursing programs for clinical specialist and leadership positions in selected fields of nursing. (*See Graduate Bulletin for further information.*)

## ADMISSION AND DEGREE REQUIREMENTS

Applicants for all programs must meet University admission requirements (pp. 21-25). Further selection is made on the basis of scores on selected tests, quality of high school and/or previous college work and references.

**Bachelor of Science Degree in Nursing.** Complete curriculum requirements and earn at least 130 credits with a grade-point average of at least 2.0 (C) and a grade of C or higher in each major course.

**Bachelor of Science Degree in Medical Technology.** Complete curriculum requirements and earn at least 130 credits with a grade-point average of at least 2.0, and C or higher in each major course.

**Associate of Science Degree in Nursing.** Complete curriculum requirements and earn at least 74 credits with a grade-point ratio of at least 2.0, and C or higher in all major courses.

**Certificate in Dental Hygiene.** Complete curriculum requirements and earn at least 70 credits with a grade-point ratio of 2.0.

## PROFESSIONAL NURSING CURRICULUM

### Leading to Bachelor of Science in Nursing

The baccalaureate program in nursing offers a foundation in the liberal arts with a major in professional nursing. Its aims are to prepare

students for beginning positions in all fields of nursing and to provide a sound basis for graduate study in nursing. Its graduates are eligible for the registered nurse licensing examination.

### FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Health & Phys. Ed.	1	History 152	3
History 151	3	Sociology 151	3
Psychology 102	4	Elective*	3
Speech 140	2		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>

### SECOND YEAR

English 150	3	English 151	3
Microbiology 151	4	Home Economics 126	2
Psychology 250	3	Nursing 115	6
Zoology 115	4	Zoology 116	4
Elective*	3	Elective*	2
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>17</b>

### THIRD YEAR

Nursing 210	10	Nursing 200	10
Sociology 472	3	Psychology 362	3
Elective*	3	Elective*	3
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

### FOURTH YEAR

Nursing 300	6	Nursing 345	11
Nursing 340	6	Nursing 350	3
Nursing 383	3	Elective*	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>17</b>

### Program for Registered Nurses

Registered nurses who meet entrance requirements may enroll in the professional nurse program. No advanced standing credit will be granted for nursing courses completed in a diploma or associate degree program to those enrolling after June 1965. With the permission of the dean, admitted students of good standing may be allowed to earn credit by examination for certain non-college science courses completed in these programs. (See p. 32.)

\*All electives must be in liberal arts; those in third and fourth years, numbered 200 or above.

**MEDICAL TECHNOLOGY CURRICULUM****Leading to Bachelor of Science in Medical Technology**

The medical technology curriculum provides for three years of course work on the campus and a fourth year of work in an approved hospital school of medical technology. Beginning with the summer session preceding the fourth year and continuing throughout the year, students register for Medical Technology 266, 267, and 268. Completion of this curriculum makes the student eligible for the bachelor of science degree and for the examination for certification as a medical technologist.

**FIRST YEAR**

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Chemistry 105	5	Chemistry 106	5
English 101	3	English 102	3
Health & Phys. Ed. 101	1	Health & Phys. Ed. 102	1
Mathematics 102	3	Mathematics 103	3
Psychology 104	3	Zoology 101	4
Speech 140	2		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>

**SECOND YEAR**

Chemistry 331	4	Chemistry 141	4
English 154 or 155	3	History 171	3
Zoology 115	4	Microbiology 151	4
Electives*	6	Zoology 116	4
		Elective*	2
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>17</b>

**THIRD YEAR**

Biochemistry 271	3	Medical Tech. 151	1
Biochemistry 272	1	Microbiology 362	4
Medical Tech. 150	1	Zoology 410	3
Microbiology 361	4	Zoology 425	3
Electives*	9	Electives*	6
<b>Total</b>	<b>18</b>	<b>Total</b>	<b>17</b>

**SUMMER SESSION**

Medical Tech. 266—4 credits

**FOURTH YEAR**

Medical Tech. 267	12	Medical Tech. 268	12
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\*All electives must be in liberal arts; those in third and fourth years, 200 or above.

## **TECHNICAL NURSING PROGRAM**

### **Leading to an Associate of Science Degree in Nursing**

This program prepares nurses for staff positions in hospitals, clinics, doctors' offices, and private duty where supervision is provided. Completion of the curriculum requires four academic semesters plus two six-week summer sessions. The graduate is granted an associate of science degree in nursing by the University and is eligible to take the state examination for licensure as a registered nurse.

#### **FIRST YEAR**

<b>FIRST SEMESTER</b>	<b>CREDITS</b>	<b>SECOND SEMESTER</b>	<b>CREDITS</b>
Health & Phys. Ed.	1	English 101	3
Psychology 104	3	Microbiology 130	2
Sociology 151	3	Technical Nursing 104	5
Technical Nursing 103	5	Technical Nursing 109	6
Technical Nursing 108	4		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

#### **SUMMER SESSION**

Psychology 250	3
Technical Nurs. 112	3
<b>Total</b>	<b>6</b>

#### **SECOND YEAR**

History 171	3	Political Science 110	3
Speech 150	3	Technical Nursing 119	8
Technical Nursing 115	5	Technical Nursing 120	2
Technical Nursing 116	5	Elective	3
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

#### **SUMMER SESSION**

Technical Nurs. 123	4
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## **TWO-YEAR PROGRAM IN DENTAL HYGIENE**

### **Leading to a Certificate in Dental Hygiene**

This program is intended to qualify dental hygienists for positions with dentists or health departments and for admission to licensing examinations for dental hygienists.

## FIRST YEAR\*

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Chemistry 101	4	Chemistry 102	4
Dental Hygiene 120	2	Dental Hygiene 140	1
Dental Hygiene 130	3	Dental Hygiene 150	1
English 101	3	Dental Hygiene 165	1
Speech 140	2	English 102	3
Zoology 115	4	Microbiology 130	2
		Microbiology 140	2
		Zoology 116	4
Total	18	Total	18

## SECOND YEAR

Dental Hygiene 151	2	Dental Hygiene 170	2
Dental Hygiene 166	2	Dental Hygiene 180	5
Dental Hygiene 169	2	Dental Hygiene 182	2
Dental Hygiene 171	2	Dental Hygiene 188	1
Dental Hygiene 179	5	Dental Hygiene 190	1
Dental Hygiene 181	2	Psychology 104	3
Health & Phys. Ed. 130	1	Sociology 151	3
Home Economics 126	2		
Total	18	Total	17

**NURSING COURSES**

*See p. 46 for a discussion of course descriptions.*

**Dental Hygiene (DH)**

Associate Professor AH MOO (Supervising Dentist); Assistant Professor KOGA; Instructor C. LEE and Lecturers

**120 INTRODUCTION TO DENTAL AND ORAL HYGIENE (2) I**

Orientation to the profession; relationship of dental hygienist to dental hygiene and dentistry; role of hygienist in preventive dentistry with emphasis on the objectives and principles of oral hygiene.

**130 ORAL ANATOMY AND TOOTH MORPHOLOGY (3) I (2 L, 1 Lb)**

Anatomy of the teeth, bones of the skull; muscles of mastication, tongue, face, pharynx; glands of the oral cavity; 5th, 7th cranial nerves, blood vessels of the head and neck; laboratory procedures in drawing and carving of anterior and posterior teeth.

**140 INTRODUCTION TO DENTAL PROPHYLAXIS PROCEDURES AND TECHNIQUES (1) II**

Clinical instruction and practice on manikin and few patients in operative technical procedures of instrumentation, polishing, and charting.

\*It is recommended that all students in dental hygiene complete the standard Red Cross First Aid course during the first year or by the end of that summer session, or complete HPE 234. A copy of the Red Cross certificate must be filed in the office of the chairman of the department of dental hygiene.



**150 INTRODUCTION TO DENTAL HISTOLOGY AND EMBRYOLOGY (1) II**

Fundamentals of dental histology and embryology. Pre: Zoology 115.

**151 DENTAL HISTOLOGY AND EMBRYOLOGY (2) I**

Formation, structure and function of enamel, dentin, cementum, pulp, periodontium, alveolar process and gingiva. Pre: DH 150.

**165 INTRODUCTION TO HUMAN PATHOLOGY (1) II**

Basic causes of disease, their progress and termination. Emphasis on defensive mechanisms of the body. Pre: DH 150 or concurrent registration.

**166 ORAL PATHOLOGY (2) I**

Study of oral diseases of interest to the dental hygienist. Pre: DH 165, 151 or concurrent registration.

**169-170 SURVEY OF DENTISTRY (2-2) Yr.**

Familiarization with procedures used in dentistry, dental specialties; emphasis on role of auxiliary personnel. Subject areas covered include dental materials, operative dentistry, prosthodontics, orthodontics, periodontics, endodontics, oral surgery, anesthesiology.

**171 DENTAL HEALTH EDUCATION (2) I**

Basic principles of teaching and learning dental health education as related to the office, school, public health; methods, materials and practice in teaching; laws, ethics and economics involved.

**179-180 DENTAL HYGIENE AND PROPHYLAXIS (5-5) Yr.**

Clinical experience in dental prophylaxis; oral inspection and dental charting; chairside dental health education.

**181 DENTAL ROENTGENOLOGY (2) I**

Lecture-laboratory course in the study, technique and use of the roentgen ray in its application to dentistry.

**182 PHARMACOLOGY (2) II**

Derivation and effects of drugs most commonly used in dentistry. Relative values of germicides, antiseptics, disinfectants, analysis of formulae of dentifrices, mouth-washes.

**188 DENTAL PUBLIC HEALTH (1) II**

Theory and practice of preventive dentistry with emphasis upon community dental health; role of the dental hygienist in public health.

**190 DENTAL OFFICE PROCEDURES AND DENTAL ASSISTING (1) II**

Procedures and duties necessary to efficient dental practice; instruction and clinical assisting in general and specialized dentistry.

## Medical Technology (MT)

Instructor L. WULFF

**150-151 MEDICAL TECHNOLOGY (1-1) Yr.**

Introduction to the application of basic science theory to laboratory practice in medical technology.

*To meet the technical requirements for the Registry of Medical Technologists of the American Society of Clinical Pathologists, this following sequence of courses continues for twelve calendar months commencing with the official opening of summer sessions. Restricted to students majoring in medical technology.*

**266 MEDICAL TECHNOLOGY (4)**

Student technician training in a cooperating laboratory under the supervision of a qualified director. Offered only in summer sessions.

**267-268 MEDICAL TECHNOLOGY (12-12) Yr.**

Student technician training in a cooperating laboratory under the supervision of a qualified director.

## Nursing (N)

Associate Professors C. CANFIELD, Y. GROSS, E. R. SMITH; Assistant Professors HEGGLUND, LOVE, OZAKI; Instructors CAMPBELL, FANCHER, HEE, LUM, NAJITA, NOUCHI, NAKATSUJI, ORTELT, SAKAI, WILLIAMS; Lecturer HIRSCHY

*Registration is restricted to students preparing for nursing except by special permission.*

**110-111 NURSING (8-8) Yr.**

Theory and supervised laboratory experience in care of adults with medical and surgical disorders. Four hours lecture and 16 hours laboratory weekly. (Not offered after Spring 1966.)

**115 FUNDAMENTALS OF NURSING (6) II**

Purposes, functions, responsibilities and preparation of the professional nurse. Study and practice of basic principles of comprehensive nursing care to meet health needs of the patient. (Not offered until Spring 1967.)

**131-132 HUMAN RELATIONS IN NURSING (1-1) Yr.**

Introduction of psychiatric nursing strand with emphasis on interpersonal relationships in patient-centered care. Concurrent with N 110-111. (Not offered after Spring 1966.)

**200 MEDICAL-SURGICAL NURSING (10) I, II**

Theory and supervised laboratory experience in the care of adults with medical and surgical disorders. (Not offered until Fall 1967.)

**210 MATERNAL AND CHILD NURSING (10) I, II**

Study and supervised laboratory experience in care of maternity patients and of children from birth through adolescence. (Not offered until Fall 1967.)

**220-230 MATERNAL AND CHILD NURSING (8-8) I, II**

Study and supervised laboratory experience in care of maternity patients, and of children from birth through adolescence. Four hours lecture and 16 hours laboratory weekly. (Not offered after Spring 1967.)

**300 PSYCHIATRIC NURSING (6) I, II**

Mental health concepts in nursing and their significance to the nurse herself. Guided experience in total care of patients with mental illness. Three hours lecture and 12 hours laboratory weekly.

**340 PUBLIC HEALTH NURSING (6) I, II**

Principles of public health nursing and guided laboratory experience, including home visiting, clinic services, school health programs, and use of community agencies. Three hours lecture and 12 hours laboratory weekly.

**345 ADVANCED NURSING (6) I, II**

Identification and application of scientific principles in the provision of care of patients presenting complex nursing problems. Two hours lecture and 16 hours laboratory weekly. (Not offered after Spring 1968.)

**345 ADVANCED MEDICAL-SURGICAL NURSING (11) I, II**

Identification and application of scientific principles in the provision for care of patients presenting complex nursing problems and in the supervision and management needed in the nursing units provided for their care. (Not offered until Fall 1968.)

**350 SOCIAL FORCES IN NURSING (3) I, II**

Study of the forces which influence the development of nursing as a profession.

**383 PUBLIC HEALTH (3) I**

Principles of public health and preventive medicine; application in protecting the health of citizens through organized community effort.

**394-395 SENIOR HONORS THESIS (2-2) Yr.**

Preparation of research paper under individual faculty supervision. Required for graduation with honors. Pre: N 350 and 399.

**399 DIRECTED READING OR RESEARCH (Arr.) I, II**

Limited to seniors and juniors in nursing.

## Technical Nursing (TN)

Associate Professor BARNES; Assistant Professor FROYEN, TREFZ; Instructor Goo

*Registration is restricted to students preparing for technical nursing except by special permission.*

**103-104 ESSENTIALS OF SCIENCE (5-5) Yr.**

Principles and methods of physical and biological science. Physico-chemical mechanisms in living systems; metabolism and homeostasis. Organization, structure, and function of the human body. Course fee \$6.00. Four hours lecture and 2 hours laboratory weekly.

**108-109 NURSING (FUNDAMENTALS) (4-6) Yr.**

Basic health needs of individuals. Nursing care necessary to meet such needs, with guided clinical experience.

**112 NURSING (PSYCHIATRIC) (3) Summer—6 weeks**

Nursing care for the mentally ill with guided clinical experience. Pre: TN 109 or equivalent.

**115 NURSING (PEDIATRIC) (5) I 9 weeks**

Nursing care of sick children from infancy through adolescence. Guided clinical experience. Pre: TN 112 or equivalent.

**116 NURSING (OBSTETRICAL) (5) I 9 weeks**

Nursing care of mother during complete maternity cycle and of newborn infant. Guided clinical experience. Pre: TN 112 or equivalent.

**119 NURSING (MEDICAL-SURGICAL) (8) II**

Nursing care of the adult with acute and chronic illnesses. Guided clinical experience. Pre: TN 116.

**120 NURSING (TRENDS) (2) II**

Development of nursing and future trends, including socio-economical influences. Pre: TN 119.

**123 NURSING (ADVANCED MEDICAL-SURGICAL) (4) Summer—6 weeks**

Student integrates and applies acquired knowledge and skills in planning, organizing, and implementing nursing care for groups of individuals. Pre: TN 120.

# COLLEGE OF TROPICAL AGRICULTURE

THE COLLEGE OF TROPICAL AGRICULTURE prepares students for professional work in the fields of agriculture and home economics. There are three curricula in agriculture: agricultural technology, agricultural economics, and agricultural science. Agricultural technology has two options—general and tropical crop production. Agricultural science has six options—entomology, animal science, plant physiology, poultry science, soil science, and tropical horticulture.

Five curricula are offered in home economics: clothing design, general home economics, institutional management, home economics education, and foods and nutrition.

All curricula lead to the bachelor of science degree.

The College also includes the Hawaii Agricultural Experiment Station and the Cooperative Extension Service in Agriculture and Home Economics.

## ADMISSION AND DEGREE REQUIREMENTS

The requirements for admission are, in general, the same as those for the University (pp. 21-25). Students who lack some of this required preparation are unable to follow the regular programs and usually need more than four years to complete the degree requirements.

To be eligible for the degree a student must:

- 1) Complete the course requirements of a curriculum;
- 2) have an aggregate of at least 130 semester hours of credit;
- 3) have a 2.0 grade-point ratio for all registered credits, and in the major field (*see* "Undergraduate Degree Requirements").

## CURRICULA IN AGRICULTURE

The program is designed to give a knowledge of the fundamental principles underlying agriculture as a science, and to prepare for effective service in research, teaching, business, and industry, as well as in practical farming.

Summer practice work in the area of major interest may be required if, in the opinion of the adviser, such experience is necessary for reasonable competence.

**Agricultural Technology****I GENERAL AGRICULTURE****FIRST YEAR**

<b>FIRST SEMESTER</b>		<b>SECOND SEMESTER</b>	
	<b>CREDITS</b>		<b>CREDITS</b>
Agriculture 100	1	Animal Science 141	3
Botany 101 or Zoology 101	4	Botany 101 or Zoology 101	4
Chemistry 103	4	Chemistry 104	4
English 101	3	English 102	3
Health & Phys. Ed. 101	1	Health & Phys. Ed. 102	1
Elective	4	Elective	1
Speech 140	2		
<b>Total</b>	<b>19</b>	<b>Total</b>	<b>16</b>

**SECOND YEAR**

History 171	3	English 155	3
Microbiology 151	4	Geography 151	3
Horticulture 162	3	Mathematics 103	3
Elective	7	Entomology 161	4
		Elective	3
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>

**THIRD YEAR**

Genetics 451	3	English 210	3
Soil Science 481	4	Entomology 372	4
Electives	10	Electives	10
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>17</b>

**FOURTH YEAR**

In the fourth year the student takes courses necessary to complete the 130 credits required for graduation. His elective courses must include 9 credits in animal science, 9 credits in plant science, 6 credits in agricultural engineering, and 6 credits in agricultural economics.

**II TROPICAL CROP PRODUCTION****FIRST YEAR**

Agriculture 100	1	Botany 101 or Zoology 101	4
Botany 101 or Zoology 101	4	Chemistry 104	4
Chemistry 103	4	English 102	3
English 101	3	Health & Phys. Ed. 102	1
Health & Phys. Ed. 101	1	Math 103	3
Mathematics 102	3	Elective	1
Elective	1		
Speech 140	2		
<b>Total</b>	<b>19</b>	<b>Total</b>	<b>16</b>

## SECOND YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
AE 131	3	AE 132	3
Physics 160	4	Physics 161	4
Chemistry 141	4	Botany 470	4
Horticulture 162	3	English 155	3
Elective	4	Elective	4
<b>Total</b>	<b>18</b>	<b>Total</b>	<b>18</b>

## THIRD YEAR

Entomology 161	4	Entomology 372	4
AEc 120	3	History 171	3
Soil Science 481	4	English 210	3
Elective in Plant Science	3	Elective in Plant Science	3
Elective	3	Electives	5
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>18</b>

## SUMMER PRACTICE IN INDUSTRY—10 weeks

## FOURTH YEAR

Genetics 451	4	Agricultural Engineering 232	1
AEc 327	3	Soil Science 482	3
Electives	9	Elective in Social Studies	3
		Electives	11
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>18</b>

**Agricultural Economics and Agricultural Business\***

## COMMON FIRST YEAR

Agricultural Economics 120	3	Economics 151	3
Economics 150	3	English 102	3
English 101	3	Health & Phys. Ed. 102	1
Health & Phys. Ed. 101	1	Speech 150	3
Botany 101	4	History 171	3
Elective	1	Elective in Social Science	4
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>17</b>

\*Minor adjustments may be made with the approval of the advisor.

## COMMON SECOND YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Accounting 100	3	Chemistry 104	4
Chemistry 103	4	Animal Science 141	3
Mathematics 103 or 140	3	English 155	3
Horticulture 162	3	Government 110	3
Agricultural Economics 327	3	Elective	4
Elective	1		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>17</b>

## Agricultural Economics

## THIRD YEAR

Economics 240	3	Agricultural Economics 321	3
Economics 300	3	English 210	3
Agronomy 501 or Elective	3	Elective in Agricultural Econ.	3
Agricultural Economics 434	3	Elective in Econ. or Bus.	3
Agricultural Economics 428	3	Elective in Social Science	3
		Elective	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>18</b>

## FOURTH YEAR

Agricultural Economics 322	3	Elective in Agricultural Ec.	3
Ag. Engin. 131 or Elective	3	Elective in Social Science	3
Elective in Econ. or Bus.	3	Electives	12
Electives	7		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>18</b>

## Agricultural Business

## THIRD YEAR

Agricultural Economics 322	3	Agricultural Economics 321	3
Agricultural Economics 428	3	English 210	3
Agricultural Economics 434	3	Management 300	3
Economics 240	3	Elec. in Mkt. & For. Trade	3
Economics 300	3	Elective in Economics	3
		Law 300	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>18</b>

## FOURTH YEAR

Agricultural Economics 423	3	Elective in Agricultural Econ.	3
Agricultural Economics 430	3	Elective in Business Econ.	3
Management 410	3	Elective in Social Science	3
Elec. in Agronomy or Soil Sc.	3	Electives	6
Elective in Social Science	3		
Elective	3		
<b>Total</b>	<b>18</b>	<b>Total</b>	<b>15</b>

Electives are chosen with approval of the adviser. They must include 6 credits in agricultural economics, 9 in business and economics in addition to those specified, and 9 in social science other than economics.

### Agricultural Science

#### FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Botany 101 or Zoology 101	4	Botany 101 or Zoology 101	4
Chemistry 103*	4	Chemistry 104*	4
English 101	3	English 102	3
Health & Phys. Ed. 101	1	Health & Phys. Ed. 102	1
Speech 140	2	Elective	4 or 5
Elective	4 or 5		
	<hr/>		<hr/>
Total	18 or 19	Total	16 or 17

#### SECOND YEAR

Chemistry 143	4	Chemistry 144	4
Mathematics 102	3	Physics 161	4
Physics 160	4	English 155	3
Elective	5	Mathematics 103	3
		Elective	4
	<hr/>		<hr/>
Total	16	Total	18

#### THIRD YEAR

Genetics 451	3	Electives	17 or 18
Soil Sciences 481	4		
Electives	10 or 11		
	<hr/>		<hr/>
Total	17 or 18	Total	17 or 18

#### FOURTH YEAR

History 171	3	English 210	3
Electives	11 or 12	Electives	14 or 15
	<hr/>		<hr/>
Total	14 or 15	Total	17 or 18

The following list indicates the fields in which students electing the agricultural science curriculum may specialize. Required courses are listed, as well as additional courses from which electives may be chosen with approval of the adviser.

**ANIMAL SCIENCE.** *Requirements:* Animal Science 141, 145, 242, 243, 244, 341; Microbiology 151; Zoology 206; and 16 credits from the fol-

\*Majors in agronomy, soil science, animal science, and plant physiology take Chemistry 105-106.



lowing: Agricultural Biochemistry 402; Agricultural Economics 327; Agricultural Engineering 131, 132; Agronomy 502, 503; Animal Science 442, 443, 444, 445, 446; Entomology 161, 372; Horticulture 101; Poultry Science 474, 475; Zoology 345, 410, 416, 425, 431, 432.

**ENTOMOLOGY. Requirements:** Microbiology 151; Entomology 161, 361, 362, 372; and 15 credits from the following: Agricultural Engineering 131, 132; Botany 105, 460, 470, 553; Chemistry 331; Geography 420, Geology 150, 151; Horticulture 362, 392, 453, 463; Philosophy 430; Plant Pathology 310; Soil Science 482, 483; Zoology 401, 410, 416, 425, 431, 345; also one year of a foreign language: German, French, Spanish, Japanese, or Russian.

**PLANT PHYSIOLOGY. Requirements:** Botany 410, 360, 470; Chemistry 331; Mathematics 140, 141, and 24 credits as follows: 6 from Botany 201, 412, 418, 353, 430, 454, 670-671, 672, 673; Plant Pathology 310; 6 from Anthropology 150, Economics 150, Philosophy 100; 12 from French, German or Russian.

**POULTRY SCIENCE. Requirements:** Animal Science 446; Microbiology 151; Zoology 161, 311; and 15 credits selected from the following: Agronomy 502; Agricultural Engineering 131, 132; Animal Science 141, 145, 442; Chemistry 331; Economics 140, 480; Entomology 372; Genetics 451; Zoology 410.

**SOIL SCIENCE. Requirements:** Chemistry 331; Soil Science 399, 482, 483; and 18 credits from the following: Agronomy 502; Agricultural Engineering 431; Botany 160, 201, 353, 470, 670-671, 672, 673; Chemistry 332, 421, 551-552; Geography 101, 420, 430; Geology 150, 151, 410; Horticulture 162, 362, 392, 463; Mathematics 135, 136; Microbiology 151, 251; Philosophy 430; Soil Science 484; Zoology 431.

**TROPICAL HORTICULTURE. Requirements:** Horticulture 162, and 25 credits from the following: Agricultural Biochemistry 402; Agricultural Engineering 131, 132, 435; Botany 161, 410, 412, 418, 430, 460, 461, 470, 553, 570, 571; Chemistry 331; Entomology 161, 372; Genetics 451; German 101-102; Horticulture 161, 362, 369, 392, 453, 463, 464, 471, 494, 566; Mathematics 140, 141, 142; Microbiology 151; Plant Pathology 310; Soil Science 482, 483; Zoology 431.

### **CURRICULA IN HOME ECONOMICS**

The home economics program is designed to provide, through the facilities of the department and the University, a liberal education integrating the social and natural sciences, the humanities, and the arts, and to provide specialized instruction based upon these disciplines as preparation for professional careers in which the interest and well-being of the individual consumer, the family and the community are paramount.

As the functions of the family are being shifted increasingly to the larger community, there are expanded opportunities for home economics careers in educational and social agencies, government, business and industry, research laboratories, public and private institutions and services.

### General Home Economics

#### FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Art 103	2	Art 104	2
Eng 101	3	Eng 102	3
Chem 103	4	Chem 104	4
HE 100	1	HE 110 or 120	3
HE 110 or 120	3	Psy 104	3
Speech 140	2	HPE	1
HPE	1		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

#### SECOND YEAR

HE 103	3	Zoo 116	4
Soc 151	3	Econ 150	3
Zoo 115	4	Eng 155	3
Hist 171	3	HE 114	2
HE 112	3	Micro 151	4
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

#### THIRD YEAR

HE 222 or 250	3	HE 252	3
HE 240	3	Eng 210	3
Anthro 200	3	HE 250 or 222	3
HE 260	3	Electives	7
Electives	5		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>

#### FOURTH YEAR

HE 358 or Elec	4	HE 358 or Elec	4
HE 262	3	Electives	12
Electives	10		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>

## Home Economics Education

## FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Art 103	2	Art 104	2
Chem 103	4	Chem 104	4
Eng 101	3	Eng 102	3
HE 100	1	HPE 102	1
HE 112 or HE 120	3	HE 112 or HE 120	3
HPE 130	1	Psy 104	3
Speech 140	2		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

## SECOND YEAR

HE 222	3	Psy 250	3
Zool 115	4	Zool 116	4
HE 103	3	Econ 150	3
Hist 171 or Soc 151	3	Hist 171 or Soc 151	3
Eng 155	3	Eng 210	3
		Elective	2
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>18</b>

## THIRD YEAR

Ed SE 230 or Micro 151	4	Ed SE 230 or Micro 151	4
HE 251	3	HE 240	3
HE 252 or HE 260	3	HE 270 or HE 262	3
Psy 372	3	Ed SE 290	1
HE 250 or elective (clothing)	3	HE 252 or HE 260	3
HE 114	2	HE 250 or elective (clothing)	3
<b>Total</b>	<b>18</b>	<b>Total</b>	<b>17</b>

## FOURTH YEAR

HE 270 or HE 262	3	Ed SE 392	6
Ed SE 290	1	Ed SE 391	2
Sp 365	3	Electives	4
HE 470	2		
HE 358	4		
Elective	4		
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>12</b>

## FIFTH YEAR

College of Education Secondary Curriculum			
HE 650	3	Ed SE 690	14
Ed Foundations*	3	Ed SE 691	2
Ed Ad 680	2		
Elective (Education)	5		
Elective	3		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>16</b>

\*Secondary Education Curriculum.

**Foods and Nutrition**

**FIRST YEAR**

FIRST SEMESTER	CREDITS	SECOND SEMESTER	CREDITS
Math 103	3	Econ 150	3
Chem 105	5	Chem 106	5
Eng 101	3	Eng 102	3
HPE	1	HPE	1
HE 100	1	HE 112 or 114	3 or 2
HE 120	3	Sp 140	2
Total	16	Total	17 or 16

**SECOND YEAR**

Psy 104	3	Micro 151	4
Soc 151	3	Zool 116	4
Zool 115	4	HE 103	3
Chem 141	4	Hist 171	3
(or Chem 143-144)		Eng 154 or 155	3
Elective	2		
Total	16	Total	17

**THIRD YEAR**

Biochem 271 or		Eng 210	3
Ag Biochem 402	4	HE 223	3
HE 240	3	Electives	10
HE 250	3		
Electives	7		
Total	17	Total	16

**FOURTH YEAR**

Chem 331	4	HE 443	3
Electives	12	Electives	13
Total	16	Total	16

**Institutional Administration**

**FIRST YEAR**

FIRST SEMESTER	CREDITS	SECOND SEMESTER	CREDITS
Art 103	2	Art 104	2
Chem 105	5	Chem 106	5
Eng 101	3	Eng 102	3
HPE	1	HPE	1
HE 100	1	HE 110 or 120	3
HE 120 or 110	3	Sp 140	2
Total	15	Total	16

## SECOND YEAR

HE 222	3	HE 223	3
Psy 104	3	HE 103	3
Soc 151	3	Micro 151	4
Zool 115	4	Zool 116	4
Chem 141	4	Econ 150	3
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>17</b>

## THIRD YEAR

Biochem 271	4	HE 250	3
HE 234	3	HE 239	3
HE 240	3	HE 443	3
Hist 171	3	HE 445	3
HE 238	3	Eng 155	3
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>15</b>

## FOURTH YEAR

HE 340	4	Eng 210	3
Bus 100	3	HE 236	3
PIR 351 or Psy 374	3	Bus 101	3
Psy 250	3	HE 447	2
Electives	4	Psy 372	3
<b>Total</b>	<b>17</b>	Elective	3
		<b>Total</b>	<b>17</b>

## Clothing Design

## FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
	CREDITS		CREDITS
Eng 101	3	Eng 102	3
Lab Science	3 or 4	Lab Science	3 or 4
Art 111	2	Art 112	2
HE 100	1	Sp 140	2
HE 110	3	HPE	1
HPE	1	HE 112	3
HE 117	3		
<b>Total</b>	<b>16 or 17</b>	<b>Total</b>	<b>14 or 15</b>

## SECOND YEAR

Eng 154 or 155	3	Phil 110	3
Econ 150	3	Econ 151	3
Psy 104	3	HE 126 or 120	2 or 3
Art 131	2	Art 132	2
HE 118	3	HE 103	3
HE 114	2	HE 115	2
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>15 or 16</b>

## THIRD YEAR

Psy 374	3	Art 335	2
Hist 171	3	Soc 201	3
Art 235	2	HE 418	3
Acct 100	3	Acct 101	3
HE 214	3	HE 215	3
HE 216	3	Elective	3 or 4
Total	17	Total	17 or 18

## FOURTH YEAR

Mkt 340	3	Eng 209	3
HE 319	3	HE 320	3
HE 252	3	HE 250	3
HE 260	3	HE 322	2
Elective	5 or 6	Elective	5
Total	17 or 18	Total	16

**HAWAII AGRICULTURAL EXPERIMENT STATION**

The facilities of the Station, including the research staff, the field laboratory, and the Agricultural Engineering Institute, are available in part for undergraduate and graduate instruction. Students are able to study the latest methods and results of agricultural research. Close collaboration is maintained with the stations of the Hawaiian Sugar Planters' Association and the Pineapple Research Institute of Hawaii.

The function of the Station is "to promote scientific investigation and experiments respecting the principles and applications of agricultural science" (Hatch Act of 1887). Investigations cover the physiology of plants and animals; diseases, insects, and parasites; agronomy, soils, food science, food processing, agricultural engineering, and biochemistry, human and animal nutrition; breeding and genetics; as well as other research in culture, production, and marketing.

Facilities for carrying on this work are provided by the headquarters offices and laboratories located on the University campus, by research farms at Poamoho and Waimanalo, Oahu, and by branch stations on the neighbor islands with attached laboratories and experimental farms. These include the Kona Branch Station; the East Hawaii Branch Station with farms at Malama-Ki, Waiakea, Volcano, and Hamakua and Waimea; the Maui Branch Station with the Haleakala Station; the Kauai Branch Station. Modern research facilities for poultry and animals are available at the Animal Research Center at Waialeale, Oahu.

## **COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS**

This program, conducted jointly by the College and the United States Department of Agriculture, is devoted to the advancement of agriculture in Hawaii and to the improvement of family living.

**Cooperative Extension Service.** The Service maintains personal contacts with the rural population through its field staff of county extension agents and county home economists, with the help of the specialists at the state headquarters on the University campus. The county staff operates out of offices located as follows:

Oahu: Honolulu, Kaneohe, Wahiawa, Waianae; Kauai: Lihue; Hawaii: Hilo, Naalehu, Kealahou, Honokaa, Kohala; Maui: Wailuku, Kula; Molokai: Kaunakakai.

Improved farm and home practices are taught by means of practical demonstrations before University Extension clubs of men and women, commodity groups, special interest groups, and 4-H clubs of boys and girls. This group instruction is supplemented by farm and home visits and mass media communications. Each year various extension short courses and 4-H events are held on the University campus.

An important phase of extension work is to demonstrate in a practical manner the results of scientific experiments conducted by the Hawaii Agricultural Experiment Station, by state stations, and by the USDA.

## **AGRICULTURE COURSES**

*See p. 46 for a discussion of course descriptions.*

### **Agriculture (AG)**

Associate Professors CHUN, S. GOTO

#### **100 ORIENTATION COURSE (1) I**

Lectures to acquaint the student with agriculture in Hawaii and help select major.

#### **399 AGRICULTURAL THESIS (Arr.) I, II**

Advanced individual work in field, laboratory, library. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in agriculture.

#### **401 INTRODUCTION TO COOPERATIVE EXTENSION WORK (3) II**

Objectives and organization. Methods, selection, and training of voluntary leaders; basic principles in program development and appraisal.

## Agricultural Biochemistry (AB)

Assistant Professors HYLIN, YOUNG

### 402 PRINCIPLES OF METABOLISM (3) I

A study of fundamental metabolic processes common to plants and animals. Pre: Chemistry 105-106 and 141, or consent of instructor. Approved for graduate credit.

## Agricultural Economics (AEc)

Professors PHILLIP, SCOTT; Associate Professors BARMETTLER, ISHIDA; Assistant Professors AUER, BOYER, LARSON, KEELER; Lecturers BAKER, LUCAS, WALLRABENSTEIN

### 120 AGRICULTURAL ECONOMICS (3) I

Introduction to economics of agricultural production, marketing, prices, income, and policy. Includes government policy and programs related to agriculture, land use, farm tenancy, and socio-economic problems of farmers in the nation and the world.

### 321 AGRICULTURAL PRICES (3) II (2 L, 1 Lb)

Factors affecting prices of agricultural products; evaluation of governmental price policy. Pre: a course in economics. (Alt. yrs.; not offered 1965-66.)

### 322 MARKETING AGRICULTURAL PRODUCTS (3) I (2 L, 1 Lb)

Problems, agencies, functions, costs, prices, regulations affecting marketing; proposed improvements. Pre: an introductory course in economics or consent of instructor.

### 327 FARM AND RANCH MANAGEMENT (3) I (2 L, 1 Lb)

Principles of organization and management of individual farms and ranches; choice of enterprises; farm planning; budgeting; business aspects; records; farm and plantation visits.

### 423 AGRICULTURAL COOPERATIVES (3) II

History; appraisal of methods and operations; problems of management, membership relations, accounts. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

### 424 MARKETING OF TROPICAL AND SUBTROPICAL AGRICULTURAL PRODUCTS (3) II

Marketing system and market analysis for sugar, rice, pineapple, coffee, citrus, and other tropical and subtropical crops. Pre: principles of economics, or consent of instructor. (Alt. yrs.; offered 1965-66.)

### 425 MARKETING OF LIVESTOCK, POULTRY AND DAIRY PRODUCTS (3) II

Marketing systems and market analysis for livestock, poultry and dairy products. (Alt. yrs.; not offered 1965-66.)

### 426 AGRICULTURAL ECONOMICS EXTENSION (3) I

Methods of disseminating agricultural economic information to extension agents, producers, manufacturers, distributors, and retailers. Includes methods of developing price and outlook reports and economic techniques in applied farm management. (Alt. yrs.; offered 1965-66.)

### 428 PRODUCTION ECONOMICS (3) I

Economic analysis of agricultural production, including theory of the firm, resource allocation, production and cost functions, input-output analysis, farm size, enterprise combinations, tenure arrangements, risk, and decision making. Pre: AEc 327, or consent of instructor.

### 429 AGRICULTURAL POLICY AND PLANNING (3) II

The roles of government and private enterprise in agriculture. Pre: Economics 150-151, or consent of instructor. (Alt. yrs.; offered 1965-66.)



**430 AGRICULTURAL FINANCE (3) II**

Financing of agricultural production and marketing enterprises and operation of agricultural credit systems. Pre: AEc 327, or consent of instructor. (Alt. yrs.; offered 1965-66.)

**431 FOREST ECONOMICS (3) II**

Economic principles involved in the utilization of forest land and timber, and the distribution of forest products. Pre: consent of instructor. (Alt. yrs.; offered 1965-66.)

**433 ADVANCED FARM MANAGEMENT AND PLANTATION ECONOMICS (3) II (2 L, 1 Lb)**

Advanced work in management and organization of commercial farms; farm business analysis; plantation economics. Pre: AEc 327, or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**434 STATISTICAL METHODS (3)**

Principles and methods of statistical analysis. Frequency distributions, probability, tests of significance, confidence intervals, regression and correlation, and analysis of variance. Applications to problems in agricultural economic research.

**435 CONSUMER ECONOMICS AND FOOD DISTRIBUTION (3) I**

Consumer buying. Store layout, organization, management and procurement. Pre: AEc 322 or consent of instructor. (Alt. yrs.; offered 1965-66.)

**624 MARKETING RESEARCH (3) II**

Research methodology, analysis of data, presentation of findings. Original research project. Pre: AEc 321, 322, or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**625 ECONOMICS OF AGRICULTURE: TROPICAL COUNTRIES AND ASIA (3) I**

Economics of agricultural technology, resource utilization, comparative advantage, international and intra-country marketing problems, institutions affecting the agricultural economy.

**626 COLLECTION OF ECONOMIC DATA IN AGRICULTURE (3) I**

Methods of collection of agricultural data for regular programs and for special purposes. Pre: Business 300, or consent of instructor.

**629 PRODUCTION ECONOMICS (3) II**

Economics of resource allocation at the firm and industry levels. Advanced analytical techniques of analysis: linear programming; synthesis; budgeting; statistical analysis.

**630 MARKET DEVELOPMENT FOR AGRICULTURAL PRODUCTS (3) II**

Methodology for determining market potentials and methods and costs of market development for products of agricultural origin. Pre: AEc 322 or consent of instructor. (Alt. yrs.; offered 1965-66.)

**632 ECONOMICS OF AGRICULTURAL PROCESSING INDUSTRIES (3) II**

Economic studies of processing efficiency, economic feasibility of new processing methods, and the role of processing in the marketing of agricultural products. Pre: AEc 322 or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**634 ADVANCED AGRICULTURAL PRICES AND STATISTICAL ANALYSIS (3) II**

Research methodology in the analysis of agricultural prices and other statistical data in agriculture, including techniques for estimating prices and determination of factors affecting prices. Pre: basic courses in prices and statistics.

**636 SEMINAR: AGRICULTURAL POLICY (3) II**

Economic analysis of agricultural policy at state, national, and international levels, with particular reference to the influence of policy on economic development in agriculture. Pre: AEC 429 or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**637 ECONOMICS OF AGRICULTURAL RESOURCE DEVELOPMENT (3) II**

Theory of the economics of agricultural resource development, economic development of agriculture in relation to other sectors of the economy; an economic evaluation of domestic and international problems of agricultural development in emerging and underdeveloped countries. Pre: AEC 428 or consent of instructor. (Alt. yrs.; offered 1965-66.)

**638 SEMINAR: LAND USE IN DEVELOPING COUNTRIES (3) I**

The role of the pattern of land use on agricultural economic development and the welfare of rural people in emerging agricultural nations. Pre: Business Economics 430 or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**639 FINANCING AGRICULTURE IN DEVELOPING COUNTRIES (3) II**

Sources of credit and the functions of credit in agricultural economic development with particular reference to credit problems in underdeveloped nations. Pre: AEC 430 or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of instructor.

## Agricultural Engineering (AE)

Professor KINCH; Associate Professor WANG

**131 INTRODUCTION TO MECHANIZED AGRICULTURE (3) I (3 L)**

Basic engineering calculations and their application to modern agriculture. Field and farmstead equipment. Introduction to physical methods of products processing. Pre: Physics 161; Mathematics 103.

**132 FARM IRRIGATION AND STRUCTURES (3) II (3 L)**

Simple surveying. Water conveyance and measurement on the farm. Irrigation methods. Structural requirements of hog and cattle barns and cold storage buildings. Farm sewage disposal. Pre: AE 131.

**232 AGRICULTURAL MECHANICS LABORATORY (1) II (1 Lb)**

Electrical wiring and electric motors. Engine and pump efficiency tests. Heating, cooling and refrigeration. Open and closed channel flow measurement. Surveying. Pre: credit in or concurrent registration in AE 132. Course fee \$6.00.

**411 METHODS OF POST HARVEST HANDLING OF AGRICULTURAL PRODUCTS (3) I (2 L, 1 Lb)**

Theory and techniques of pre-cooling, cold storage, drying, bulk handling and physical damage to agricultural products. Pre: AE 132. Course fee \$5.00.

**631 ANALYSIS OF IMPLEMENT DESIGN (3) I (2 L, 1 Lb)**

Application of machine design principles and the basic soil, crop requirements in solving typical equipment design problems. Pre: Mechanical Engineering 374 or equivalent. (Alt. yrs.; not offered 1965-66.)

**635 FARM IRRIGATION SYSTEM DESIGN (3) II (2 L, 1 Lb)**

Design based on water requirements; design of water conveyance and diversion structures and of application methods. Irrigation economics. Pre: Civil Engineering 321 or equivalent. (Alt. yrs.; not offered 1965-66.)

**637 INSTRUMENTATION (3) I (2 L, 1 Lb)**

Dynamic response of sensing elements; automatic control theory; thermoelectric temperature measurement; strain gauge instrumentation. Pre: Mathematics 142, Physics 180-181 or equivalent.

**638-639 TOPICS IN TROPICAL AGRICULTURAL ENGINEERING (2-2) I, II**

Two-semester cycle, soil conservation and irrigation under tropical conditions, equipment design for tropical crops, field engineering on the plantation, tropical fruits, and nut processing equipment. Pre: consent of department chairman.

**699 DIRECTED RESEARCH (Arr.) I, II**

## Agronomy and Soil Science

Senior Professor G. D. SHERMAN; Professors FOX, SWINDALE, YOUNGE; Associate Professors KANEHIRO, TAKAHASHI, UEHARA; Assistant Professor ROTAR

### AGRONOMY (Agron)

**501 TROPICAL CROP PRODUCTION (3) I**

Current agricultural practices in the production of sugar cane, pineapple, vegetables, fruits, and forage in the tropics. Course fee \$2.00.

**502 PRINCIPLES OF AGRONOMY (3) II (2 L, 1 Lb)**

Field crop production, ecology, geography. Pre: Botany 101; Chemistry 104 or equivalent.

**503 RANGE MANAGEMENT (3) II**

Origin, establishment, inventory, utilization, and management of pasture and range forage. Emphasis on applications in the tropics. Pre: Botany 101. (Alt. yrs.; offered 1965-66.)

**510 SUGAR CANE AGRONOMY (3) II**

The cane plant: breeding, physiology, culture, growth, harvesting, milling, and marketing; field practices and management; international agreements.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: candidacy for the M.S. degree.

### SOIL SCIENCE (Soils)

**399 AGRICULTURAL THESIS (Arr.) I, II****481 SOILS (4) I (3 L, 1 Lb)**

Origin, development, properties, and management of tropical soils; classification of Hawaiian soils. Pre: Chemistry 104. Course fee \$3.00.

**482 SOIL FERTILITY (3) II**

Soil composition and fertility. Special attention to field trials, soil tests, and foliar diagnosis in determining fertilizer requirements. Pre: 481.

**483 SOIL CHEMISTRY (3) II (2 L, 1 Lb)**

Study of soil reaction, availability of plant nutrients, and chemical analyses of soils. Pre: 481.

**484 SOIL PHYSICS (3) II (2 L, 1 Lb)**

Physical properties of soils; structure and moisture relationships. Pre: Physics 161 or 181; 481.

**485 SOIL BIOTICS (3) II (2 L, 1 Lb)**

Soil nitrogen, sulfur, and phosphorus transformations. Nitrogen fixation. Effect of soil organisms on physical properties of soils. Decomposition of residues and organic matter. Microorganisms as indicators of soil fertility status. Soil factors influencing biotic activity. Pre: Micro 151; Soils 481.

**486 SOIL EROSION: CAUSES AND CONTROLS (3) I**

The physical properties of soil which influence erodibility; energy sources and mechanics of water and wind erosion; principles of vegetative and mechanical controls; survey of the development and spread of the conservation movement.

**685 SOIL FORMATION (3) I**

Soil-weathering and soil-forming processes on the basis of modern pedologic principles. Pre: consent of instructor.

**686 SOIL CLASSIFICATION (3) I**

Comprehensive study of the genesis of soils and the various systems of classification, with special reference to tropical soils. Lectures and field work.

**687 SOIL SCIENCE SEMINAR (1) I, II**

Review of recent findings in soil science research in the fields of soil chemistry, physics, classification, fertility, bacteriology, and technology. Pre: graduate standing.

**688 SOIL AND CLAY MINERALOGY (3) II (2 L, 1 Lb)**

Identification of soil secondary minerals with special emphasis on clay. Pre: Geology 410 or consent of instructor.

**689 ADVANCED SOIL FERTILITY (4) I (2 L, 2 Lb)**

Ion exchange, organic matter transformations, and solubilization of compounds related to crop growth and composition. Use of soil and plant tissue tests for estimating fertilizer requirements. Pre: consent of instructor.

**690 ADVANCED SOIL CHEMISTRY (3) II**

A critical study of methods of soil analysis and the chemical properties of soils. Pre: consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: candidacy for the M.S. degree; consent of instructor.

**799 DIRECTED RESEARCH (Arr.) I, II**

Pre: candidacy for the Ph.D. degree; consent of instructor.

## Animal Science (An Sc)

Professors BROOKS, WAYMAN; Associate Professors COBB, DONOHO, FURR, HUGH, KOSHI; Assistant Professors IWANAGA, STANLEY; Lecturer LYND

**141 ANIMAL HUSBANDRY (3) II (2 L, 1 Lb)**

Study of the important domestic animals, their origin, distribution, and economic importance with an introduction to feeding, breeding, and management for each species.

**145 FEEDS AND FEEDING (3) I (2 L, 1 Lb)**

Basic principles of feeding farm animals; composition and nutritional value of feeds; nutritional requirements of dairy cattle, beef cattle, swine and sheep; balancing rations for specific productive purposes. Pre: Chemistry 104 or 106.

**242 BEEF PRODUCTION (2) II**

Economical production of beef cattle; organization of the enterprise, breeds, selection of breeding stock, handling and feeding of animals of different ages on the range and in the feedlot. Pre: AS 141. (Alt. yrs.; not offered 1965-66.)

**243 DAIRY HUSBANDRY (3) II**

Principles involved in the economical production of milk; breeds of dairy cattle, selection, raising young animals; breeding, care, housing, and management of milk-herd; factors affecting the quantity and quality of milk produced. Pre: AS 141. (Alt. yrs.; offered 1965-66.)

**244 SWINE PRODUCTION (2) I**

Principles of efficient pork production including breeds, breeding, feeding, management, and marketing. Pre: AS 141. (Alt. yrs.; not offered 1965-66.)

**341 LIVESTOCK MANAGEMENT (4) (5 L, 5 Lb for 9 weeks)**

Assigned problems and practical experience in management of livestock; housing, handling, feeding, and judging swine, beef, and dairy cattle. Required for animal science majors during summer between junior and senior years.

**442-443 PHYSIOLOGY OF DOMESTIC ANIMALS (4-4) Yr. (3 L, 1 Lb)**

The organ systems of the body, their anatomical arrangement, structure and function. Emphasis will be placed on most important species. (Alt. yrs.; offered 1965-66.)

**444 ANIMAL NUTRITION (4) II (2 L, 2 Lb)**

Digestion and metabolism of carbohydrates, proteins, fats, minerals, vitamins, antibiotics, and hormones; nutrient needs for body processes and productive functions. Pre: AS 145, AB 402. Course fee \$5.00. (Alt. yrs.; not offered 1965-66.)

**445 ANIMAL BREEDING (3) I**

Application of genetic principles to the improvement of livestock and poultry. Pre: Genetics 451 or consent of instructor. (Alt. yrs.; offered 1965-66.)

**446 ANIMAL DISEASES AND THEIR CONTROL (3) I (2 L, 1 Lb)**

Disease problems of livestock and poultry; prevention, control, and eradication. Pre: AS 141, and consent of instructor.

**641 SEMINAR IN ANIMAL SCIENCE (1) I, II**

Topics of current interest and current research related to nutrition, genetics, and physiology. Pre: consent of instructor. (May be repeated.)

**642 RUMINANT NUTRITION (2) II**

Physiology and nutrition of the ruminant including microbiology of the rumen, carbohydrate utilization and production of volatile fatty acids, protein metabolism, absorption of nutrients, metabolic processes, normal and abnormal functions within the rumen. Pre: AS 442-443, 444, AB 402. (Alt. yrs.; offered 1965-66.)

**643 PHYSIOLOGY OF REPRODUCTION AND MILK SECRETION (3) I**

Factors responsible for the differentiation, development, and growth of the reproductive systems of higher vertebrates; artificial insemination; anatomy and function of the mammary system with emphasis on physiological and biochemical aspects. (Alt. yrs.; not offered 1965-66.)

**645 ADVANCED ANIMAL BREEDING (2) II**

An advanced study of selection, mating systems, and the genetic principles of livestock breeding. Pre: AS 445. (Alt. yrs.; not offered 1965-66.)

**699 DIRECTED RESEARCH (Arr.) I, II**

(1) Genetics; (2) nutrition; (3) physiology; (4) management.

## Entomology (Ento)

Senior Professors Bess, HARDY; Professors NISHIDA, M. SHERMAN; Associate Professor NAMBA; Assistant Professors BEARDSLEY, HARAMOTO, MITCHELL, TAMASHIRO

**161 GENERAL ENTOMOLOGY (4) I, II (2 L, 2 Lb)**

Structure, habits, biology, and classification of insects; insects characteristic of Hawaii. Course fee \$3.00.

**361 INSECT MORPHOLOGY (3) I (2 L-Lb)**

Comparative and gross morphology; homologies of structures; anatomy; development in representative groups. Pre: Ent 161. Course fee \$1.00.

**362 SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)**

Classification of insects; orders and families. Use of taxonomic tools. Pre: Ent 361. Course fee \$2.00.

**372 ECONOMIC ENTOMOLOGY (4) II (2 L, 2 Lb)**

Insect pests; principles of chemical, biological, and cultural control. Laboratories on Hawaiian insects of households, plants, and animals. Pre: Ent 161; Chemistry 104. Course fee \$3.00.

**399 DIRECTED RESEARCH (Arr.) I, II**

Limited to participants in the National Science Foundation Undergraduate Research Participation Program and to exceptional undergraduate students who are qualified to carry on research problems.

**661 MEDICAL AND VETERINARY ENTOMOLOGY (3) I (2 L, 2 Lb)**

Insects and other arthropods in relation to causation of human and animal diseases. Pre: Ent 161, desirable Zoology 410 and Microbiology 151. Course fee \$3.00.

**662 ADVANCED SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)**

Classification of special groups. Nomenclatorial problems; international code. Pre: Ent 362. Lab fee \$1.00.

**663 SCALE INSECTS (3) I (2 L-Lb)**

Coccids of Hawaii. Taxonomy, techniques, economic importance, control. Pre: Ent. 161; desirable Botany 460. Course fee \$5.00.

**664 IMMATURE INSECTS (3) II (2 L, 2 Lb)**

Identification, structure, literature, and economic significance, emphasis on the Holometabola. Pre: Ent 362. Course fee \$5.00.

**671 INSECT ECOLOGY (3) I (2 L, 1 Lb)**

Insects as living units in an environment of physical and biotic factors. Pre: Ent 362, 372; desirable Zoology 431.

**672 ACAROLOGY (3) II (2 L, 2 Lb)**

Taxonomy, biology, and ecology of mites. Emphasis on medically and agriculturally important species. Pre: Ent 362. Lab fee \$5.00.

**673 INSECT PATHOLOGY (3) II (2 L, 1 Lb)**

Diseases of insects; histopathology; microbe agents and biological control. Pre: Ent 372.

**675 BIOLOGICAL CONTROL OF PESTS (3) I (2 L, 1 Lb)**

Fundamental concepts. Critical study of major biological control projects. Pre: Ent 362, and 372; desirable Zoology 431.

**680 INSECT TOXICOLOGY (4) I (2 L, 2 Lb)**

Mode of action of insecticides. Relationship of toxicology and physiology to use of insecticides. Pre: Ent 372; Chemistry 141.

**686 INSECT-TRANSMITTED DISEASES OF PLANTS (3) II (2 L-Lb)**

Problems of insect transmission of plant disease. Pre: Ent 161 and Plant Pathology 310.

**697 ENTOMOLOGY SEMINAR (1) I, II**

Current entomological literature. Reviews and reports. Required of graduate students in entomology.

**699 DIRECTED RESEARCH (Arr.) I, II**

Directed research and reading in various fields of entomology.

## Food Science and Technology (Fd Sc)

Professor EDWARD ROSS; Associate Professor FRANK; Assistant Professor YAMAMOTO

**301 FOOD TECHNOLOGY (2) I**

Introduction to the field of food technology and survey of commercial food processing. Special tropical and Asian food products. Lectures and field trips to local processors.

**510 TROPICAL FOOD PROCESSING (3) I (1 L, 2 3-Hr Lb)**

Applied principles of processing and preservation; unit operations in canning, freezing, dehydration, and chemical preservation of tropical foods; practical sanitation procedures. Pre: consent of instructor.

**511 TROPICAL FOOD PRODUCTS (2) II (1 L, 1 3-Hr Lb)**

Procedures for evaluating quality. Examination of tropical food products by adapting standard laboratory methods. Experimental test methods in new product development. Pre: consent of instructor.

**601 PRINCIPLES IN FOOD SCIENCE AND TECHNOLOGY (3) II**

Integration of physical, chemical, and biological concepts to formulate basic principles in food science and technology; the scientific basis of food preservation. Pre: general physics, biochemistry, and microbiology. (Alt yrs.; not offered 1965-66.)

**603 MICROBIOLOGY OF FOODS (3) I**

Description of micro-organisms encountered in foods; different types of food spoilage; various methods used for food preservation. Pre: Microbiology 151 or equivalent with consent of instructor.

**604 LABORATORY METHODS FOR FOOD MICROBIOLOGY (2) II (2 Lb)**

Laboratory experiments and selected field trips to food processing plants; designed to acquaint the student with appropriate methods for study of microbial food spoilage, its control and prevention. Pre: Microbiology 151 or equivalent with consent of instructor.

**620 SEMINAR IN FOOD SCIENCE (1) I**

Special topics, reports, and informal discussion of graduate student research. Pre: consent of instructor.

**630 BIOCHEMICAL AND CHEMICAL ASPECTS OF FOOD SCIENCE (3) II**

Properties of natural compounds of importance to food processing, including application and control for selected enzyme systems. Pre: biochemistry.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: consent of department chairman.

**701 SEMINAR IN RECENT ADVANCES IN FOOD RESEARCH (1) II**

Reports and discussions from current literature in food science and technology.

## Home Economics (HE)

Professors BOATMAN, KRAEMER; Associate Professors BROWN, TULL, UMBEL; Assistant Professors BUTZINE, COOKSEY, EDER, HERRICK, MACKAY, SATHER, WEDDLE; Instructors FURER, ODA; Lecturer GARIS

**HE 100 ORIENTATION (1) I (1 L)**

The nature of higher education and the role of the University in personal development. Home Economics as a field of study and as professional preparation.

### CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

**HE 103 CHILD STUDY AND OBSERVATION (3) I, II (2 L, 1 Lb)**

Principles of development and guidance of children. Observation in the nursery school and other situations involving children. Pre: Psychology 102 or 104.

**HE 262 FAMILY RELATIONSHIPS (3) I, II**

A study of the interrelationships of the individual and his family through the various stages of the life cycle. Pre: Psychology 102 or 104 and Sociology 151.

**HE 650 SEMINAR IN FAMILY LIVING (3) I, II**

A review and analysis of the literature related to human development and interpersonal relationships within the family. Projects are carried out according to the special interests of the group. Pre: Senior or Graduate standing and consent of the instructor.

### CLOTHING DESIGN

**HE 110 AESTHETICS OF CLOTHING (3) I, II (2 L, 1 Lb)**

Factors involved in clothing selection. Principles of line, color, and design for individual figures. Consumer buying of wardrobes. Open to freshmen and sophomore women. Course fee \$1.00.

**HE 112 BASIC CLOTHING CONSTRUCTION (3) I, II (1 L, 2 Lb)**

Speed methods of construction using commercial patterns. Emphasis on fitting. Course fee \$2.00.

**HE 114 TEXTILES (2) I, II**

Fibers, yarns, fabric construction, and finishes related to selection, use, and care of textiles. Course fee \$2.00.

**HE 115 BLOCK PATTERN DESIGNING (2) II**

Principles of pattern making for women's and children's apparel through manipulation of quarter size master pattern blocks. Pre: 112. Course fee \$2.00.

**HE 117 COSTUMES OF THE WESTERN WORLD (3) I**

Chronological study of costume as related to culture and customs from ancient through modern times.

**HE 118 FASHION DESIGN AND SKETCHING (3) I (2 L, 1 Lb)**

Development of apparel design through sketching the fashion figure. Sources of design inspiration. Pre: HE 110, 115, 117 or concurrent; Art 112.



**HE 214 DRAPING (3) I (1 L, 2 Lb)**

Principles of pattern making through draping muslin models to standard measurements. Pre: HE 115, 118. Course fee \$4.00.

**HE 215 ADVANCED BLOCK PATTERN DESIGNING (3) II (1 L, 2 Lb)**

Patterns for women and children made from sketches representing a variety of commercial requirements; grading; muslin models made to standard measurements. Pre: 214. Course fee \$4.00.

**HE 216 CREATIVE CLOTHING CONSTRUCTION (3) I, II (2 Lb)**

Clothing construction as a form of creative expression. Coordination of fabric and couturiere patterns. Construction techniques that contribute to individuality in dress. Pre: HE 112 or consent of instructor. Course fee \$4.00.

**HE 319 APPAREL DESIGN STUDIO (3) I (2 Lb)**

Preparation of individual design collection of children and junior wear. Noted local designers serve as critic-teachers. Pre: Senior standing clothing design majors. Course fee \$4.00.

**HE 320 APPAREL DESIGN STUDIO (3) II (2 Lb)**

Preparation of individual design collections for women's wear. Noted local designers serve as critic-teachers. Pre: 319. Course fee \$4.00.

**HE 322 ADVANCED FASHION DESIGN & SKETCHING (2) II**

Development of original designs for wearing apparel presented in portfolio form. Concurrent with HE 320.

**HE 418 COSTUMES OF ASIA (3) II**

Development and characteristics of costumes and fabrics of China, Japan, Korea, Philippines, India, Southeast Asia; relation to customs and culture.

## FOODS AND NUTRITION

**HE 120 FOOD PREPARATION (3) I, II (1 L, 2 Lb)**

Scientific principles underlying the preparation of foods to yield products of standard quality. Course fee \$8.00.

**HE 126 INTRODUCTION TO NUTRITION (2) I, II (2 L)**

Basic principles of nutrition. Food sources of nutrients; essentials of an adequate diet. Not open to Foods and Nutrition and Institutional Administration majors.

**HE 222 MEAL MANAGEMENT (3) I, II (1 L, 2 Lb)**

Management of time, energy, and money in relation to feeding the family. Consideration of nutritional needs and food patterns. Advance registration required. Pre: HE 120. Course fee \$8.00.

**HE 223 ADVANCED FOODS (3) II (1 L, 2 Lb)**

Comparative food studies with emphasis on physical and chemical variables. Pre: HE 120 and Chem 104 or 106. Course fee \$8.00.

**HE 240 PRINCIPLES OF NUTRITION (3) II (3 L)**

Functions and interrelationships of nutrients. Application of nutrition principles to human dietary requirements. Pre: Chem 104 or 106, Zool 116.

**HE 441 CULTURAL ASPECTS OF FOOD (3) II (3 L)**

International and regional influences on meal patterns. Cultural and aesthetic values of food.

**HE 443 ADVANCED NUTRITION (3) II (3 L)**

Metabolism of food nutrients. Methods and instruments for obtaining nutritional data and interpretation of findings. Pre: HE 240 and Biochem 271.

**HE 445 DIET AND DISEASE (3) II (3 L)**

Modifications of normal diet for use in therapeutic conditions. Physiological bases for modifications. Pre: HE 443.

**HE 447 SEMINAR IN NUTRITION (2) I, II**

Scientific literature in foods and nutrition. Discussion of selected materials from the literature. Pre: HE 443 or consent of instructor. Senior standing.

**HOME ECONOMICS EDUCATION****HE 270 HOME ECONOMICS EDUCATION (3) I, II**

Curriculum content. Current educational philosophies and practices in home economics education. Teaching materials and techniques.

**HE 470 SPECIAL PROBLEMS IN HOME ECONOMICS EDUCATION (2) I, II**

Individual and group problems selected according to the interests and needs of fourth and fifth year students in home economics education. Development of teaching materials.

**HOME MANAGEMENT AND FAMILY ECONOMICS****HE 250 HOME MANAGEMENT (3) I, II (3 L)**

Concepts of management of resources applied to family living; the functions of decision-making; the roles of management and decision-making in the realization of family goals.

**HE 251 HOUSEHOLD EQUIPMENT (3) I, II (2 L, 1 Lb)**

Selection, optimum use, upkeep of household equipment. Emphasis on design, construction, materials and consumer use.

**HE 252 FAMILY HOUSING AND HOME FURNISHINGS (3) I, II (2 L, 1 Lb)**

Evaluation of housing for family living. Selection, use, and arrangement of furnishings and accessories in the home. Pre: Art 104 or 131.

**HE 260 FAMILY ECONOMICS (3) I, II**

The role of the family as a consumer unit in the economy. Pre: Econ 150.

**HE 358 HOME MANAGEMENT RESIDENCE (4) I, II**

Supervised residence laboratory in home living. Application of management concepts and decision-making. Group communication and relationships. Students share subsistence cost. Pre: Senior standing; HE 250. Advance registration.

**INSTITUTIONAL ADMINISTRATION****HE 234 INSTITUTIONAL FOOD PRODUCTION (3) I (1 L, 2 Lb)**

Food preparation and service in quantity; menu planning; cost, use and care of equipment. Pre: HE 222 for HE majors. Pre: HE 120, 126 for HMT majors.

**HE 235 ADVANCED INSTITUTIONAL FOOD PRODUCTION AND PURCHASING (3) II (1 L, 2 Lb)**

Food preparation and service in various types of establishments, banquet and catering service, food and equipment selection and procurement. HMT majors only. Pre: HE 234.

**HE 236 INSTITUTIONAL ADMINISTRATION (3) II**

Organization and management of food service in various types of institutions. Pre: HE 234.

**HE 238-239 INSTITUTIONAL PURCHASING (3-3) Yr.**

Food and equipment specifications and requirements for various types of institutions. Pre: Credit or concurrent registration in HE 234.

**HE 340 HOSPITAL DIETARY MANAGEMENT (4) I, II**

Experience in all phases of dietary department operation in an approved institution. Pre: HE 234, 443, 445. Consent of instructor.

**DIRECTED READING OR RESEARCH****HE 399 DIRECTED READING OR RESEARCH (Arr.) I, II**

(1) Child development, (2) family relationships, (3) clothing and textiles, (4) home management, equipment and family economics, (5) foods and nutrition, (6) institutional administration. Limited to senior students with 3.0 grade-point average.

**Horticulture (Hort)**

Professors BREWBAKER, HAMILTON, KAMEMOTO, SAGAWA, WARNER, WATSON; Associate Professors GILBERT, NAKASONE; Assistant Professors AKAMINE, HARTMANN, ROMANOWSKI, YEE

**101 GENERAL HORTICULTURE (2) I**

Horticulture and horticultural research intended for students who want a general knowledge but who do not plan to specialize in these fields.

**161 PRINCIPLES OF PLANT PROPAGATION (3) I (2 L, 1 Lb)**

Theory and practical methods of plant propagation. Pre: Botany 101. Course fee \$3.00.

**162 PRINCIPLES OF HORTICULTURE (3) I (2 L, 1 Lb)**

Relationships of plant structures, nutrients, environment, and cultural methods to plant growth. Pre: Botany 101; credit or concurrent registration in Chemistry 104.

**362 PRINCIPLES OF TROPICAL POMOLOGY (3) II (2 L, 1 Lb)**

Botany, distribution, and basic requirements of tropical fruit crops. Pre: H 162; Botany 101. Course fee \$1.00.

**369 ORNAMENTAL PLANT MATERIALS (3) II**

Lawns, ground covers, vines, shrubs, herbaceous plants, and trees in Hawaii. Pre: H 162; Botany 360; or consent of instructor.

**392 COMMERCIAL VEGETABLE PRODUCTION (3) I (2 L, 1 Lb)**

Production methods and current problems from choosing seed to marketing. Emphasizes top ten Hawaiian vegetables. Pre: H 162; credit or concurrent registration in Ent 161. Course fee \$3.00.

**453 PRINCIPLES OF PLANT BREEDING (3) I (2 L, 1 Lb)**

Cytogenetics, hybridization, and selection in the improvement of plants. Pre: Genetics 451.

**463 PRINCIPLES OF FLORICULTURE (3) I (2 L, 1 Lb)**

Fundamentals and practices of producing floricultural crops in Hawaii. Pre: H 162; Botany 101. Course fee \$3.00.

**464 ORCHIDOLOGY (3) II (2 L, 1 Lb)**

Classification, culture, cytogenetics, and breeding of orchids. Pre: Botany 101; Genetics 451.

**471 POSTHARVEST PHYSIOLOGY (3) II (2 L, 1 Lb)**

Handling and storage of horticultural crops. Pre: H 162 or consent of instructor. (Alt. yrs.; offered 1965-66.)

**494 SYSTEMATIC VEGETABLE CROPS (3) II (2 L, 1 Lb)**

Adaptation, qualities, disease and insect resistance, taxonomic comparison of types grown in Hawaii; pedigrees and breeding of major varieties. Pre: H 162.

**566 ADVANCED TROPICAL POMOLOGY (3) II (2 L, 1 Lb)**

Origin, culture, and management of fruit and nut crops commercially important in Hawaii. Pre: H 362 or consent of instructor.

**603 EXPERIMENTAL DESIGN (2) I, (1 L, 1 Lb)**

Use of statistical methods and experimental designs in plot technique and agricultural research. Pre: Zoology 431, 432.

**611 ADVANCED PLANT BREEDING (3) II (2 L, 1 Lb)**

Breeding systems and methods, current practices and problems in plant improvement. Pre: H 453. (Alt. yrs.; offered 1965-66.)

**666 RADIATION BIOLOGY (3) II (2 L, 1 Lb)**

Types and sources of radiation; effects of irradiation on living organisms; applications in agricultural research. Pre: consent of instructor.

**667 HORTICULTURE SEMINAR (1) I, II**

Presentation of reports upon research or reviews of current literature in horticulture.

**668 GROWTH REGULATORS IN HORTICULTURE (3) II**

Concepts of plant growth regulation and application in agriculture. Pre: Botany 470. (Alt. yrs.; not offered 1965-66.)

**691 CROP ECOLOGY (3) II (2 L, 1 Lb)**

Climatic, edaphic, and biotic factors influencing tropical and subtropical crops; instrumentation and data interpretation. Pre: 162 or consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II****711 SPECIAL TOPICS IN EXPERIMENTAL HORTICULTURE (Arr.)**

Lecture series on recent advances in horticultural research with detailed study of specific areas of this field. Intended for plant science graduates. Pre: consent of staff.

## Nutrition (Nutr)

Associate Professor LICHTON; Assistant Professors HILKER, STANDAL

**601-602 HUMAN NUTRITION (3-3) I, II (2 L, 1 Lb)**

Fundamental concepts of human nutrition. Lecture and quantitative laboratory studies of the biochemistry and physiology of nutrition and certain diseases of nutritional origin. Pre: consent of instructor.

**621 TOPICS IN NUTRITION (2) I, II**

Reports and discussion of a topic of current interest in nutrition such as infant and child nutrition, trace elements, nutritional diseases. Pre: graduate standing.

**651 DIETARY STUDIES (2) I, II**

Individual, group, family and/or institutional studies of the nutritive value of diets. Pre: consent of instructor.

**652 LABORATORY METHODS IN NUTRITION (3) I, II**

Experiments: food analysis, balance experiments with animals or humans, vitamin determinations. Pre: Chemistry 271; consent of department chairman.

**699 DIRECTED (Arr.) I, II**

Pre: consent of department chairman.

**701 SEMINAR (1) I**

Reports and discussion of special topics and graduate student research. Pre: consent of instructor.

## Plant Pathology (P Path)

Associate Professors HINE, ISHII; Assistant Professors ARAGAKI, HOLTZMANN, TRUJILLO

**410 PRINCIPLES OF PLANT PATHOLOGY (4) I (2 L, 2 Lb)**

Disease in plants; emphasis upon infection and development in relation to environment; epidemiology; methods of appraisal; control. Pre: Botany 101.

**610 PRINCIPLES OF PLANT DISEASE CONTROL (3) II (2 L, 1 Lb)**

Methodology and application of plant disease control. Pre: PP 310. (Alt. yrs.; offered 1965-66.)

**620 PLANT PATHOLOGY TECHNIQUES (3) I (2 L, 1 Lb)**

Laboratory and greenhouse methods for the study of plant diseases; isolation, culture, and inoculation; pathological histology, and photography. Pre: PP 310; Microbiology 151; or consent of instructor. Lab fee \$5.00. (Alt. yrs.; not offered 1965-1966.)

**625 ADVANCED PLANT PATHOLOGY (2) II**

Analysis of basic concepts of plant diseases; emphasis on physiology of parasitism, etiology, and epidemiological principles. Pre: PP 310, 610; or consent of instructor. (Alt. yrs.; not offered 1965-66.)

**660 SEMINAR (1) I, II**

Seminars in contemporary research. Reviews and reports.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: candidacy for the M.S. degree; consent of instructor.

## Plant Physiology

Professor COOL; Associate Professors LOCKHART, PUTMAN

*For course descriptions, see the following listings under the Department of Botany.*

**BOTANY 470 PRINCIPLES OF PLANT PHYSIOLOGY (4) II (3 L, 1 Lb)****BOTANY 670-671 ADVANCED PHYSIOLOGY (3-3) Yr.****BOTANY 672 TECHNIQUES IN PHYSIOLOGY (2) I (2 Lb)****BOTANY 673 TECHNIQUES IN PHYSIOLOGY-BIOCHEMISTRY (2) II (2 Lb)**

**BOTANY 612 ADVANCED BOTANICAL PROBLEMS (Arr.) I, II**

**BOTANY 675 PHYSIOLOGY SEMINAR (1) I, II**

**BOTANY 699 DIRECTED RESEARCH (Arr.) I, II**

## **Poultry Science (Poult)**

Associate Professor E. Ross; Assistant Professors HERRICK, PALAFOX

**472 ADVANCED POULTRY PRODUCTION (3) I (2 L, 1 Lb)**

An advanced study of poultry management practices in the U.S., and Pacific area countries. Pre: An Sc 141. (Alt. yrs.; not offered 1965-66.)

**474 POULTRY NUTRITION (3) I (2 L, 1 Lb)**

Principles of poultry nutrition; formulation of poultry rations with local feeds. Pre: An Sc 141. (Alt. yrs.; offered 1965-66.)

**475 INCUBATION AND HATCHERY MANAGEMENT (3) I (2 L, 1 Lb)**

Principles and practices in incubation and brooding; chick embryology. Pre: An Sc 141. (Alt. yrs.; not offered 1965-66.)

**601 SEMINAR IN POULTRY SCIENCE (1) I, II**

Current trends and problems in poultry science.

**699 DIRECTED RESEARCH (Arr.) I, II**

# THE GRADUATE SCHOOL

**THE GRADUATE SCHOOL** provides opportunities for further study, research, and professional training to students who have earned a bachelor's degree from an accredited institution of higher learning. The graduate program is not, however, merely an extension of work at the undergraduate level. More rigorous academic standards are applied and a greater degree of independence in the pursuit of knowledge is required. Special emphasis is placed on the cultivation of scholarly attitudes and methods of research.

The University offers graduate work leading to:

- 1) The doctor of philosophy in agricultural economics, anthropology, biochemistry, botany, chemistry, entomology, genetics, geological sciences, history, horticulture, linguistics, meteorology, microbiology, philosophy (Western, Asian, and comparative), physics, political science, psychology, soil science, and zoology;
- 2) the master's degree in agricultural economics, agricultural engineering, agronomy, American studies, animal science, anthropology, art, Asian studies, biochemistry, botany, business administration, chemistry, Chinese, civil engineering, drama and theatre, economics, education, electrical engineering, English, entomology, food science, French, genetics, geography, geological sciences, German, history, horticulture, Japanese, library studies,\* linguistics, mathematics, meteorology, microbiology, music, nursing, nutrition, oceanography, overseas operations, Pacific islands studies, philosophy, physics, plant pathology, political science, poultry science, psychology, public health, social work,\* sociology, soil science, Spanish, speech, teaching of English as a second language, and zoology.
- 3) the professional certificate for teachers in the employ of the state Department of Education (*see* p. 154).

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\*For these programs see the *Graduate Bulletin* or bulletins of the respective Schools.

*Note:* For information on physiology and pharmacology refer to the *Graduate Bulletin*.

Students may likewise earn graduate credit at the University for transfer to other institutions.

Complete information concerning admission procedures and requirements is given in the *Graduate Bulletin*, available upon request from the office of The Graduate School.

## American Studies (Am St)

Professors BROWN, DENNEY; Associate Professors HAMAKER, LUTZKY; Assistant Professor McCUTCHEON

### 485-486 CONTEMPORARY AMERICAN CIVILIZATION (3-3) Yr.

Images of American civilization as held both in the United States and abroad.

### 630 CRITICISM IN THE MASS MEDIA AGE (3) I

Problems in criticism, the philosophy of art, and aesthetics as generated by modern mass communications techniques. Limited to 20 students. Qualified seniors admitted. Pre: consent of instructor.

### 660 SEMINAR: PRESIDENTIAL LEADERSHIP AND AMERICAN CIVILIZATION (3) I, II

Interdisciplinary studies of the impact of various presidencies on the social, political, economic and cultural life of the U.S. and the response of presidents to popular currents of thought.

### 685-686 SEMINAR: THE NATURE OF AMERICAN SOCIETY (3-3) Yr.

Examination and interpretation of the American people and society for foreign students. Pre: consent of instructor.

### 690 INTRODUCTION TO CONTEMPORARY AMERICA (3) I, II

Survey of the people, the society, the arts and sciences, business and government for students preparing to teach English as a second language. Pre: consent of instructor.

### 699 DIRECTED RESEARCH (Arr.) I, II

Pre: graduate standing; consent of instructor.

### 700 METHODS IN AMERICAN STUDIES (3) I

Training in bibliography and research methods in American studies.

### 750 SEMINAR IN THE INTERACTION OF ASIA AND AMERICA (3) I, II

Effect of inter-cultural exchange of ideas, values, and techniques between the peoples of Asia and the United States. Pre: consent of instructor.

### 800 THESIS RESEARCH

*Note:* Seminars offered in the Asia-American Program are listed under the East-West Center.



## Biochemistry (Bioch) and Biophysics (Bioph)

Professors PIETTE, WINNICK; Associate Professor YASUNOBU; Assistant Professors HALL, MCKAY, MOWER

*601-602 is prerequisite for all other courses in the graduate program.*

### 271 ELEMENTS OF BIOCHEMISTRY (3) I

Lectures on composition of biological substances and their transformations in animals and man. Registration open to majors in medical technology and home economics, or with consent of department chairman. Pre: Chemistry 103-104, 143-144, or equivalent.

### 272 ELEMENTS OF BIOCHEMISTRY LABORATORY (1) I

Laboratory exercises to accompany 271. Course fee \$12.00.

### 601-602 GENERAL BIOCHEMISTRY (3-3) Yr.

Structure, chemistry and metabolism of the important components of living organisms. Pre: Chemistry 143-144, Chemistry 551-552, or consent of instructor.

### 611-612 BIOCHEMISTRY LABORATORY (2-2) I, II

Both physico-chemical and metabolic experiments to illustrate the principles of 601-602. Course fee \$12.00 per semester.

### 621 CHEMISTRY OF THE PROTEINS (2) I

Structure, chemistry, and physical aspects of amino acids, peptides and proteins.

### 622 METABOLISM AND BIOSYNTHESIS OF PROTEINS (2) II

Metabolism of the amino acids and the pathways of peptide and protein formation, within the cell and *in vitro*. Antimetabolites and inhibitors. Genetic aspects.

### 651 ADVANCED ENZYMOLOGY (2) I

Structure, active centers, and mechanisms of enzyme catalysis; enzyme kinetics; evolutionary considerations; metabolic inhibitors.

### 660 SURVEY OF INTERMEDIARY METABOLISM (2) II

Dynamic aspects of the metabolism and interrelationships of tissue constituents, with emphasis on the critical evaluation of recent literature.

### 691-692 SPECIALIZED INSTRUMENTATION AND METHODOLOGY (Arr.) I, II

Use of modern physical and metabolic laboratory equipment for research training. Course fee \$12.00.

### 699 DIRECTED RESEARCH (Arr.) I, II

Students may register on approval of the department.

### 711 NUCLEIC ACIDS AND VIRUSES (2) I

Chemistry, metabolism, biosynthesis, and biological functions of nucleotides and nucleic acids. Structure, composition, and mode of replication of animal, plant, and bacterial viruses.

### 720 MOLECULAR BIOLOGY AND COMPARATIVE BIOCHEMISTRY (2) II

Regulation of biosynthetic and metabolic pathways at the molecular and cellular levels. Evolutionary and comparative aspects of molecular structures.

### 750 SPECIAL TOPICS IN BIOPHYSICS (1) I, II

Selected aspects of physico-chemical biology; the application of physical principles (including spectroscopy, X-Ray analysis, electron spin resonance, and nuclear magnetic resonance) to biological systems.

**791-792 SEMINAR (1) I, II**

Weekly discussions and reports on various subjects; current advances in biochemistry and biophysics.

**800 THESIS RESEARCH (Arr.) I, II**

Students may register upon approval of department faculty.

## Genetics (Genet)

Senior Professor SNYDER; Professor MORTON; Associate Professors ASHTON, HUNT, YOKOYAMA

**321 HUMAN HEREDITY (3) I**

Principles of heredity in man, including analytical, cytological, biochemical, and population aspects. Pre: one semester of biological science recommended.

**451 PRINCIPLES OF GENETICS (3) I**

Fundamental genetic principles, with examples from microorganisms, plants, animals, and man. Pre: one semester of biological science. College algebra and elementary chemistry recommended.

**452 GENETICS LABORATORY (1) I**

Experiments with a variety of organisms to illustrate the principles of 451.

**518 BIOCHEMICAL GENETICS (3) II**

Genetic principles at the cellular level as they are related by the structure of proteins and nucleic acids to genetic fine structure, mutagenesis, the transfer of genetic information and control of development. Pre: 451 and one semester of biochemistry recommended.

**618 CYTOGENETICS (3) II (2 L, 1 Lb)**

Correlation of genetic and cytological phenomena. Pre: 451, Botany 418 recommended.

**625 ADVANCED TOPICS IN GENETICS (2) II**

Advanced treatment of frontiers in genetics by visiting scholars. Pre: graduate standing in genetics or consent of instructor.

**650 POPULATION GENETICS (3) II**

Mathematical, observational, and experimental results bearing on the effects of mutation, selection, and systems of mating on the distribution of genes. Genetic analysis of nonexperimental populations, especially man. Pre: 321 or 451 (preferred); elements of calculus, probability and statistics.

**654 GENETICS SEMINAR (1) I, II**

Research and topical literature reports in genetics. May be repeated. Graduate standing in genetics or consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: graduate standing; consent of instructor.

**800 THESIS RESEARCH (Arr.) I, II**

Pre: consent of instructor.

Graduate courses in genetics offered by other departments:

**BIOCHEMISTRY 711 Nucleic Acids and Viruses**

**BIOCHEMISTRY 720 Molecular Genetics and Comparative Biochemistry**

**HORTICULTURE 666 Radiation Biology**

**ANIMAL SCIENCE 645 Advanced Animal Breeding**

**MICROBIOLOGY 671 Microbial Genetics**

## Library Studies (LS)

Professors AYRAULT, BONN, SHAW; Associate Professor SIMON; Assistant Professors CASELLAS, TOM; Instructor TAYLOR; Lecturer STEVENS

### LS 601 BIBLIOGRAPHY AND REFERENCE SOURCES (3)

Analysis of the means by which the availability and content of graphic materials are recorded; the characteristics and problems of national and subject bibliography, and the function of the librarian as bibliographer. Introduction to materials and methods for locating information in general reference sets, specific fact sources, periodical indexes, abstract series; analytical and searching procedures for simple inquiries.

### LS 602 ADVANCED REFERENCE SOURCES (3)

Continued discussion of the various types of general reference tools. Introduction to the subject approach in reference work through the three major areas: the sciences, the social sciences, and the humanities. Each area is analyzed in terms both of the characteristics of the literature and of the typical problems and methods of reference work; and the major works in each area are studied as examples. Pre: LS 601 Bibliography and Reference Sources.

### LS 605 BASIC CATALOGING AND CLASSIFICATION (3)

Designed as an introduction to cataloging in the research or large general library and as a terminal course in cataloging for the school or small popular library. Covers principles and practice of descriptive cataloging, the structure and application of the Dewey Decimal Classification and Sears' List of Subject Headings, and the use of printed cards.

### LS 606 ADVANCED CATALOGING AND CLASSIFICATION (3)

Continues 605, using especially the Library of Congress scheme to illustrate the principles and practices of organization of materials and subject analysis in research and large general libraries. Considers the problems peculiar to the handling of certain forms of materials, and provides opportunity for study of cataloging in collections specialized by subject. Pre: LS 605 Basic Cataloging and Classification.

### LS 610 SOCIAL FUNCTIONS OF LIBRARIES (3)

Introduction to librarianship. The four aspects of the course include: librarianship as a profession, the history of books and libraries, a survey of current programs and trends in American libraries, and international aspects of librarianship.

### LS 615 BUILDING LIBRARY COLLECTIONS (3)

Criteria for evaluating and selecting library materials, devising and maintaining an acquisition program, and the structure of the book trade. Findings of studies of library use are drawn upon where applicable. Pre: LS 601 Bibliography and Reference Sources.

### LS 618 GOVERNMENT DOCUMENTS (3)

Sources, types, and uses of government documents, both state and federal, and their acquisition and organization for use.

### LS 642 AUDIO-VISUAL SERVICES IN LIBRARIES (3)

Films, filmstrips, recordings, and related media as they apply to various types of educational programs in libraries. Sources, evaluations, organization, and use of audio-visual materials. Materials are viewed and audited and judged.

### LS 647 MANAGEMENT OF LIBRARY OPERATIONS (3)

Study of the philosophies and techniques of scientific management and their application to library operations such as circulation, acquisition, and cataloging routines. Provides a foundation in the principal routines in libraries of all types

and in the theory and practice of scientific management which will enable students to analyze routines and, where necessary, to design improved methods for performance of library operations.

**LS 650 ADMINISTRATION OF LIBRARIES (3)**

The organization and human factors which make for effective library service. Covers governmental relations, policy making, structure of jobs and departments, communication and co-ordination, staffing, financing, and housing. Case studies are used for instructional purposes.

**LS 660 SCIENCE AND TECHNOLOGY LITERATURE (3)**

Study of the bibliographical structure and sources used in building and servicing collections and providing information in the basic and applied sciences. Special attention to such pure sciences as physics, chemistry, and biology and to such applied fields as medicine, agriculture, and engineering.

**LS 662 BUSINESS AND ECONOMIC LITERATURE (3)**

Study of the bibliographic structure and sources used in building and servicing collections and providing information in commercial fields; designed for students and librarians interested in business and social science services in public and university libraries and in company libraries.

**LS 664 ABSTRACTING AND INDEXING FOR INFORMATION SERVICES (3)**

Principles, practices, and development of abstracting and indexing services. Integrating these into the complex of special library operations, with emphasis upon current awareness and the retrospective searching needs of clientele. Analyzes various types of abstracts, their organization and uses, and develops skill in preparation of abstracts and indexes.

**LS 670 LITERATURE SEARCHING AND DOCUMENTATION (3)**

The special intellectual and mechanical tools for storage, searching, reproduction, and transmission of information. Deals with the audience and materials of documentation. Of particular value to service in special research and large public and university libraries.

**LS 677 EVALUATION AND USE OF POPULAR LITERATURE (3)**

Identification and evaluation of literature in the various areas of adult reading. Attention to such topics as why adults read and readability. Practice in writing annotations and preparation of reading lists. Analysis of specific reader services such as reader interest arrangement and book talks.

**LS 678 READER SERVICES (3)**

Introduction to the major forms of library services to the reader as developed in libraries of all types. Emphasis on study of the community served as a basis for the program of reader services. Wide reading, class lectures and discussion, student projects, and an opportunity to observe services provided in public, school, college, and special libraries in the area.

**LS 681 READING MATERIALS FOR CHILDREN (3)**

Historical background of children's literature; tools for book selection in this field. Evaluation of contemporary children's books and recordings on basis of development needs of children through the sixth grade and criteria for various types. Opportunity to develop skills in storytelling through critique by visiting specialist.

**LS 682 READING MATERIALS FOR YOUTH (3)**

Evaluation of books and magazines for young people of junior and senior high school age; book selection tools and criteria for judging. Developmental needs of young people with attention to materials for exceptional readers. Methods of stimulating reading such as book lists and book talks.

**LS 683 SERVICE FOR CHILDREN AND YOUNG PEOPLE (3)**

Organization and provision of services from preschool through young adult years, considering both school and public libraries. Special attention to preparation of lessons in use of books and libraries.

**LS 685 TRADITIONAL LITERATURE AND ORAL NARRATION (3)**

To provide background in traditional literature adapted for use with children and to develop skill in the use of such materials in storytelling. Wide reading and annotation of examples in all areas, with concentration by the student in a selected area, and experience in oral narration.

**LS 698 FIELD SEMINAR (3)**

An honors course which may be taken at the end of the professional program of study. Students in small groups apply all the principles learned to analysis of their field experience. Designed to promote understanding of total library programs, and the functions and interrelations of its services. Serves as the practice teaching course for school librarians.

**LS 701 ADMINISTRATION OF LIBRARIES IN THE ORIENT (3)**

Governmental and fiscal policies and programs, personnel administration, policy making, buildings and equipment for libraries in Oriental countries.

**LS 705 ORIENTAL REFERENCE SOURCES (3)**

Bibliographical and reference tools and services in Oriental countries with special attention to source materials in other than Western languages.

**LS 710 ORIENTAL CHILDREN'S LITERATURE (3)**

Children's classics, sources of reading materials for children, and children's library services in Oriental countries.

**LS 715 SEMINAR IN LIBRARY DEVELOPMENT (3)**

Each student will prepare a report on the state of development of library service in a particular country and will outline a program for library development to provide an optimum scheme for library services on all levels in that country. He will submit this plan with a budget, personnel requirements, and a scheme of feasible priorities for achieving the library program proposed. This will be subjected to class discussion, after which he will submit a revised plan.

## Linguistics (Ling)

Professors **ELBERT, GRACE, MCKAUGHAN**; Assistant Professors **SCHUTZ, TOPPING, TSUZAKI**; Visiting Professors **HOUSEHOLDER, MARTIN**

**202 GENERAL LINGUISTICS (3) I, II**

The nature and workings of language, and its role in culture and history.

**610 ARTICULATORY PHONETICS (3) I**

Intensive training in the recognition, reproduction, and recording of speech sounds throughout the world, preparing the student for field work especially with unrecorded languages. Class will meet four hours weekly.

**620 INTRODUCTION TO LINGUISTIC ANALYSIS (3) I**

Intensive introduction to modern techniques of linguistic analysis.

**621 PHONEMICS (3) I**

Survey of phonological theory with concentration on the principles of phonemic analysis and practice in problem solving. Pre: 620 or consent of instructor.

**622 MORPHOLOGY AND SYNTAX (3) I**

Principles of morphological and syntactic analysis. Pre: 620.

**630 FIELD METHODS (3) I**

Work with native speakers of lesser-known languages to develop methods and techniques for the collection and analysis of linguistic data. Pre: 622 and consent of instructor.

**645 INTRODUCTION TO COMPARATIVE METHOD (3) II**

Fundamentals of comparative and historical method in linguistics with emphasis on Indo-European and attention to non-Indo-European languages having few or no written records. Pre: 622 or consent of instructor.

**650 ADVANCED LINGUISTIC ANALYSIS (3) I**

Advanced problems and discussion of theory, techniques, and procedures in linguistics. Pre: 621, 622 and consent of instructor.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: graduate standing; consent of instructor.

**710 AREAL LINGUISTICS (3) II**

A seminar dealing with the structures of languages of various areas of the world depending on both resident and visiting staff specialties. Pre: Linguistics 622. May be repeated.

**750 SEMINAR (3) I, II**

Reporting and discussion of current research in linguistics. Pre: consent of instructor. May be repeated.

**760 PROBLEMS IN COMPARISON AND PRE-HISTORY (3) I**

Special problems dealing with the areas of language classification, measures of language divergence, dialect geography, and other phases of comparative-historical linguistic study. Pre: 645. May be repeated.

**780 ETHNO-LINGUISTICS (3) I**

A seminar for advanced students of both Linguistics and Anthropology, dealing with methods and their application to research in the fields of Linguistics and Anthropology with concentration on the inter-relations between culture and language. Pre: consent of instructor.

**800 THESIS RESEARCH (Arr.)**

## Oceanography (Ocean)

Professors BROCK, GROVES, WYRTKI; Associate Professor GILMARTIN; Assistant Professors ADAMS, CHAMBERLAIN; Instructor PASBY

**201 SCIENCE OF THE SEA (3) I**

Origin, history, resources; biological, chemical, geological and physical aspects and interrelationships. Opportunities in oceanography.

**620 PHYSICAL OCEANOGRAPHY (3) I**

Introduction to physics of the oceans; physical properties; heat budgets; energy transformation; interaction with boundaries; dynamic equilibrium; waves, currents and tides; water masses and circulation patterns of the seas. Pre: Math 114 or 143 or consent of instructor.

**621 BIOLOGICAL OCEANOGRAPHY (3) II**

Marine organisms, factors governing productivity; distribution, ecology, environmental influences; marine resources, their availability and utilization. Desirable preparation: Ocn 620.

**622 GEOLOGICAL OCEANOGRAPHY (3) (2 L, 1 3-hr Lb)**

Marine geological processes and forms. Field and shipboard activities employing geological equipment and techniques. Pre: Ocn 620.

**623 CHEMICAL OCEANOGRAPHY (2) I**

Study of the chemical processes in marine waters including composition of sea water, nutrients, extraction of materials, carbon dioxide systems. Desirable preparation: Ocn 620.

**625 SEA AND LABORATORY TECHNIQUES (2) II (2 3-hr Lb)**

Marine instrumentation, sampling and analytical procedures.

**631 MARINE PHYTOPLANKTON (3) I (2 L, 1 3-hr Lb)**

Identification, systematic morphology, distribution and abundance. Desirable preparation: Ocn 620.

**632 LITTORAL GEOLOGICAL PROCESSES (3) I (2 3-hr L-Lb)**

Geological processes and forms peculiar to the near-shore marine environment. Pre: Ocn 620, 622.

**633 CHEMICAL OCEANOGRAPHY LABORATORY METHODS (1) I**

Standard chemical methods of analysis. Pre: Chem 331 or consent of instructor.

**635 MARINE GEOPHYSICS (3) I (2 L, 1 3-hr Lb)**

Seismic, magnetic, gravity measurements and techniques employed at sea; gravity anomalies; data reduction. Pre: Ocn 620.

**640 ADVANCED PHYSICAL OCEANOGRAPHY (3) II**

Dynamics of ocean currents; equations of motion and continuity; ocean circulation; heat budgets. Pre: Ocn 620, Math 402.

**641 MARINE ZOOPLANKTON (3) II (2 L, 1 3-hr Lb)**

Identification, systematic morphology, distribution, and abundance. Desirable preparation: Ocn 621.

**642 RECENT MARINE SEDIMENTS (3) II (2 3-hr Lb)**

Composition and distribution of recent marine sediments. Marine sedimentary environments. Pre: Ocn 623, 622. (Not offered 1965.)

**643 MARINE GEOCHEMISTRY (3) II**

Origin and history of the oceans, isotope geochemistry, sedimentary cycle, biogeochemistry. Pre: Ocn 622, 623.

**651 DYNAMICS OF MARINE PRODUCTIVITY (3) II (2 3-hr L-Lb)**

Primary productivity, its variation and methods of assessment; conversion of energy in food chains, ecosystems; factors affecting productivity. Pre: Ocn 621.

**653 CHEMICAL PROCESSES IN THE SEA (3) I**

Detailed study of selected topics in chemical oceanography; industrial utilization of sea water and chemical products obtained from marine plants and animals; water freshening; industrial corrosion problems; chemical aspects of photosynthesis and fertility of the sea; chemistry of estuarine waters. Pre: 623.

**660 OCEAN WAVE THEORY (3) I**

Generation and propagation of waves at sea; tsunamis, tides, internal waves; observation and recording of ocean waves; wave spectra and forecasting. Pre: either Ocn 640, Math 432, or consent of instructor.

**672 OCEAN BASINS (3) II**

Origin, structure, and geomorphology of the ocean basins. Pre: Ocn 622.

**680 ENGINEERING ASPECTS OF OCEANOGRAPHY (3) II**

Wave force theory and application to floating and fixed structures; estuarine and coastal modifications as related to seismic sea waves, breaking waves, tsunamis, seiches; tides; wave forecasting in coastal waters. Pre: Ocn 660, Math 601.

**699 DIRECTED RESEARCH (Arr.) I, II**

Pre: approval of instructor.

**701 FISHERIES OCEANOGRAPHY (3) II**

Influence of environmental factors on fluctuations—availability and abundance of fish populations, with particular reference to pelagic species; forecasting of success of commercial fishing. Pre: 621.

**705 OCEANOGRAPHY OF THE EQUATORIAL REGION (3) II**

Inter-disciplinary aspects: water types and masses; population variability as related to biological, chemical, geological and physical processes; air-sea interaction and weather. Pre: Ocn 620, 623, 622, 621.

**735 SEMINAR IN OCEANOGRAPHY (2) I, II****799 SEMINAR (1) I, II**

Student presentations based on literature reviews and research. Pre: approval of graduate advisor.

**800 THESIS RESEARCH (Arr.) I, II**

## Overseas Operations Program (OOP)

Professors STALKER, ALLISON; Associate Director ZUNDEL

**601-602 INTERNSHIP IN OVERSEAS OPERATIONS (6)**

Three to six months active duty with either public or private agencies in Asia and the Pacific. Limited to M.A. candidates in OOP.

**631 SEMINAR IN AMERICANS OVERSEAS (3)**

An explanation and analysis of government agencies, private concerns operating overseas, as well as consideration of specific career services such as the American Foreign Service.

**699 DIRECTED READING (3-3) Yr.**

Selected readings on American, Asian, and regional specialties. Comprehensive examination on all reading. Limited to M.A. candidates in OOP.

Also appropriate graduate courses in History, Political Science, etc., which bear on the Asian regional interests of the student.

See also descriptions of the following courses under the listings of their respective departments:

**AGRICULTURAL ECONOMICS 625 Economics of Agriculture: Tropical Countries and Asia (3) II**

**ANTHROPOLOGY 550 Anthropological Applications: (4) Overseas Operations (3) II**



**ECONOMICS 670 Theory of Economic Development (3) I**

**ECONOMICS 710 Seminar in Economic Development (3) II**

## **Public Health (PH)**

**Professors LEE, BURBANK, CHUNG, CONNOR, WORTH; Associate Professors BROWN, DRENCKHAHN, WOLFF; Instructor KUMAGAI; Lecturers CHAR, GROSS, KAU, MCMORROW, SCHNACK, SHEPARD, TOKUYAMA**

**601-602 PRINCIPLES AND PRACTICES OF PUBLIC HEALTH (3-3) Yr.**

Objectives of public health and development of efforts towards accomplishing these objectives.

**610 INFECTIOUS DISEASES OF MAN IN THE PACIFIC AREA (3) I**

Systematic presentation of existing knowledge of important infectious diseases in the Pacific area.

**625 BIOSTATISTICS (3) I**

Analysis, evaluation, interpretation, and uses of statistics.

**626 INTRODUCTION TO VITAL STATISTICS (3) II**

Registration and census methods, population composition, interpretation of natality, morbidity, and mortality rates.

**630 PUBLIC HEALTH NUTRITION (2) I**

Organization and administration of nutritional services in the public health program.

**631 SEMINAR IN PUBLIC HEALTH NUTRITION (1) I, II**

Specific nutrition problems in preventive medicine and public health with special emphasis on cultural patterning of food habits and adaptation of culture patterns in solving nutrition problems. Pre: PH 630 or consent of instructor.

**633 DENTAL PUBLIC HEALTH (2) I**

Principles of conservation of the oral structures and prevention of dental diseases through dental health programs. Pre: consent of instructor.

**636-637 ENVIRONMENTAL HEALTH (2-2) Yr.**

Organization and administration of public health engineering and sanitation services.

**640 PUBLIC HEALTH EDUCATION (2) I**

Principles underlying health education techniques, concepts, and objectives.

**641 SEMINAR IN PUBLIC HEALTH EDUCATION (2) II**

Program planning and evaluation; special studies and problems in health education. Pre: consent of instructor.

**651 PRINCIPLES OF EPIDEMIOLOGY (3) II**

Basic epidemiologic principles, methods, and their application with particular reference to geographic patterns of diseases in the Pacific area. Pre: PH 625 or equivalent. May be taken concurrently.

**660-661 COMMUNITY MENTAL HEALTH (2-2) Yr.**

Cultural, social and other environmental factors affecting mental health including organization, administration, and promotion of mental health services in the community.

**665 SOCIO-CULTURAL ASPECTS OF HEALTH AND ILLNESS (3) II**

Public health practices and orientation in socio-cultural perspective. Pre: consent of instructor.

**670 MEDICAL ASPECTS OF DISABILITY (3) I**

Systematic presentation of medical conditions causing disability. Pre: consent of instructor.

**675 EFFECT OF ENVIRONMENT ON PERSONAL HEALTH (3) II**

Relationships between the physical, chemical, and biological factors in the environment and the personal health of man.

**680 MATERNAL AND CHILD HEALTH (2) II**

Principles and practices underlying maternal and child health care programs at all levels. Pre: consent of instructor.

**690 SEMINAR ON COMMUNITY HEALTH PROBLEMS (1) I, II**

Principles of health conservation and disease prevention in family and community.

**691 SEMINAR ON INTERNATIONAL HEALTH PROBLEMS (1) I, II**

Principles of health conservation and disease prevention among nations. Pre: consent of instructor.

**692 SEMINAR ON SCHOOL HEALTH SERVICES (1) I, II**

Practical aspects of the organization and administration of school health services.

**699 DIRECTED RESEARCH (Arr.) I, II**

Individual problems and research. Pre: consent of instructor and department chairman.

**710 ADVANCED PUBLIC HEALTH PRACTICE (3) I, II**

Directed field studies and observation in the different health specialties. Pre: consent of instructor.

## Social Work

Professors HANDLEY, JAMBOR; Associate Professors MERRITT, WALSH;  
Assistant Professors KUMABE, REID, TAKASE, TYSON; Lecturers CODY, FOX, GOTANDA,  
TAKASAKI

**300 THE FIELD OF SOCIAL WORK (3) I**

Non-professional orientation course intended to acquaint the student with the philosophy, scope, and aims of social work. Pre: junior standing.

**301 SOCIAL WELFARE AS A SOCIAL INSTITUTION (3) II**

Purpose and philosophy governing the establishment and operation of social welfare programs. The interrelationship of social, cultural, political, and economic factors in the development of social welfare. Open to seniors.

**605 SOCIAL CASEWORK (2) I**

Introduction to the basic principles and processes of social casework.

**606 SOCIAL CASEWORK (2) II**

Continuation of 605. Emphasis upon diagnosis and skill in the treatment of casework problems. Concurrent with 660-661. Pre: 605.

**608 SOCIAL GROUP WORK (2) I**

Introduction to the basic principles and processes of group work.

**609 SOCIAL GROUP WORK (2) II**

Continuation of 608. Emphasis upon understanding the individual in groups, and skill in use of the helping process. Concurrent with 660-661. Pre: 608.

**610-611 HUMAN GROWTH AND BEHAVIOR (3-3) Yr.**

Designed to provide a synthesized understanding of physical, mental, and emotional growth, with due regard to social and cultural influences on individual development.

**612 GROUP WORK PROGRAM ACTIVITIES (1-1) Yr.**

The program as a tool in meeting individual and group needs. To be taken concurrently with 660-661.

**615 COMMUNITY ORGANIZATION (2) II**

Methods and processes of community organization in social work.

**626 TREATMENT OF JUVENILE DELINQUENCY (2) II**

Social work practice in relation to problems of juvenile delinquency.

**627 SOCIAL SERVICES (2) I**

Income maintenance programs in public and private social welfare fields.

**628 SOCIAL SERVICES (2) II**

Social services (other than income maintenance) with emphasis on selected programs such as those in the children's field, the health field, corrections, etc.

**652 SOCIAL STATISTICS AND RESEARCH (2) II**

Problems and procedures in research related to social work.

**653 LEGAL ASPECTS OF SOCIAL WORK (2) I**

Problems in judicial administration and substantive law in relation to human problems, and social welfare programs.

**656 SOCIAL WELFARE—ITS ORGANIZATION AND ADMINISTRATION (2) I**

Principles and problems of social agencies with respect to structure and operation.

**660-661 SUPERVISED FIELD WORK (3-3) Yr.**

University units in public and private agencies. Concurrent with a method course (casework, group work, or community organization). Limited to full-time students.

**760-761 ADVANCED SUPERVISED FIELD WORK (4-4) Yr.**

To be taken concurrently with an advanced course in social work method (casework, group work, or community organization). Limited to full-time students.

**765 ADVANCED SOCIAL CASEWORK (2) I**

Case discussion of generic casework concepts as they apply in work with emotionally disturbed individuals. Concurrent with 760.

**766 SEMINAR IN SOCIAL CASEWORK (2) II**

Analysis and evaluation of case material contributed from the student's experience and from selected records.

**767 CASEWORK WITH CHILDREN (2) I**

Casework concepts in the care of children. Pre: 765; consent of instructor.

**768 SEMINAR IN REHABILITATION (2) II**

Problems of rehabilitation and the role of social work in this area.

**770 ADVANCED SOCIAL GROUP WORK (2) I**

Analysis of the use of volunteers in group work; their recruitment, selection, placement, training, and supervision. Concurrent with 760.

**771 SEMINAR IN SOCIAL GROUP WORK (2) I**

Analysis and evaluation of case material contributed from the student's experience and from selected records.

**775 ADVANCED SOCIAL PSYCHIATRY (2) I**

Dynamics of behavior in the neuroses and in functional and organic psychoses, with emphasis on current treatment processes.

**777 COMMUNITY DEVELOPMENT AND SOCIAL WORK (2) II**

Organized efforts to improve conditions in community life; capacity for community integration and self-direction. Principles and practice of community development in newly developing countries, with particular reference to contributions and relationships of social work to these programs.

**780 ADMINISTRATIVE METHODS IN SOCIAL WORK (2) I**

Administration of social welfare agencies with emphasis upon the relationship between structure and function.

**781 SEMINAR IN SOCIAL WELFARE POLICY WORK (2) II**

Basic problems and policies in the major fields of social welfare.

**785 METHODS OF SUPERVISION IN SOCIAL WORK (2) II**

Supervision in social work as it relates to casework and group work. Open to agency workers who are potential or actual supervisors. Pre: consent of instructor.

**790 CULTURAL FACTORS IN SOCIAL WORK PRACTICE (2) II**

Significance of psychocultural factors in personality development and behavior. Pre: 611.

**791 INTERNATIONAL SOCIAL WORK (2) II**

Present trends in international social welfare programs of selected countries. Given occasionally.

**798-799 SEMINAR IN RESEARCH (3-3) Yr.**

Principles of objective fact-finding, primary and secondary sources of social data; preparation of a report or thesis.

# **EAST-WEST CENTER**

**THE EAST-WEST CENTER**—The Center for Cultural and Technical Interchange between East and West—was established by the U. S. Congress in 1960. The goal of the Center is to further mutual understanding among the peoples of Asia, the Pacific area, and the United States. This goal is the guideline for the operation of the Center's four main divisions: The Institute for Student Interchange, the Institute for Technical Interchange, the Institute of Advanced Projects, and the Division of Central Programs.

## **INSTITUTE FOR STUDENT INTERCHANGE**

Students (primarily graduate) are offered both regular and special University programs. These provide an opportunity for study, research, special conferences, and seminars in many fields.

**Scholarships.** Young men and women possessing a high degree of leadership potential and scholastic ability and giving evidence of real interest in the goals of the Center may qualify for scholarships which provide transportation to and from Honolulu, tuition and books, housing and meals, accident and health insurance, and a monthly incidentals allowance. The scholarships may include a field study grant to the mainland United States or Asia. Most scholarships are for 21 or 24 months.

Scholarships for American students are for graduate study at the University of Hawaii. Students may enroll in a regular graduate curriculum in the social sciences or the humanities with special reference to Asia or the Pacific; or they may enter the interdisciplinary programs of Asian Studies, Pacific Islands Studies, or Overseas Operations. Also available are programs in certain fields of science unique to the University and its geographical location which, together with language study, are designed to prepare students for work abroad.

Scholarships for Asian and Pacific students are adequate for those who plan to work toward an M.A. degree, but are not usually sufficient for those wishing to earn a Ph.D. degree. The University awards the master's degree in 59 fields and the doctorate in 19. Students usually undertake an advanced degree program or in special instances do super-

vised work in a field as a special student. An undergraduate student may study in any of the departments of the University.

An American scholarship student is expected to complete at least two years of an Asian language before the end of his grant.

**Field Study Grants.** The Asia field study grant provides opportunity to study in Asia for those students in good standing who demonstrate their seriousness, maturity, and ability. The length of time spent in an Asian country varies with individual programs. Generally, students seeking advanced degrees request up to one semester for research purposes or longer for course work in a university. Certain students whose primary goal is language study may be permitted to spend a longer period overseas in recognized full-time Asian language programs.

The U. S. mainland field study grant, for the student in good standing from Asia or the Pacific, provides an opportunity for special study on the mainland United States. This study is usually planned to take place during the summer, after two semesters have been spent at the University of Hawaii. In special instances, students are given the mainland study grant during the regular session, when they may enroll in a mainland university or college for special programs.

Students on scholarship are expected to participate in extra-curricular activities of an international nature as their academic requirements may allow.

**English Language Institute.** Because the medium of instruction at the University of Hawaii is English, Asian and Pacific student grantees are tested for English proficiency by the University's English Language Institute. Those requiring extra help are assigned to full-time or part-time training in English until they are ready for a full academic program. (See pp. 40-41.)

**Asia-America Program.** Seminars conducted for the East-West Center by the faculty of the University are designed as a bridge that will enable Asians and Americans to develop the intercultural understanding recognized as one of the basic functions of the Center. Both groups of students play a vital role in the seminars by providing sources of information and guidance and by their critical and constructive comparisons of the various Asian societies with the differing cultures found in American society. Attendance at the seminars is required as a partial fulfillment of the Center scholarship grant.

The Asia-America Program also offers a film series, a lecture and visual arts program, and other non-academic activities for grantees. A browsing room and library of paperback books are also available.

## SEMINARS

*See p. 46 for a discussion of course descriptions.*

**SEMINAR: ASIA-AMERICA 1 (2) I**

Comparative study of basic Asian and American institutions and peoples at an elementary and contemporary level, with special reference to the problems introduced by industrialization and urbanization.

**SEMINAR: ASIA-AMERICA 2 (0) II**

A broad view of mainland America, primarily for Asian students, enabling grantees to understand the geography, ways of life, educational system and other aspects of the U.S. that will be encountered while engaged in the Field Study Program.

**SEMINAR: ASIA-AMERICA 3 (0) II**

Evaluation by Asian students of their American experiences and by American students of their Asian experiences. This seminar offers a forum for a free exchange of ideas and impressions gained on the Field Study Program.

**INSTITUTE FOR TECHNICAL INTERCHANGE**

The Institute administers training projects for technical participants from Asia, the Pacific, and the United States. Training, planned on a long-term, group basis, is designed to further understanding among nations at the same time technical knowledge is interchanged. Projects may last from 3 to 12 months and subject matter is chosen to fill needs of developing areas. Stress is now being given to training for those Pacific islands which are under the American flag. Current training projects include medical-nursing education for Pacific islands, personnel and fiscal administration on the middle-management level, educational communications, techniques in teaching English to non-English speaking students, and programs designed to develop skills and to improve the status of women in developing areas. The Institute also administers training and job observation in Hawaii for Agency for International Development participants and participants from other private or government agencies.

**INSTITUTE OF ADVANCED PROJECTS**

The Institute offers a unique program at the advanced professional level. Aimed at improving understanding and establishing better relations between East and West, the Institute serves the Center's purpose in two ways: through exchange of persons and exchange and dissemination of information.

The Senior Specialists-in-Residence program, which brings together for research and writing distinguished persons from Asia, the Pacific area, and the United States, is a significant part of the exchange of persons. In addition, the Fellowships in International Development program

offers a limited number of grants to doctoral candidates in the areas of cross-cultural relations and international development.

There are four programs to exchange and disseminate information. The East-West Center Library is building an outstanding collection of Asian materials, including books, periodicals, and microfilm, emphasizing national development and cross-cultural relations. Research Translations translates scholarly Asian materials into English and compiles dictionaries and annotated bibliographies. The East-West Center Press publishes new books from the Center as well as from other institutions throughout the world. The Press exports American books to Asia and imports Asian books in English to the United States. Reference Research and Information acts as a liaison between the Center and other institutions concerned with the Asian-Pacific area. It is preparing an inventory and catalog of research and exchange activities pertaining to Asia and the Pacific.

Panels of advisers and consultants on substantive matters have been established to aid the program directors in selection of candidates and subject-matter emphases. Already established are the Japanese National Advisory Panel, a slate of University of Hawaii consultants, and a group of mainland consultants in the fields of agriculture, economics, education, politics and law, public administration, communications, linguistics, and public health. Also serving is a special consultant for the Hong Kong—Republic of China—Philippines area. It is planned to have a complement of such representatives in other areas.

### ***DIVISION OF CENTRAL PROGRAMS***

Central Programs includes administration, conference program, public affairs program, and community relations. Central Programs' activities reach beyond the Center to the community and to Asia, the Pacific, and the United States through conferences and materials prepared and distributed by the Public Affairs staff. The Office of Community Relations coordinates activities of the Center and its students with Hawaii's residents on all islands, working with the Friends of the East-West Center, an organization of volunteers.

### ***GENERAL INFORMATION***

**East-West Center Buildings.** Facilities include Thomas Jefferson Hall, the administration building which houses offices, a food center, and conference rooms; Hale Manoa, men's residence; Hale Kuahine, women's residence; John F. Kennedy Hall, theatre-auditorium; and Abraham Lincoln Hall, which houses the Institute of Advanced Projects. The Japanese garden adjacent to the administration building was the gift of Japanese businessmen.



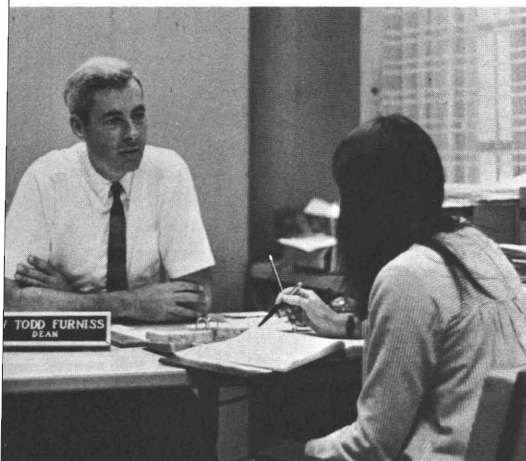
### For Further Information

**Asian-Pacific Scholarships.** Write to the Director of Student Selection, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96822.

**American Scholarships.** Write or call on the Director of Student Selection, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96822.

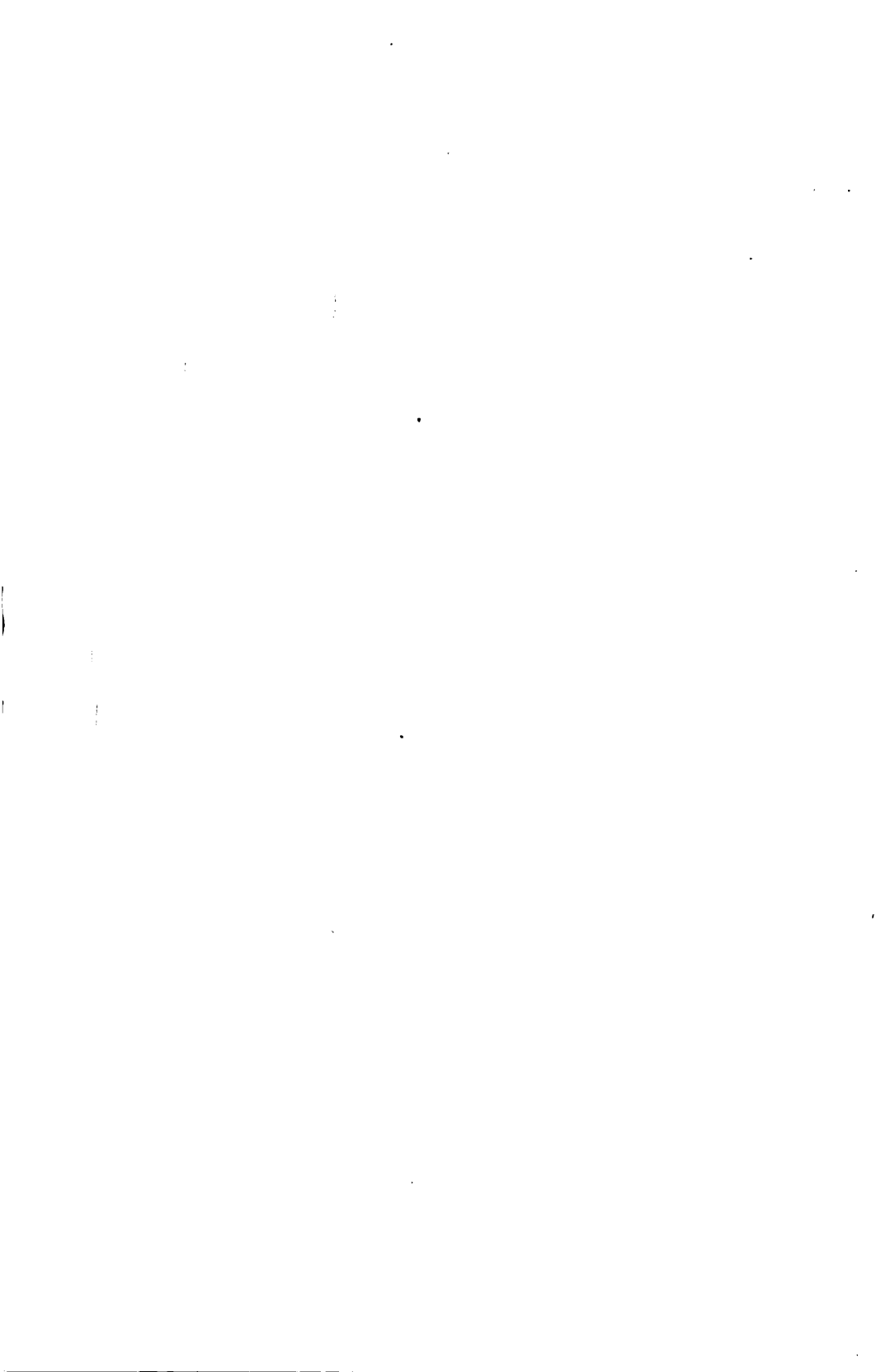
**Programs, Grants of the Institute of Advanced Projects.** Write to the Vice-Chancellor, Institute of Advanced Projects, Lincoln Hall, East-West Center, Honolulu, Hawaii 96822.

**Technical Training.** Write to the Vice-Chancellor, Institute for Technical Interchange, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96822.





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A.B. 1889, A.M. 1897, Marietta
- ARTHUR L. DEAN, 1914-1927 (Deceased)  
B.A. 1900, Harvard; PH.D. 1902, Yale; LL.D. 1947, Hawaii
- DAVID L. CRAWFORD, 1927-1941  
B.A. 1911, LL.D. 1933, Pomona; M.A. 1912, Stanford; LL.D. 1957, Hawaii
- ARTHUR R. KELLER, 1941-1942 (Acting) (Deceased)  
LL.B. 1907, National University Law School; M.S. 1916, Massachusetts Institute of Technology
- GREGG M. SINCLAIR, 1942-1955  
B.A. 1912, LL.B. 1949, Minnesota; M.A. 1919, LL.D. 1954, Columbia; LL.D. 1951, Ohio State; LL.D. 1955, California; H.H.D. 1956, Hawaii; D.LIT. 1960 Keio
- PAUL S. BACHMAN, 1955-1957 (Deceased)  
B.S. 1922, Ohio State; M.A. 1925, PH.D. 1927, Washington
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B.A. 1929, LL.D. 1961, Occidental College; M.A. 1930, Columbia; PH.D. 1939, Southern California
- LAURENCE H. SNYDER, 1958-1963  
B.S. 1922, SC.D. 1947, Rutgers; M.S. 1924, SC.D. 1926, Harvard; SC.D. 1960, Ohio State; H.H.D. 1962, N. Carolina

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 B.S. 1931, New York; M.ED. 1936, Hawaii
- KRAUSS, FREDERICK C., *Professor Emeritus of Agriculture*  
 S.C.D. (Hon.) 1921, Hawaii
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 B.A. 1917, Pacific University; M.A. 1921, P.H.D. 1931, University of Washington
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 B.A. 1917, California; M.S. 1922, Columbia
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 B.S. 1940, U.S. Naval Academy; M.S. 1951, U.S. Naval Postgraduate School
- ADLER, JACOB, *Professor of Accounting and Finance*  
 B.S. 1933, Chicago; M.S. 1956, P.H.D. 1959, Columbia
- AH MOO, EARL W., *Associate Professor of Dental Hygiene (Supervisor of Dental Hygiene Clinic)*  
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- AKAMINE, RALPH N., *Lecturer in Dental Hygiene*  
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- ANDERSON, RONALD S., *Professor of Education and Asian Studies*  
B.A. 1929, M.A. 1946, Stanford; PH.D. 1956, California
- ANSBERRY, MERLE, *Professor of Speech*  
B.A. 1929, M.A. 1931, California; PH.D. 1937, Wisconsin
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A.A. 1958, Boston; B.A. 1960, M.A. 1964, Hawaii
- AOKI, MITSUO, *Associate Professor of Religion*  
B.A. 1940, Druyd College; B.D. 1943, Chicago Theological Seminary
- APPLEBY, EDMUND J., *Assistant Professor of Mathematics*  
B.SC. 1959, PH.D. 1962, London
- ARACAKI, MINORU, *Assistant Professor of Plant Pathology*  
B.S. 1950, M.S. 1954, Hawaii
- ARAI, SUEKO, *Lecturer in Music*
- ARAKI, JAMES TOMOMASA, *Professor of Japanese*  
B.A. 1954, M.A. 1958, PH.D. 1961, California at Berkeley
- ARAPOFF, NANCY (Mrs. Peter), *Instructor, English Language Institute*  
B.A. 1952, California at Santa Barbara; M.A. 1963, Hawaii
- ARKOFF, ABE, *Associate Professor of Psychology*  
B.A. 1946, M.A. 1948, PH.D. 1951, Iowa
- ARTOLA, GEORGE T., *Assistant Professor of Asian and Pacific Languages*  
B.A. 1941, Brooklyn College; M.A. 1950, PH.D. 1953, Johns Hopkins
- ASATO, JAMES K., *Instructor in Health and Physical Education*  
B.S. 1952, Hawaii; M.S. 1956, Illinois
- ASHTON, GEOFFREY C., *Associate Professor of Genetics*  
B.SC. 1945, PH.D. 1958, Liverpool
- ASPINWALL, DOROTHY B. (Mrs. Albion N.), *Professor of European Languages*  
B.A. 1933, M.A. 1939, Alberta; PH.D. 1948, University of Washington
- ATEN, DONALD G., *Assistant Professor of Education*  
B.ED. 1956, B.A. 1961, Hawaii; M.A. 1957, Columbia
- AUSTIN, F. GLENN, *Professor of Education*  
B.A. 1935, M.A. 1938, Kansas; PH.D. 1949, Ohio State
- AUTREY, COLONEL PAUL, *Associate Professor of Military Science*  
B.S. 1941, Auburn

- AVERY, DON E.**, *Associate Professor of Engineering*  
B.S. 1937, M.E. 1950, University of Washington
- AYRAULT, MARGARET W.**, *Professor of Library Studies*  
A.B. 1933, Oberlin; B.S. 1934, Drexel; M.S. 1941, Columbia
- BACIU, MIRA (Mrs. S.)**, *Instructor in Spanish*  
Faculty of Pharmacy 1943, University of Bucharest;  
Pharmaceutical Permit 1948, Berne, Switzerland
- BACIU, STEFAN**, *Assistant Professor of Spanish*  
B.A. 1937, Liceu Andrei Saguna; M.A. 1941, Law Faculty
- BACKUS, JOSEPH M.**, *Assistant Professor of English*  
B.A. 1949, Allegheny College; M.S. 1954, Columbia; M.A. 1957, PH.D. 1961, California
- BAKER, GLADYS E.**, *Professor of Botany*  
B.A. 1930, M.S. 1932, Iowa; PH.D. 1935, Washington
- BAKER, J. B.**, *Assistant Professor of Education*  
B.S. 1933, Adrian College
- BALDWIN, ROGER E.**, *Assistant Professor of Science (Hilo)*  
A.A. 1949, Coalinga College; B.S. 1951, M.S. 1953, Oregon State College
- BALL, HARRY VERNON**, *Professor of Sociology*  
B.A. 1949, M.A. 1950, Washington; PH.D. 1956, Minnesota
- BANNER, ALBERT H.**, *Professor of Zoology*  
B.S. 1935, PH.D. 1943, University of Washington; M.S. 1940, Hawaii
- BARMETTLER, EDMUND R.**, *Associate Professor of Agricultural Economics*  
B.S. 1952, M.ED. 1953, California at Davis; PH.D. 1958, Ohio State
- BARNES, CYNTHIA GLAZE**, *Associate Professor of Nursing and Chairman, Associate Degree Program in Nursing*  
R.N. 1936, Akron City Hospital School of Nursing; A.A. 1955, Santa Barbara Jr. College; B.S. 1956, M.S. 1961, California at Los Angeles
- BARNES, I. LYNUS**, *Assistant Professor of Chemistry and Geochemistry*  
A.B. 1955, Indiana; PH.D. 1963, Hawaii
- BARNES, NELLE**, *Lecturer in English*  
B.ED. 1962, M.A. 1964, Hawaii
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B.A., M.A. 1954, Colorado; PH.D. 1958, Yale
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- BEAMER, MARTHA F. (Mrs.)**, *Assistant Professor of Health and Physical Education*  
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- BEARDSLEY, JOHN W.**, *Assistant Professor of Entomology*  
B.S. 1950, California; M.S. 1952, PH.D. 1963, Hawaii
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B.A. 1947, M.A. 1949, PH.D. 1957, University of California, Berkeley
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B.S. 1944, U.S. Naval Academy; M.S. 1952, PH.D. 1961, Stanford
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 College of Medicine
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- ALY, BOWER, *Visiting Professor of Speech* (Feb. 1, 1965, for one semester)  
 B.S. 1925, Southeastern Missouri State College; M.A. 1926, Missouri; PH.D. 1941, Columbia
- ASCHER, LEONARD W., *Visiting Professor of Finance* (Sept. 1, 1964)  
 B.A. 1927, PH.D. 1934, California
- BAILEY, JOSEPH K., *Visiting Professor of Management* (Sept. 1, 1964); *Professor of Management* (Mar. 1, 1965)  
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 PH.D. 1949, Columbia
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 DIPLOME D'ETUDES SUPERIEURES 1931, Aix-en-Provence
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 B.S. 1935, M.S. 1937, Brigham Young; PH.D. 1941, Wisconsin.
- CORNETT, ROBERT ARNOLD, *Visiting Associate Professor of Philosophy* (Sept. 1, 1964 for one year)  
 B.A. 1944, Butler; B.D. 1946, Princeton Theological Seminary; M.A. 1948, PH.D. 1952, Illinois
- DI CARLO, LOUIS M., *VRA Visiting Professor of Speech Pathology* (Sept. 21, 1964-June 6, 1965)  
 B.A. 1932, Union College; M.S. 1937, Massachusetts; PH.D. 1948, Columbia
- DOBSON, PETER N., *Visiting Assistant Professor of Physics* (Feb. 1, 1965 for one semester)  
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 B.S. 1939, Miami; PH.D. 1950, Illinois

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 B.S. 1923, Kansas; M.S. 1924, PH.D. 1926, Illinois; C.E. 1930, Kansas
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 B.S. 1923, M.S. 1932, Michigan
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### LIBRARY

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- BARTKO, YVONNE (Mrs.), *Head, Acquisitions Department*  
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- CHAFFEE, EBBA Z. (Mrs.), *Catalog Librarian*  
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- CHING, CLARA (Mrs.), *Maps & Microfilm Librarian*  
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- CHONG, ELEANOR F. Y., *Curator, Government Documents Collection*  
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- CORREA, GENEVIEVE, *Head, Serials Department*  
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- CROZIER, VIRGINIA, *Assistant Reference Librarian*  
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- FITZPATRICK, JAMES, *Assistant Government Documents Librarian*  
Ph.B. 1934, Notre Dame; Diploma in Lib. Training, National University of Ireland, 1949; M.A. (L.S.) 1954, Chicago
- FRANKLIN, ALMA, *Catalog Librarian*  
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- HAAS, JOYCE (Mrs.), *Assistant Hawaiian & Pacific Librarian*  
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- HAGIWARA, CONSTANCE (Mrs.), *Catalog Librarian*  
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- KAHARA, YASUTO, *Hawaiian & Pacific Librarian*  
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- LE BARRON, EVELYN E. (Mrs.), *Catalog Librarian*  
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- YEE, WAI CHEE (Mrs.), *Catalog Librarian*  
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- YOUNG, VERNA H. F., *Catalog Librarian*  
B.A. 1962, Chaminade; M.L.S. 1963, California

## OFFICE OF STUDENT PERSONNEL

- AIMOTO, DOROTHY R., *Junior Specialist in Student Personnel (housing counselor)*  
B.ED. 1956, Hawaii
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- BATESON, LOIS CAMMACK (Mrs. Gregory), *Assistant Specialist in Student Personnel, Counseling and Testing Center*  
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- BENNINGTON, JEANNETTE, *Head Resident, Hale Kahawai*  
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- \*BITNER, HAROLD M., *Dean of Student Personnel*
- BONNALLIE, DOROTHY, *Head Resident, Gateway House*  
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- FUJITANI, SHIGEAKI, *Junior Specialist in Student Personnel, Counseling and Testing Center*  
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PH.B. 1928, M.F. 1932, Yale
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- WERY, KATHERINE H. (Mrs. Clay H.), *Junior Specialist in Student Personnel, Student Employment*  
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- ANDERSON, DONALD, *Resident Superintendent*
- \*BAKER, GLADYS E., *Botanist*
- \*BREWBAKER, JAMES L., *Horticulturist*
- \*CUTTING, WINDSOR C., *Pharmacologist*
- \*GILLETT, GEORGE W., *Director*
- \*LAMOUREUX, CHARLES H., *Associate Botanist*
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\*RYANS, DAVID, *Director*

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\*LAU, L. STEPHEN, *Associate Professor of Civil Engineering*

\*PETERSON, W. WESLEY, *Professor of Electrical Engineering*

\*ROELOFS, THOMAS H., *Assistant Professor of Electrical Engineering*

\*SAKOU, TOSHITSUGU, *Assistant Professor of Civil Engineering*

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- CLEMENTS, HARRY F., *Senior Plant Physiologist*  
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- \*COBB, ESTEL H., *Associate Animal Scientist*
- \*COOIL, BRUCE J., *Plant Physiologist*
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- \*EKERN, PAUL, *Soil Scientist*
- \*FOX, ROBERT L., *Soil Scientist*
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- \*HAMILTON, RICHARD A., *Horticulturist*
- \*HARAMOTO, FRANK H., *Assistant Entomologist*
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- \*HERRICK, RAYMOND B., *Assistant Poultry Scientist*
- \*HILKER, DORIS M., *Assistant Nutritionist*
- \*HINE, RICHARD B., *Associate Plant Pathologist*
- \*HOLTZMANN, OLIVER V., *Assistant Plant Pathologist*
- \*HYLIN, JOHN W., *Assistant Biochemist*
- \*IKAWA, HARUYOSHI, *Junior Soil Scientist*  
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- \*ISHII, MAMORU, *Associate Plant Pathologist*  
ISHIZAKI, STANLEY M., *Junior Analyst*  
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- \*IWANAGA, ISAAC I., *Assistant Animal Scientist*
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- \*KEELER, JOSEPH T., *Assistant Agricultural Economist*
- \*KINCH, DONALD M., *Agricultural Engineer*
- \*LARSON, ARNOLD B., *Assistant Agricultural Economist*
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- \*LOCKHART, JAMES A., *Associate Plant Physiologist*
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- ROGERS, BRUCE J., *Associate Plant Physiologist*  
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- \*ROSS, EDWARD, *Food Technologist*
- \*ROSS, ERNEST, *Associate Poultry Scientist*
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- \*SCOTT, FRANK S., *Agricultural Economist*
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- \*SHERMAN, MARTIN, *Entomologist*
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- \*TAKAHASHI, MAKOTO, *Assistant Agronomist*
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- TANAKA, JACK S., *Junior Horticulturist*  
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- \*UEHARA, GORO, *Associate Soil Scientist*
- URATA, UKIO, *Assistant Soil Scientist*
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- \*WILSON, C. PEAIRS, *Dean*
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 B.S. 1957, M.S. 1958, Bihar University; A.I.S.M. 1958, Indian School of Mines;  
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 MASON, RONALD, M.S.C., *Research Affiliate*; Geophysicist, Imperial College, London, England
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 B.S. 1939, Hawaii
- \*MCALLISTER, HOWARD C., *Associate Physicist*  
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 B.S. 1945, Univ. of New Zealand; M.S. 1955, Univ. of London
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- \*RAMAGE, COLIN S., *Meteorologist*
- \*TOM, ALBERT Q. Y., *Civil Engineer*
- \*UEHARA, GORO, *Associate Soil Scientist*
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 B.A. 1950, Hawaii

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## SUMMARY OF ENROLLMENT FOR 1964—1965

	1st semester	2nd semester
<b>Graduate School</b>		
Advanced degree candidates.....	1,063	1,121
Five-year diploma candidates.....	180	142
Unclassified .....	1,009	936
Professional Teaching Certificate.....	8	7
	2,260	2,206
<b>College of Arts and Sciences</b>		
Seniors .....	595	493
Juniors .....	775	744
Sophomores .....	866	811
Freshmen .....	1,546	1,441
	3,782	3,489
<b>College of Engineering</b>		
Seniors .....	215	195
Juniors .....	148	137
Sophomores .....	167	143
Freshmen .....	223	209
	753	684
<b>College of Education</b>		
Seniors .....	466	425
Juniors .....	432	435
Sophomores .....	399	420
Freshmen .....	411	404
Classified Professional Certificate.....	51	80
Professional Teaching Certificate.....	—	—
	1,759	1,764
<b>College of Tropical Agriculture</b>		
Seniors .....	94	73
Juniors .....	93	92
Sophomores .....	110	111
Freshmen .....	109	105
	406	381
<b>College of Business Administration</b>		
Seniors .....	310	257
Juniors .....	350	357
Sophomores .....	304	313
Freshmen .....	311	316
	1,275	1,243
<b>College of Nursing</b>		
Seniors .....	49	44
Juniors .....	91	80
Sophomores .....	87	91
Freshmen .....	132	122
	359	337
<b>Total Degree and Diploma Candidates.....</b>	<b>10,594</b>	<b>10,104</b>
<b>College of General Studies</b>		
Undergraduates in day credit courses.....	997	1,000
Auditors in day credit courses.....	50	52
Students in evening credit courses.....	2,374	2,617
	3,421	3,669
<b>Hilo Campus .....</b>	<b>398</b>	<b>378</b>
<b>GRAND TOTAL IN CREDIT COURSES.....</b>	<b>14,413</b>	<b>14,151</b>
<b>1964 Summer Session.....</b>		<b>10,852</b>





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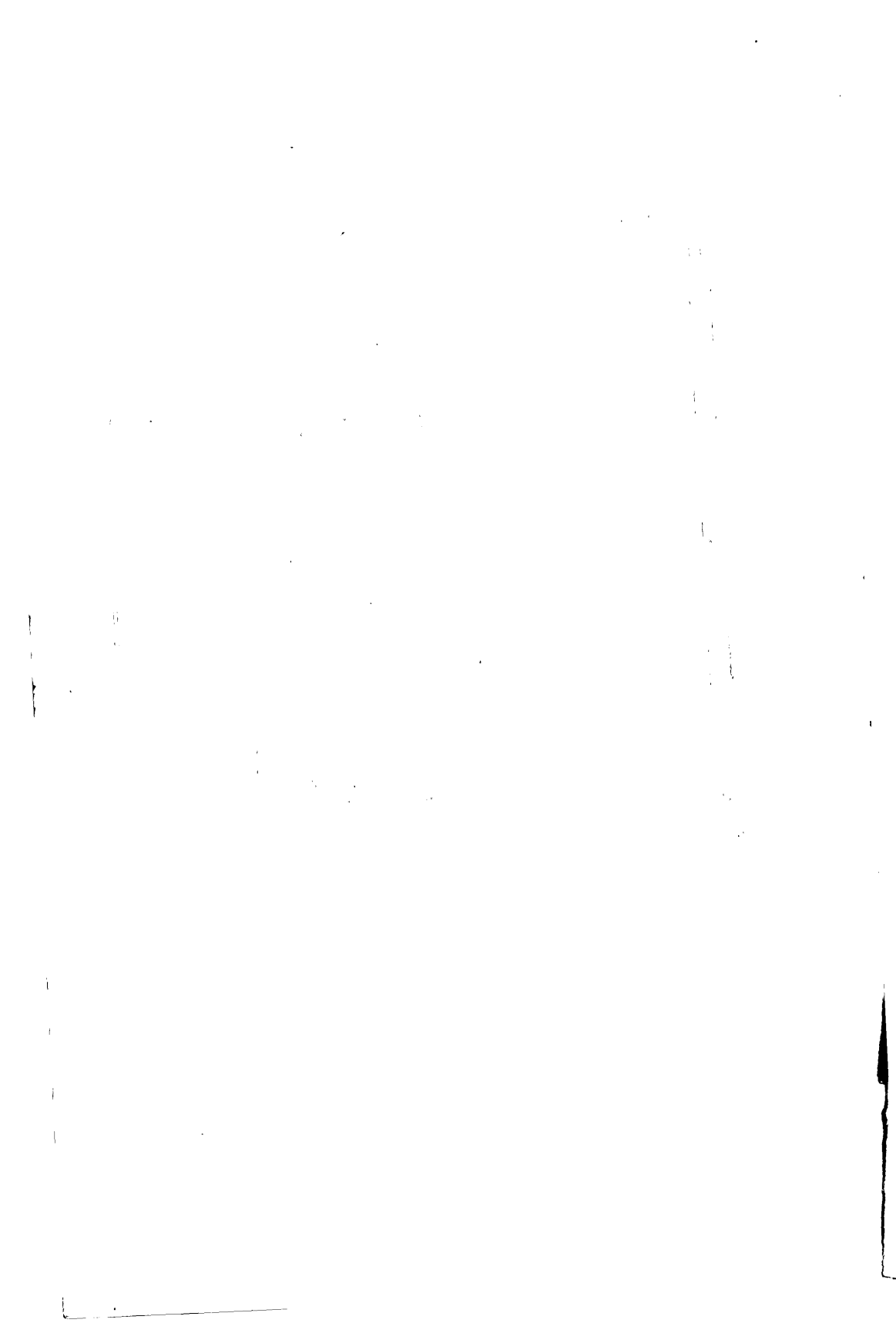
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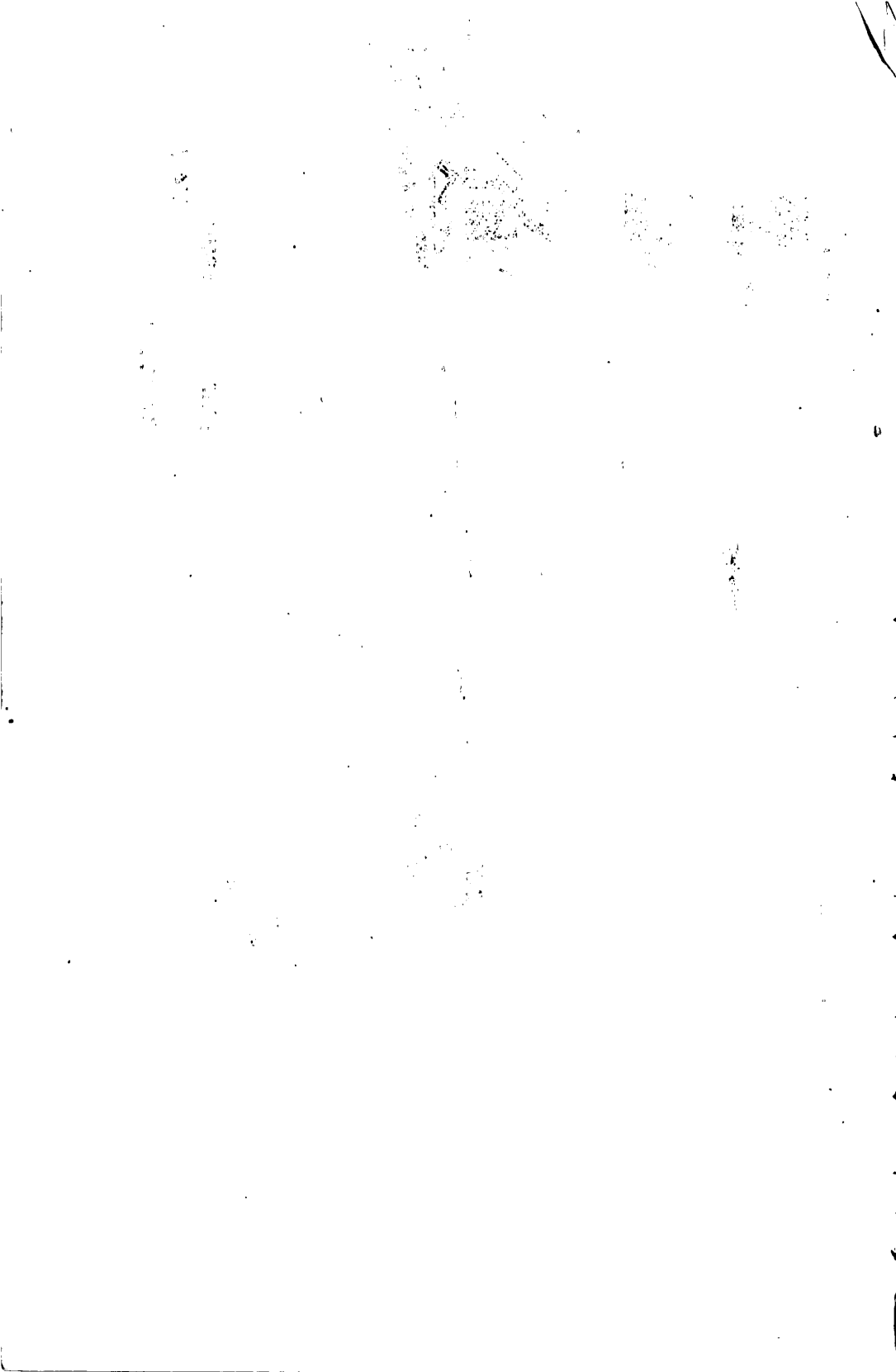
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