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1967-68 UNIVERSITY CALENDAR

First Semester
September 5-16, Tuesday through Saturday Academic advising, registration, orientation
September 18, Monday Instruction begins
September 22, Friday Last day of registration for credit
October 6, Friday Last day of withdrawal from courses without grade penalty
November 9, Thursday Deficiency reports due
November 10, Friday Holiday (Friday before a holiday falling on Saturday)
November 11, Saturday Veterans’ Day (holiday)
November 22, Wednesday Last day for removal of “Incompletes”
November 23-25, Thursday through Saturday Thanksgiving recess
December 1, Friday Last day for withdrawal from courses
December 4-15, Monday through Friday Early registration for second semester
December 16, Saturday Last day before Christmas recess
January 2, Tuesday Instruction resumes
January 13, Saturday Last day of instruction, first semester
January 15, Monday Final examinations begin
January 20, Saturday First semester ends

Second Semester
February 1-3, Thursday through Saturday Academic advising, registration
February 5, Monday Instruction begins
February 9, Friday Last day of registration for credit
February 22, Thursday Presidents’ Day (holiday)
February 23, Friday Last day of withdrawal from courses without grade penalty
March 26, Tuesday Prince Kuhio Day (holiday)
March 29, Friday Deficiency reports due
April 11, Thursday Last day for removal of “Incompletes”
April 12, Friday Good Friday (holiday)
April 13-20, Saturday through Saturday Easter recess
April 26, Friday Last day for withdrawal from courses
May 23, Thursday Last day of instruction
May 24, Friday Final examinations begin
May 30, Thursday Memorial Day (holiday)
May 31, Friday Second semester ends
June 9, Sunday Commencement

Summer Session
June 17, Monday Registration for 1st term
July 26, Friday 1st term ends
July 29, Monday Registration for 2nd term
August 4, Sunday Summer Commencement
September 6, Friday 2nd term ends
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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 multi-racial composition, programs such as those in tropical agriculture, tropical architecture, 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 five 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.

There are seven colleges in the University: Arts and Sciences, Business Administration, Education, Engineering, General Studies, Health Sciences and Social Welfare, and Tropical Agriculture. Professional schools include Library Studies, Social Work, Medicine, Nursing, and Public Health. An Honors Program embraces all colleges. The Graduate Division assumes the major role in the organization and development of graduate programs.

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 1966-67 included individuals from all 50 states and from 60 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 University Calendar).

Administrative Organizations. 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, business affairs, and community colleges, 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. The vice-president for community colleges is responsible for the planning and administration of the state community college system. 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 Malamalama (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 following offices. Undergraduates: Office of Admissions and Records, Bachman Hall, Room 132, 2444 Dole Street, Honolulu, Hawaii 96822. Grad-
u ate students: Graduate Division Office, 2540 Maile Way, Honolulu, Hawaii 96822. General studies: College of General Studies, 2500 Campus Road, Honolulu, Hawaii 96822. Summer session: Dean of Summer Session, Crawford Hall, Room 208, 2550 Campus Road, Honolulu, Hawaii 96822. Hilo Campus: Director, Hilo Campus, University of Hawaii, 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 Center for Engineering Research 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 Institute of Marine Biology.

The Communications Service Center operates as a centralized service agency providing faculty, staff, and students, with new media materials and equipment to be used for instruction, research, or other University related functions. Consultation services are provided for selecting, locating, and producing graphic and audiovisual materials designed to meet the needs of the classroom instructor or research specialist. Services include: Audiovisual Services (including the use of AV equipment and student operators, film library, and tape recording and duplication); Graphic Services (for creative production in drafting, illustrating, design, layout, lettering, poster printing, photography, and projectual production); and Instructional Systems (involving the use of closed-circuit television and operation of a large group learning center in the Kuykendall multi-media auditorium).

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 and educational development concerned with instructional and administrative problems, curriculum development and evaluation, educational pro-
gram evaluation, extension of understanding of human learning and development, the analysis and design of education systems, and advance planning. Education-related cultural research and development to facilitate educational planning and practice in Hawaii and the Pacific Basin 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. Two special subject collections are also housed in the Sinclair Library: the extensive Hawaiian collection; and government documents (including United Nations, U. S. Government Printing Office, and some foreign government publications).

The Sinclair Library's total collections (exclusive of East-West Center holdings) now number over 500,000 bound volumes and about 650,000 unbound parts. Over 7,600 serial titles are received, and there are some 17,000 reels of microfilm, 175,000 microcards and microprints, and 40,000 maps.

The Graduate Research Library is scheduled to open in late 1967. This will be a four-story, reinforced concrete structure with a gross floor

Open shelves provide students with an easy access to the vast amount of research material available in Sinclair Library.
area of 106,848 square feet. With the opening of the Graduate Research Library, all of the present book collection now housed in Sinclair Library will be moved to the new building. The Sinclair Library building will then become an Undergraduate Library with a separate collection of books of general undergraduate interest.

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 (see p. 14).

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 Harold L. Lyon Arboretum occupies 123 acres in upper Manoa Valley, about 4 miles from the Manoa campus. It was developed by the Hawaiian Sugar Planters' Association and presented to the University in 1957. Several hundred species 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 was organized to take advantage of the unique position of Hawaii as a national laboratory for conducting geophysical research in the broad field of the earth sciences. In cooperation with academic departments devoted to the physical sciences, the institute conducts research programs and provides advanced training in geodesy, astrophysics, aeronomy, meteorology, oceanography, solid earth geophysics, geology, soils, and geochemistry. The main laboratory of the institute is located at 2525 Correa Road on the campus of the University. The institute also maintains a high-altitude observatory on the summit of Mount Haleakala on Maui, a cloud physics observatory at Hilo, Hawaii, a ship operations facility at Kewalo Basin, Honolulu, and a seismographic observatory in upper Manoa Valley.

The Hawaii Institute of Marine Biology is located on Coconut Island in Kaneohe Bay. It encourages research in the marine biological sciences, including fisheries, by providing facilities and services for faculty members, graduate students, and visiting scientists. Its research programs include studies in the ecology, physiology, behavior, and systematics of marine animals and plants, pollution studies, biology, chemistry and pharmacology of toxic marine organisms, and fundamental research in the interrelationship of organisms and their environment.
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 Labor-Management Education Program, instituted in 1965, is under the general supervision of the Industrial Relations Center in cooperation with the College of General Studies.

The Laboratory of Sensory Sciences performs basic research on all the sensory capabilities of man and other animals. Vision, hearing, taste, smell and the senses of the body are studied as well as their associated nerve reactions. In the laboratory are included the scientists, students, and equipment in the disciplines of biophysics, psychophysics, electrophysiology, neurology, and behavior, all investigating in common, but from different viewpoints, the basic question of the nature of sensation. This interdisciplinary approach, plus the year-round availability of marine animals for study in Hawaii, makes the laboratory unique in the study of the sensory processes.

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. Secondarily, 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 on grounds adjacent to Iolani Palace.

The Office of University Relations and Development is responsible for the production of all official University publications, for publicity and public relations activities, and for the coordination of efforts to raise funds for the University from private sources.

The Pacific Biomedical Research Center encourages investigations in the areas of subcellular biology, microbiology, cell structure and func-
tion, regulatory biology, genetics, behavioral sciences, epidemiology, and other areas of medical research. 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 and Asian Linguistics Institute plans and conducts research in general linguistic theory and specific problems of lexicology, structural semantics, and grammatical description. Through its Pacific Lexicography Center, the research institute collects and stores data on the languages of the Pacific and adjacent areas, developing and utilizing computer techniques for storage and retrieval.

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 and related fields. It buttresses instruction in appropriate departments by rendering support to research scholars engaged in directing the work of advanced graduate students. Particular emphasis is given to the study of modernization, socio-economic development, and cultural change. A long-term study of culture and mental health in Asia and the Pacific will provide an opportunity for Asian and American scholars to participate in cooperative research.

The Speech and Hearing Clinic is operated by the division of speech pathology and audiology in the School of Medicine. Diagnostic and therapeutic services in speech and hearing are provided for children, University students, and other adults by staff members and supervised student clinicians. A fee of $5.00 per semester or part thereof is charged for non-University registrants.

The Speech Communication Center provides instruction for those students who are discovered at entrance to need special attention to intelligibility and acceptability of utterance. Students appearing to need special instruction may also be referred by their instructors at any time. Within the space available, the Speech Communication Center accepts (on a fee basis) persons not enrolled in the University. The center also engages in basic and applied research and training of researchers in speech communication.

The Statistical and Computing Center operates an IBM 7040-1401 system and an IBM 360/50 system, 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, particularly those dealing with Hawaii, the Pacific, and the Orient, and three scholarly journals, Pacific Science, Philosophy East and West, and Oceanic Linguistics.

The Press is a member of the American Association of University Presses; it was established in 1947 as a division of the University operating under the guidance of an advisory committee of seven faculty members appointed by the president. Book manuscripts should be sent to the director, journal papers to the respective editors-in-chief.

The Water Resources Research Center, established in 1964, plans and conducts research of either a basic or practical nature related to Hawaii's water resources, and provides for the training of engineers and scientists through such research. Research is interdisciplinary with a broad base of physical sciences, technology, and social sciences. It involves hydrology and hydraulic engineering, geology, geophysics and geochemistry, sanitary engineering and public health, climatology and soil physics, agricultural engineering and forestry, and socio-economic and legal aspects. The center promotes interdisciplinary programs in water resources research among various units of the University.

International Training

Through its Overseas Career 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.

Through its Office of International Programs, the University maintains a Peace Corps training center on the island of Hawaii. Operations are year-round.

In April 1966, the University in conjunction with the Agency for International Development established the Far East Training Center for training A.I.D. personnel for assignments in field operations and community development for Vietnam, Thailand, Laos and other countries of Southeast Asia.

University training projects overseas are under the general supervision of the Director of International Programs.

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 catalog.

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 disinfection 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. 38, Tuition and Fees) are eligible to participate and hold positions in the approximately 90 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).

Student activities range from indoor sports to outdoor lectures.
The ASUH through its elected senate serves as the administrative and legislative body of the association and works with the administration of the University in matters affecting the general welfare of the undergraduate student. The ASUH in addition supports and provides for student publications—*Ka Leo o Hawai‘i* (campus newspaper), *Ka Palapala* (student annual), and *Kapa* (literary magazine); theatre and drama and the University band and chorus. Some of its other activities include a symposium program on national issues, Homecoming, Model United Nations, and Model United States Senate.

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.

The Hemenway Union is the campus center of the University and serves many of the campus activities through its facilities and services. The Hemenway Union Board which is composed of students, faculty, and alumni promotes and sponsors a broad program of social, cultural, and recreational activities and administers the building through the establishment of policies for use of Hemenway facilities. Hemenway Union is affiliated with the National Association of College Unions International.

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. By Regents' policy, priority in assignment is given to freshmen students from the state of Hawaii whose homes are in rural Oahu or on neighbor islands. 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 $345 per semester.

**HALE KAHAWAI** has double accommodations for 140 students. Room and board fee is $345 per semester.

**Undergraduate Men**

**JOHN A. JOHNSON HALL** has double accommodations for 192 men. Room and board fee is $345 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 $370 per semester.

Application-contracts must be accompanied by a $25 deposit before consideration for space reservation can be made. Contract periods do not include official vacation periods during the academic year. Room costs for these periods are approximately $85 plus meal expense.

**Off-Campus Housing**

The Student Housing Office maintains information files on rooms in private homes, a few apartments, and room and board jobs to supplement campus housing. The 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 are encouraged to arrange for temporary lodging until they can visit the housing office for assistance in locating off-campus housing (Mon.-Fri., 7:45-11:45 a.m.—12:30-4:30 p.m.). The general housing picture is one of extreme shortage and this means expense and difficulty in the location of suitable housing.

For information on campus or off-campus housing write to: Director of Student Housing, Johnson Hall A, 2555 Dole Street, 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 approximately $2,000 per 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 medical or dental expenses, additional dependents, or transportation. 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 serves both foreign and American students. It helps those from other countries with immigration requirements, financial problems, living arrangements and other University and community matters. Special orientation programs are held at the beginning of each semester; foreign students admitted to the University are notified in advance and urged to arrive in time to attend them.

The office, located in Webster Hall 101, advises American students who seek opportunities for overseas study, service, and travel, and who wish to engage in international student activities while at the University of Hawaii.

Non-U.S. students who are graduates of a university and are applying for admission should write to: Assistant Dean, Graduate Division. Undergraduates should apply to: Director, Office of Admissions and Records. Other specific inquiries or requests for more detailed information may be directed to: Foreign Student Adviser, International Student Office, 2528 The Mall, Honolulu, Hawaii 96822.

UNIVERSITY PLACEMENT OFFICE

The University Placement Office is organized to assist students and alumni in the selection and pursuit of an optimum career. Services are provided in the area of self analysis, vocational information, specific job opportunities, job campaigns, evaluation of offers and graduate studies. 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
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 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 Counseling and Testing Center's staff consists of professionally trained psychologists, psychiatrists, counseling psychiatric social workers, psychometrists, and interns 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 is interested in assisting the student in maintaining his total health while attending the University of Hawaii. Every daytime registered student is eligible for the health services, but he is first required to have a medical examination performed by his personal private physician. Arrangements for this examination, including payment, must be made by the student. The University provides the health form for reporting the examination to the Service.

The Service offers a medical care program similar to that of the general office practice of medicine. A dispensary provides out-patient physician and nursing care 7:45 a.m. to 4:30 p.m. Monday through Friday and from 9 a.m. to 11 a.m. on Saturdays. The infirmary can provide beds for medical care for minor illnesses and injury on a 24-hour basis 7 days a week during regular sessions of the University. A nurse is on continuous duty for the dispensary and infirmary services and a physician is on call. A student may be referred to a private physician for medical problems beyond the scope of the Student Health Service, for which he must bear the financial responsibility. It is therefore advised that each student join a medical insurance program for the purpose of gaining supplemental medical and hospital care. The medical insurance plan sponsored by the ASUH is tailored to students' special needs and is highly recommended.
Once enrolled, an annual tuberculin test or chest X-ray examination is required; in view of the much higher incidence of tuberculosis in foreign students, semi-annual chest X-ray examinations are required of this group. Failure to comply with these requirements may preclude registration for the following semester.

FINANCIAL AIDS

The Office of Financial Aids is concerned primarily with assisting students who have financial need to continue or complete their education at the University of Hawaii. This assistance may be in the form of Scholarships, Grants, Loans, and/or Student Employment. Prospective graduate students who need financial assistance should communicate with the dean of the Graduate Division.

SCHOLARSHIPS AND GRANTS

PRIVATELY ENDOWED—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 Air Lines Foundation awards four $500 William A. Patterson scholarships to freshmen from the state of Hawaii.

The Sears Roebuck Foundation grants ten $250 scholarships in general agriculture and two $300 scholarships in home economics.

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 four $500 scholarships for entering freshmen. Hawaii Veterans Memorial Fund provides scholarships for undergraduate students.

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.

Information on above grants, except Kekaha Sugar Co. scholarship, may be obtained from the Scholarship Committee.

GOVERNMENT SCHOLARSHIPS

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

Board of Regents Scholarships. Ninety tuition scholarships awarded each year; ten reserved for foreign students.

OTHER SCHOLARSHIPS

Other Scholarships Administered by the Scholarship Committee. Alonzo Gartley (in agriculture); ASUH Scholarship-Leadership grants; Charles W. Atkinson Real Es-
Scholarships Administered by Individuals and Private Organizations, with Assistance from the University Scholarship Committee. Alfred Apaka Memorial; Antone Vidinha, Jr., Fund; Associated Chinese University Women; Chinese Women's Club; Dole Corporation; Francis H. Kanahele Memorial; Fred Dailey Waikikian; Hale Nani Hospital; Hawaii Hotel Association; HGEA, University Chapter; Honolulu Japanese Junior Chamber of Commerce (Nurses); Joseph E. Smith Memorial; Keane Art; Ke Anuenue Alumni Sorority; Leilehua Parent Teachers Association; Liberty Bank of Honolulu; Miles E. Cary Memorial; Pacific Concrete and Rock Co.; Palolo Lions Club; Ralston Purina; Society of American Military Engineers; Soroptimist Club; Standard Oil Company FFA; Theodore Char, CPA Accounting; Wahiawa Lions Club; Wahiawa-Waialua Rotary Club; West Honolulu Rotary; Women's Auxiliary of the Home Builders Association of Hawaii.

Scholarships Administered Entirely by Private Organizations. The Scholarship Committee has no direct information about the independent awards listed below: Aiea High School PTA; Aiea Lions Club; Ala Moana Lions Club; Beta Sigma Phi Sorority; Betty Crocker; Brother David Paalulu; Central Maui Hawaiian Civic Club; Chinese University Club; "Chu" Baldwin Kahanamoku Foundation; Ewa Beach Lions; Filipino Scholarship Foundation; First Trust Company of Hilo; Fort Shafter NCO Wives Club; General Henry Alalocel Education Fund, L. S. Air Force Aid Society; Harold B. Turney; Dorothy K. Gillett Music Fund; Hawaii Veterans Memorial Fund; Hawaiian Civic Club; Honolulu Community Chest; Hui O'Wahine, Fort Shafter Women's Club; Hui Pookela Honorary; IBEW Scholarship, Unit 42; Independent Telephone Pioneer Association; Kailua Hawaiian Civic Club; Kailua High School; Kalia Lions Club; Kamehameha School; Koko Head Lions Club; Lahainaluna P.T.A.; Leeward Oahu Junior Chamber of Commerce; Leeward Oahu Lions Club; Leilehua P.T.A.; Leilehua F.T.A.; Leonard's Bakery; March of Dimes Health Careers; McKinley High School: National Honor Society; Pacific Fellowship (sponsored by the American Association of University Women); Pali Lions; Peter H. Fukunaga Foundation; Rama Watumull Fund; Star Markets, Ltd.; United Okinawan Association of Hawaii; Wahiawa Filipino Community Association; Wahiawa Hawaiian Civic Club; Waialua Agriculture Co.; Waialua Hawaiian Civic Club; Waialua High School P.T.A.; Waialua Lions Club; Wallace Rider Farrington (for graduates of Farrington High School, sponsored by the Honolulu Star-Bulletin); Wong Kong Har Tong Society; Yang Chung Hui Sorority.

Federal Grant Program. The University of Hawaii participates in the Federal Educational Opportunity Grant Program which provides assistance to undergraduate students with exceptional financial need. Grants range from $200 to $800 a year and can be no more than one-half of the total assistance given to the student.

LOANS

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. These loans are to be paid before the end of the semester or summer session during which they were borrowed.
First year students (freshmen and transfers) are not eligible for these loans if their permanent residence is other than Hawaii. A student wishing to make use of these funds should consult one of the financial aid counselors. Loan funds include the following:

Alumni Fund—Molokai Chapter; Andrew J. Salz Fund; Carey D. Miller Fund; Chinese Students' Alliance Fund; Commerce Club Fund; Edgar Wood Memorial Fund; Future Farmers of America, Uniwai Chapter Fund; George H. Lamy Fund; Gruscicada Fund; Hawaiian University Association Fund; Helen Strong Carter Dental Fund; Honolulu Civic Association Fund; Inez Wheeler Westgate Fund; Japanese Students' Alliance Fund; Louise S. Jessen Memorial Fund; Mary L. Kelsey Fund; Minnesota Club Fund; Moir-Ross Health Fund; N.G.B. Fund; Ruth Alexander, M.D., Student Fund; Representatives Club Fund; Senior Class Fund; Student Fund of the College of Education; Theodore T. Kawahara Memorial Fund; Wahiawa-Waialua Rotary Fund.

**Federal Loan Programs.** The National Defense Student Loan, Nursing Student Loan, and Medical Student Loan Programs are available to qualified students attending the University of Hawaii. Students are not required to repay any of the principal or interest until nine months after leaving their studies. For the borrowers who enter the teaching or nursing professions, it is possible for them to cancel part or, in the case of some teachers, all of their loans if certain conditions are met. Applications for these loans are available in the Office of Financial Aids.

Students wanting to borrow through the Federal Guaranteed Loan Program must process their applications through the agency designated in the state where they maintain permanent residence. Hawaiian students are required to go through the State Department of Budget and Finance. (In Hawaii this is the same as the United Student Aid Fund Loan. Application forms are available from the Department of Budget and Finance, commercial lending institutions, or Financial Aids Office, University of Hawaii.)

**STUDENT EMPLOYMENT**

The University of Hawaii participates in the Federal College Work-Study Program and also employs students to work part-time in offices, laboratories, libraries, as maintenance workers, and other jobs on campus.

Students who plan to work their way through college are advised to have funds for all major expenses (tuition, books, room, board, clothing, and travel) for the first year. Keen competition for jobs as well as the problems of adjusting to University life make it difficult for first year students to earn more than limited spending money.

Applications for student employment are obtained from the Financial Aids Office. Preference is given to students with greatest need for financial assistance in order to continue their education.

**PARKING AND TRAFFIC**

Students are expected to familiarize themselves with the University's parking and traffic rules and regulations established by the board of regents. These regulations, together with special instructions, may be obtained at several locations on campus including the student mail room, the business office in Bachman Hall, and the Auxiliary Services building. Ignorance of these rules and special instructions will not excuse a student from the payment of fines for violations.
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 in the College of Education 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. No student may use the unclassified status to avoid technical or scholastic requirements of the Graduate Division.

Auditors are those who are permitted to attend certain courses but who receive no credit for the course. Students may not enroll as auditors in classes of limited size where credit students might thereby be excluded.

Undergraduate students taking fewer than 12 semester hours in any semester are considered "part-time" students for the purpose of determin-
ing fees. Graduate students are considered "full-time" or "part-time" in accordance with the regulations of the Graduate Division. 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: 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 1 for the fall semester and by December 1 for the spring semester. Requests for application forms and questions about admission should be addressed to: Director, Office of Admissions and Records.

Admission of Regular Students Entering for the First Time. Admission to first-year standing depends upon performance on the Scholastic Aptitude Test of the College Entrance Examination Board, 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 that 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 Scholastic 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

*For information consult a high school counselor or write the College Entrance Examination Board, c/o Educational Testing Service, Box 1025, Berkeley, California 94701, or Box 592, Princeton, New Jersey 08540.
### Minimum Unit Requirements for Admission

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<th>From a 4-Year High School</th>
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<td>ALGEBRA</td>
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**ENGLISH**—In addition to the 3-unit minimum requirement in English.  
**SCIENCE**—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.

Any other subjects (except physical education and ROTC) credited by the high school toward its diploma (no less than 1/2 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.

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**TOTAL** 12

Shop exercises. For an acceptable distribution of the units required of entering students, see the table above.

Candidates for admission from outside the state should meet all requirements and await notice of acceptance before coming to Hawaii. No special consideration can be given students who arrive at the last minute and whose credentials are not in order.

Admissions decisions are made without regard to the availability of campus housing. It is the student’s responsibility to arrange for housing.

**Admission by Examination.** Veterans and other mature individuals may take examinations covering preparatory school subjects. Successful performance on these and the Scholastic Aptitude Test 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 select as their major area of study mathematics, the natural, biological, or physical sciences, and most social sciences, must have had plane geometry, two years of algebra, and trigonometry, or their equivalent. Solid geometry is also recommended.

All prospective students of the College of Arts and Sciences are strongly advised to offer at least two years of college preparatory mathematics and three 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 in high school during the summer session preceding their freshman year.

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

Prospective students of home economics should have completed three years of college preparatory mathematics.

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 and 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 admissions and records office before the student enrolls at the University.

**Admission to Advanced Standing.** The application and all required credentials must be on file by July 1 for the fall semester and December 1 for the spring semester. Students who transfer from other accredited universities or colleges may be granted advanced standing. These students must have the institutions attended send to the director of the admissions and records office, an official transcript listing the courses taken at such institutions, the grade received in each, and of honorable dismissal. These transcripts become a permanent part of the University files. Students currently enrolled at other colleges at the time they apply for admission are responsible for seeing that a supplementary transcript of their work is sent to the admissions and records office at the end of the semester. Until the transcript is received, any action on the application is provisional. If a supplementary transcript is not submitted, it will be assumed that the student has decided not to enter the University. 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 Test.

Credit accepted toward graduation is given only in subjects substantially equivalent to University offerings in which grades of C or better are recorded. No more than 60 semester hours are accepted in transfer from a junior college.

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 lower division and are substantially equivalent to University offerings.

**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. Auditors do not take course examinations; the extent of their classroom participation is at the option of the instructors.

Admission of Graduate Students. Graduates of accredited colleges and universities who wish to undertake graduate study should apply to the dean of the Graduate Division. 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 (p. 3). Entering students receive circulars telling them how to proceed in registering. Courses are described under the various college sections, and a schedule stating the time and place of meeting of each course is issued by the admissions and records office prior to the beginning of each semester. The summer session schedules are issued prior to the beginning of each session.

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 catalog 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 catalog.

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 admissions and records office; 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, formal withdrawal from courses is not indicated 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 are normally permitted during the last four weeks of instruction in a semester. A dean may approve a 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 admissions and records office 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.

When a student fails to appear for a final examination, the procedure is different. In this case, the instructor computes the course grade using F for the final examination. If, within one week after the final examination, the student obtains a note from his dean certifying that the absence was caused by valid circumstances (normally only medical ones), the instructor will enter a change of grade to an I.

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.

Grade Reports. 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 and sophomores.
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.

Pass-Fail. Students may, with consent of the instructor, choose to take one course per semester on a "pass" or "fail" basis, provided they have been at the University for at least one semester, are not on academic probation, and that the course is not required for the degree they are pursuing. "Pass-Fail" grades do not enter in the grade point average.

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 have failed to achieve after the first two semesters' attendance, namely the freshman year, a grade point average of at least 1.7.

2. Those students on academic probation either by reason of work at the University of Hawaii or at another institution of higher education who have established and maintained neither a grade
point ratio on an accumulative basis nor in the work of the semester of 2.0.

**Probation.** Students will be placed on academic probation at the end of any semester if they fail to establish and maintain a 2.0 grade point ratio either on an accumulative basis or in the work of the semester.

A student who is readmitted following academic suspension or dismissal is also placed on probation.

Application of rules governing academic suspension and academic probation:

1. Regulations governing academic probation may be applied at the end of any semester. Regulations governing academic suspension or dismissal are applied at the end of the spring semester.

2. Students who fail to meet the established grade point ratio the first time are academically suspended and are eligible to return to the University not earlier than the succeeding spring semester. Such students, however, may, if they choose, attend the summer session immediately following their suspension. If they bring their accumulative grade point average up to 2.0 or better, the Committee on Admissions and Scholastic Standing may set aside the suspension period and permit them to attend the fall semester.

3. Students who have previously been suspended, or students admitted on academic probation who fail to meet scholastic requirements, are academically dismissed. Such students will be readmitted only in unusual circumstances.

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.

*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.

**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**

**Degrees Awarded.** 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.

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

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's 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.

**Registration.** Students seeking degrees in the colleges of Engineering or Tropical Agriculture may be enrolled in these colleges as freshmen, or at further stages of their undergraduate education. Students seeking any other baccalaureate degrees, including the bachelor of arts, of education, of fine arts, of science, of business administration, enroll in the
College of Arts and Sciences, and either complete their undergraduate work in that college or transfer, ordinarily as juniors, to the Colleges of Business Administration, Education, or Health Sciences and Social Welfare.

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

To qualify for any baccalaureate degree from the University of Hawaii a student must satisfactorily complete: the general education requirements of the University outlined immediately below; at least 60 additional credit hours of non-introductory courses; the requirements of his college (which may overlap these University requirements).

General Education. A program of study to accomplish the purposes of undergraduate instruction 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:

Communications: Each student must have competence in expository writing and oral communication appropriate for study at an institution of higher learning. The usual means of fulfilling this requirement is to pass English 101-102 (or 105, an accelerated course) and Speech 145.

Quantitative Reasoning: Ability to apply, understand or appreciate the uses of mathematics, or its philosophical base, is demonstrated by passing any mathematics course at the university level or Philosophy 200, symbolic logic.

World Civilizations: Adequate comprehension of the broad sweep of cultural development is usually demonstrated by passing the course so named, History 151-152 (or its counterpart in the Honors program, 161-162, or its upper-division equivalent, 251-252). However, with the concurrence of their academic advisers, students with an adequate understanding of Western civilizations may complete the requirement by passing courses in the history of Asia, such as History 341-342, or in Asian Studies, such as 301-302. Conversely, students with a satisfactory comprehension of Eastern civilizations may fulfill the requirement by taking one or more courses in European or American history, such as 181-182, 401-402, 405-406, or American Studies 485-486.
Humanities: The educational objective sought here is to develop standards of value and beauty, to sharpen critical judgment by the study of literature and the other creative arts, of philosophy and religion. To fulfill this requirement, students must pass at least 3 semester courses, distributed among 2 or more of the following 3 groups—

I: English 150-151, 152-153, 154-155; Drama 140.
II: Philosophy 100, 150; Religion 150, 151.
III: Art 101; Interdisciplinary Studies 131, 132; Music 160, 165-166, 170.

Natural Sciences: Sought here is a critical understanding of natural phenomena and of the methods of science used in their study. The requirement may be fulfilled by passing at least 3 semester courses, chosen from the following, and preferably including both the biological and physical sciences.

Chemistry 101-102, 103-104, 103 and 106, 107; Geography 101; Geosciences 101-102.
Oceanography 201; Physics 100, 110-111, 160-161, 170, 172, and 174.
Botany 101; Genetics 451-452; Microbiology 151; Zoology 101, 115-116.
General Science 120-121; Biology 120.

Social Sciences: The purposes of this requirement are (1) to seek an understanding of the extent to which scientific method can be used in studying human behavior and institutions and (2) to assist students in assessing their own behavior in society. The requirement may be fulfilled by passing at least 3 semester courses, including at least one semester course from each of the following groups—

I: Anthropology 150, 200; Psychology 100, 180, 200-201, 350, 360, 362; Sociology 151, 201, 324; Social Sciences 300-301.
II: Economics 150, 151; Geography 102, 151; Political Science 110.

These general education requirements were adopted in 1966 and are required of undergraduate students entering the University, or becoming classified undergraduates, after June 1, 1966. Students who registered as classified undergraduates before that date may elect to complete their baccalaureate programs either under the newer requirements or those in effect before 1966.

Credit and Grade-Point Requirements. Minimum credit requirements for baccalaureate degrees are set by each college offering them. In addition, the student must have earned at least twice as many grade points as his total registered credits, i.e. have a C average.

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 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 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. Graduate students may also obtain credit in this manner for certain undergraduate courses. A fee is charged for each examination. (See p. 39.)

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

**Course Examinations.** Final examinations are required in all undergraduate courses except directed reading, research, or seminar courses.

One of the busiest places on the campus is the Mall connecting several science buildings.
TUITION AND FEES*

Regular Session Fees

Fees are charged according to the number of semester hours carried by the student; auditors (those enrolled in a course for no credit) pay the same fees as students enrolled for credit. Out-of-state students pay the same fees as resident students.

Full-time students (12 or more credit hours) per semester:
- Tuition .................................................. $85.00
- General Fee ........................................... 18.00
- Course fees for applied music and institutes (see listings under appropriate colleges)
- Associated Students Activities Fees†
  (for all undergraduate students) ........................................... 13.25

Part-time students (less than 12 credit hours)
- Tuition (maximum of $85.00)—(per credit hour) .............. 9.00
- No General Fee
- No Associated Students Activities Fees
- Students registered in the College of General Studies pay fees as indicated in the bulletins of that college.

Summer Session Fees
- Tuition ........................................... (per credit hour) $16.00
- Student Activity Fee (applies to 1st term) ....................... 2.50
- Course fees for applied music, institutes, and other special programs as noted in Summer Session Bulletin.

Late Registration Fee

A fee of $5.00 is added to the student fees when a student registers or pays the fees after the announced days of registration.

*The tuition and fee schedule set forth here may be changed during 1967-68.

†At the request of the Associated Students of the University of Hawaii (ASUH) and the governors of the Hemenway Activities Council (HAC), 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 $13.25 each semester, of which approximately $8.25 is used to cover membership in the ASUH and HAC for undergraduates taking 12 or more credit hours (if more than 6 are in the regular day program), class dues, the use of services and facilities in Hemenway Hall, and participation in the social, cultural, and recreational programs provided. 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. Complete details are available at the Bureau of Student Activities.
Miscellaneous Fees

Change of program after the initial registration ........................................ $ 2.00
(Does not apply to complete withdrawals from the University)
Credential Evaluation Fee (all out-of-state applicants) * .................. 10.00
Graduation Fee: Bachelor’s degree (each) ........................................ 5.00
Advanced degree .............................................................................. 5.00
Five-Year certificate ......................................................................... 2.50
Thesis Binding, 2 copies ..................................................................... 4.00
Rental of Cap and Gown ..................................................................... 4.00
Rental of Master’s Hood ..................................................................... 4.50
Rental of Doctoral Hood .................................................................... 5.00
Transcript of Record (no charge for first copy) † ....................... 1.00
Replacement of laboratory equipment
(items broken or lost) ......................................................................... Cost of Item
Check returned for any cause: Regular Session ......................... 5.00
Summer Session ................................................................................. 10.00
Credit by Examination .................................................................. 9.00
(per credit hour) (payable at time of application)
Special Examination ......................................................................... 10.00
(in regularly constituted courses at other than the
specified times, except for make-up examinations)

Refunds

Tuition and special course fees for the academic year 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%
third and fourth weeks of instruction, 40%
remainder of semester, 0%

For summer session refund schedule see Summer Session Bulletin.
Applications for refunds must be made at the business office, and approved by the dean concerned.

In no case is refund made for any part of the general fee, late registration fee, or fee for returned check.

*Applications from outside Hawaii must be accompanied by a $10.00 application fee (money order or certified check). This fee is non-refundable, but, if the applicant is accepted, will be credited toward the semester for which he has applied.

†A student who requests the admissions and records office 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.
Payments. 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. 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.

Lockers. 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.

Prizes and Awards

General

American Institute of Chemists' Award, for outstanding achievement in chemistry.

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.

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.

Faculty Club Prize, cash award to the senior who graduates with the second highest scholastic record in the class.

Hawaiian Botanical Society Award, annual cash award and perpetual plaque in the department of botany, honoring a senior for outstanding academic record in the plant sciences.

Health Award Scholarship in Medicine, for outstanding academic record and achievement in the pre-medical program.

Library Prize for Pacific Research, two cash awards (graduate and undergraduate) for the best papers based upon research in the Pacific area. The prize-winning papers are placed in the Hawaiian and Pacific Collection of Sinclair Library.

Merck Drug Company Award, for outstanding achievement in chemistry.

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.

**Taraknath Das Prize in Asian History and Politics**, an annual cash prize, offered by the Taraknath 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 Senior in Travel Industry Management**, 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.

Danforth Summer Fellowship Awards, given by the Danforth Foundation and Ralston Purina Co. of St. Louis, to an outstanding junior 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 freshman and a senior with highest grade-point averages, 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 Science and Aerospace Studies**

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.

**General Honors**

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. Chapters of national honorary societies at the University include Phi Beta Kappa Alpha chapter (liberal arts and sciences); Phi Kappa Phi Hawaii chapter (general scholarship); Sigma Xi (sciences); Pi Gamma Mu (social sciences); Phi Delta Kappa (education); Sigma Pi Sigma (physics); Delta Sigma Rho (forensics); Chi Epsilon (civil engineering); Eta Kappa Nu Association (electrical engineering); Omicron
SPECIAL INSTRUCTIONAL PROGRAMS AND COURSES

Honors Programs

Selected Studies (lower division). The Selected Studies Program provides a group of academically promising freshmen and sophomores with an opportunity to use the University's facilities and resources more fully than usual. Each student has a faculty adviser to assist him to plan his curriculum and within certain limits to tailor it to his special interests and abilities. Special courses are available in history, in the physical and the social sciences, in the humanities, etc.; moreover, there are special sections reserved in basic freshman and sophomore courses in art, economics, English, languages, mathematics, music, political science, and many others.

Admission to the program is by invitation to freshmen and sophomores whose high school records and aptitude test scores, or whose recommendations from University faculty, indicate they have the qualities needed to profit from the opportunity.

Honors (upper division). Honors degrees may be granted only to participants in the University Honors Program. Successful completion of a program of honors work in the upperclass years entitles the student to a bachelor's degree with "honors," "high honors," or "highest honors." Application for admission to the Program may be made by any regularly registered undergraduate at the end of his sophomore year or during his junior year.

During the junior year the nature of honors work is determined chiefly by the University department or curriculum in which the student is enrolled as a major. In the second half of his junior year and the first half of his senior year he participates in an interdisciplinary colloquium. In his senior year, with the guidance of a specialist in his field, he pursues a program of independent research that culminates in a senior thesis.

Full information about both programs may be obtained from the Coordinator of Undergraduate Honors Programs in Sinclair Library.

Academic Commendation. Seniors who have a grade-point ratio of 3.4 or above but who have not completed the Honors Program will receive their degree "with academic commendation." At least 60 semester hours of this undergraduate work must have been taken at the University of Hawaii within six years prior to graduation.
Honors Courses

See p. 50 for a discussion of course descriptions.

IS 101 THE COLLEGE EXPERIENCE SEMINARS (2) I, II
Arkoff
Student-led seminars to explore purposes, processes and problems of higher education, and to give students perspective on their own college careers. Student participants enroll in IS 101, student leaders in IS 401.

IS 131 MAN AND THE ARTS (4) I
Preble
Introduction to the non-verbal arts as they direct and embody man's awareness.

IS 132 MAN AND HIS CITY (4) II
Preble
The 20th-century American city as an expression of attitude and value. Examination of Honolulu as example of various theories of function of the city.

IS 151-152 SCIENCE AND IDEAS (4-4) I, II
Key
Man's present understanding of nature and foundations upon which that understanding is based.

IS 171-172 PROBLEMS OF HUMAN SOCIETY (4-4) I, II
Matson
Intensive investigation of selected processes and issues of contemporary society through the perspectives and resources of the social sciences. Field work, tutorials, group discussion, lectures.

IS 207 SHIFTING SEX-ROLES IN CONTEMPORARY AMERICA (3) I, II
Hertley
Biological and cultural bases of sex-role differentiation; political, economic and professional implications; influence on self-concept. Conducted as colloquium.

IS 221-222 INTERNATIONAL AGRICULTURE (1-1) I, II
S. Goto
Colloquium on the role of agriculture in community development, with special emphasis on the Pacific and S.E. Asia. May be repeated.

IS 291 COMMUNITY SERVICE PRACTICUM (3) I, II
Staff
Supervised field work in selected community agencies; seminar on corresponding social problems. Pre.: consent of instructor after personal interview.

IS 317-318 JUNIOR HONORS SEMINAR (1-1) Yr.
Staff
Survey of research areas, specialized reading and preliminary experimentation; definition of a specific research problem. Available only in selected fields.

[Major Subject] 394-395 SENIOR HONORS THESIS (2-2) Yr.
Staff
Preparation of a research paper under individual faculty supervision. Required for graduation with honors.

IS 397-398 HONORS COLLOQUIUM (3-3) Yr.
Linn
Weekly meetings for discussion of enduring issues and problems which are of an interdisciplinary nature. Required of, and limited to, candidates for the bachelor's degree with honors.

IS 401 THE COLLEGE EXPERIENCE SEMINARS (2) I, II
Arkoff
Faculty-led seminars for student leaders of IS 101 groups. May be repeated. Pre.: consent of instructor.

NOTE: Only Honors Seminar and Colloquium are necessarily limited to students in Honors Programs. For other courses, interested students should apply to instructor.
The Honors Reading Room doubles as the office for the Honors and Selected Studies Programs, which include some five hundred students.

**English Language Institute**  
*See p. 99 for ELI course descriptions.*

The University of Hawaii has established the English Language Institute (ELI) as its agency for assuring that the English proficiency of its foreign students is adequate for University coursework. ELI responsibilities include testing and evaluating the English of all new foreign students, and providing suitable instruction for those students whose English fails to meet standards determined by the University to be sufficient for the pursuit of full-time studies.

**Testing and Evaluation.** Upon arrival at the University, all foreign students are referred to ELI for evaluation of their English proficiency. Registration for University coursework is not permitted until this evaluation has been made.

**Exemption from ELI.** Following ELI’s evaluation of their English proficiency, the following foreign students are exempted from ELI training: a) those whose native language is English; b) those who hold a degree from an American college or university; c) those whose English meets the University’s standards for full-time study.

**Assignment to ELI Courses.** All foreign students not exempted on the basis of their entrance proficiency testing are assigned to an appropriate program of ELI instruction. Because of their special purpose, ELI courses take precedence over all other coursework. They may not be postponed to a subsequent semester, nor may they be dropped or taken with auditor status. Students who fail to comply with ELI assignments may be denied further registration at the University.

**Relationship of ELI Assignments to Other Coursework.** Students assigned to ELI training take a reduced academic load, in order to devote
sufficient attention to gaining satisfactory English competence. Students required to take relatively large amounts of ELI work during their first and second semesters must expect to make proportionately slower progress in their regular University studies. This is an especially important factor in some graduate programs, and should be carefully considered by all foreign students whose time or financial support is limited.

**Eligibility for Registration in ELI.** Registration for ELI courses is limited to students who have been officially admitted to the University. Students who apply to the University for the sole purpose of entering ELI in order to improve their English will not be accepted.

### Interdisciplinary Studies (IS)

In addition to the many interdisciplinary courses listed among the offerings of the departments of the several colleges in the following pages, a few courses do not fit within any department. Among the latter are:

**600 THEORY OF ADMINISTRATION (3)** I, II

This course is offered for students in Business Administration, Political Science, Social Welfare, Educational Administration, Public Health Administration and possibly other programs. Students should consult advisers in their own departments for information on how this course may fit into their curricula. While the course is taught primarily by the professor listed, faculty members from each of these departments 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.

**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.

**IS 101 THE COLLEGE EXPERIENCE SEMINARS (2)** I, II

**IS 131 MAN AND THE ARTS (4)** I

**IS 132 MAN AND HIS CITY (4)** II

**IS 151-152 SCIENCE AND IDEAS (4-4)** I, II

**IS 171-172 PROBLEMS OF HUMAN SOCIETY (4-4)** I, II

**IS 207 SHIFTING SEX-ROLES IN CONTEMPORARY AMERICA (3)** I, II

**IS 221-222 INTERNATIONAL AGRICULTURE (1-1)** I, II

**IS 291 COMMUNITY SERVICE PRACTICUM (3)** I, II

**IS 317-318 JUNIOR HONORS SEMINAR (1-1)** Yr.

**IS 397-398 HONORS COLLOQUIUM (3-3)** Yr.

**IS 401 THE COLLEGE EXPERIENCE SEMINARS (2)** I, II

*(For a brief description of the courses listed by title only, see under Honors Program, p. 44. However, only the Honors Seminar and Colloquium are necessarily limited to students in Honors Programs.)*
**Reserve Officers Training Corps**

Army and Air Force ROTC units at the University offer programs leading to regular or reserve commissions in the U.S. Army and Air Force upon completion of the baccalaureate degree requirements.

**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. Students who have participated in Junior Division ROTC or who have had active military service of more than four months may be exempt from a portion or all of 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. Subsistence pay of $40.00 per month is paid to students in the advanced course during the school year, and pay for the summer camp is at the rate of $151.95 per month. Training in the advanced course is selective, and successful completion of the training 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 course under procedures prescribed by the Professor of Military Science.
3. Successfully complete the first two years (basic course) of a Senior Reserve Officers Training Corps course or the equivalent, as explained above.

The *two-year program* is essentially the same as above except that credit for the two-year basic course is gained by attendance and successful completion of a six-week summer camp at a mainland military installation prior to entry into the advanced course. Students interested in this program must have four semesters of college work remaining after completion of the summer camp and must apply for selection early in the spring semester of the year in which they plan to attend the basic summer camp. Pay for the summer camp is at the rate of $90.60 per month.

The Army Flight Training program is offered to qualified students in their senior year of the ROTC program.

Financial assistance scholarships are available on both a four-year and a two-year basis. The scholarships provide payment for tuition fees, cost of books, laboratory expenses and $50.00 per month subsistence pay for the period of the scholarship. Applicants for the four-year scholarship
normally apply during their senior year in high school. Applicants for the two-year scholarships apply during the second semester of their sophomore year at the University. Completion of the basic course is a prerequisite for the receipt of the two-year scholarship. For further information, inquire at the Department of Military Science.

Military Science (MS) Courses

See p. 50 for a discussion of course descriptions.

Professor Carroll; Associate Professor Kent; Assistant Professors Auyong, Jhung, McGaw, McNamara, Zakas; Instructors Zumach, Ah Cook, Norris, Purnell

Leadership Laboratory required 1 hour per week.

101-102 FIRST-YEAR MILITARY SCIENCE (2-2) Yr.
Theory of Army organization; organization and function of infantry squad, platoon, company; objectives of ROTC program; missions of Army as member of the national defense team and major problems confronting it in this role, emphasizing one-army concept; evolution of firearms; marksmanship training.

151-152 SECOND-YEAR MILITARY SCIENCE (2-2) Yr.
Survey of American military history from origins of U. S. Army, with emphasis on factors which led to organizational, tactical, logistical, operational and strategical patterns found in today's 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 (3-3) Yr.
Infantry organization, principles of combat and application to units of infantry division battalion warfare; military leadership; role of various branches in over-all missions of the Army; educational psychology applied to military instructional programs.

251-252 FOURTH-YEAR MILITARY SCIENCE (3-3) Yr.
Staff organization, purpose and functions; division staff as model of battalion staff in combat theatre; role of the United States in world affairs; uniform code of military justice; fundamentals of army administration; supply and troop movements.

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.

When the student 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 during 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.

**Aerospace Studies (AS) Courses**

*See p. 50 for a discussion of course descriptions.*

Professor Russell; Assistant Professors Kozuma, Veylupek; Instructors Cathcart, Miller

Leadership Laboratory required 1 hour per week for each course listed.

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 basic Aerospace Studies courses.

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: 201 or 202.

**Intramural Athletics 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 catalog.

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. All students participating in varsity sports are insured against accidents.
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 non-credit 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, and the instructors’ names where available. 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 catalogs.
Learning goes on everywhere for the University of Hawaii—in the classroom, under the trees, and in the television studio of the Hawaii Educational Television network.
College of Arts and Sciences

The programs of the College of Arts and Sciences are designed in the conviction that liberally educated persons must have a comprehensive knowledge of the major fields of learning—a general education—and an intensive knowledge of a particular field of the humanities, the social sciences, or the natural sciences.

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, a student undertakes a program of study offered by the College in a major field of concentration in the humanities, the social sciences, or the natural sciences; or he transfers to a program of another college of the University—e.g., Health Sciences.

Because of its geographical position midway between continental America and Asia, the College is unusually conscious of the importance of the Far East; unique opportunities are provided for the study of the history, languages, literature, art, institutions and philosophies 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. 24-29). However, candidates for admission are strongly advised, although not required, to offer a minimum of two years of college preparatory mathematics and three 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 60 semester hours of credit in other than introductory courses.
4. Acquire an aggregate of 124 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.

No course will satisfy more than one kind of requirement (basic, area, major, etc.).

Exemption by examination is possible in expository writing, speech, and foreign language. The speech requirement is waived for students who have a one semester course in high school in extemporaneous public speaking with a grade of B or better. 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 124 hours required for graduation.

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

Each program leading to the bachelor's degree is built around a major field of concentration—the major—which consists of a specific number of credits and required courses in a particular field or discipline, together with related courses (usually upper division) in other subjects which are associated with and contribute to that discipline.

The major must be indicated by the beginning of the third year. For certain preprofessional programs, such as prearchitecture, predentistry, premedicine, and prepharmacy; 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.
Students seeking baccalaureate degrees in business administration, medical technology, professional nursing, or education must complete the entrance requirements of the particular program they wish to enter and transfer, ordinarily as juniors, to the College of Business Administration, the College of Health Sciences and Social Welfare, or the College of Education. To be eligible for admission to any of these programs, a student must have completed a minimum of 60 credit hours of study, including the general education requirements of the University (pp. 34–37) and certain specified courses.

**Bachelor of Arts Degree Programs**

**Basic Requirements**

English 101-102 or 105; History 151-152 or 251-252; Speech 145; Health and Physical Education, one activity course; foreign language, intermediate year; Philosophy 200 or Mathematics 100 or higher; English 150-151, or 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 102, 104, 105, 106, 107, 471; Drama 140, 150, 151; Music 160, 165-166, 170.
3. American Studies 485-486; Asian Studies 301-302; English courses numbered from 212 to 599, not including 309, 310 and 329; courses in foreign languages beyond the intermediate year; History 181-182, 341-342; IS 131 and 132; Journalism 150; Linguistics 202; Speech 210, 230, 270, 350, 440, 470, 480, 485.

II. *Social Sciences*: 12 semester hours, including at least one course from each sub-group.

1. Anthropology 150, 200; Psychology 100, 101, 214, 320, 322; Sociology 151, 201, 324; Social Sciences 300-301.
2. Economics 150, 151; Geography 102, 151; Political Science 110.

III. *Natural Sciences*: 11 semester hours including at least three courses from the first sub-group. Majors in the natural sciences must obtain credit in subjects other than mathematics.

1. Biology 120, Botany 101, Chemistry 101-102, 103-104, 103 & 106, or 107; General Science 121-120; Genetics 321 or 451; Geography 101; Geosciences 101-102; Microbiology 151; Oceanography 201; Physics 100 (101 may be taken concurrently for one additional credit), 160-161 or 170 through 173; Zoology 101, or 201-202.
2. Botany 105, 201; General Science 530; Geography 410, 420; Geosciences 200; Mathematics 134, 135-136; Physics 100-101, 110-111; Zoology 161-362, inclusive.

**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 10 semester hours in one subject may be applied toward the bachelor of arts degree.

**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:** 18 hours of architectural design, 6 hours of professional practice, 6 hours of theory of structure, 6 hours of history of architecture.

**Art. Major requirement:** 39 semester hours. **Required courses:** Art 101, 12 hours of introductory studio, 12 hours of art history, and 12 hours of emphasis in drawing and printmaking, painting, weaving and textiles, ceramics, sculpture, visual design or art history. Approved by College of Education for art education majors.

**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 101. Additional non-introductory courses to be selected from offerings in botany, genetics, microbiology, and zoology. As related courses, Mathematics 194 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:** 24 semester hours, in addition to 103-106 or 107; including 143-144, 331, 432, 451-452. A reading knowledge of scientific German, French, or Russian is required.

**Chinese. Major requirement:** 30 semester hours above the intermediate level.
CLASSICS. Major requirement: 24 semester hours in upper-division Latin and Greek courses.

DRAMA AND THEATRE. Major requirement: 24 semester hours. Required courses: 150, 151, 200, and 15 semester hours of courses numbered above 300. Related courses required: 6 hours in dramatic literature.

ECONOMICS. Major requirement: 27 semester hours. Required courses: 150-151, 240, 300, 302, 304. As a related course, Mathematics 135 is required.

ENGLISH. Major requirement: 27 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, and 3 hours in a genre. 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. All majors are advised to take a course in statistics (Geography 440, or the equivalent). In choosing courses under the area requirements of the College, students are advised to select Anthropology 150 and Economics 150-151 under the Social Sciences options, Mathematics 134 or a higher numbered course under the Mathematics options, and basic courses in physics, chemistry, and geosciences under the Natural Sciences options.

GEOLOGY. Major requirement: 34 semester hours. Required courses: Geosciences 101-102, 205-206, 401-402, 405-406, and 410. As related courses and prerequisites, Mathematics 135-136 and 231; Chemistry 103 and 106 or 107; and Physics 170-175 are required.


GREEK. Major requirement: 24 semester hours exclusive of 151-152. Required courses: Latin 101-102.

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. Honors program students take 394-395 instead of 397.

JAPANESE. Major requirement: 30 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.

LATIN. Major requirement: 24 semester hours exclusive of 151-152. Required courses: Greek 101-102; Latin 301.

MATHEMATICS. Major requirement: 33 semester hours. Required courses: 15 semester hours in courses numbered above 300.

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, biophysics, botany, chemistry, genetics, microbiology, and zoology. As related courses, Chemistry 331 or 451, Mathematics 136, Physics 160-161 or 170-173.

MUSIC. Major requirement: 38 semester hours. Required courses: 165-166, 181-182, 183-184, 185-186, 187-188, and 6 hours in applied music, including 235-236. For emphasis upon theory, 12 hours selected in upper-division theory courses, as advised, and 464 or 470. For emphasis upon music literature, 461, 462, 463, 464, 470, 483 or 484 and 281 or 485.

PHILOSOPHY. 21 semester hours in addition to Phil 150, 155, and 200. Of these 21 hours, Phil 415 is mandatory; 3 of the following courses are mandatory: Phil 400, 402, 404, 406, 408, 410; 3 courses above the number 410 are electives. Undergraduates planning work in Asian Philosophy should take introductory courses in Indian, Buddhist and Chinese Philosophy.

PHYSICS. Major requirement: 32 semester hours. Required courses: 170-173, 174-175, 305, 310, 350, 460, 180-181, 550. As related courses, Mathematics 101 and 102 are required.

POLITICAL SCIENCE. Major requirement: 27 semester hours. Required courses: 110 and 300-301. As part of his major, each student is required to complete introductory one-year core sequences in three subfields, numbered 300 and above, including Political Science 300-301, Political Thought Core. The balance of the political science courses may be taken either within the same subfields or in others. "Topics" courses will be offered only upon demonstration of need. As their contents will vary from year to year, they may be taken more than once for credit.

PSYCHOLOGY. Major requirements: 24 semester hours. Required courses: 111, 112, 113, and any two of the following three: 214, 215, and 216. The remaining courses must be selected from the 300-level or above.

RELIGION. Major requirement: 24 semester hours. Required courses: 151, 200, 201, 482-483.
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:** 30 semester hours above the intermediate language level. **Required courses:** 203-204, 230, 260-261, 362-363, 400, 431. Linguistics 202 is a strongly recommended elective. Majors must also pass the MLA Proficiency Tests for Teachers and Advanced Students (on Listening, Speaking, Reading, Writing) not earlier than the first semester of the senior year.

SPEECH. **Major requirement:** 30 semester hours. **Required courses:** 145, 210, 230, 250, 370; SPA 200, SPA 320; 9 additional hours of upper division speech courses.

ZOOLOGY. **Major requirement:** 24 semester hours. **Required courses:** 201-202, 390. As related courses, Biology 150, Chemistry 103-106, 141, 331, or 143-144, Botany 101 or Microbiology 151 or Biology 120, and Mathematics 134 are required. Credit toward the major will be granted for Biology 150 and Genetics 451-452. Students planning to continue their professional education beyond the B.A. degree should have, in addition, one year of physics and mathematics through calculus.

**Bachelor of Fine Arts Degree Program**

This program is designed to provide basic preparation in ceramics, drawing, environmental design, painting, printmaking, sculpture, textile, visual design and weaving. Basic and area requirements are those of the bachelor of arts degree programs with the exception that foreign language is not required. Major requirements include 64 credits in the field of art or architecture of which 18 must be in art history. All students entering a B.F.A. program must take the 12 credit hours of introductory studio courses and Art 101 and are strongly advised to register for Art 101 and one of the introductory studio courses in their first semester.

**Bachelor of Music Degree Program**

**Basic Requirements**

English 101-102 or 105; Speech 145; History 151-152, 251-252 or 161-162; Mathematics 100 or Philosophy 200; Physics 140; 2 credits selected from health and physical education activity courses or Drama 425 or 426. Students concentrating in voice must give evidence of having achieved the equivalent of French 102 and German 102.
Distribution Requirements

A. Three courses, including at least one from group 1 and one from group 2 or 3.

1. English 150-151, 152-153, or 154-155; Drama 140.
2. Philosophy 100 or 150; Religion 150 or 151.
3. Art 101; Music 160, 170, 165-166; IS 131, 132.

B. Three courses, including at least one from each group.

1. Psychology 100, 110, 214, or 322; Sociology 151, 201, or 324; Anthropology 150 or 200; Social Sciences 300-301.
2. Economics 150 or 151; Political Science 110; Geography 102 or 151.

C. Three courses, including at least one from each group. General Science 120-121, Introduction to Science, is the equivalent of one course from each of the groups.

1. Chemistry 101-102, 103-104; Geosciences 101-102; Physics 110, 160-161, 170 through 173; Geography 101; Oceanography 201.
2. Botany 101; Genetics 321 or 451; Microbiology 151; Zoology 101 or 115-116.

Music Requirements

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<td>135-136</td>
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Non-music electives: For a concentration in composition, 6 semester hours; for a concentration in band or orchestral instruments, 5 semester hours; for a concentration in piano, 9 semester hours; for a concentration in voice, 9 semester hours. If students concentrating in voice must take formal courses to meet the language requirement, these courses must be taken within the 9 elective credits.

*Possible concentrations: C-composition, OBI-orchestral or band instruments, P-piano, V-voice.
Bachelor of Science Degree Programs

Basic Requirements

English 101-102 or 105; Speech 145; History 151-152 or 251-252; Chemistry 103 and 106, or 107; Mathematics 135-136; Physics 170 through 173, or 160-161.

Distribution Requirements

A. One course from each of the following groups:
   1. English 150-151, 152-153, or 154-155; Drama 140.
   2. Philosophy 100 or 110; Religion 100 or 151.
   3. Art 101 or Music 160.

B. Three courses, including at least one from each of the following groups:
   1. Psychology 100, 110, 214, 320, 322; Sociology 151, 201 or 324; Anthropology 150 or 200; Social Sciences 300-301.
   2. Economics 150 or 151; Political Science 110; Geography 102 or 151.

Majors (B.S. Degree)

BIOLOGY: 37 semester hours in addition to Biology 120, including Biology 150; Genetics 451; Biochemistry 441-442 or 561-562 and 571-572; Zoology 401 or Botany 454; Microbiology 531, Botany 470, or Zoology 845; and Zoology 431-432 or Mathematics 201 or 231-232. A student must concentrate in one of the following fields: botany, general biology, microbiology or zoology. The field of concentration should be stipulated at the beginning of the third year and an appropriate program of courses selected with the approval of the Director, Curriculum in Biology.

As a related course, an intermediate year of either French, German, Russian, Italian, Spanish or Japanese is required.

Recommended electives include additional mathematics and physical chemistry. A minimum of 6 hours in non-introductory courses in the arts, humanities or social sciences is required.

CHEMISTRY. Major requirement: 37 semester hours, in addition to 103-106 or 107; including 143-144, 331, 432, 451-452, 522, 544, and a minimum of 6 semester hours from the following: 394, 395, 399, 445, 524, 621, 631, 632, 641, 642, 651, 652, and Biochemistry 561-562.

As related courses, German or Russian 154 and Math 231 are required.

Recommended electives are Mathematics 282, 311, 402, 431, 432, Physics 174, Geosciences 101-102, one or more courses in biological science.

GEOSCIENCES. 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.

Major requirement: 38 semester hours, including 101-102 or the equivalent, from among appropriate offerings in geosciences, chemistry, civil engineering, geography, mathematics, oceanography, and soil science. As related courses, Physics 170-175 are required.

Physics. Major requirement: 35 semester hours, including 170-175, 310-311, 350-550, 305, 460, 480-481. As related courses, an intermediate year of one, or an introductory year of two, of the following languages is required: French, German, Russian.

Recommended elective: Physics 530.

Preprofessional Programs

By careful planning, students in the College 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.

In planning a program, the recommendations of the appropriate national professional organizations should be followed. In addition, when the student has selected the professional school he desires to enter, he should elect courses to fulfill the specific requirements of that school.

The College maintains a Pre-Medical Sciences Committee prepared to give specific aid to students preparing for schools of dentistry, medicine, veterinary medicine, pharmacy, or public health.

Information regarding the scholastic requirements of the other professions, such as law, is available at the office of the dean of the College and at the Counseling and Testing Center.

Pre-Medical Curriculum

The following program is based upon the general admission requirements of medical schools. The majority of schools, however, require the entering student to have a bachelor's degree, as well.

<table>
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### SECOND YEAR

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<tr>
<td>History 151</td>
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<td>History 152</td>
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### THIRD YEAR

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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 60201) 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 bachelor's degree. For details see *Admissions Requirements of American Dental Schools* ($2.00; address: AADS, 211 East Chicago Avenue, Chicago, Illinois 60611).

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

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

### Library 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 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.
ARTS AND SCIENCES COURSES

See p. 50 for a discussion of course descriptions.

American Studies (Am St)

Professors Brown, Denney, Lutzky; Associate Professors Matson, McCutcheon; Assistant Professors Gurian, Neil

485–486 CONTEMPORARY AMERICAN CIVILIZATION (3–3) Yr. Gurian
Images of American civilization as held both in the U.S. and abroad.

490 LEADERS AND MOVEMENTS IN AMERICAN THOUGHT (3) I, II Brown
Examination in depth of two or three significant personalities in American history and literature and the movements which originated from their ideas.

495 THE BUSINESSMAN IN AMERICA (3) II Staff
Study of the businessman in history, literature and popular thought as the symbol of American culture. (Not offered 1967-68.)

600 SEMINAR: ASIA-AMERICA (2) I (same as Seminar I listed below) Lutzky
Comparative study of basic Asian and American institutions and peoples with special reference to problems of youth in a changing contemporary society. Limited to EWC grantees.

630 CRITICISM IN THE MASS MEDIA AGE (3) I Matson
Problems in criticism, philosophy of art and aesthetics as generated by modern mass communications techniques. Limited to 20 students. Qualified seniors admitted. Pre: consent of instructor.

635 PERSPECTIVES IN COMPARATIVE LITERATURE (3) II Denney
To explore, in Asian and Western literary works, literary questions that are cross-cultural and comparative.

640 ASIAN INFLUENCES IN AMERICAN CIVILIZATION (3) I, II McCutcheon
To examine the influence of Asia in American history, literature, politics, thought, architecture, and the fine arts.

650 AMERICAN CIVILIZATION AND THE OVERSEAS AMERICAN (3) II Brown
Examination of American civilization with special reference to those issues, principles, and problems most significant to Americans preparing for work and study in other areas of the world.

660 SEMINAR: PRESIDENTIAL LEADERSHIP & AMERICAN CIVILIZATION (3) I, II Brown
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.

670 SEMINAR: SOCIABILITY IN THE UNITED STATES (3) I Denney
Applications of concepts, definitions, classifications, and discriminations developed in the social sciences to materials dealing with the institutions of sociability and hospitality in the United States. (Not offered 1967-68.)

685–686 SEMINAR: NATURE OF AMERICAN SOCIETY (3–3) Yr. McCutcheon
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, society, 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) II  
Effect of inter-cultural exchange of ideas, values, and techniques between peoples of Asia and the United States. Pre: consent of instructor.

ASIA-AMERICA SEMINARS  
(These courses are designed specifically for EWC grantees and consent of instructor is required.)

SEMINAR: ASIA-AMERICA I (2) I (Same as Am St 600)  
Comparative study of basic Asian and American institutions and peoples with special reference to problems of youth in a changing contemporary society.

SEMINAR: ASIA-AMERICA 2 (0) II  
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 in the Field Study Program.

Anthropology (Anth)  
Professors Lebra, Luomala, Mason; Associate Professors Boggs, Dewey, Maretzki, Solheim; Assistant Professors Cook, Davis, Harrison, Pearson

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

250 OCEANIA (3) I  
Staff  
Introduction to native cultures of Polynesia, Micronesia, Melanesia, and Australia. Pre: 150 or 200.

399 DIRECTED READING OR RESEARCH (arr.) I, II  
Staff  
Limited to majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in anthropology.

440 REGIONAL CULTURES OF ASIA (3) I, II  
Staff  
Historical problems and regional developments in ecology, social structure, world view, and other aspects of selected indigenous cultures. Selected cultures to be covered in a region will be named in the course schedule for each semester. (1) Continental East Asia, (2) Continental Southeast Asia, (3) Insular Southeast Asia, (4) South Asia. Pre: 200, or consent of instructor. May be repeated.

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

510 FOUNDATIONS OF ANTHROPOLOGICAL METHOD (3) I  
Staff  
Empirical and logical bases of the social sciences which are applicable in anthropological inquiry. Pre: 200.

520-521 ARCHEOLOGICAL TECHNIQUES (3-3) I, II  
Staff  
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: 210 or equivalent, and a course in statistics, or consent of instructor.

550 ANTHROPOLOGICAL APPLICATIONS (3) I, II  
Staff  
Anthropological theory, method, and data applied to problems in specialized fields. Oriented to needs of students in professional fields who lack anthropological background. (1) Development 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  
Staff  
Major issues and problems in the principal fields of anthropology: biological, archeological, social and psychological. Open only to graduate degree candidates in anthropology.
660 SOCIAL ORGANIZATION (3) I  
Analytical study of organized group activity in societies of varied complexity. Theories of kinship and social structure. Pre: 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: 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 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: 651 or equivalent, or consent of instructor.

690 ECOLOGICAL ANTHROPOLOGY (3) II  
Study of relationship of man with his natural environment, particularly emphasizing role of culture as a dynamic component in ecological systems. Patterns of production, exchange, property, and consumption. Pre: 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  
Historical development of anthropology, emphasizing unity of 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.

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 (Art) and Architecture (Arch)**

Professors Anderson, Cox, Etherington, Horan, Kingrey, Neogy, Norris, Robinson, Terasaki, Turnbull; Associate Professor Kimura; Assistant Professors Everson, McVay, Preble, Rosen, Stasack; Instructors Burgess, Bushnell, Clapsaddle, Lintault, Murray, Nelson, Sato, Wisnosky

Except as noted, completion of introductory studio courses Art 113, 114, 115, 116, and Art 101 or IS 131 is the prerequisite to all courses numbered 200 and above. General exception: non-majors taking art history courses are not required to take Art 113, 114, 115, 116 and may substitute History 152 or 162 for Art 270, 280.

*The department may retain any student work for departmental use.*
ART (Art)

101 INTRODUCTION TO THE VISUAL ARTS (3) I, II
The nature of visual art and its expressions in various forms. Lectures, demonstrations.

105 ELEMENTARY STUDIO—CERAMICS (3) I, II
Studio experience mainly for non majors. Lectures and projects. Credit cannot count towards major requirements in Art. Pre: 101.

106 ELEMENTARY STUDIO—SCULPTURE (3) I, II
Studio experience mainly for non majors. Lectures and projects. Credit cannot count towards major requirements in Art. Pre: 101.

107 ELEMENTARY STUDIO—PHOTOGRAPHY (3) I, II
Studio experience mainly for non majors. Lectures and projects. Credit cannot count towards major requirements in Art. Pre: 101.

113 INTRODUCTORY STUDIO "A" (3) I, II
Emphasis on perception: visual responses to nature; materials, techniques, modes of representation. Problems in two and three dimensions involving photography, drawing, painting, sculpture and construction. Pre: Art 101, 131 (may be taken concurrently).

114 INTRODUCTORY STUDIO "B" (3) I, II
Emphasis on light: environmental; general intensity; value range; sources; chiaroscuro; pattern; principles of color. Problems in two and three dimensions involving drawing, painting, sculpture and design. Pre: Art 101, 131 (may be taken concurrently).

115 INTRODUCTORY STUDIO "C" (3) I, II
Emphasis on space: environmental; actual and illusionary; changing spatial systems and space modifiers. Problems in two and three dimensions involving drawing, painting, sculpture and design. Pre: Art 101, 131 (may be taken concurrently).

116 INTRODUCTORY STUDIO "D" (3) I, II
Emphasis on time, motion and systems: visual kinetics; sequence, rhythm, order and systems. Problems in two and three dimensions involving drawing, painting, sculpture and design. Pre: Art 101 or 131 (may be taken concurrently).

131 MAN AND THE ARTS
Same as IS 131, see p. 44.

132 MAN AND HIS CITY
Same as IS 132, see p. 44.

394-395 SENIOR HONORS THESES (3-3) Yr.
Projects under individual faculty supervision. Required for graduation with honors. Pre: junior standing.

595 STUDENT TEACHING OF INTRODUCTORY ART (2) I, II
Supervised experience in teaching introductory art at college level. Lectures. May be repeated once. Pre: Consent of chairman and instructor.

800 THESIS RESEARCH (arr.) I, II

ARCHITECTURE (Arch)

133-134 ARCHITECTURAL DESIGN (3-3) I, II
Boone, Burgess
Basic architectural design problems. First Semester: emphasis on graphic presenta-
tion techniques, perspective, descriptive geometry, shades and shadows. Second Semester: emphasis on basic architectural structural concepts and the development of architectural form, space, light, scale and proportion. Pre: Art 101, 113, 114.

205–206 PHYSICAL SYSTEMS (3–3) Yr. Terazaki
Design problems in physical systems of architecture. Including mechanics, strength of materials and the design of simple beams, columns and trusses in various materials. Pre: Math 135.

233–234 ARCHITECTURAL DESIGN (3–3) Yr. Etherington
Design of simple buildings and their inter-relationships with site and surrounding environment. Emphasis on study of human needs, activity systems, space analysis, orientation, climate and structural systems. Pre: Arch 134.

271–272 HISTORY OF ARCHITECTURE (3–3) Yr. Staff
A survey of all periods including appropriate architectural theory; reference reading, illustrated lectures.

313–314 PROFESSIONAL PRACTICE (3–3) Yr. Fairweather

333–334 ARCHITECTURAL DESIGN (3–3) Yr. Staff
Projects include site planning, design of complex building or group of buildings and urban design. Emphasis on design modifying factors such as time, distance and motion; integration of mechanical, structural and architectural systems with current building codes and specific climatic environmental conditions. Pre: Arch 234.

394–395 SENIOR HONORS THESIS (3–3) Yr. Staff
Preparation of architectural design under individual faculty supervision. Required for graduation with honors. Pre: Recommendation of the instructor.

405–406 ADVANCED PHYSICAL SYSTEMS (4–4) Yr. Terazaki
Applied problems of physical systems of architecture in wood, steel and concrete. Pre: Arch 206 and concurrent registration in Arch 433-434.

413–414 PROFESSIONAL PRACTICE (3–3) Yr. Fairweather

423–424 ENVIRONMENTAL CONTROLS (3–3) Yr. Terazaki

433–434 ARCHITECTURAL DESIGN (6–6) Yr. Staff
Design of an architectural project with emphasis on the integration of design, functional, structural and mechanical processes. Pre: Arch 334.

616 PROFESSIONAL PRACTICE (3) I Staff
Advanced ethical and economic problems of professional practice. Pre: Arch 414.

640 ARCHITECTURE AND PLANNING IN TROPIC AREAS (4) II Staff
Elements of planning for tropical communities. Pre: Arch 434 or consent of instructor.

690 SEMINAR ON TROPICAL ARCHITECTURE (2) II Staff
Problems, philosophies and systems of tropical architecture from various areas of the tropics and sub-tropics. Pre: Arch 434 or consent of instructor.
699 DIRECTED RESEARCH (3) I
Individual research into a particular aspect of tropical architecture with report on problems encountered and possible solutions. Pre: Arch 424 or equivalent.

ART HISTORY (Art)

270 ASPECTS OF EUROPEAN AND AMERICAN ART (3) I, II
Major developments in the arts of Europe and America.

280 ASPECTS OF ASIAN ART (3) I, II
Major developments in the arts of Asia.

370 ANCIENT ART (3) I
The arts of the Mediterranean Basin from pre-historic times to the Christian era. Pre: 270.

371 MEDIEVAL ART (3) II
The arts of Europe from the early Christian era to the Renaissance. Pre: Art 270.

376 MODERN ART (3) II
Sculpture and painting of Europe and America in 19th and 20th centuries. Pre: 270.

384 ART OF JAPAN AND KOREA (3) I

385 ART OF CHINA (3) I
Major developments in the arts of China. Pre: Art 280.

391 ART OF SOUTH ASIA (3) I
Major developments in arts of South Asia, the West Asian context and growth of Southeast Asian art. Pre: Art 280.

470 RENAISSANCE THROUGH ROCOCO (3) I
The arts of Europe during Renaissance, Mannerist, Baroque and Rococo periods. Pre: Art 270.

471 ART AND ARCHITECTURAL FIELD STUDIES (arr.)
Study tours to various countries to examine historical and contemporary art and architecture with lectures at various sites. May be repeated. Pre: consent of instructor.

472 PRIMITIVE ART (3) I
Survey of styles and aesthetic characteristics of the arts of pre-literate cultures.

475 ARTS OF THE PACIFIC (3) II
Stylistic and aesthetic characteristics of the indigenous arts of Oceania including Australia, Indonesia, Micronesia, Melanesia and Polynesia. Pre: Art 270.

483 MODERN ART OF JAPAN (3) II
Arts of Edo Period, woodblock prints, folk arts, Nationalist revival and modern movement of the 19th and 20th centuries. Pre: Art 280.

485 APPLIED ARTS OF CHINA (3) II
Architecture, furniture, landscaping, ceramics, metal work, lacquer, textiles. Pre: Art 280.

491 ART OF ISLAM (3) II
Major developments in the arts and architecture of Islam. Pre: Art 280.

675 ARTS OF HAWAII (3) I
Stylistic and aesthetic characteristics of the arts of Western Oceanic cultures. Pre: Consent of chairman and instructor.
676 ARTS OF INDONESIA AND MELANESIA (3) II
Stylistic and aesthetic characteristics of the arts of southwest Pacific cultures. Pre: Consent of chairman and instructor.

680 EARLY CHINESE PAINTING (3) I
From earliest times through Sung dynasty. Pre: Consent of chairman and instructor.

686 LATER CHINESE PAINTING (3) II
From end of Sung dynasty to present. Pre: Consent of chairman and instructor.

691 ART OF CENTRAL ASIA (3) I

699 DIRECTED WORK (arr.) I, II
Asian art history. Pre: Consent of chairman and instructor.

780 EARLY ARTS OF JAPAN (3) I
From pre-historic times to the preponderance of Buddhist imagery. Pre: Consent of chairman and instructor.

781 LATER ARTS OF JAPAN (3) II
Rise of Yamato School. Influences of Zen and tea taste. Pre: Consent of chairman and instructor.

791 BUDDHIST AND HINDU ART (3) II
Development of Buddhist and Hindu art in South and Southeast Asia. Pre: Consent of chairman and instructor.

CERAMICS (Art)

243 CERAMICS A (3) I, II
Introduction to ceramic forms using hand building and wheel throwing techniques. Introduction to glazing techniques and surface treatment. Seminars.

244 CERAMICS B (3) I, II

341 ADVANCED CERAMICS (3) I, II
Wheel throwing or hand building. Individual development. Seminars. May be repeated. Pre: 244.

342 GLAZE CALCULATIONS (3) I, II
Molecular formulae of glazes, temperature effects. Analysis of quality of glazes clay bodies. Seminars. May be repeated. Pre: 244.

646 CERAMICS (3) I
Individual problems in advanced ceramics using hand building techniques. Seminars. May be repeated. Pre: Consent of chairman and instructor.

647 CERAMICS (3) II
Individual problems in advanced ceramics using potters wheel. Seminars. May be repeated. Pre: Consent of chairman and instructor.

648 CERAMIC GLAZES AND CLAY BODIES (3) I
Individual problems in glazes, and firing techniques. Seminars. May be repeated. Pre: Consent of chairman and instructor.

649 CERAMICS (3) II
Individual problems in clay bodies and firing techniques. Seminars. May be repeated. Pre: Consent of chairman and instructor.
DRAWING (Art)

213 FIGURE DRAWING (3) I, II
Intensive drawing from human figure. May be repeated.

214 ANATOMY FOR ARTISTS (3) II
Introduction to anatomy and articulation.

313 ADVANCED DRAWING STUDIO (3) I, II
Creative projects in drawing, graphic techniques. Models provided. May be repeated. Pre: 213 and 214.

314 ILLUSTRATION (3) I

LANDSCAPE ARCHITECTURE (Arch)

195 INTRODUCTION TO LANDSCAPE ARCHITECTURE (3) I, II
Survey of principles and theory of landscape architecture and urban design.

PAINTING (Art)

220 MATERIALS AND TECHNIQUES (3) I
Painting studio with emphasis on materials and techniques.

223 PAINTING “A” (3) I, II
Painting from studio and outdoor subject matter. Elements of pictorial style.

224 PAINTING “B” (3) I, II
Painting from identifiable sources; emphasis on expression and structure. Oil and related media. Pre: 223.

225 PAINTING “C” (3) II
Emphasis on water soluble media including contemporary developments. Pre: 220.

323 ADVANCED PAINTING (3) I, II
Development of independent expression with considerable freedom of choice. May be repeated. Seminars. Pre: 224 or 225.

624 PAINTING (3) I, II
Individual problems in advanced painting. Seminars. May be repeated. Pre: Consent of chairman and instructor.

PHOTOGRAPHY (Art)

207 PHOTOGRAPHY A (3) I, II
Camera as a tool of expression and photography as a basic art form. Each student is required to have own camera.

208 PHOTOGRAPHY B (3) I, II
Development of form in photography. Pre: Art 207.

407 ADVANCED PHOTOGRAPHY (3) I, II
PRINTMAKING (Art)

217 PRINTMAKING (3) I, II  Staff
Technical controls; development of concepts appropriate to printmaking. May be repeated.

317 ADVANCED PRINTMAKING (3–3) I, II  Staff
Independent projects; advanced studio practice. Seminars. May be repeated. Pre: 2 semesters of 217.

617 PRINTMAKING (3–3) I, II  Staff
Individual problems in intaglio, relief and planographic processes. Seminars. May be repeated. Pre: Consent of chairman and instructor.

SCULPTURE (Art)

253 SCULPTURE (3) I, II  Staff
Study of form and structure using a variety of materials and techniques. Seminars.

254 INTERMEDIATE SCULPTURE (3) I, II  Staff

353 ADVANCED SCULPTURE (3) I, II  Staff

TEXTILE DESIGN (Art)

230 TEXTILE DESIGN (3) I, II  Staff

330 ADVANCED TEXTILE DESIGN (3) I, II  Staff

630 TEXTILE DESIGN (3) I, II  Staff
Individual problems in areas of specific interest within the textile field. Seminars. May be repeated. Pre: consent of chairman and instructor.

URBAN DESIGN (Arch)

495 ELEMENTS OF URBAN DESIGN (3) I, II  Grant
Elements of urban design with emphasis on tropical problems. Pre: consent of instructor.

VISUAL DESIGN (Art)

265 ADVANCED VISUAL DESIGN (3) I  Kingrey, Clapsaddle
Investigation into the processes of visualization, its expression and control. Seminars. May be repeated.

266 ADVANCED VISUAL DESIGN (3) II  Kingrey, Clapsaddle
Design and communication. Projects closely bound to idiom and problems of our time: System, grid, module, computer, symbol. Pre: Art 265.

361 TYPOGRAPHY (3) I  Clapsaddle
Development of letter form in calligraphy and typography.
362 LETTER FORMS (3) II  
Design and communication. The letter as visual symbol and element in design organization. Pre: Art 361.

663-664 VISUAL COMMUNICATION (3-3) Yr.  
Experimental problems of visual design which communicate. Creation of new images and symbols. Seminars. May be repeated. Pre: consent of chairman and instructor.

665 ADVANCED TYPOGRAPHY (3) I  
Individual problems in typography. Seminar. May be repeated. Pre: consent of chairman and instructor.

773-774 VISUAL DESIGN RESEARCH (5-5) Yr.  
Advanced design and communication. Emphasis on problem solving incorporating research. Seminar. May be repeated. Pre: consent of chairman and instructor.

WEAVING (Art)

238 WEAVING (3) I, II  
Creative processes of weaving. Warping and threading of simple hand looms and multiple harness looms. Seminars.

239 WEAVING (3) I, II  

338-339 ADVANCED WEAVING (3-3) Yr.  
Individual problems in weave construction and drafting; yarn and fiber characteristics as structural elements. Seminars. May be repeated. Pre: 239.

638-639 WEAVING (3-3) Yr.  
Individual problems in advanced weaving. Seminars. May be repeated. Pre: consent of chairman and instructor.

635 RUG AND TAPESTRY TECHNIQUES (3) I, II  
Examination of traditional rug and tapestry techniques as point of departure for contemporary experimental expression. Seminars. May be repeated. Pre: consent of chairman and instructor.

Asian and Pacific Languages

Professors Araki, DeFrancis, Elbert, Uyehara, Viglielmo, Young; Associate Professors Artola, De Heer, Ikeda, P. Lee, Lo, Maurer, Winters; Assistant Professors de Queljoe, Fujikawa, Hoffer, Y. Lee, Roosman, Spencer, Thern, Wivell; Instructors Alexander, Baumer, Cheng, Chinn, Fujikawa, Hasegawa, Hirai, Hirata, Ho, Jen, Jenner, Johnson, Kobayashi, Kunishima, Larrabee, D. Lee, Low, Ma, McLarty, McLeod, Noguchi, Ohara, Pe Benito, Pham, Richards, Roffe, M. Sato, Y. Sato, Shikuma, Smith, Wang, Takahashi, Takeuchi, Tsuyuki, Wellington, Yamada, Yoshikawa; Scholars-in-Residence Inoue, Senuma, Yoshida

General (AP)

101-102 DIRECTED ELEMENTARY LANGUAGE STUDY (arr.) Yr.  
Directed study of one of following: Balinese, Cambodian, Cebuano, Fijian, Ilocano, Javanese, Lao, Marathi, Pali, Samoan, Tamil, Trukese, Urdu, Vietnamese or other Asian and Pacific language, depending on demand and staff. Pre: consent of chairman.

161-162 DIRECTED INTERMEDIATE LANGUAGE STUDY (arr.) Yr.  
Continuation of AP 101-102. Pre: consent of chairman.
399 DIRECTED ADVANCED LANGUAGE STUDY (arr.) I, II  Staff
Continuation of Asian and Pacific intermediate language courses. Pre: consent of chairman.

401–402 SOUTHEAST ASIAN LITERATURE (3–3) Yr.  Staff
Historical survey of Southeast Asian verse and prose in relation to Southeast Asian culture. Conducted in English. Pre: two semesters of literature in English dept.

407–408 STRUCTURE OF AN ASIAN OR PACIFIC LANGUAGE (3–3) Yr.  Staff
Structure of one Asian or Pacific language, including Balinese, Cambodian, Cebuano, Fijian, Ilocano, Javanese, Korean, Lao, Marathi, Pali, Samoan, Tamil, Trukese, Urdu, Vietnamese or other Asian or Pacific language, depending on demand and staff. Pre: consent of instructor.

699 DIRECTED READING (arr.) I, II  Staff
Directed reading of advanced text written in one of the Asian and Pacific languages. Pre: consent of instructor.

751–752 SEMINAR IN EAST ASIAN COMPARATIVE LITERATURE (3–3) Yr.  P. Lee
Comparative study of Chinese, Korean, and Japanese literature, to explore their interrelations, to trace influence of one literature on another, to investigate main currents, periods, movements, topics or themes. Pre: any of following: Chinese 410 or 418, Japanese 418 or 432, Korean 492.

Chinese (Chin)

101–102 ELEMENTARY CHINESE (3–3) Yr.  Staff
Development of listening, speaking, reading, and writing. Structural points introduced inductively. Meets 1 hour daily, Monday through Friday; 4 out of 5 hours devoted to directed drill and practice. Daily laboratory work.

107 ACCELERATED ELEMENTARY CHINESE (6) I  Staff
Class meets 2 hours daily, Monday through Friday, with daily laboratory drill. In one semester, content of Chinese 101–102 will be covered.

161–162 INTERMEDIATE CHINESE (4–4) Yr.  Staff
Continuation of Chinese 101–102. After completion, student should be proficient in using major sentence patterns. Meets 1 hour daily, Monday through Friday; 4 out of 5 hours devoted to directed drill and practice. Daily laboratory work. Pre: 102 or equivalent.

168 ACCELERATED INTERMEDIATE CHINESE (8) II  Staff
Class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester content of Chinese 161-162 will be covered. Pre: 107 or equivalent.

201–202 ADVANCED CHINESE—CONVERSATION (3–3) Yr.  Staff
Course conducted entirely in Chinese. Lectures, reports, discussions. Pre: 162 or equivalent.

209–210 THIRD-LEVEL CHINESE—MODERN (3–3) Yr.  Jen
Reading and discussion of materials related to social sciences. May be taken concurrently with 211–212. Pre: 162 or equivalent.

211–212 THIRD-LEVEL CHINESE—CLASSICAL (3–3) Yr.  Wivell
Introduction to classical and contemporary literary styles. May be taken concurrently with 209-210. Pre: 162 or equivalent.

220 CHINESE COMPOSITION (2) I, II  Jen
Training in modern Chinese composition. Pre: 162 or equivalent.
227 ACCELERATED THIRD-LEVEL CHINESE—MODERN (6) I

Reading and discussion of materials related to social sciences. In one semester the content of 209-210 will be covered.

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

Study of origin, structure and evolution of Chinese characters. Pre: 162 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 reading skill. Pre: 162 or equivalent.

394-395 SENIOR HONORS THESIS—CHINESE (2-2)

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

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


407-408 STRUCTURE OF CHINESE (3-3) Yr.

Introductory study of the phonology, morphology, and syntax of Mandarin Chinese including some discussion of usage and of linguistic geography. Pre: 162 or equivalent.

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

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

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

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

428 ACCELERATED FOURTH-LEVEL CHINESE (6) II

Reading and discussion of modern literature: essays, short stories, plays. In one semester the content of 409-410 will be covered.

493 REFERENCE MATERIALS FOR CHINESE STUDIES (3) I, II

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

611-612 CONTEMPORARY CHINESE LITERATURE

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

613-614 CHINESE POETRY (3-3) Yr.

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

616 HISTORY OF CHINESE LITERARY CRITICISM (3) II

Survey of Chinese literary criticism from Confucius to the 20th 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 (3–3) Yr. Jen
Advanced study of relation between Chinese language and writing system, study of characters on oracle bones and bronzes, evolution and reform of Chinese characters. Pre: 212, 232 or consent of instructor.

631 CHINESE PHONOLOGY (3) I Thern
Phonological changes from Archaic Chinese through Ancient Chinese to Modern Chinese represented by Mandarin. Lectures in English. Pre: 408 or equivalent.

632 MAJOR DIALECTS (3) II Thern
Study of major Chinese dialects. Lectures in English. Pre: 408 or equivalent.

641 CONTRASTIVE ANALYSIS OF MANDARIN AND ENGLISH: PHONOLOGY (3) I Spencer
Similarities and differences between English phonology and Mandarin phonology. Pre: 408 or equivalent.

642 CONTRASTIVE ANALYSIS OF MANDARIN AND ENGLISH: MORPHOLOGY AND SYNTAX (3) II Spencer
Similarities and differences between English morphology and syntax and Mandarin morphology and syntax. Pre: 641.

643–644 METHODOLOGY IN TEACHING CHINESE AS A SECOND LANGUAGE (3–3) Yr. DeFrancis

693–694 METHODS IN CHINESE STUDIES (3–3) Yr. DeFrancis
Main fields of research, special methods evolved, and principal sources of bibliographical information. Pre: 212 or equivalent.

699 DIRECTED RESEARCH (arr.) I, II Staff
Pre: graduate standing.

750 RESEARCH SEMINAR IN CHINESE (3) I, II Staff
Specialization in (1) language, (2) literature, (3) teaching methods. May be repeated. Pre: Consent of instructor.

800 THESIS RESEARCH (arr.) I, II Staff

Hawaiian (Haw)

101–102 ELEMENTARY HAWAIIAN (3–3) Yr. Richards
Elements of the language: emphasis on conversation with some attention to Hawaiian songs; laboratory drill.

151–152 INTERMEDIATE HAWAIIAN (3–3) Yr. Richards
Reading of legends and traditional materials. Conversation with laboratory drill. Conducted in Hawaiian.

209–210 THIRD-LEVEL HAWAIIAN (3–3) Yr. Kahalanui
Advanced conversation and reading. Pre: 152.

401 HAWAIIAN LITERATURE IN ENGLISH (3) I Johnson
Survey of traditional myths, legends, chants, songs, and sayings conducted largely in English. Pre: 152.

408 STRUCTURE OF HAWAIIAN (3) II Elbert
Detailed analysis of texts; contrastive analysis of Hawaiian and English, as aid to prospective teachers of Hawaiian. Pre: 152 and Ling 202 or equivalent.
417-418 FOURTH-LEVEL HAWAIIAN (3-3) Yr.
Advanced reading and discussion in Hawaiian. Pre: 212.

451-452 HAWAIIAN TRANSLATION (3-3) Yr.

Hindi (Hindi)

101-102 ELEMENTARY HINDI (3-3) Yr.
Conversation with laboratory drill.

151-152 INTERMEDIATE HINDI (3-3) Yr.
Continuation of 102. Reading and conversation with laboratory drill.

211-212 THIRD-LEVEL 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.

151-152 INTERMEDIATE INDONESIAN (3-3) Yr.
Continuation of 101-102. Reading and conversation with laboratory drill.

211-212 THIRD-LEVEL INDONESIAN (3-3) Yr.
Conversation and advanced reading. Pre: 152 or equivalent.

417-418 FOURTH-LEVEL 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: listening, speaking, reading, and writing. Structural points introduced inductively. Meets 1 hour daily Monday through Friday; 4 out of 5 hours devoted to directed drill and practice. Daily laboratory work.

105-106 ELEMENTARY JAPANESE-REVIEW (3-3) Yr.
Students with Japanese background or some degree of Japanese proficiency may enter course after passing placement test. Course content similar to 101-102. Meets 3 hours a week. Laboratory drill.

107 ACCELERATED ELEMENTARY JAPANESE (6) I
Class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester the content of Japanese 101-102 will be covered.

161-162 INTERMEDIATE JAPANESE (4-4) Yr.
Continuation of Japanese 101-102. After completion, student should be proficient in using major sentence patterns. Meets 1 hour daily Monday through Friday; 4 out of 5 hours devoted to directed drill and practice sessions. Daily laboratory work. Pre: 102 or equivalent.

168 ACCELERATED INTERMEDIATE JAPANESE (8) II
Class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester, content of 161-162 covered. Pre: 102 or equivalent.
201-202 ADVANCED JAPANESE—CONVERSATION (3-3) Yr.
Hasagawa
Conducted entirely in Japanese. Lectures, reports, discussions. Pre: 162, 168 or equivalent.

211-212 THIRD-LEVEL JAPANESE (3–3) Yr.
Ohara
Study of modern spoken and written Japanese involving advanced structures, expressions, patterns and kyooiku kanji. Pre: 162 or equivalent.

220 JAPANESE COMPOSITION (2) I, II
Fujikawa
Writing modern compositions following designated patterns, kanji, and themes. Pre: 162 or equivalent.

227 ACCELERATED THIRD-LEVEL JAPANESE (6) I
Yoshikawa
Study of modern spoken and written Japanese involving advanced structures, expressions, patterns and kyooiku kanji. In one semester, content of 211-212 covered.

231-232 INTRODUCTION TO MODERN JAPANESE LITERATURE (3-3) Yr.
Uyehara
Selected readings from modern literary works. May be taken concurrently with 211-212. Pre: 162 or equivalent.

251-252 JAPANESE FOR READING KNOWLEDGE (3-3) Yr.
Y. Sato
Reading course for those who are not Japanese majors but who are interested in developing skill in reading in their areas of research. Pre: 162 or equivalent.

394-395 SENIOR HONORS THESIS—JAPANESE (2-2) Yr.
Viglielmo
Preparation of a research paper under individual faculty supervision. Required for graduation with honors.

401-402 JAPANESE LITERATURE IN ENGLISH (3-3) Yr.
Araki
Historical survey of Japanese verse and prose, including pertinent comparisons with Western literature. Pre: two semesters of literature in English dept.

407-408 STRUCTURE OF JAPANESE (3-3) Yr.
Hoffer
Phonology, morphology, syntax of modern colloquial grammar. Pre: 162 or equivalent.

415-416 TOPICS IN JAPANESE GRAMMAR (3-3) Yr.
Fuiioka
Analysis of topics in modern colloquial Japanese grammar. Pre: 212 or equivalent.

417-418 FOURTH-LEVEL JAPANESE (3-3) Yr.
Ohara
Study of modern spoken and written Japanese involving complicated structures, expressions, patterns, and tooyoo kanji. Pre: 212 or equivalent.

421-422 JAPANESE GRAMMAR—CLASSICAL (3-3) Yr.
Fuiioka
Detailed analysis of classical Japanese. Pre: 212 or equivalent.

428 ACCELERATED FOURTH-LEVEL JAPANESE (6) II
Yoshikawa
Study of modern spoken and written Japanese involving complex structures, expressions, patterns, and tooyoo kanji. In one semester the content of 417-418 will be covered.

431-432 INTRODUCTION TO CLASSICAL JAPANESE LITERATURE (3-3) Yr.
Yasuda
Selected readings from classical literary works. May be taken concurrently with 417-418. Pre: 232 or equivalent.

440 ADVANCED JAPANESE COMPOSITION (2) I, II
Ikeda
Writing advanced modern composition following designated patterns, kanji, and themes. Pre: 212 or equivalent.
493  REFERENCE MATERIALS FOR JAPANESE STUDIES (3) I, II  Ikeda
   How to find, use, and evaluate reference materials basic to Japanese studies. Pre:
   212, 232 or equivalent.

611–612 CONTEMPORARY JAPANESE LITERATURE (3–3) Yr.  Vigniello
   Literary movements and representative works since 1868. Pre: 212, 232 or equivalent.

613–614 EDO LITERATURE (3–3) Yr.  Araki
   Survey of the fiction, drama, and poetry of the Edo Period. Pre: 418, 432 or equivalent.

615–616 CLASSICAL JAPANESE LITERATURE (3–3) Yr.  Uyehara
   Study of classical genres and selected readings in representative classical works.
   Pre: 418, 432 or equivalent.

619–620 JAPANESE POETRY (3–3) Yr.  Uyehara
   Historical survey of poetical types including tanka, haiku, senryuu, shi, and folk
   songs. Pre: 418, 432 or equivalent.

621–622 HISTORY OF JAPANESE LITERARY CRITICISM (3–3) Yr.  Araki
   Survey of Japanese literary criticism from ancient time to the 20th century. Pre:
   212 or equivalent.

631–632 HISTORY OF THE JAPANESE LANGUAGE (3–3) Yr.  Fujioke
   Study of change and growth of the Japanese language from ancient to modern
   periods. Pre: 408 or equivalent.

641–642 CONTRASTIVE STUDY OF JAPANESE AND ENGLISH STRUCTURE (3–3) Yr.  Hoffer
   Study of similarities and differences between English and Japanese structures:
   phonology, morphology and syntax. Pre: 408 or equivalent.

643–644 METHODOLOGY IN TEACHING OF JAPANESE
   AS A SECOND LANGUAGE (3–3) Yr.  Hoffer
   Identification and analysis of problems in language learning and teaching. Practice
   in preparing and presenting lessons with materials based on comparative linguistic
   analysis, using audiolingual approach. Teaching materials, teaching aids and test
   construction. Pre: 408 or equivalent.

694 JAPANESE BIBLIOGRAPHY (3) I, II  Ikeda
   Advanced studies in historical survey of bibliographic material. Research methods.
   Pre: 493.

699 DIRECTED RESEARCH (arr.) I, II  Staff
   Pre: graduate standing.

750 RESEARCH SEMINAR IN JAPANESE (3) I, II  Staff
   (1) Language, (2) literature, (3) teaching methods. May be repeated. Pre: Consent
   of instructor.

800 THESIS RESEARCH (arr.) I, II  Staff

   Korean (Kor)

101–102 ELEMENTARY KOREAN (3–3) Yr.  Y. S. Lee
   Development of listening, speaking, reading and writing. Structural points intro-
   duced inductively. Meets 1 hour daily, Monday through Friday; 4 out of 5 hours
   devoted to directed drill and practice sessions. Daily laboratory work.
161–162 INTERMEDIATE KOREAN (4-4) Yr.  
Y. S. Lee  
Continuation of 101-102. After completion, student should be proficient in using major sentence patterns. Meets 1 hour daily, Monday through Friday; 4 out of 5 hours devoted to directed drill and practice sessions. Daily laboratory work. Pre: 102 or equivalent.

211–212 THIRD-LEVEL KOREAN (3-3) Yr.  
D. Lee  
Advanced conversation, reading and writing. Additional Chinese characters. Pre: 162 or equivalent.

401–402 KOREAN LITERATURE IN ENGLISH (3–3) Yr.  
P. Lee  
Historical survey of Korean verse and prose, with pertinent comparisons of Korean, Chinese, Japanese, Western literature. Pre: two semesters of literature in English dept.

417–418 FOURTH-LEVEL KOREAN (3-3) Yr.  
D. Lee  
Introduction to classical and contemporary literary styles. Pre: 212 or equivalent.

491–492 CONTEMPORARY KOREAN LITERATURE (3–3) Yr.  
P. Lee  
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  
P. Lee  
Directed research in an area of Korean literature, linguistics or dialects. Paper required. Pre: 212 or equivalent.

694 REFERENCE MATERIALS FOR KOREAN STUDIES (3) II  
P. Lee  
Basic reference and bibliographic materials for research and their use in Korean studies. Pre: 418 or equivalent.

750 RESEARCH SEMINAR IN KOREAN (3) I, II  
Staff  
Specialization in (1) language, and (2) literature. May be repeated. Pre: Consent of instructor.

Sanskrit (Sansk)

101–102 ELEMENTARY SANSKRIT (3–3) Yr.  
Artola  
Elements of grammar and reading.

151–152 INTERMEDIATE SANSKRIT (3–3) Yr.  
Maurer  
Continuation of 102. Reading of classical texts, with grammar review.

211–212 THIRD-LEVEL SANSKRIT (3–3) Yr.  
Artola  
Reading of Vedic or classical texts. Pre: 152.

417–418 FOURTH-LEVEL SANSKRIT (3–3) Yr.  
Artola  
Readings in advanced classical texts. Pre: 212 or equivalent.

Tagalog (Tag)

101–102 ELEMENTARY TAGALOG (3-3) Yr.  
Pe Benito  
Conversation and elements of grammar, with laboratory drill.

151–152 INTERMEDIATE TAGALOG (3–3) Yr.  
Pe Benito  
Continuation of 102. Reading and conversation, with laboratory drill.
**Thai (Thai)**

*101–102 ELEMENTARY THAI (3–3) Yr.*

Conversation, with laboratory drill.

*151–152 INTERMEDIATE THAI (3–3) Yr.*

Reading and conversation, with laboratory drill.

*211–212 THIRD-LEVEL THAI (3–3) Yr.*

Conversation and advanced reading.

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**Asian Studies (Asian)**

*Professors* R. ANDERSON, KORNHAUSER, NUNN; Assistant Professors KANG, POND (Acting); Instructor JENNER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>CIVILIZATIONS OF THE EAST (3) I</td>
<td>Kornhauser</td>
<td>Physical environment and cultural traditions of East, Southeast and South Asia, before major Western contact.</td>
</tr>
<tr>
<td>302</td>
<td>CIVILIZATIONS OF THE EAST (3) II</td>
<td>Kornhauser</td>
<td>Response of Asian culture to the West; movements of nationalism and modernization; Asia's role today.</td>
</tr>
<tr>
<td>341</td>
<td>TECHNICS OF JAPANESE CIVILIZATION (3) II</td>
<td>Kornhauser</td>
<td>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.</td>
</tr>
<tr>
<td>522</td>
<td>CIVILIZATIONS OF THE EAST: JAPAN, CHINA, AND KOREA (3) II</td>
<td>Nunn</td>
<td>Contemporary East Asia with emphasis on nationalism, economic development, and socio-cultural change.</td>
</tr>
<tr>
<td>523</td>
<td>CIVILIZATIONS OF THE EAST: SOUTHEAST ASIA (3) I</td>
<td>Fryer, Pond</td>
<td>Physical environment and cultural traditions of Southeast Asia.</td>
</tr>
<tr>
<td>524</td>
<td>CIVILIZATIONS OF THE EAST: SOUTHEAST ASIA (3) II</td>
<td>Fryer, Pond</td>
<td>Contemporary Southeast Asia with emphasis on nationalism, economic development, and socio-cultural change.</td>
</tr>
<tr>
<td>525</td>
<td>CIVILIZATIONS OF THE EAST: SOUTH ASIA (3) I</td>
<td></td>
<td>Analysis of divisive and unifying factors in traditional Indian society, including race, religion, class, caste, language; and an interdisciplinary inquiry into economic development.</td>
</tr>
<tr>
<td>526</td>
<td>CIVILIZATIONS OF THE EAST: SOUTH ASIA (3) II</td>
<td></td>
<td>Indian thought: great and little traditions; and emergent trends in South Asia.</td>
</tr>
<tr>
<td>699</td>
<td>DIRECTED RESEARCH (arr.) I, II</td>
<td>Staff</td>
<td>Individual problems and research. Pre: consent of instructor.</td>
</tr>
<tr>
<td>798</td>
<td>SEMINAR IN ASIAN STUDIES (3), I, II</td>
<td>Staff</td>
<td>(1) East Asia, (2) Southeast Asia, (3) South Asia. Pre: consent of instructor.</td>
</tr>
<tr>
<td>800</td>
<td>THESIS RESEARCH (arr.) I, II</td>
<td>Staff</td>
<td></td>
</tr>
</tbody>
</table>
Biology (BioI)

Associate Professor C. Folsome; Assistant Professors B. Siegel, J. Walsh

120 BIOLOGY (5) I (3 L, 2 Lb) Walsh
Fundamentals of biology. Course devoted to study of microorganisms, lower and higher plants and animals, with emphasis on their comparative physiology, development, behavior, evolution, and systematics. Pre: high school biology, and Chem 104–106, or 107, and consent of instructor.

150 BIOLOGY (4) II (3 L, 1 Lb) Siegel
Cell structure and function. Patterns and operation of biologic organization through which molecules, organelles, cells, and tissues give living organisms their basic properties. Pre: Biology 120, or Botany 101, or Zoology 101; organic chemistry, and consent of instructor.

Botany (Bot)

Professors Baker, Cool, Doty, Kefford, A. Smith, Siegel; Associate Professors Friend, Gillett, Lamoureux, Putman; Assistant Professors Bristol, Mueller-Dombois, Swindale

101 GENERAL BOTANY (4) I, II (2 L, 2 Lb) Kefford, Swindale
Basic principles of plant biology. This course and Zool 101 comprise an introduction to biology. With permission of instructor, students with previous biological training may proceed to a higher level course.

105 ETHNOBOTANY (3) I Chock
Plants and their influence upon the culture of Hawaii and Pacific; uses of cultivated and wild plants.

160 IDENTIFICATION OF TROPICAL PLANTS (2) II Gillett
Non-technical course in identification of common plants of tropics. Not open to students who have had 360; not credited for botany major.

201 THE PLANT KINGDOM (4) II (2 L, 2 Lb) Staff
Comparative studies of structure and physiology of plants with reference to their distribution and classification. Pre: 101.

353 ECOLOGY I (3) I (2 L, 2 Lb) Staff
Plant-environmental relations (autecology) with emphasis on tropical conditions. Pre: 201 or consent of instructor. Recommended: 360.

360 TAXONOMY OF VASCULAR PLANTS I (3) I (1 L, 2 Lb) Gillett
Identification and classification of vascular plants. This course provides an introduction to systematic botany. Pre: 101.

399 BOTANICAL PROBLEMS (arr.) I, II Staff
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) Lamoureux
Structure of vascular plants; origin and differentiation of tissues; relation of structure to function. Pre: 201 or equivalent. Recommended: 470.

412 MICROTECHNIQUE (3) I, II (2 L, 1 Lb) Lamoureux
Preparation of plant materials for histological and cytological study, photomicrography. Pre: 410 or consent of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>418</td>
<td>CYTOLOGY (3) I (2 L, 1 Lb)</td>
<td>Baker</td>
<td>3</td>
<td>2 L, 1 Lb</td>
<td>Structure and function of cell components. Pre: 101 or Zool 101.</td>
</tr>
<tr>
<td>430</td>
<td>MYCOLOGY (3) I (1 L, 2 Lb)</td>
<td>Baker</td>
<td>3</td>
<td>1 L, 2 Lb</td>
<td>Morphology, physiology, and ecology of the fungi, and their identification. Pre: 201 or consent of instructor.</td>
</tr>
<tr>
<td>436</td>
<td>MEDICAL MYCOLOGY (3) II (1 L, 2 Lb)</td>
<td>Baker</td>
<td>3</td>
<td>1 L, 2 Lb</td>
<td>Diagnostic morphology and cultural characteristics of fungi pathogenic to man. Pre: 430 or Micro 151.</td>
</tr>
<tr>
<td>450</td>
<td>NATURAL HISTORY OF THE HAWAIIAN ISLANDS (2) II (2 L-Lb)</td>
<td>Lamoureux, Gosline</td>
<td>2</td>
<td>2 L-Lb</td>
<td>Geography, geology, climatology, and biotic environment of Pacific Basin and Hawaiian Islands; evolution of terrestrial biota of oceanic islands. Pre: 101 or Zool 101. Identical with Zool 450.</td>
</tr>
<tr>
<td>454</td>
<td>ECOLOGY II (4) II (2 L, 2 Lb)</td>
<td>Staff</td>
<td>4</td>
<td>2 L, 2 Lb</td>
<td>Community ecology (synecology), ecological land classification, and experimental ecology. Field trips to develop local examples. Pre: 101 or consent of instructor. Recommended: 560.</td>
</tr>
<tr>
<td>461</td>
<td>TAXONOMY OF VASCULAR PLANTS II (3) II (1 L, 2 Lb)</td>
<td>Gillett</td>
<td>3</td>
<td>1 L, 2 Lb</td>
<td>Identification and classification of vascular plants. Field studies and herbarium methods. Pre: 360.</td>
</tr>
<tr>
<td>470</td>
<td>PRINCIPLES OF PLANT PHYSIOLOGY (4) II (3 L, 1 Lb)</td>
<td>Friend</td>
<td>4</td>
<td>3 L, 1 Lb</td>
<td>Introduction to plant physiology. Pre: 201, Chem 106, Phys 160, or equivalents with consent of instructor. Recommended: 410.</td>
</tr>
<tr>
<td>480</td>
<td>PHYCOLOGY (3) II (1 L, 2 Lb)</td>
<td>Staff</td>
<td>3</td>
<td>1 L, 2 Lb</td>
<td>Morphology, taxonomy, and ecology of algae. Identification of common algae. Pre: 101 or consent of instructor.</td>
</tr>
<tr>
<td>610</td>
<td>BOTANICAL SEMINAR (1) I, II</td>
<td>Staff</td>
<td>1</td>
<td></td>
<td>Study and discussion of significant topics and problems in botany.</td>
</tr>
<tr>
<td>612</td>
<td>ADVANCED BOTANICAL PROBLEMS (arr.) I, II</td>
<td>Staff</td>
<td></td>
<td></td>
<td>Investigation of any botanical problem; reading and laboratory work. May be repeated. Pre: consent of instructor.</td>
</tr>
<tr>
<td>615</td>
<td>MORPHOLOGY SEMINAR (2) II</td>
<td>Lamoureux</td>
<td>2</td>
<td></td>
<td>Recent developments in morphology, anatomy, cytology. Pre: consent of instructor.</td>
</tr>
<tr>
<td>620</td>
<td>PRIMITIVE ANGIOSPERMS AND PHYTOGEOGRAPHIC THEORY (4) I (3 L, 1 Lb)</td>
<td>Smith</td>
<td>4</td>
<td>3 L, 1 Lb</td>
<td>Survey of the evolutionary history of flowering plants and the significance of their geographic distribution. Pre: 101 and consent of instructor. Recommended: 201, 360, and 410.</td>
</tr>
<tr>
<td>631</td>
<td>MARINE PHYTOPLANKTON (3) I (2 L, 1 3-Hr Lb)</td>
<td>Doty</td>
<td>3</td>
<td>2 L, 1 Lb</td>
<td>Identification, systematic morphology, autecology distribution and abundance. Pre: graduate standing or permission of instructor. Identical with Ocean 631.</td>
</tr>
<tr>
<td>650</td>
<td>ENVIRONMENTAL PHYTOGEOGRAPHY (2) II</td>
<td>Staff</td>
<td>2</td>
<td></td>
<td>Plant geography and general ecology with emphasis on tropical areas. Pre: 101 or consent of instructor. Recommended: 360.</td>
</tr>
<tr>
<td>651</td>
<td>DYNAMICS OF MARINE PRODUCTIVITY (3) II (2 3-Hr L-Lb)</td>
<td>Doty</td>
<td>3</td>
<td>2 3-Hr L-Lb</td>
<td>Primary productivity, its variation and methods of assessment; conversion of energy in food chains, ecosystems; factors affecting productivity. Pre: graduate standing or permission of instructor. Identical with Ocean 651.</td>
</tr>
</tbody>
</table>
662 ADVANCED TAXONOMY (3) I (2 L, 1 Lb)  
Gillett  
Modern techniques in plant taxonomy with emphasis on methods utilizing cyto­
genetics, anatomy, morphology, and physiology. Pre: consent of instructor. (Alt. yrs.,
offered 1967–68.)

665 NOMENCLATURE SEMINAR (2) II  
Doty  
Code of botanical nomenclature and its application; determination of correct

670–671 ADVANCED PHYSIOLOGY (3–3) Yr.  
Cool, Siegel  
Biochemical and physical aspects of plant physiology. Pre: 470; Chem 144; Phys 161.

672 TECHNIQUES IN PHYSIOLOGY (2) I (2 Lb)  
Staff  
Nutrient absorption and composition; osmotic relations. Pre: 470; Chem 144;
Phys 161; consent of instructor.

673 TECHNIQUES IN PHYSIOLOGY-BIOCHEMISTRY (2) II (2 Lb)  
Putman  
Determining substances of physiological significance in plant materials. Pre: 672;
consent of instructor.

675 PHYSIOLOGY SEMINAR (1) I, II  
Staff  
Significant topics and problems in physiology. May be repeated. Pre: consent of
instructor.

681 PHYCOLOGY—CHLOROPHYTA (2) I (2 Lb)  
Doty  
Systematics, functions, and utilization considered at an advanced level. Pre: con­
sent of instructor. (Alt. yrs.; not offered 1967–68.)

682 PHYCOLOGY—PHYTOPLANKTON (2) II (2 Lb)  
Doty  
Systematics, functions, and utilization considered at an advanced level. Pre: con­
sent of instructor. (Alt. yrs.; not offered 1967–68.)

683 PHYCOLOGY—MYXOPHYTA AND PHAEOPHYTA (2) I (2 Lb)  
Doty  
Systematics, functions, and utilization considered at an advanced level. Pre: con­
sent of instructor. (Alt. yrs.; offered 1967–68.)

684 PHYCOLOGY—RHODOPHYTA (2) II (2 Lb)  
Doty  
Systematics, functions, and utilization considered at an advanced level. Pre: con­
sent of instructor. (Alt. yrs.; offered 1967–68.)

699 DIRECTED RESEARCH (arr.) I, II  
Staff  
Pre: candidacy for the M.S. degree; consent of instructor.

799 DIRECTED RESEARCH (arr.) I, II  
Staff  
Pre: candidacy for the Ph.D. degree; consent of instructor.

800 THESIS RESEARCH (arr.) I, II  

Chemistry (Chem)

Professors Inskeep, Naughton, Scheuer, Zeitlin; Associate Professors Barnes, Froodyma,
Ihrig, Kiefer, Larson, Waugh; Assistant Professors Andermann, Bopp, Duce, Gilje,
Hubbard, Mann, McDonald, Moore, Schaleger, Wrathall

101–102 SURVEY OF CHEMISTRY (4–4) Yr. (3 L, 1 Lb)  
Staff  
Survey of general and organic. Pre: high school algebra and plane geometry.

103 GENERAL CHEMISTRY (4) I, II (3 L, 1 Lb)  
Staff  
Fundamental laws, principles, and methods. Pre: high school algebra and plane
geometry.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>104</td>
<td>GENERAL CHEMISTRY (4) II (3 L, 1 Lb)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Fundamental laws, principles, and methods. Pre: 103. Terminal course for those students desiring only one year of college chemistry.</td>
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<tr>
<td>106</td>
<td>GENERAL CHEMISTRY—QUALITATIVE ANALYSIS (5) II (3 L, 2 Lb)</td>
<td>Staff</td>
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<tr>
<td>107</td>
<td>PRINCIPLES OF CHEMISTRY—QUALITATIVE ANALYSIS (5) I (3 L, 2 Lb)</td>
<td>Inskoop</td>
</tr>
<tr>
<td></td>
<td>Principles, theories, and elementary analytical methods. One semester course which may be substituted for 103-106 by the well-prepared entering student. Pre: outstanding performance on chemistry achievement examination, credit or registration in Math 135.</td>
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<tr>
<td>108</td>
<td>FUNDAMENTALS OF CHEMISTRY (5) I, II (4 L, 1 Lb)</td>
<td>Gilje</td>
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<tr>
<td>141</td>
<td>ELEMENTS OF ORGANIC CHEMISTRY (4) II (3 L, 1 Lb)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Survey of chemistry of carbon compounds. Pre: 104, 106 or 107.</td>
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<tr>
<td>143-144</td>
<td>ORGANIC CHEMISTRY (4-4) Yr. (3 L, 1 4-Hr Lb)</td>
<td>Schaefer</td>
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<tr>
<td></td>
<td>Carbon compounds: classification, structure, reactions. Laboratory techniques. Pre: 106 or 107.</td>
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<tr>
<td>331</td>
<td>ELEMENTARY QUANTITATIVE ANALYSIS (4) I, II (2 L, 2 Lb)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Beginning gravimetric and volumetric analysis. Pre: 106 or 107.</td>
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<tr>
<td>394-395</td>
<td>SENIOR HONORS THESIS (2-2) Yr.</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Research problem under individual faculty supervision. Required for graduation with honors in the departmental honors program.</td>
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<tr>
<td>399</td>
<td>DIRECTED READING OR RESEARCH (arr.) I, II</td>
<td>Staff</td>
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<td></td>
<td>May be repeated. Limited to majors with 2.7 grade-point ratio or 3.0 grade-point ratio in chemistry.</td>
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<tr>
<td>432</td>
<td>INTERMEDIATE QUANTITATIVE ANALYSIS (4) II (2 L, 2 Lb)</td>
<td>Staff</td>
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<td></td>
<td>Introductory instrumental analysis. Pre: 331, credit or registration in 452.</td>
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<tr>
<td>445</td>
<td>INTERMEDIATE ORGANIC CHEMISTRY (4) II (2 L, 2 Lb)</td>
<td>Larson</td>
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<tr>
<td></td>
<td>Modern synthetic methods. Pre: 144.</td>
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<tr>
<td>451-452</td>
<td>PHYSICAL CHEMISTRY (4-4) Yr. (3 L, 1 Lb)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Principles and theories; physicochemical procedures. Pre: 106 or 107, Math 136, Phys 161 or 172-173.</td>
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<tr>
<td>522</td>
<td>INTERMEDIATE INORGANIC CHEMISTRY (3) II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Classification, description, and fundamental theory. Pre: credit or registration in 452.</td>
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<tr>
<td>524</td>
<td>PREPARATIVE INORGANIC CHEMISTRY (3) II (1 L, 2 Lb)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Preparation, properties, selected reactions of representative inorganic compounds. Pre: credit or registration in 522.</td>
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<tr>
<td>544</td>
<td>QUALITATIVE ORGANIC ANALYSIS (4) I (2 L, 2 Lb)</td>
<td>Schaeuer</td>
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<tr>
<td></td>
<td>Identification and characterization of organic compounds and mixtures. Pre: 144, 331, credit or registration in 452.</td>
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<tr>
<td>621</td>
<td>INTRODUCTORY QUANTUM CHEMISTRY (3) I</td>
<td>Waugh</td>
</tr>
<tr>
<td>622</td>
<td>ADVANCED INORGANIC CHEMISTRY I (3) II</td>
<td>Gilje</td>
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<tr>
<td></td>
<td>Principles of modern inorganic chemistry. Pre: 621.</td>
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</tbody>
</table>
623 ADVANCED INORGANIC CHEMISTRY II (3) I
Principles of modern inorganic chemistry. Pre: 621.

631 INSTRUMENTAL METHODS OF ANALYSIS (4) I (2 L, 2 Lb)
Theory, instrumentation, applications. Pre: 432.

632 ELECTROANALYTICAL CHEMISTRY (3) II
Advanced electroanalytical determinations, theory, instrumentation. Pre: 432.

633 ANALYTICAL APPLICATIONS OF SPECTROSCOPY (3) I
Spectrochemical determinations, theory, instrumentation. Pre: 631, credit or registration in 621.

634 ADVANCED ANALYTICAL LABORATORY (2) I, II (2 Lb)
Advanced, modern analytical determinations. Pre: credit or registration in 632 or 633.

641 ADVANCED ORGANIC CHEMISTRY (3) I
Structure and stereochemistry. Pre: 144, 452.

642 ORGANIC CHEMISTRY THEORY (3) II
Structural theory; reaction mechanisms. Pre: 641.

651 INTERMEDIATE PHYSICAL CHEMISTRY I (3) I
Chemical thermodynamics. Pre: 452.

652 INTERMEDIATE PHYSICAL CHEMISTRY II (3) II
Chemical reaction kinetics. Pre: 651.

655 RADIOCHEMISTRY AND NUCLEAR REACTIONS (3) II
Nuclear models, radioactive decay processes, interaction of radiation with matter, nuclear phenomena. Pre: 452.

656 RADIOCHEMICAL TECHNIQUES (3) II (1 L, 2 Lb)
Modern radiochemical practice; use of isotopes as tracers and in activation methods. Pre: 655.

691–692 SEMINAR (1–1) Yr.
May be repeated. Current topics in chemistry.

699 DIRECTED RESEARCH (arr.) I, II
May be repeated. Pre: consent of department chairman.

721–722 SPECIAL TOPICS OF INORGANIC CHEMISTRY (arr.) I, II
May be repeated. Theory and application of modern inorganic chemistry. Pre: consent of instructor.

731–732 SPECIAL TOPICS IN ANALYTICAL CHEMISTRY (arr.) I, II
May be repeated. Theory and application of modern analytical chemistry. Pre: consent of instructor.

741–742 SPECIAL TOPICS OF ORGANIC CHEMISTRY (arr.) I, II
May be repeated. Theory and applications of modern organic chemistry. Pre: consent of instructor.

744 ORGANIC APPLICATIONS OF SPECTROSCOPY (3) II
Interpretation of IR, UV, NMR and mass spectra of organic compounds. Pre: 544, 641.

751–752 SPECIAL TOPICS OF PHYSICAL CHEMISTRY (arr.) I, II
May be repeated. Theory and application of modern physical chemistry. Pre: consent of instructor.
753 QUANTUM CHEMISTRY (3) I  
Mann
Review of basic principles of quantum mechanics, with emphasis on matrix representation of operators important to molecular structure theory. Application of the formalism to modern theories of chemical bond. Pre: 621.

756 STATISTICAL MECHANICS (3) II  
Staff
Principles of statistical mechanics and statistical thermodynamics, with applications to chemical systems. Pre: 621, 651, suggested Math 232.

800 DIRECTED RESEARCH (arr.) I, II  
Staff
Pre: candidacy for the M.S. or Ph.D. degree; consent of thesis chairman.

Drama and Theatre (Drama)

Senior Professor Ernst; Professors Matlaw, Trapido; Associate Professors Bentley, Langhans, Ortolani; Assistant Professors MacQueen, R. Mason, Soller, Wolz

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  
Staff
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  
Trapido
Introduction to process of converting the play into the performance.

151 BASIC STAGECRAFT AND STAGE LIGHTING (3) II  
Trapido
Introduction to theory and practice of stagecraft and lighting.

200 THEATRE PRACTICE (3) I, II  
Soller, Staff
Supervised work in one or two areas: stagecraft, lighting, costuming, make-up. Term paper required. May be repeated.

399 DIRECTED WORK (arr.) I, II  
Staff
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in drama and theatre.

405 PUPPETRY (3) I, II  
Bentley
Survey of the history and scope of puppetry. Construction and presentation of puppets for adult and child audiences. May be repeated.

410 CREATIVE DRAMATICS (3) I, II  
Bentley
Intensive study of dramatic activities for children and young people. Designed for teachers, group workers, recreation majors, and others dealing with children. May be repeated.

415 PLAYWRITING (3) I  
Staff
One-act plays; practice in writing in dramatic form; possibility of production. May be repeated. Pre: 3.0 grade-point or better in English composition.

416 ADVANCED PLAYWRITING (3) II  
Staff
Full-length plays and experimental writing in the dramatic form. Pre: 415 or equivalent.

420-421 ACTING (3-3) Yr.  
Staff
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.
424-425 DANCE TECHNIQUES (3-3) Yr.  Welz
Training in modern dance and stage movement to develop flexibility, control, rhythm, and expressiveness. Pre: consent of instructor.

426 DANCE WORKSHOP (1) II  Welz
Preparation of standard and new works for performance. May be repeated. Pre: consent of instructor.

428 DANCE COMPOSITION (3) I, II  Staff
Study of techniques and materials used in composing dances. May be repeated.

430 DIRECTION (3) I  Staff
Readings, reports, discussion of the theory and practice of stage direction.

435 DESIGN IN THE THEATRE (3) I  Mason
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  Soller
Principles applied, and techniques used, in contemporary staging and lighting.

445 COSTUME FOR THE STAGE (3) I  Mason
Survey of historical costume, with special emphasis on the translation of historical styles into theatrical form.

450 THEATRE MANAGEMENT (3) II  MacQueen
Business organization, management, and public relations as practiced in professional, university, community and secondary school theatres.

540 ORIENTAL DRAMA AND THEATRE (3) I  Ernst
Principal forms of Oriental drama and manner of production in the theatre. Pre: consent of instructor.

550-551 HISTORY OF THE THEATRE (3-3) Yr.  Ortolani
Survey of development of the theatre from ancient times to the present.

560 DANCE HISTORY (3) I  Welz
A survey of styles of dance in the West from ancient times to the 20th century.

620 ADVANCED ACTING TECHNIQUES (3) II  Staff
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  Staff
Directorial analysis of three plays of different styles and periods; exercises; preparation of prompt books.

635 ADVANCED DESIGN (3) II  Mason
Advanced study, analytical and creative, of visual aspects of dramatic art. Pre: consent of instructor.

640 PROBLEMS IN STAGECRAFT AND STAGE LIGHTING (3) II  Trapidio
Special topics in staging and lighting of plays, and in planning and use of various types of modern theatres.

660 THEORIES OF THE THEATRE (3) I  Ortolani
Theories of production, from Aristotle to Brecht.

700 ADVANCED THEATRE PRACTICE (3) I, II  Soller, Staff
Special projects in one or two areas: stagecraft, lighting, costuming, make-up. Term paper required. May be repeated.
710 SEMINAR IN THEATRE RESEARCH (3) I Staff
Bibliography and research methods; fundamentals of thesis and dissertation writing. Required of all graduate students.

720 SEMINAR IN DRAMA AND THEATRE (3) II Staff
Special topics in Western theatre.

750 SEMINAR IN ORIENTAL THEATRE (3) II Ortolani
Special topics in the drama and theatre of Orient. Pre: consent of instructor.

770 SEMINAR IN AESTHETICS OF THE THEATRE (3) II Ernst
Consideration of the theatre as an art form.

799 DIRECTED WORK (arr.) I, II Staff
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, Kamins, Oshima, Wise; Associate Professors Campbell, Diwan, Hung, Yotopoulos; Assistant Professors Gordon, Lefton, Lim, Pond, Yeh; Lecturers Lucas, Mark_

_Economics 150 and 151 are prerequisite to all other courses._

150 PRINCIPLES OF ECONOMICS (3) I, II Staff
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 Staff
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 Staff
The nature and role of money and the development of national and international monetary standards, the nature and role of commercial banking and financial intermediaries, and the development and function of central banking.

290 LABOR ECONOMICS (3) I Staff
Economic analysis applied to the labor market; wages, hours, conditions of work, unemployment, etc.

300 INTERMEDIATE ECONOMIC THEORY: PRICE THEORY (3) I, II Staff
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 Staff
Concepts; determination of income, employment, price levels; effects of fiscal, monetary, other policies.

304 HISTORY OF ECONOMIC THOUGHT (3) I Staff
Survey of economic thought from Adam Smith to the present with emphasis on theory of value and distribution. Pre: senior standing.

399 DIRECTED READING (arr.) I, II Staff
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
Staff

416 ECONOMIC DEVELOPMENT OF EUROPE (3) I
Staff
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
Staff
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
Staff
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
Staff
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
Staff
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.

440 MONETARY THEORY AND POLICY (3) I
Staff
Critical analysis of monetary theory and policy with special emphasis devoted to the quantity theory, national income theory, and the tools of central banking and debt management. Pre: 240, 302.

450 PUBLIC FINANCE (3) I, II
Staff
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
Staff
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.

455 ECONOMIC GEOGRAPHY AND LOCATION THEORY (3) I
Staff
Location theories concerned with agricultural, manufacturing and tertiary activities and with urban systems. Basic methods of locational analysis. Paths towards application in regional economic planning. Identical to Geography 455. Pre: Geog 151 or Economics 150-151.

460 INTERNATIONAL TRADE AND FINANCE (3) I
Staff
Theoretical, institutional and historical aspects of international economic relations considered, including foreign exchange rates, balance of payments adjustment, tariffs, quotas, and trading blocs.

462 INTERNATIONAL ECONOMIC POLICY (3) II
Staff
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 related to policy issues.

499 ECONOMIC DEVELOPMENT (3) I  
Study of characteristics of underdeveloped economies, theories of economic growth, strategies of economic development, and investment criteria. Pre: 150, 151 or consent of instructor.

502 AMERICAN ECONOMIC POLICY (3) I  
Analytical techniques 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 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 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 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) I  
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-squares estimation, limited-information technique, identification, auto-correlation and time series analyses. Pre: 620, or consent of instructor.

626 NATIONAL ECONOMIC ACCOUNTS (3) I

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 student with theories of design of economic policies; (2) demonstrate use of 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 (arr.) I, II
Pre: consent of department chairman.
710 SEMINAR IN ECONOMIC DEVELOPMENT (3) II  
Case studies, emphasizing research approaches and techniques. Theories of economic development applied to experience of certain Asian nations. Pre: 670 or consent of instructor.

800 THESIS RESEARCH (arr.) I, II  
Staff

English (Eng)


101–102 EXPOSITORY WRITING (3–3) Yr.  
Larson, Staff
101: Training in analysis of expository essays; discussion and practice of important rhetorical procedures, including exemplification, definition, classification, comparison; practice in designing and controlling development of paragraphs and essays.  
102: Practice in reasoning and argument; introduction to study of language and usage; practice in adjusting style (diction, idiom, sentence structure) to rhetorical purpose.  
101–102 or 105 is prerequisite to all sophomore literature courses.

105 EXPOSITORY WRITING (Accelerated) (3) I  
Staff
Intensive, one-semester course in 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 Freshman English Anticipatory Examination or on College Board Advanced Placement Examination in English.

Any of the following six semester courses (150–155) satisfies the requirement for sophomore literature.

150–151 MAJOR WORKS OF BRITISH AND AMERICAN LITERATURE (3–3) Yr.  
Friedson, Staff
150: Middle Ages to 1800. 151: 1800 to the present.

152–153 WORLD LITERATURE (3–3) Yr.  
Hurwitz, Staff
Major works of classical, Oriental, European, American literature. 152: classical times to the Renaissance. 153: 1600 to the present.

154–155 TYPES OF LITERATURE (3–3) Yr.  
Huntsberry, Staff

Two semesters of sophomore literature (150, 151, 152, 153, 154, 155) are prerequisites for upper division courses.

209 WRITTEN COMMUNICATION (3) I, II  
Brown, Staff
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 only 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.

215 ADVANCED EXPOSITORY WRITING (3) I, II
Writing of essays from logical and rhetorical principles, especially modes of definition, assertion, and proof. Emphasis on clarity, coherence, and style.

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, II
Most important sources of European literary themes and allusions, including the King James Bible and Western European myth and legend.

250–251 ENGLISH LITERARY HISTORY (3–3) Yr.
Readings in representative authors and works, with emphasis on history of ideas and development of literary forms. 250: Beginnings to 1798. 251: Romantics to present.

309–310 JUNIOR HONORS PROGRAM IN ENGLISH (3–3) Yr.

320 INTRODUCTION TO LANGUAGE (3) I, II
Examination of modern concepts of structure and use of language, with special reference to the English language.

329 SENIOR HONORS PROGRAM IN ENGLISH (3) I

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.

337 MASTERS OF LITERARY CRITICISM (3) I, II
Survey of the chief writings in criticism from Aristotle through Arnold (in English), with emphasis on classical answers to critical problems.

397–398 SENIOR HONORS TUTORIAL (6–6) Yr.

411 POETRY WRITING (3) II
Writing and criticism of poetry. Pre: 251, consent of instructor.

413 FORM AND THEORY IN WRITING FICTION (3) I, II
Study of techniques of prose fiction from the standpoint of the writer.

414 NARRATIVE WRITING (3) I, II
Instruction and practice in writing the short story. Pre: 413 or equivalent.
415  ADVANCED NARRATIVE WRITING (3) I  Huntsberry, MacMillan
Developing skill in story telling (either short story or novel). Pre: 414 or the equivalent.

420  HISTORY OF RHETORIC (3) II  Larson
Major rhetorical theories from Aristotle to the present day, with practice in the rhetorical analysis of essays and of works of imaginative literature. (Alt. yrs., not offered 1967–68.)

425  MODERN ENGLISH DRAMA (3) I, II  Crymes, Lester, Shen
Survey of prestructural, structural, and generative-transformational descriptions of modern English grammar.

426  HISTORY OF THE ENGLISH LANGUAGE (3) I, II  Lester, Wellein
Introduction to the older stages of English and processes by which Modern English evolved.

440  ENGLISH DRAMA TO 1642 (3) II  Fujimura, Lowers, Summersgill
Origins of English drama; medieval drama and theatre; contemporaries and successors of Shakespeare.

443, 444  MODERN DRAMATIC LITERATURE (3, 3) Yr.  Maltby, Teevan, Topham

447, 448  THE ENGLISH NOVEL (3, 3) Yr.  Heine, Hollingshead, Stillians
Historical and critical study of development of the English novel. 447: during the 18th and early 19th centuries, with emphasis on the rise of the realistic novel. 448: from Dickens to Hardy.

451  MEDIEVAL ENGLISH LITERATURE (3) I  Lelb
Representative Old and Middle English poetry, prose, exclusive of Chaucer, with continental backgrounds; chiefly in translation.

452  CHAUCER (3) II  Summersgill, Wellein
Study of Chaucer's development from the early poems through The Canterbury Tales.

455  16th-CENTURY ENGLISH LITERATURE (3) I  Cline, Lowers, McCutcheon
Poetry and prose of the Tudor period, exclusive of the drama.

457, 458  SHAKESPEARE (3, 3) Yr.  Staff
Critical study of Shakespeare's plays. 457: from the beginning to Hamlet. 458: Hamlet through the last plays. Both semester courses are taught each semester.

460  EARLY 17th-CENTURY ENGLISH LITERATURE (3) II  Fujimura, McCutcheon
Poetry and prose of the 17th century to 1660, exclusive of the drama.

465  RESTORATION LITERATURE (3) II  Fujimura
Poetry, prose, and drama from 1660 to 1700, exclusive of Milton.

466  MILTON (3) I  Larson, McCutcheon
Selected poetry and prose.

470, 471  18th-CENTURY ENGLISH LITERATURE (3, 3) Yr.  George, Maltby
Poetry, prose (exclusive of the novel), and drama. 470: from 1700 to 1740, with emphasis on Pope and Swift. 471: 1740 to 1780, with emphasis on Johnson and his circle.
473 STUDIES IN BRITISH LITERATURE (3) I, II  
Staff  
Some aspect of British literature, such as a genre, one or more major authors, etc.  
May be repeated for credit.

480 THE ROMANTIC MOVEMENT IN ENGLAND (3) I  
Fong, Stempel, Stillians  
Poetry and prose from 1780 to 1832, exclusive of the novel.

485, 486 VICTORIAN LITERATURE (3, 3) Yr.  
Frierson, Stempel  
Poetry and prose exclusive of the novel. 485: from 1832-1870. 486: from 1870 to 1914.

490 20th-CENTURY BRITISH NOVEL (3) I  
Staff

540 THE NARRATIVES OF ORAL TRADITION (3) II  
Kirtley  
Examination of folk narratives (prose types of the folktale, the ballad and related  
types of poetry, and the epic) and their relation to art-literature.

571, 572 AMERICAN LITERATURE (3, 3) Yr.  
Staff  
Critical study of American literature. 571: from the beginnings to the Civil War.  
572: from the Civil War to the present. Both semester courses are taught each semester.

573 STUDIES IN AMERICAN LITERATURE (3) I, II  
Staff  
Some aspect of American literature, such as genre, one or more major authors, etc.  
Pre: 571 or equivalent. May be repeated for credit.

585 LITERATURE OF THE PACIFIC (3) II  
Backus, Day, Kirtley, Leib  
Pacific islands, Australia: narratives of voyagers, translations of native literature,  
fiction by Melville, Stevenson, London, Becke, Nordhoff, Hall.

590 20th-CENTURY AMERICAN NOVEL (3) II  
Bouslog, Day, Lovy

592 20th-CENTURY BRITISH AND AMERICAN POETRY (3) I  
Toovan

620 SEMINAR IN TEACHING COMPOSITION (3) II  
Larson  
Theory and observation of teaching of composition, principally at college level,  
but with some applications to composition in secondary school. Limited number of  
secondary school teachers of English may be admitted. Pre: consent of instructor.

621 STUDENT TEACHING OF COLLEGE COMPOSITION (3) I  
Larson  
Supervised experience in teaching composition at college level. Pre: 620 or  
equivalent.

630 SEMINAR IN RESEARCH METHODS (3) I, II  
Bouslog, Gray  
Kinds of research, problems of bibliography, fundamentals of thesis writing. Re-  
quired of all candidates for the M.A. degree in English.

635 SEMINAR IN COMPARATIVE LITERATURE (3) II  
Staff  
Introduction to comparative literature; relationship of English to other literatures;  
sources and influences. Pre: consent of instructor.

636, 637 HISTORY OF LITERARY CRITICISM (3, 3) Yr.  
Stempel  
Chief theories of literary criticism, with readings (in English). 636: from Plato to  
the late nineteenth century. 637: modern literary criticism.

640 OLD ENGLISH (3) I  
Lester, Wellein  
Structure of the language, relation to present English; reading of selected prose  
and poetry. Pre: consent of instructor. (Alt. yrs.; offered in 1967–68.)

645 SEMINAR IN ENGLISH LANGUAGE (3) II  
Staff  
Intensive study of one topic in English linguistics. Pre: consent of instructor. May  
be repeated for credit.
657  SEMINAR IN SHAKESPEARE (3) II
Intensive study of Shakespeare. Pre: consent of instructor. (Alt. yrs.; offered 1967–68.)

660  MAJOR AUTHORS (3) I, II
Study of one or more authors, English or American.

675  LITERARY GENRES AND PROBLEMS (3) I, 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.

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.

English as Second Language

622  TEACHING ENGLISH AS A SECOND LANGUAGE (3) II
Analysis of and practice in methods of teaching English as a second language. Attention to the implications that recent and current research in language and language learning has for language teaching. Pre: Ling 620 or consent of instructor.

723  MATERIALS DEVELOPMENT FOR TESL (3) I

Journalism (Journ)

111  PUBLICATIONS WORKSHOP (1) I, II
Richstad, Wiley
Reporting, copy editing, advertising copywriting, proofreading, and photography under supervision of publications executives and instructor.

150  THE PRESS AND SOCIETY (3) I
Richstad
Analysis and evaluation of American journalism as shaped by historical, legal, economic, and social forces; comparison/contrast with the world press.

205  NEWS WRITING (3) I, II
Wiley

206  NEWS EDITING (3) I, II
Richstad, Wiley
News and photo editing, headline writing, publications makeup. Pre: 205.

207  EDITORS WORKSHOP (2) I, II
Staff
Editorial problems. Pre: consent of instructor.

239  MASS MEDIA (3) I
Scott
Mass communications as the result of technological, industrial organization; characteristics of mass media and consumer response to media.

250  TYPOGRAPHY (3) I
Scott
Basic printing procedures and design; history of typography; decoration and illustration.
315 INVESTIGATIVE REPORTING (3) I, II  
Preparation of specialized material for mass media, with emphasis on the problems of objectivity, analysis, and interpretation. Pre: consent of instructor.

316 EDITING AND PUBLISHING (3)  
Scott  
Illustration and typographical design; printing processes; newspaper and magazine management; editorial responsibility; laws of libel and copyright. Pre: 206.

325 WRITING NON-FICTION (3) II  
Wiley  
Writing non-fiction articles for magazines and newspapers; preparing material for a specific audience; marketing articles. Pre: consent of instructor.

385 DIRECTED WORK (3) I, II  
Scott, Wiley  
Internship in media operations under professional and faculty supervision. Pre: consent of instructor.

English Language Institute (ELI)

See p. 45 for information concerning assignment to and exemption from ELI courses.

Associate Professor SITTLER; Assistant Professors PLAISTER, SCHAAFSMA, TRIFONOVIČ, WILSON; Instructors ALTER, ARAPOFF, COLLIER, CURRIER, ELLIOTT, JOHNSON, OKADA, ROBERTS, SEGLEM, SOONG, STREICH, WALLACE, WARNER, XIGOGIANIS

51 ORAL ENGLISH FOR FOREIGN STUDENTS (0) I, II  
Intensive drill to develop facility in speaking and understanding. Language laboratory work also required. Equals 4 credits.

52 INTERMEDIATE ORAL ENGLISH FOR FOREIGN STUDENTS (0) I, II  
Further practice in spoken fluency and accurate aural comprehension. Language laboratory work also required. Equals 3 credits.

53 ADVANCED ORAL ENGLISH FOR FOREIGN STUDENTS (0) I, II  
Emphasis on comprehension of unmodified streams of speech and extended oral discourse. Equals 1 credit.

61 ENGLISH STRUCTURE FOR FOREIGN STUDENTS (0) I, II  
Intensive drill on the automatic recognition and production of English grammatical signals. Equals 2 credits.

62 INTERMEDIATE ENGLISH STRUCTURE FOR FOREIGN STUDENTS (0) I, II  
Further drill on English grammatical patterns. Equals 1 credit.

71 READING PROGRAM FOR FOREIGN STUDENTS (0) I, II  
Instruction and practice in developing improved reading comprehension and speed, and in effective use of textbooks and reference materials. Equals 3 credits.

72 INTERMEDIATE READING PROGRAM FOR FOREIGN STUDENTS (0) I, II  
Further work on reading comprehension and speed, and on techniques of skimming and rapid review. Equals 2 credits.

81 WRITING PROGRAM FOR FOREIGN STUDENTS (0) I, II  
Instruction and practice in factual reporting and summarizing; the effect of grammatical devices on meaning and organization. Equals 3 credits.

82 INTERMEDIATE WRITING PROGRAM FOR FOREIGN STUDENTS (0) I, II  
Instruction and practice in essay-type writing; the gathering, classification and organization of facts. Equals 2 credits.
163 ADVANCED ENGLISH STRUCTURE FOR FOREIGN STUDENTS (1) I, II
Emphasis on control of complex spoken and written syntactical constructions.

183 ADVANCED WRITING PROGRAM FOR FOREIGN STUDENTS (2) I, II
Writing of critical reports and term papers; logical analysis and evaluation of facts.

European Languages

Professors Aspinwall, Knowlton, Seymour; Associate Professors Dauer, Hadlich, Holton, Jackson, Niedzielski, Wiswell; Assistant Professors Ayora, S. Baciu, Bocsi, Burns, Dumont, Elliott, Eucher, Fröhlich, Jonas, McKay, Michalski, M. Montes, Moore, Rossbacher, Wood; Instructors M. Baciu, Brown, Burkett, Butler, Cassidy, Chang, Douvere, Fochtman, Gray, Haas, Keller, Krausse, Y. Montes, Philipp

General (EL)

610 CONTRASTIVE ANALYSIS OF SPANISH AND FRENCH WITH ENGLISH (3) I
Structures of Spanish and French contrasted with English on the phonemic, morphological, and syntactic levels. Elucidation of nature and cause of learning problems of French or Spanish students. Pre: Span 431 or Fr 406. Eng 220 or 425 recommended.

630 SEMINAR IN RESEARCH METHODS (2) I
(1) Romance Languages, (2) German. Study of available source material in European languages with emphasis upon basic research tools and methods.

French (Fr)

Note: All courses except 401 are conducted in French.

101-102 ELEMENTARY FRENCH (4-4) Yr.
Conversation, laboratory drill, grammar, reading.

151-152 INTERMEDIATE FRENCH (3-3) Yr.
Reading, conversation, laboratory drill, composition. Pre: 102 or the equivalent.

205 PHONETICS AND PRONUNCIATION PRACTICE (2) I
Analysis of French phonological system. Practice and laboratory drill designed to improve the student's pronunciation. Pre: 101 or two years of high school French.

211-212 ADVANCED CONVERSATION AND COMPOSITION (3-3)
Systematic oral and written practice. Laboratory drill as directed. Pre: 152 or equivalent.

303-304 SURVEY OF FRENCH LITERATURE (3-3)
Survey of French literature covering major authors and movements. Pre: 212 with which either 303 or 304 may be taken concurrently.

360 FRENCH CIVILIZATION (3) I
Survey of the culture and institutions of modern France. Pre: 152. May be taken concurrently with 211.

401 LITERATURE SINCE 1800 IN TRANSLATION (2) II
Rapid reading in translation; lectures, discussion, and reports. Pre: two semesters of literature courses in the English department. (Alternates with Rus 402; offered 1967-68.) Not creditable toward the major.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>406</td>
<td>STRUCTURE OF FRENCH (3) II</td>
<td>Niedzielski</td>
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<tr>
<td></td>
<td>Study of structure of contemporary French as analyzed by descriptive linguists. Pre: 151 or equivalent.</td>
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<tr>
<td>411</td>
<td>MASTERPIECES OF 17th-CENTURY LITERATURE (3) I</td>
<td>Gray</td>
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<td></td>
<td>Pre: 303 or 304.</td>
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<tr>
<td>413</td>
<td>MASTERPIECES OF 18th-CENTURY LITERATURE (3) II</td>
<td>Jackson</td>
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<td></td>
<td>Pre: 303 or 304.</td>
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<tr>
<td>415-416</td>
<td>MASTERPIECES OF 19th-CENTURY LITERATURE (2-2)</td>
<td>Aspinwall, Jackson</td>
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<tr>
<td></td>
<td>415: poetry; 416: prose. Pre: 303 or 304.</td>
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<tr>
<td>417-418</td>
<td>MASTERPIECES OF 20th-CENTURY LITERATURE (2-2)</td>
<td>Eucher</td>
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<td></td>
<td>Pre: 303 or 304.</td>
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<tr>
<td>601</td>
<td>SEMINAR IN CONTEMPORARY FRENCH LITERATURE (3) II</td>
<td>Jonas</td>
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<tr>
<td></td>
<td>Study of authors and movements of the modern period. Pre: consent of instructor.</td>
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<tr>
<td>602</td>
<td>SEMINAR IN FRENCH POETRY (3) I or II</td>
<td>Aspinwall</td>
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<td></td>
<td>Technical study of representative poems from the Renaissance to present. Pre: consent of instructor.</td>
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<tr>
<td>609</td>
<td>FRENCH RENAISSANCE (3) II</td>
<td>Eucher</td>
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<tr>
<td></td>
<td>Poetry, theatre, prose. Emphasis on Montaigne and Rabelais. Lectures, discussions, reports. Pre: consent of instructor.</td>
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<tr>
<td>660</td>
<td>STYLISTICS (2) I</td>
<td>Jonas</td>
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<tr>
<td></td>
<td>Designed to give mastery of structure and phrasing. Translation into French, discussion, composition. Pre: consent of instructor. (May be waived for native speakers of French.)</td>
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<tr>
<td>665</td>
<td>HISTORY OF FRENCH LITERARY CRITICISM (2) II</td>
<td>Jackson</td>
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<tr>
<td></td>
<td>Study of important literary criticism in France from Renaissance to present and its influence upon French literary history. Pre: consent of instructor.</td>
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<tr>
<td>671</td>
<td>HISTORY OF THE LANGUAGE (2) I</td>
<td>Niedzielski</td>
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<tr>
<td></td>
<td>Introduction to the historical development of the French nation, its civilization and its language. Contrastive analysis. Readings of selected texts.</td>
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<tr>
<td>672</td>
<td>MEDIEVAL LITERATURE (2) II</td>
<td>Niedzielski</td>
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<tr>
<td></td>
<td>Genesis and evolution of literary genres in Old and Middle French. Changes and continuity.</td>
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<tr>
<td>680</td>
<td>THE NOVEL IN FRANCE (3) I</td>
<td>Jackson</td>
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<tr>
<td></td>
<td>Historical development of genre and study of major novels which have influenced movements or established techniques. Pre: 5 credits at 400 level or equivalent. (Alternates with 690.)</td>
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<tr>
<td>685</td>
<td>SEMINAR IN FRENCH LITERATURE (3) I or II</td>
<td>Staff</td>
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<td>Study of authors or a period. Pre: consent of chairman of graduate field.</td>
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<tr>
<td>690</td>
<td>THE THEATRE IN FRANCE (3) I</td>
<td>Dumont</td>
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<tr>
<td></td>
<td>Historical development of genre and study of major dramatists who have influenced movements or established techniques. Pre: 5 credits at 400 level or equivalent.</td>
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<tr>
<td>699</td>
<td>DIRECTED RESEARCH (arr.) I, II</td>
<td>Staff</td>
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<td>Pre: consent of chairman.</td>
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<tr>
<td>800</td>
<td>THESIS RESEARCH (6)</td>
<td>Staff</td>
</tr>
</tbody>
</table>
German (Ger)

101–102 ELEMENTARY GERMAN (4–4) Yr.
   Conversation, laboratory drill, grammar, reading.
   Staff

151–152 INTERMEDIATE GERMAN (3–3) Yr.
   Reading, conversation, laboratory drill, composition. Pre: 102 or equivalent.
   Staff

154 INTERMEDIATE: SCIENCE GERMAN (3) II
   Beal
   Accurate reading over a wide range of subjects. Emphasis on sentence structure and vocabulary building. Pre: 151.

203 APPLIED PHONETICS (2) II
   Exercises in German pronunciation, reading, and speaking; laboratory exercises. Pre: 151.
   Wood

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. Pre: for 206: 205.
   Dauer, Moore

301–302 INTRODUCTION TO GERMAN LITERATURE (3–3) Yr.
   Representative reading and discussion of cultural periods in chronological order; laboratory exercises. Pre: 203 and 206. For majors, concurrent registration with 205–206 is permitted.
   Frohlich

405 STRUCTURE OF THE GERMAN LANGUAGE (3) II
   Phonological, morphological, and syntactic structure of contemporary German, as analyzed by descriptive linguists. Pre: German 151.
   Wood

419 ENLIGHTENMENT THROUGH POST CLASSICISM (3) I
   Representative works of movements leading up to German Classicism; of classical Schiller and Goethe, and of old Goethe. Pre: 301–302 or equivalent.
   Dauer

420 ROMANTICISM THROUGH REALISM (3) II
   Different groups within the Romantic School, Novalis, Hoelderlin, and the subsequent development of various types of Realism in letters. Pre: 301–302 or equivalent.
   Dauer

421 NATURALISM THROUGH NEO-ROMANTICISM (3) I
   Origins of German Naturalism and transition into Neo-Romanticism as exemplified in works of Gerhard Hauptmann and others. Pre: 301–302 or equivalent.
   Michalski

422 LITERARY CURRENTS SINCE WORLD WAR I (3) II
   Survey of simultaneous currents in German literature since 1918, with emphasis on lasting trends. Pre: 301–302 or equivalent. (Alt. yrs.; not offered 1967–68.)
   Michalski

601 HISTORY OF THE GERMAN LANGUAGE (3) I
   Fundamentals of linguistics; development of the language since 1000 A.D.
   Seymour

602 STYLISTICS (2) I
   Designed to develop a lucid German idiom and style.
   Staff

651 SEMINAR: NARRATIVE LITERATURE, GOETHE THROUGH MANN (3) I
   Discussion of representative works of this genre from end of 18th century up to 1955.
   Dauer

652 SEMINAR: DRAMA, GYPHIUS THROUGH BRECHT (3) II
   German development of dramatic theory and literature from the early 17th-century theatre to modern times, exemplified by typical works of literary periods.
   Staff
653 SEMINAR: LYRIC POETRY (3) I  
Interpretation and comparative study of representative German poems from Thirty Years War up to our times. (Alt. yrs.; offered 1967-68.)

654 SEMINAR: MIDDLE AGES THROUGH BAROQUE (3) II  
Origins and beginning of German literature proper and its development from 10th century to 17th century.

655 FAUST I (3) I  
Short history of Faust theme; Goethe's image of the "small world" or lower plane of human striving. (Alt. yrs.; not offered 1967-68.)

656 FAUST II (3) II  
Symbolic "greater world" or higher plane of human aspiration. Pre: 655. (Alt. yrs.; not offered 1967-68.)

699 DIRECTED RESEARCH (arr.) I, II  
Pre: consent of chairman.

800 THESIS RESEARCH (6)  

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.

401 GREEK CIVILIZATION (3) I  
Study of history, art, and culture of Greece. Pre: History 151 or 161 or Latin 101, or Greek 101 or the equivalent.

403 GREEK LITERATURE (3) I  

410 PLATO (3) I  
Selections from the Apology, Crito, Phaedo. Pre: 152. (Alt. yrs.)

411 HISTORIANS (3) II  
Selections from Herodotus, Thucydides. Pre: 152. (Alt. yrs.)

421 HOMER (3) I  
Selections from the Iliad and Odyssey. Pre: 152. (Alt. yrs.; offered 1967-68.)

422 LYRIC POETRY (3) II  
Selections from the lyric poets. Pre: 152. (Alt. yrs.)

431 INTRODUCTION TO DRAMA (3) I  
Selected readings in Greek dramatists. Pre: 152. (Alt. yrs.; not offered 1967-68.)

432 DRAMA (3) II  
Reading of entire dramas by Aeschylus, Sophocles and Euripides. Pre: 431 or 421 or permission. (Alt. yrs.; not offered 1967-68.)
441 PRE-SOCRATICS (3) I
Burns
Study of the fragments from the early Greek philosophers. Pre: permission. (Not offered 1967–68.)

442 ARISTOTLE (3) II
Burns
Selected readings in Aristotle. Pre: permission. (Not offered 1967–68.)

490 SEMINAR (3) I, II
Burns
Investigation in depth of a specific author or phase in the field of Hellenic studies with individual research by the participants. Pre: permission. May be repeated for credit.

Latin (Latin)

101–102 ELEMENTARY LATIN (3–3) Yr.
Artola
Vocabulary and grammar, with reading of simple Latin.

151–152 INTERMEDIATE LATIN (3–3) Yr. Artola, Haas
Review of grammar, reading of selections from prose and poetry. Pre: 102 or the equivalent.

301–302 STRUCTURE OF LATIN (3–3) Yr. Haas
Intensive study of the structural idiomatic and stylistic aspects of the Latin language. Pre: 152 or permission.

401 HISTORIANS (3) I
Burns
Reading of Livy, Sallust, Tacitus and other Roman historians. (Alt. yrs.; offered 1967–68.) Pre: 152 or permission.

402 ROMAN CIVILIZATION (3) II
Maurer
Study of the history, art, and culture of Rome. Pre: Hist 151 or 161, or Latin 101, or Greek 101.

404 ROMAN LITERATURE (3) II
Burns
Major writers of Rome in translation. Pre: two semesters of literature courses. Does not count towards Classics major.

410 LYRIC POETS (3) I
Burns
Selections from the foremost Latin lyricists, Horace, Catullus, Propertius, Tibullus. Pre: 152 or permission. (Alternates with 401; not offered 1967–68.)

420 VERGIL (3) II
Burns
Pre: 152; permission. (Alt. yrs., not offered 1967–68.)

421 SATIRE (3) II
Burns
Selections from Horace, Juvenal, Martial. Pre: 152 or permission. (Alt. yrs., not offered 1967–68.)

422 DRAMA (3) I
Burns
Selected dramas of Plautus and Terence. Pre: 152 or permission. (Alternates with 421; offered 1967–68.)

430 ROMAN PHILOSOPHY (3) I
Burns
Pre: permission. (Alt. yrs., not offered 1967–68.)

431 LUCRETIUS (3) II
Burns

440 ORATORY (3) II
Burns
Pre: permission. (Alt. yrs., offered 1967–68.)
490  SEMINAR (3) I, II
    Burns
    Investigation in depth of a specific author or phase in the field of Latin studies
    with individual research by the participants. Pre: permission. May be repeated for
    credit.

Portuguese (Port)

101–102  ELEMENTARY PORTUGUESE (3–3) Yr.
    Staff
    Reading, conversation, laboratory drill, grammar.

151–152  INTERMEDIATE PORTUGUESE (3–3) Yr.
    S. Baciu
    Reading, conversation, writing, laboratory drill. Pre: 102 or the equivalent.

360–361  INTRODUCTION TO LUSO-BRAZILIAN LITERATURE (3–3)
    S. Baciu
    Brief period of intensive practice in reading Portuguese for students with a
    knowledge of Spanish, followed by discussion and analysis of principal works of
    Portuguese and Brazilian literature. Pre: 152 or Spanish 204.

Russian (Rus)

101–102  ELEMENTARY RUSSIAN (3–3) Yr.
    Keller, Staff
    Conversation, lab drill, reading, writing, grammar.

151–152  INTERMEDIATE RUSSIAN (3–3) Yr.
    Rossbacher
    Reading, conversation, laboratory drill, grammar and composition. Pre: 102 or
    equivalent.

153–154  INTERMEDIATE: SCIENTIFIC RUSSIAN (3–3) Yr.
    Staff
    Rapid reading of scientific material. Translation and grammar review. May be
    taken by majors for credit concurrently with 151–152, but not instead of it. Recom­
    mended to students completing language requirement and to graduates. Pre: 102.
    Not accepted as prerequisite instead of 152.

203–204  ADVANCED ORAL PRACTICE (3–3) Yr.
    Keller
    Systematic practice designed to develop students’ control of spoken Russian through
    vocabulary building and stress on fluency of expression in a variety of subjects rein­
    forced with laboratory drill. Pre: 152 or equivalent.

205–206  COMPOSITION AND STRUCTURE (3–3) Yr.
    Keller, Wiswell
    Emphasis on strengthening facility with language through further training in
    syntax structure and composition writing. Pre: 152 or equivalent.

301–302  INTRODUCTION TO RUSSIAN LITERATURE AND CIVILIZATION (3–3) Yr.
    Rossbacher
    Survey; Russian literature covering major authors and discussion of historical
    background in order to provide an insight into Russian culture. Pre: 204 or 206.

402  19th-CENTURY NOVEL IN TRANSLATION (3) II
    Staff
    Survey of important novelists in translation, particularly Gogol, Goncharov,
    Turgenev, Saltykov, Dostoevsky, and Tolstoi. Russian majors taking this course will
    be required to fulfill additional reading and written assignments in Russian. Pre: con­
    sent of instructor. (Alt. yrs.; not offered 1967–68.)

403  CONTEMPORARY LITERATURE IN TRANSLATION (3) II
    Wiswell
    Reading and discussion of short stories, plays, and poetry by Pasternak, Evtushenko,
    Solzhenitsyn and others. Russian majors taking this course will be required to
    fulfill additional reading and written assignments in Russian. Pre: consent of instructor.
    (Alt. yrs.; offered 1967–68.)
404 LITERATURE OF THE 18th CENTURY (3) II  
Staff  
Representative reading and discussion of more important writers before Pushkin. Pre: 206 or consent of instructor. (Alternates with 420; offered 1967–68.)

411–412 LITERATURE OF THE 19th CENTURY (3-3) Yr.  
Wiswell  
Reading and discussion of representative writers beginning with Pushkin. Pre: 206 or consent of instructor. (Alternates with 413–414; offered 1967–68.)

413–414 LITERATURE OF THE 20th CENTURY (3-3) Yr.  
Staff  
Representative writers before the revolution and contemporary Soviet writers. Pre: 206 or consent of instructor. (Alternates with 411–412; not offered 1967–68.)

415 RUSSIAN POETRY (2) I  
Staff  
Reading and discussion of classical and contemporary Russian poets. Pre: 206 or consent of instructor. (Alternates with 417; not offered 1967–68.)

417 RUSSIAN DRAMA (2) I  
Wiswell  
Representative plays of the 18th, 19th, and 20th centuries. Pre: 206 or consent of instructor. (Alternates with 415; offered 1967–68.)

418 ADVANCED COMPOSITION AND STYLISTICS (3) I  
Wiswell  
Study and analysis of representative prose selections which exhibit variations in style. Practice in written composition. Translation into Russian. Pre: 206 or consent of instructor.

420 HISTORY OF RUSSIAN LANGUAGE AND EARLY RUSSIAN LITERATURE (2) II  
Staff  
Study of development of Russian language. Representative readings in Russian literature through 17th century. Pre: 206 or consent of instructor. (Alternates with 404; not offered 1967–68.)

493 SEMINAR IN RUSSIAN LITERATURE (3-3) Yr.  
Rossbacher  
Important literary movements and writers. Pre: consent of instructor.

494 SEMINAR IN RUSSIAN LITERATURE (3) II  
Rossbacher  
Important literary movements and writers. Pre: consent of instructor.

699 DIRECTED READING (arr.) I, II  
Rossbacher  
Pre: consent of instructor.

Spanish (Span)

101–102 ELEMENTARY SPANISH (4-4) Yr.  
Staff  
Beginning course, primarily emphasizing oral practice. Laboratory drill.

106 SPANISH TRANSLATION FOR NON-MAJORS (0) I  
Elliott  
Practice in reading and translation of varied material, according to the student’s interests. Pre: 102 or consent of instructor.

110 ACCELERATED ELEMENTARY SPANISH (8) I, II  
Staff  
Class meets two hours daily, Monday through Friday, with daily laboratory drill. In one semester, work of 101–102 will be covered.

151–152 INTERMEDIATE SPANISH (3-3) Yr.  
Staff  
Continuation of oral practice, with increasing emphasis on reading and written composition. Laboratory drill. Pre: 102 or equivalent.

203–204 ADVANCED GRAMMAR AND COMPOSITION (3-3) Yr.  
Y. Montes, Ayora, Bosel  
More detailed study of problem areas of Spanish grammar. Cultivation of accuracy and elegance in written expression.
230 PHONETICS AND PRONUNCIATION PRACTICE (2) I, II
McKay
Analysis of Spanish phonological system, in contrast with English. Practice designed to perfect the student's own pronunciation; laboratory drill.

260-261 SPANISH AND SPANISH-AMERICAN CIVILIZATION (3-3) Yr.
Yr. Bocsi
Survey of culture and institutions of modern Spain and Spanish America, with some attention to their historical backgrounds. Pre: 152 or the equivalent.

362-363 MASTERWORKS OF SPANISH & SPANISH AMERICAN LITERATURE (4-4) Yr.
Yr. Bocsi, McKay
Reading and discussion in Spanish of most important works of literature of Spain and Spanish America, from the beginning to present time.

400-401 ADVANCED ORAL PRACTICE (3-3) Yr.
Yr. Montes
Systematic practice designed to continue on an advanced level the student's control of spoken Spanish. Attention to further development of a vocabulary which will permit accurate and mature expression on a variety of topics. Laboratory drill.

402 SPANISH-ENGLISH TRANSLATION (3) I
Holton
Study of the factors involved in art of translation. Practice in translating literary and other material from Spanish to English and the reverse.

431 THE STRUCTURE OF SPANISH (3) I
Hadlich
Phonological, morphological, and syntactic structure of contemporary Spanish, as analyzed by descriptive linguists. Pre: Ling 202 or equivalent and Span 152, or consent of instructor.

440 HISTORY OF THE SPANISH LANGUAGE (3) I
Knowlton
Pre: Spanish 152 or the equivalent; one semester of college Latin or the equivalent.

449 SPANISH DIALECTOLOGY (3) II
Hadlich
Study of the principal regional and social variants from cultured standard Castilian to be encountered in language of Iberian Peninsula, America and the Philippines. Pre: 431 or consent of instructor.

460-461 MODERN AND CONTEMPORARY SPANISH LITERATURE (3-3) Yr.
Yr. M. Montes
Reading and discussion of modern and 20th century peninsular authors. Studies of recent trends. (Alt. yrs.; not offered 1967-68.)

462 CERVANTES (2) I
McKay
The works of Cervantes. (Alt. yrs.; offered 1967-68.)

470 SOCIAL & POLITICAL IDEAS OF 20th CENTURY LATIN AMERICA (3) II
S. Baciu
National and international significance of principal currents of Latin American thought as expressed in fundamental works of national authors. Pre: 260-261 or equivalent.

480-481 SPANISH-AMERICAN NOVEL (3-3) Yr.
Ayora
Reading and discussion of important Spanish-American prose writers. (Alt. yrs.; offered 1967-68.)

490 HISPANO-PHILIPPINE LITERATURE (2) II
Knowlton
Study of the important writers in Spanish from the Philippine Islands. (Alt. yrs.; offered 1967-68.)

628-629 STYLISTICS AND ADVANCED COMPOSITION (3-3) Yr.
Yr. M. Montes
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.
659 SEMINAR IN SPANISH LINGUISTICS (3) II
Hadlich, Knowlton
Study of a problem or problems in Spanish linguistics. Pre: consent of instructor. (May be repeated.)

665 SPANISH LITERATURE PRIOR TO THE GOLDEN AGE (3) I
Knowlton
Major works and trends of periods prior to the Golden Age. The epic, poetry, and prose. (Alt. yrs.; not offered 1967-68.)

670 SPANISH LITERATURE OF THE GOLDEN AGE (3) II
Boel
Representative readings in poetry, drama, and prose of 16th and 17th centuries. (Alt. yrs.; not offered 1967-68.)

675 MODERNISMO (2) II
Ayora
Study of the works of the important poets of the Modernist movement in Spanish America. (Alt. yrs.; offered 1967-68.)

698 SEMINAR IN HISPANIC LITERATURE (3) I
Staff
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; Acting Assistant Professor Newhouse; Instructors Dangler, Page-Callis

121-120 INTRODUCTION TO SCIENCE (4-4) Yr.
Bernatowicz
Characteristics of science and interaction of society with science, illustrated by topics from physical and biological science. 121 is to be taken before 120.

520 CASE HISTORIES IN SCIENCE (3) II (2 L-Lb)
Staff
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.

530 HISTORY OF SCIENCE (3) I
Staff
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
Staff
Seminar. The scientist; productivity in science; comparisons of several fields; anatomy of science; science and society. May be repeated.

650-651 SEMINAR IN SCIENCE FOR SECONDARY SCHOOL TEACHERS (3-3) Yr.
Fredyma
Selected topics in botany, entomology, geochemistry, geology, mathematics, meteorology, microbiology, physics, zoology, and philosophy of science. Occasional laboratory sessions and field trips.

Geography (Geog)

Professors Bowers, Fryer, Manchester, Pitts, Wiens; Associate Professors Chang, J. H., Chang, S. D., Fuchs, Street; Assistant Professors Krumme, Pirie; Lecturer Pilanaia; Visiting Assistant Professor Thom
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)
Street, Thom
Survey of man's natural environment; distribution and interrelationships of climates, vegetation, soils, and landforms. Laboratory problems in map interpretation.

102 WORLD REGIONAL GEOGRAPHY (3) I, II
Bowers, Manchester
Geography of the world's major cultural regions; emphasis on geographic aspects of contemporary economic, social, and political conditions.

151 ECONOMIC GEOGRAPHY (3) I, II
Krumme
Systematic study of patterns of economic activities: agriculture, mining and manufacturing, services and consumption. Elements of location theory, transportation and urban geography. Basic aspects of regional economic development and planning.

401 GEOGRAPHIC PATTERNS (4) II (3 L, 1 2-Hr. Lb)
Pirie
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. 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 THE UNITED STATES AND CANADA (3) I
Manchester
Emphasis on evolution of present patterns of settlement and economic activity of the United States.

521 GEOGRAPHY OF EUROPE (3) II
Staff
European geography as a background to present problems. (Not offered 1967–68.)

526 GEOGRAPHY OF THE SOVIET UNION (3) II
Fuchs
The land and its people. Regional differences in physical environment, resources, economic development. Problems of resource management and development.

541 GEOGRAPHY OF ASIA (3) I
Bowers
Regional physical and cultural patterns. Emphasis on the geographical background of current Asian problems.

552 GEOGRAPHY OF JAPAN (3) I
Manchester
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.

553 GEOGRAPHY OF CHINA (3) I
Wiens
Regional geographic exposition of the historical, ethnic, political and economic character of China. Analysis of physical and resource base for agriculture and industry.

555 GEOGRAPHY OF SOUTH ASIA (3) II
Bowers
Physical and human-use regions of India, Pakistan, Ceylon, and the Himalayan kingdoms. Geographic factors in the history, politics, and economics of the area.
556 GEOGRAPHY OF SOUTHEAST ASIA (3) II
Southeast Asia in the world economy. Human and physical resources basis and returns achieved by various methods of land utilization. National economies of continental and insular Southeast Asia, and the problems and prospects of modernization.

561 GEOGRAPHY OF AUSTRALIA AND NEW ZEALAND (2) I
Emphasis on the transformation of Australasia by European settlement.

571 GEOGRAPHY OF THE PACIFIC (3) I
The physical character of the Pacific and its islands and cultural, political and economic geography of Melanesia, Micronesia, and Polynesia (except Hawaii).

578 GEOGRAPHY OF HAWAII (3) II
Regional, physical, and cultural geography. Detailed study of the people and resources.

660 SEMINAR IN GEOGRAPHY OF ASIA (3) I, II
(1) Asia, (2) China, (3) Japan, (4) Southeast Asia, (5) South Asia. Pre: consent of instructor. May be repeated.

665 SEMINAR IN GEOGRAPHY OF THE PACIFIC (3) I, II
Investigation of geographic problems of Melanesia, Micronesia, and Polynesia. Pre: consent of instructor. May be repeated.

SYSTEMATIC PHYSICAL GEOGRAPHY

410 PHYSICAL GEOGRAPHY (3) I

420 INTRODUCTION TO CLIMATOLOGY (3) I

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.

630 SEMINAR IN CLIMATOLOGY (3) II

SYSTEMATIC CULTURAL GEOGRAPHY

360 POLITICAL GEOGRAPHY (3) I
Geographic background of international politics and national power. Case studies of problem areas and boundary problems.

450 URBAN GEOGRAPHY (3) II
Location, size, functions and spatial-economic structure of the modern city. The urban sphere of influence. Problems of urban transportation, changes in land use and urban growth. The role of government in urban development. Pre: 151.
455 **ECONOMIC GEOGRAPHY AND LOCATION THEORY (3)** I  
Krumme  

470 **POPULATION GEOGRAPHY (3)** I  
Pirie  
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)** I  
Street  
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.

605 **HISTORICAL GEOGRAPHY (3)** I  
Manchester  
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.

619 **REGIONAL ECONOMICS (3)** I  
Krumme  
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 cycle and multiplier analysis. Identical to Economics 619. Pre: Econ 420–421, or consent of instructor.

**TECHNIQUES AND METHODOLOGY**

235 **MAP AND AIRPHOTO INTERPRETATION (2)** I, II (1 L, 1 Lb)  
Chang, S. D.  
Map reading and interpretation, principles of basic photogrammetry, use of air-photos as tools for research in the social and physical sciences.

430 **CARTOGRAPHY (3)** I (2 L, 1 Lb)  
Chang, S. D.  
Principles of cartography, including map scales, grid systems, map projection, compilation, symbolism, map reproduction. Laboratory practice with cartographic equipment; techniques of quantitative mapping and terrain presentation.

440 **QUANTITATIVE METHODS IN GEOGRAPHY (3)** I  
Pitts  
Basic concepts and techniques: data collection, probability theory, tests of hypothesis, sampling methods, analysis of variance and regression, correlation analysis. Application to spatial problems.

635 **COMPUTER APPLICATIONS IN GEOGRAPHY (3)** II  
Pitts  
Special purpose spatial computer programs. Computer simulation. Students will be expected to solve individual research problems. Pre: 440 and some introduction to computer language.

640 **ADVANCED QUANTITATIVE METHODS IN GEOGRAPHY (3)** II  
Staff  
Application to geographical research of advanced techniques. Variable topics may include multivariate analysis and regression, factor analysis, graph theory, linear programming, Fourier series and harmonic analysis, Markov chains, and game theory. May be repeated. Pre: 440 and adequate math background.

**READING, RESEARCH, GENERAL**

399 **DIRECTED READING (arr.) I, II**  
Staff  
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point in geography.
601 HISTORY OF GEOGRAPHIC THOUGHT (3) I, II  
Manchester  
Development of geographic thought from early Greece to the present. Emphasis on the origin of current trends and relations to contemporary thought in the natural and social sciences.

610 PRO-SEMINAR IN GEOGRAPHY (6) I  
Staff  
Bibliographical and field methods, research design; concepts and theory in regional, physical, economic and cultural geography. Required of entering graduate students. Pre: consent of instructor.

615 FIELD CAMP (1) I  
Staff  
Field research problems. Camp to be held between semesters on a neighbor island. Students expected to pay their own travel and camp expenses. Pre: 610.

680 SEMINAR IN GEOGRAPHY (3) I, II  
Staff  
Study and discussion of significant topics and problems. May be repeated.

699 DIRECTED RESEARCH (arr.) I, II  
Staff  
Pre: consent of instructor.

750 RESEARCH SEMINAR (3) I, II  
Staff  
Selected problems in research. (1) Biogeography, (2) economic geography, (3) geographic aspects of economic development, (4) urban geography, (5) resource management, (6) cultural geography, (7) population geography. Pre: consent of instructor. May be repeated.

Geosciences (Geosc)  

Senior Professor Macdonald; Professors Abbott, W. Adams, Chi, Cox, Danielson, Laurila, Ramage, Sutton, Woollard; Associate Professors Moberly, Rose, Sadler; Assistant Professors C. Adams, Fan, Furumoto, Lavoie, Malahoff, Manghnani, Pankiwskyj, Resig; Lecturer Thomas

101-102 INTRODUCTION TO GEOSCIENCES (4-4) Yr. (3 L, 1 I)  
Staff  
Integrated survey ranging from center of earth to limits of solar system, emphasizing unifying physical principles. 101: Meteorology, oceanography, earth as a planet; 102: geology, solid earth geophysics emphasizing Hawaiian Islands (101 not pre.); field trips.

201 EARTH SCIENCE SURVEY (6) I, II (two ½-hr TV Lec/wk, one 3-hr Lab)  
Staff  
Survey of earth sciences with emphasis on Hawaiian environment, designed for elementary and junior high school teachers, to be presented on ETV Channel II. Saturdays 9–12 devoted to lab work, review, examinations and field trips. Topics include meteorology, physical oceanography, volcanology, geology, geophysics.

699 DIRECTED RESEARCH (arr.) I, II  
Staff  
Pre: consent of instructor.

800 THESIS RESEARCH (arr.) I, II  
Staff  
Credit toward the major may be granted in the following courses:  
Civil Engineering 220, 221, 222, 351, 325.  
Geography 420, 421, 430, 580, 630.  
Oceanography 620, 622, 623, 625, 633.  
Soil Science 481, 484, 486, 487.
GEODESY

457 INTRODUCTION TO GEODETIC SCIENCE (3) I  
Laurila

481 POTENTIAL THEORY AND GRAVITY (3)  
Furumoto
Potential theory, force fields, harmonic functions, Dirichlet's problem as applied to earth's surface and external gravity field and magnetism. Concept of geoid and deflection of the vertical. Significance of gravity anomalies. Relation between earth's gravity field and its internal structure. Pre: Math 232 or consent of instructor.

681 PHYSICAL GEODESY I (3) I  
Staff

682 PHYSICAL GEODESY II (3) II  
Staff
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: Geosc 481, Geosc 681, or consent of instructor.

683 SATELLITE GEODESY (3) I  
Staff
Methods of utilization of artificial satellites for geodetic purposes. Use of orbital perturbations for determination of gravitational field. Use of satellites in geometric geodesy. Pre: Geosc 681 and Geosc 686 or consent of instructor.

684 ADVANCED GEODESY (3) II  
Laurila

685 ADJUSTMENT COMPUTATION (3) II  
Laurila

686 CELESTIAL MECHANICS (3) II  
Gregory
Advanced Potential Theory. Problem of two bodies and orbital determination. Perturbation theory. Pre: Math 402 and 442 or consent of instructor.

687 GEODETIC ASTRONOMY (3) I  
Staff
GEOLOGY

205 GEOLOGICAL FIELD METHODS (2) I (8 hrs. Saturday in field) Abbot
Methods used in geological investigations in the field. Pre: 405, or concurrent registration.

401 MINERALOGY (3) I (2 L, 1 Lb) Pankiwsky
Mineral structure, composition, and identification by physical and X-ray techniques; crystal form and symmetry. Pre: Chem 103–106 or 107.

402 PETROLOGY (3) II (2 L, 1 Lb) Macdonald
Composition, classification, origin, and occurrence of rocks. Pre: Geosc 401.

405 STRUCTURAL GEOLOGY (3) I (2 L, 1 Lb) Staff

406 WORK OF WATER (4) II (3 L, 1 Lb) Cox
Dynamics of streams, waves, currents, and ground water. Pre: Phys 173.

410 HISTORICAL GEOLOGY (3) I (2 L, 1 Lb) Moberly

411 PALEONTOLOGY (3) I (1 L, 2 Lb) Reilg
Principles of paleozoology and paleobotany. Morphology and identification of fossils. Pre: Geosc 410 or Zool 101, or consent of instructor.

412 MICROPALAEONTOLOGY (3) II (2 L, 1 Lb) Reilg
Morphology and taxonomy of microfossils and recent microscopic remains capable of fossilization. Ecologic-paleoecologic stratigraphic and sedimentologic significance of the microbiota. Pre: consent of instructor.

416 GEOMORPHOLOGY (3) II Abbott
Study of landforms and their relation to geologic structure.

420 MARINE GEOLOGY (3) I (2 L, 1 Lb) Moberly
Survey of marine geologic processes and forms. Field work involving marine geologic equipment and techniques.

424 OPTICAL MINERALOGY (3) I (2 L, 1 Lb) Pankiwsky
Introduction to the petrographic microscope, and optical properties of minerals. Pre: Geosc 402 or consent of instructor.

425 GEOCHEMISTRY (3) I Staff
Distribution of chemical elements in the earth's crust and oceans, and their relation to rock types and geologic processes. Pre: Geosc 402.

426 IGNEOUS AND METAMORPHIC PETROGRAPHY (3) II (1 L, 2 Lb) Pankiwsky
Microscopic and related laboratory studies of rocks. Pre: Geosc 424.

427 SEDIMENTARY PETROGRAPHY (3) II (2 L, 1 Lb) Moberly
Origin of sediments, sedimentary rocks, and sedimentary facies; their laboratory study. Pre: Geosc 410 and 424.

430 GEOLOGY OF ASIA (2) I Fan
Stratigraphy, structure, and history of the major geologic provinces of Asia. Pre: Geosc 402, 405, or consent of instructor.
440 ECONOMIC GEOLOGY (2-2) Yr. Abbott, Moberly
(a) Origin and occurrence of metallic ores and industrial minerals; (b) origin and occurrence of mineral fuels. Both parts may be taken for credit. Pre: Geosc 402 and 405. (Alt. yrs.; offered 1967-68.)

455 HYDROGEOLOGY (3) I Cox
Occurrence, characteristics, flow effects, and development of water in the earth's crust. Pre: Geosc 405-406 or consent of instructor.

601 PETROLOGY (2) I, II Macdonald, Pankiwskyj
Seminars and lectures on the origin and occurrence of igneous and metamorphic rocks. Can be repeated for credit through a four-semester cycle: (a) volcanology (Pre: Geosc 402); (b) igneous petrology (Pre: Geosc 426); (c) phase petrology (Pre: Geosc 425); and (d) metamorphic petrology (Pre: phase petrology, Geosc 426).

602 SEMINAR IN PETROLOGY (2) II Staff
Theories of origin of rocks. (a) igneous, (b) metamorphic. Pre: Geosc 426. (Alt. yrs.; not offered 1967-68.)

603 PHASE PETROLOGY (3) I Pankiwskyj
Genesis of the rock-forming minerals through the interpretation of phase diagrams. Pre: Geosc 425 or consent of instructor. (Alt. yrs.; not offered 1967-68.)

605 SEMINAR IN ENGINEERING AND GROUND-WATER GEOLOGY (3) I, II Staff
Geologic controls on 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 Abbott
Consideration of the physical and chemical processes and structural controls in the formation of metalliferous ore deposits. Pre: Geosc 402, 405. (Alt. yrs.; not offered 1967-68.)

609 SEMINAR IN GEOMORPHOLOGY (2) II Abbott
Consideration of special problems and geologic processes in the development of land forms. Pre: Geosc 416. (Alt. yrs.; offered 1967-68.)

614 ADVANCED FIELD STUDY (arr.) I, II Staff
Field projects in geological sciences.

617-618 SEMINAR IN GEOTECTONICS (3-3) Yr. Moberly
Evolution of the crust, from structure, petrology, geophysics, stratigraphy. 617: ocean basins and margins; 618: shields and mountain systems. (Alt. yrs.; not offered 1967-68.)

619-620 SEDIMENTOLOGY AND STRATIGRAPHY (3-3) I, II (2 L, 1 Lb) Moberly, Fan
Lectures and seminars on physical, chemical, biological, and temporal controls of sedimentation. Sedimentary petrology and stratigraphic analysis. Pre: consent of instructor. (Alt. yrs.; offered 1967-68.)

624 TOPICS IN GEOCHEMISTRY (3) I, II (2 L, 1 Lb) Pankiwskyj
Discussion and laboratory work in analytical methods. (a) X-ray analysis and X-ray crystallography. I. Pre: Geosc 402. (b) Mineral equilibria at high and low temperatures and pressures. II. Pre: Geosc 402 and credit or registration in Chem 551-552.

625 SEMINAR IN CURRENT RESEARCH TOPICS (arr.) I, II Staff
(a) Paleontology; (b) Applied geology; (c) Marine geology; (d) Regional geology. May be repeated for credit.
METEOROLOGY

342 METEOROLOGICAL INSTRUMENTS AND OBSERVATIONS (3) I (2 L, 1 Lb) Staff
Principles of meteorological instruments and their care; instrumental and visual weather observation; coding. Pre: credit or registration in Math 155. (Alt. yrs.; not offered 1967–68.)

542 THEORETICAL METEOROLOGY I (4) I (3 L, 1 Lb) C. Adams
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) C. Adams
Basic concepts of fluid motion applied to the atmosphere. Equations of motion; special cases of balanced motion; principles of numerical weather prediction. Pre: Geosc 542.

545 TROPICAL METEOROLOGY (3) II Staff
History; tropical clouds and hydrometeors; easterly waves and typhoons; monsoons; local and diurnal effects. Pre: Geosc 542. (Alt. yrs.; not offered 1967–68.)

550 METEOROLOGICAL ANALYSIS LABORATORY (3) II C. Adams
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 Geosc 543. (Alt. yrs.; offered 1967–68.)

551 TROPICAL ANALYSIS LABORATORY (2) II Staff
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 Geosc 543. (Alt. yrs.; offered 1967–68.)

560 SATELLITE METEOROLOGY (3) II (2 L, 1 Lb) Sadler
Interpretation and use of data from weather satellites. (Not offered 1967–68.)

565 ADVANCED TROPICAL METEOROLOGY (5) I (2 L, 3 Lb) Ramage, Sadler
Modern methods of observing and analysis and the results of research applied to problems of forecasting in the tropics. Pre: professional experience or graduate standing.

742 ATMOSPHERIC TURBULENCE (3) I Staff
Equations of motion for turbulent flow; turbulent diffusion; atmospheric boundary layer processes. Pre: Geosc 543. (Alt. yrs.; not offered 1967–68.)

743 CLOUD PHYSICS (3) I Lavoie
Physical processes attending formation and subsequent history of clouds and cloud particles. (Alt. yrs.; offered 1967–68.)

744 PHYSICAL METEOROLOGY (3) II Lavoie
Advanced treatment of radiation, atmospheric optics, acoustics, electricity, and visibility; radar meteorology. Pre: Geosc 542. (Alt. yrs.; not offered 1967–68.)

745 NUMERICAL ANALYSIS AND PREDICTION (5) II (1 L, 4 Lb) Staff
Theory and practice of objective analysis and numerical weather prediction; formulation of prediction equations, numerical integration procedures; programming of high-speed electronic computers.

746 STATISTICAL METEOROLOGY (3) I Lavoie
Frequency distributions of atmospheric variables, probability; correlation and regressions; time series analysis; statistical forecasting. Pre: Math 231. (Alt. yrs.; offered 1967–68.)
750 ADVANCED THEORETICAL METEOROLOGY I (3)  
Danielsen  
Basic equations of meteorology in vector form and in various coordinate systems;  
circulation and vorticity theorems; classical hydrodynamics. Pre: Geosc 543 or  
equivalent; knowledge of ordinary and partial differential equations.

751 ADVANCED THEORETICAL METEOROLOGY II (3) II  
Danielsen  
Basic theories of the mechanics of compressible fluids; atmospheric waves and  
tides; stability problems. Pre: Geosc 750.

752 SPECIAL TOPICS IN METEOROLOGY (3) II  
Staff  
Concentrated studies on selected atmospheric problems. Pre: Geosc 751 or consent  
of instructor. May be repeated for credit.

753 ADVANCED TOPICS IN SYNOPIC METEOROLOGY (3) I  
Staff  
Studies of the structure and development of weather systems. May be repeated for  
credit.

765 SEMINAR IN METEOROLOGY (1) I, II  
(a) General. (b) Research Results. May be repeated for credit.

775 HISTORICAL DEVELOPMENT OF METEOROLOGICAL IDEAS (1) II  
Staff  
Seminar of directed reading designed to illustrate historical change in meteorological  
thinking. Recommended: reading knowledge of French or German.

SOLID EARTH GEOPHYSICS

451 SEISMOLOGY (3) II  
W. Adams  
Elastic properties of rocks, and behavior of earthquake waves; earthquake record­ 
ing instruments; reading of seismograms. Pre: Phys 170. (Alt. yrs.; offered 1967-68.)

460 PRINCIPLES OF GEOPHYSICS (3) I  
Rose  
Physical laws and physical concepts which describe the forces and materials of the  
earth. Pre: Geosc 101-102 (or concurrent registration), Phys 172.

463 PHYSICAL PROPERTIES OF EARTH MATTER (3) II (2 L, 1 Lb)  
Manghnani  
Basic concepts of materials behavior, deformation of rocks and minerals, and  
related rheological problems. Physical properties of crystalline solids under high  
pressure, with emphasis on laboratory study; equations of state.

465-466 GEOPHYSICAL EXPLORATION (4-4) Yr. (3 L, 1 Lb)  
Malahoff, W. Adams  
Theory and methods of exploration on land and sea by means of gravity, magnetic,  
seismic, and electrical techniques. Pre: Math 136 (or concurrent registration).  
(Alt. yrs.; not offered 1967-68.)

655 SEISMIC SOURCE MECHANISMS (3) II  
W. Adams, Furumoto  
Theoretical and observational study of source mechanisms for explosions and  
earthquakes in aerial, underwater, or underground environments. Pre: consent of  
instructor. (Alt. yrs.; offered 1967-68.)

656 SEISMIC PROPAGATION PHENOMENA (3) I  
Furumoto, W. Adams  
Propagation of energy through solid media having interfaces with considerations of  
the effects of heterogeneity and anisotropy. Pre: consent of instructor. (Alt.  
yrs.; offered 1967-68.)

657 ANALYSIS AND SYNTHESIS OF SEISMOGRAMS (3) I  
W. Adams, Furumoto  
Development of theoretical seismograms for comparison with observed seismo­ 
grams utilizing analytical and numerical techniques. Pre: consent of instructor.  
(Alt. yrs.; not offered 1967-68.)
658  **SEISMOLOGY AND SEISMOLOGICAL MODEL STUDY (3) II**  
Sutton  
Theoretical and practical investigations of seismological instrumentation and the application of seismological model studies to the interpretation of field observations. Selected topics from other areas in geophysics. Pre: consent of instructor. (Alt. yrs.; not offered 1967-68.)

660  **SEMINAR IN SOLID EARTH GEOPHYSICS (arr.) II**  
Staff  
(a) Tectonics and crustal deformation. (b) Isostasy. (c) Properties of earth matter. (d) Physics of the interior of the earth. (e) Statistical interpretation. (f) Tsunamis. (g) Geomagnetism. May be repeated for credit. Pre: consent of instructor.

661  **MARINE GEOPHYSICS (3) II (2 L, 1 3-hr Lab)**  
Staff  
Geophysical studies of ocean basin (primarily Pacific) by gravity, heat flow, magnetic and seismic methods. Pre: Ocean 622 or Geosc 465 or 420 or 405. (Alt. yrs.; not offered 1967-68.)

662  **PRINCIPLES OF THEORETICAL GEOPHYSICS (3) I**  
Furumoto  
Continuum mechanics, potential theory, thermodynamics as applied to tectonics and physics of the earth's interior. Pre: Phys 310-311 or consent of instructor.

665  **NUMERICAL METHODS IN GEOPHYSICAL DATA ANALYSIS (3) II**  
Loomis  
Representation of observation by numbers, numerical filtering, power spectra, automatic data processing. Pre: Math 301, or 403, or 431 or consent of instructor. (Alt. yrs.; offered 1967-68.)

**History (Hist)**

Professors Hunter, Hurwitz, D. Johnson, W. Johnson, Murphy, Nunn, Sakai, Sakamoto, Shinoda, Stein, Van Nieil, Vella, J. White; Associate Professors Akita, Cowing, Kwok, Margulies, Maurer, Newby, Saville; Assistant Professors Bernstein, Connors, Daws, Ernest, Ferguson, Kang, Lamley, Mammitzsch, J. McCutcheon, Morris, Rappson, Sharma, Winchester; Instructor Hooper

151-152  **WORLD CIVILIZATION (3-3) Yr.**  
Connors, Saville, Ferguson  
Development of civilization from its prehistoric origins to the present. Prerequisite for advanced courses. (Freshmen and sophomores only.)

161-162  **WORLD CULTURES IN PERSPECTIVE (3-3) Yr.**  
Bernstein, Mammitzsch  
Problems in world history; development of ideas, institutions. Alternative for 151-152. Consent of instructor required. (Freshmen only.)

181-182  **INTRODUCTION TO AMERICAN HISTORY (3-3) Yr.**  
Hunter, Cowing  
Interpretive survey of United States history from the earliest settlements to the present.

251-252  **FOUNDATIONS OF WORLD CIVILIZATIONS (3-3) Yr.**  
Winchester  
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 ASIA (3-3) Yr.**  
Sakai, Stein  
Historical survey of major civilizations of Asia from earliest times to the present with emphasis upon China and India and including Japan, Southeast Asia, and the impact of Islam in these areas.

377  **ECONOMIC HISTORY OF THE UNITED STATES (3) I**  
Cowing  
Emphasis on the role of techniques, agricultural developments, the entrepreneur and the rise of labor movement. Econ 150-151 recommended as preparation.
379 REPRESENTATIVE AMERICANS (3) II  
Series of biographical sketches of leading characters in American history from 
the Revolution to the present. (Not offered 1967–68.)

394–395 SENIOR HONORS THESIS (2–2) 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  
Rapson, McCutcheon, Hurwitz  
Critical analysis and evaluation of sources and methods of historical writing. Pre­
requisite for 397. Required for majors.

397 SENIOR TUTORIAL IN HISTORY (3) I, II  
Pre: 396.  
Research in a field of special interest. Required for majors, except those in Honors.

399 DIRECTED READING (arr.) I, II  
Staff  
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  
Maurer  
Study of history, art, and culture of Greece and Rome. Cross-listed with European 
languages department.

405–406 MEDIEVAL EUROPE, 300–1300 (3–3) Yr.  
Ernest  
Cultural, social, economic, and political changes in the development of the Euro­
pean community. (Not offered 1967–68.)

409 RENAISSANCE AND REFORMATION, 1300–1600 (3) I  
Ernest  
Ideas and institutions in the early period of commercial and national development.

410 EARLY MODERN EUROPE, 1600–1800 (3) II  
Ferguson  
Thought and culture of Europe in the age of expansion.

425 EUROPE IN THE 19th CENTURY (3) I  
Winchester  
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  
Winchester  
Problems of contemporary Europe and their historical background.

431–432 HISTORY OF ENGLAND (3–3) Yr.  
Bernstein  
Major trends in the development of English civilization from the origins to the 
contemporary period.

435 CONSTITUTIONAL HISTORY OF ENGLAND (3) I or II  
Ernest  
Anglo-Saxon institutions; Norman innovations; legal, administrative, parliamentary 
development under Angevins; rise of cabinet system. (Alt. yrs.; not offered 1967–68.)

439 AUSTRALIA AND NEW ZEALAND (3) I or II  
Murphy  
Major historical developments from colonization to independent nationhood; 
present problems and policies. (Alt. yrs.; offered 1967–68.)

441–442 EAST CENTRAL EUROPE (3–3) Yr.  
Saville  
General history of Poland, Danubian region, and Balkans from Middle Ages to 
the present. (Alt. yrs.; not offered 1967–68.)

443–444 HISTORY OF GERMANY (3–3) Yr.  
Saville  
Major political, social, economic, and intellectual trends in evolution of Germany. 
(Alt. yrs.; offered 1967–68.)
445-446 HISTORY OF FRANCE (3-3) Yr. Ferguson
Major political, social, economic, and intellectual trends in evolution of France.

451-452 HISTORY OF RUSSIA (3-3) Yr. White
Survey of development of Russian thought and institutions, and of territorial expansion. Impact of revolutionary changes.

455-456 EUROPEAN INTELLECTUAL HISTORY (3-3) Yr. Connors
Main currents of Western thought from end of Middle Ages to 20th century.

461 COLONIAL AMERICA TO 1790 (3) Cowing
Transit of European culture to North America; independence; Constitution.

462 THE YOUNG REPUBLIC; U.S. HISTORY 1789-1877 (3) II Newby
Emergence of nationalism and sectionalism; from Federalist Era to Civil War and Reconstruction.

463 THE AGE OF INDUSTRY; U.S. HISTORY 1877-1920 (3) I Margulies
Response to industrialism and emergence of United States as world power.

464 RECENT AMERICA; THE UNITED STATES SINCE 1920 (3) II W. Johnson
Triumph of internationalism and the welfare state, a political, economic, cultural and diplomatic survey.

471-472 DIPLOMATIC HISTORY OF THE UNITED STATES (3-3) Yr. D. Johnson, W. Johnson
History of American foreign policy and diplomacy.

475 CONSTITUTIONAL HISTORY OF THE UNITED STATES (3) II Margulies
Origins and development of Constitution from colonial times to present. (Alt. yrs.; offered 1967-68.)

481 AMERICAN THOUGHT AND CULTURE (3) I Hunter
Advanced course in American social customs, institutions and intellectual pursuits.

491 THE WEST IN AMERICAN HISTORY (3) I McCutcheon
Western expansion forces in development of economic, cultural and political trends of the nation. (Alt. yrs.; not offered 1967-68.)

492 THE SOUTH IN AMERICAN HISTORY (3) I or II Newby
Southern economic, social, intellectual and political development, with special attention to race relations.

493 THE CITY IN AMERICAN HISTORY (3) II McCutcheon
Urban growth as factor in the shaping of social, economic, political and cultural life in the United States. (Alt. yrs.; not offered 1967-68.)

511-512 HISTORY OF LATIN AMERICA (3-3) Yr. D. Johnson
Political, economic, and social development of the Latin-American republics from colonial times to the present. (Alt. yrs.; not offered 1967-68.)

527 RUSSIAN SIBERIA AND THE PACIFIC (3) I White
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 1967-68.)

529-530 HISTORY OF SOUTHEAST ASIA (3-3) Yr. Van Niel, Vella
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. Kwok
Course of Chinese civilization from the earliest times.
541–542 HISTORY OF JAPAN (3–3) Yr. Akita, Morris
Historical survey of Japanese culture, government, economics, institutions.

545–546 HISTORY OF KOREA (3–3) Yr. Kang
Detailed political, economic, and social survey of the history of Korea.

551–552 HISTORY OF SOUTH ASIA (3–3) Yr. Sharma
General historical survey of India, Pakistan, Ceylon, from the earliest times to present.

553 RUSSIAN CENTRAL ASIA AND THE CAUCASUS (3) I
White
Russia's expansion; impact on Mohammedan and Christian peoples; relations with Middle East and India. Asian or European credit. (Alt. yrs.; offered 1967–68.)

571 HISTORY OF OCEANIA (3) I or II Murphy
European impact and native response in the major groups, from exploration to exploitation to trusteeship. European or Pacific credit. (Alt. yrs.; offered 1967–68.)

575 THE UNITED STATES IN THE PACIFIC (3) I
D. Johnson
Growth of economic and political interests and policies in Pacific area. Interchangeable credit: Asian, Pacific or American.

577 HISTORY OF THE HAWAIIAN ISLANDS (3) II Hunter
General course with some detail. Emphasis on period of monarchy. Interchangeable credit: Asian, Pacific or American.

611 SEMINAR IN EUROPEAN HISTORY (3) I, II Staff

618 BRITISH EMPIRE AND COMMONWEALTH (3) II
Murphy
British Empire in modern times. (Alt. yrs.; not offered 1967–68.)

635 THE COLONIAL PERIOD IN AMERICAN HISTORY (3) I Cowing
Reading and research seminar in political, social and intellectual history.

636 SEMINAR IN 19TH CENTURY AMERICAN HISTORY (3) I Newby
Research in the Early National Period, Jacksonian democracy, Civil War and Reconstruction. Pre: 462 or equivalent.

637 THE PROGRESSIVE PERIOD IN AMERICAN HISTORY (3) I or II Margulies
Research in problems relating to the rise, character, and decline of the Progressive Movement, 1872–1924.

638 SEMINAR IN RECENT AMERICAN HISTORY (3) I W. Johnson
Research in U.S. history since World War I. Pre: 464 or equivalent.

640 SEMINAR IN AMERICAN SOCIAL AND INTELLECTUAL HISTORY (3) II Rapson
Research in history of American thought and culture.

641 SEMINAR IN AMERICAN DIPLOMATIC HISTORY (3) II D. Johnson
Selected problems in development of United States foreign policy and its implementation.

654 SEMINAR IN THE HISTORY OF MAINLAND SOUTHEAST ASIA (3) I, II Vella
655 SEMINAR IN THE HISTORY OF ISLAND SOUTHEAST ASIA (3) I, II
  Studies in the histories of the peoples and states of Malaysia, Indonesia, Philippines.

659–660 CHINESE INTELLECTUAL HISTORY (3–3) Yr.
  Intensive study in selected phases of history of Chinese thought and institutions.
  Pre: 581–532 or equivalent with consent of instructor. Knowledge of Chinese 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
  Stein, Sharma
  Selected problems and readings in history of India, and influence of Indian culture in southern Asia. Individual reports. (1) Ancient India. (2) South India. (3) Muslim India. (4) Modern South Asia.

665 SEMINAR IN JAPANESE HISTORY (3) I, II
  Akita, Sakai, Morris
  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
  Akita
  Bibliography, controversies and schools of thought among major Japanese political historians, selected topics and research papers. Reading knowledge of Japanese required. (Not offered 1967–68.)

667–668 JAPANESE INTELLECTUAL HISTORY (3–3) Yr.
  Shinoda

669–670 SEMINAR ON PRE-MODERN JAPAN c. 850–1800 (3–3) Yr.
  Morris
  Bibliography, research tools and special problems. Recent controversies among Japanese scholars. Reading knowledge of Japanese required.

671–672 SEMINAR IN RUSSIAN HISTORY (3–3) Yr.
  White

675 SEMINAR IN PACIFIC HISTORY (3) II
  Murphy
  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
  Hunter, Hurwitz
  Training in the evaluation of sources and the preparation of theses.

712 SEMINAR IN HISTORIOGRAPHY (3) II
  Hunter, Hurwitz
  The history of history and historians.

713 RESEARCH MATERIALS AND METHODS IN ASIAN HISTORY (3) I
  Nunn
  Training in bibliography and research methods in Asian history. Discussions and special problems.

714–715 CHINESE HISTORICAL LITERATURE (3–3) Yr.
  Lamlay

731 ADVANCED PROBLEMS AND READING IN AMERICAN HISTORY (3) II
  Staff
  Interpretations and literature of important problems of American history. (Not offered 1967–68.)
741–742 CHINA FROM CLASSICAL ANTIQUITY TO 750 (3–3) Yr. 
Detailed inquiry into the foundations and elaborations of the Chinese Tradition.
Pre: 551–532 or equivalent with consent of instructor. Open to seniors with consent of instructor. (Alt. yrs.; not offered 1967–68.)

Linguistics (Ling)

Professors Biggs, Elbert, Grace, McKaughan, Thompson; Associate Professor Bender; Assistant Professors Parker, Schutz, Starosta, Topping, Tsuzaki

202 GENERAL LINGUISTICS (3) I, II
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. Meets 4 hours weekly.

611 ACOUSTIC PHONETICS (3) II
Stream of speech analyzed according to its acoustic properties and their function within given languages, with attention to articulatory correlates. Use of sound spectrograph in specific problems. Pre: 610.

615 THE NATURE OF LANGUAGE (3) I
Language as a communication system, current theories of grammar, meaning sociolinguistics, linguistic change and comparison.

621 PHONEMICS (3) II
Survey of phonological theory with concentration on the principles of phonemic analysis and practice in problem solving. Pre: 610 and 620 or consent of instructor.

622 MORPHOLOGY AND SYNTAX (3) II
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 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.

650–651 ADVANCED LINGUISTIC ANALYSIS (3–3) Yr.
Advanced problems and discussion of theory, techniques, 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
Seminar dealing with the structures of languages of various areas of the world, topics depending on both resident and visiting staff specialties. Pre: 622. May be repeated.
720 SEMINAR IN APPLIED LINGUISTICS (3) I  
Application of linguistics to second language teaching through observation and analysis of classroom techniques as well as readings and discussions on current problems in applied linguistics. Open to advanced graduate students in TESL, linguistics and modern language departments. Pre: consent of instructor.

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  
Seminar for advanced students of both linguistics and anthropology, dealing with methods and their application to research in these fields, with concentration on the inter-relations between culture and language. Pre: consent of instructor.

800 THESIS RESEARCH (arr.)  

Mathematics (Math)

Professors Gregory, Hadley, Halmos, Kleinfeld; Associate Professors Davis, Groth, Jones, Mookini, Rogers, Sandler; Assistant Professors Clark, Griswold, Leahey, Mader, Slater, Strauss, Wong, Yeh; Instructors Bennet, Garcia, Koehler, Lim, Siu

001 ALGEBRA (0) I, II  
Elementary and intermediate algebra, emphasizing concepts of function, identity, and equation.

100 SURVEY OF MATHEMATICS (3) I, II  
To acquaint the non-specialist with the position of mathematics in modern culture. Open to freshmen and sophomores who have not earned credit in Math 134 or above.

111 INTRODUCTION TO MATHEMATICS (3) I, II  
A study of the structure and concepts of arithmetic. (Primarily for Education majors.)

134 PRE-CALCULUS MATHEMATICS (4) I, II  
Algebraic operations as applied to elementary functions and equations; graphs; trigonometric functions; lines and conics. Pre: Two years of high school algebra and one year of plane geometry or consent of department.

135 CALCULUS I (4) I, II  
Basic concepts, techniques of differentiation and integration of algebraic and trigonometric functions with applications. Pre: Math 134 or equivalent.

136 CALCULUS II (4) I, II  
Exponential, logarithmic and hyperbolic functions; techniques of integration; elements of three dimensional analytic geometry; multiple integration, infinite series; partial differentiation. Pre: Math 135 or equivalent.

201 FINITE MATHEMATICS (3) I, II  
Algebra of sets, elementary probability theory, vectors and matrices, linear programming, theory of games. Pre: Math 134 or equivalent.
231 MULTI-VARIABLE CALCULUS (3) I, II
Vector-oriented study of functions of several variables; elements of linear algebra, line and surface integrals, divergence and curl. Pre: Math 136.

232 ORDINARY DIFFERENTIAL EQUATIONS (3) I, II
First order equations; linear equations with constant coefficients; systems of equations, Laplace transforms; applications. Pre: Math 231.

301 INTRODUCTION TO NUMERICAL ANALYSIS (3) I
Iterative methods for algebraic problems, including convergence criteria and error analyses, interpolation, and numerical integration. Pre: Math 231 and 232. Math 311 recommended.

311 LINEAR ALGEBRA (3) I, II

321 ELEMENTARY TOPOLOGY (3) I, II
Sets, topologies, mappings. Continuity and convergence. Illustrations of the use of these concepts in analysis. Pre: Math 311 or consent of department.

351 FOUNDATIONS OF EUCLIDEAN GEOMETRY (3) I
Axiomatic Euclidean geometry and introduction to the axiomatic method. Pre: Math 231 or consent of department.

352 NON-EUCLIDEAN GEOMETRIES (3) II
Study of hyperbolic geometry and other non-Euclidean geometries. Pre: Math 351 or consent of department.

399 DIRECTED READING (arr.) I, II
Individual reading in advanced mathematics. Limited to senior math majors with 2.7 grade-point ratio, or 3.0 grade-point in mathematics.

402 PARTIAL DIFFERENTIAL EQUATIONS (3) I, II

403-404 METHODS IN HIGHER ANALYSIS (3-3) Yr.

406 DIFFERENCE METHODS FOR DIFFERENTIAL EQUATIONS (3) I
Finite differences, initial value problems for ordinary differential equations, finite difference methods for partial differential equations. Pre: Math 402 or 404 or equivalent.

412 ABSTRACT ALGEBRA (3) I, II
Introduction to basic algebraic structures including groups, rings, and fields. Pre: Math 311.

420 INTRODUCTION TO THE THEORY OF NUMBERS (3) I
Congruences, quadratic residue, arithmetic functions, distribution of primes. Pre: Math 311 or consent of department.

431-432 ADVANCED CALCULUS (3-3) Yr.
Topology of $\mathbb{R}^n$, theorems on continuous functions, development of the Riemann integral, sequences and series, uniform convergence, implicit function theorems, differentials and Jacobians. Pre: Math 232, 311.
441 NUMERICAL ANALYSIS (3) II
The theory of matrices in numerical analysis, norms, and convergence. Pre: Math 301 and 311 and either 431 or 403.

442 VECTOR ANALYSIS (3) II

444 THEORY OF FUNCTIONS OF A COMPLEX VARIABLE (3) II
Analytic functions, complex integration, introduction to conformal mapping. Pre: Math 431.

471 PROBABILITY (3) I

472 STATISTICAL INFERENCE (3) II
Sampling and parameter estimation, tests of hypotheses, correlation, regression, analysis of variance, sequential analysis, rank order statistics. Pre: Math 471.

599 TOPICS IN MATHEMATICS (3) I, II
(1) Theory of Groups, (2) Analytic Number Theory, (3) Hilbert Spaces. Pre: consent of instructor. (May be repeated once for credit.)

611–612 MODERN ALGEBRA (3–3) Yr.
Simplicity of the alternating groups, Sylow theorems, Jordan Holder theorem, unique factorization domains, Galois theory, algebraic closures, transcendence bases, modules over principal ideal rings, Dedekind domains. Pre: Math 412.

621–622 TOPOLOGY (3–3) Yr.
Properties of topological spaces; separation axioms, compactness, connectedness; metrizability; convergence and continuity. Additional topics from general and algebraic topology. Pre: Math 432.

631–632 THEORY OF FUNCTIONS OF A REAL VARIABLE (3–3) Yr.

644–645 ANALYTIC FUNCTION THEORY (3–3) Yr.
Conformal mapping, residue theory, series and product developments, analytic continuation, special functions. Pre: Math 432, 444.

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, Herzberg, Loh; Associate Professors Berger, Contois, Folsome, Gunderson, Hohl; Assistant Professor Siegel.

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.
151 GENERAL BACTERIOLOGY (4) I, II (3 L, 2 Lb)  
Fundamentals. Pre: Chem 104 or 106 or 107; 4 credits in biological or physical science. Recommended: Chem 141 or 144. Lectures only (3 credits) require instructor's approval.

361 IMMUNOLOGY (4) I (3 L, 2 Lb)  
Fundamentals of innate and acquired immunity; structure and biological actions of antigens and antibodies; and serology. Pre: 151; Chem 141 or 144; or consent of instructor.

362 MEDICAL MICROBIOLOGY (4) II (3 L, 2 Lb)  
Bushnell, Herzberg  
Infectious diseases of man and their diagnosis by laboratory methods. Pre: 361.

399 MICROBIOLOGICAL PROBLEMS (arr.) I, II  
Staff  
Directed reading and research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 in microbiology.

415 ADVANCED GENERAL BACTERIOLOGY (3) II (2 L, 2 Lb)  
Folsome  
Isolation, classification, and physiology of selected groups of bacteria. Pre: Chem 141 or 144.

531 MICROBIAL PHYSIOLOGY (3) I (2 L, 2 Lb)  
Gundersen  
Fundamentals of microbial physiology and metabolism; basic experimental techniques. Pre: Chem 141 or 144; or consent of instructor.

625 IMMUNOCHEMISTRY (4) II (3 L, 2 Lb)  
Benedict  
Chemical, physical, and biological properties of antigens and antibodies; and mechanisms of antigen-antibody reactions. Pre: Bioch 271 or 602; or consent of instructor.

632 ADVANCED MICROBIAL PHYSIOLOGY (3) II (2 L, 2 Lb)  
Berger  
Advanced techniques for the study of selected topics. Pre: 531; or consent of instructor.

642 MARINE MICROBIOLOGY (4) II (3 L, 2 Lb)  
Gundersen  
Microbial activities in the sea; taxonomy, ecology, and physiology of marine pelagic and benthic microorganisms. Pre: 415 or 531; Ocean 620, 621, 622, or 623; or consent of instructor.

655 VIROLOGY (2) II (2 L)  
Loh  
Basic concepts of animal virus-host cell interaction at the cellular level with consideration of the architecture, chemical composition, growth characteristics, tumorigenic potential, genetics, immunology and pathogenesis of the virion. Pre: 362, 625; Bioch 271 or 602; and consent of instructor.

657 VIRUS LABORATORY (3) II (2 Lb)  
Loh  
Special techniques used in the isolation, purification, identification and replication of animal viruses; emphasis on the use of animal tissue culture systems. Pre: 362, 625; Bioch 271 or 602; and consent of instructor.

661 ULTRASTRUCTURE OF MICROORGANISMS (3) I (3 L)  
Hohl  
Structural and molecular architecture of cell organelles; concepts of cellular integration. Pre: consent of instructor.

665 ELECTRON MICROSCOPY (2) II (2 Lb)  
Hohl  
Introduction to the use of the electron microscope and preparative techniques. Pre: 661; and consent of instructor.
671 MICROBIAL GENETICS (4) I (4 L) Folsom
Directed study and discussion of research literature dealing with bacterial and bacterial virus mutation, genetic recombination, variation, evolution, and control mechanisms. Pre: Bioch 271 or 602; and consent of instructor.

681 HOST-PARASITE RELATIONSHIPS (3) I (3 L) Herzberg
Mechanisms of pathogenicity of microorganisms; defense mechanisms of human and animal hosts; and relationships between pathogens and their hosts. Pre: 362.

690 SEMINAR (1) I, II Staff
Significant topics in microbiology. Required of graduate students. May be repeated.

695 SPECIAL TOPICS IN MICROBIOLOGY (arr.) I, II Staff
Selected topics in one of the following aspects of microbiology: Genetics, Host-parasite Relationship, Immunochemistry, Marine, Medical, Physiology, Ultrastructure, and Virology. Pre: consent of instructor. May be repeated.

699 DIRECTED RESEARCH (arr.) I, II Staff
Selected problems in microbiology. Pre: consent of instructor.

800 THESIS RESEARCH (arr.) Staff

Music (Mus)

Professors Rian, B. Smith, Vaught, Vine; Associate Professors Kerr, R. N. McKay, A. Russell; Assistants Professors Chadwick-Cullen, Herand, Lum, O. F. Paul, Pfeiffer, Trubitt, Uchima, Winkler; Instructors Ah Chan, Coraggio, Gillett, Wozl. Lecturers Alexander, Allton, Aral, Burton, Cullen, Culley, W. DeMello, Harling, Huhm, Mikami, Miyamura, L. Russell, Valentin

109 UNIVERSITY FIELD BAND (1) I, II Lum
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 Staff
Basic principles of voice production and elementary music skills in classes of twenty.

112 GROUP VOICE INSTRUCTION (1) I, II Staff
Continuation of 111. Pre: 111 or consent of instructor.

113-114 GROUP INSTRUCTION IN SECONDARY PIANO (1-1) I, II Ah Chan
Basic instruction on the piano as a secondary instrument. Music majors only.

115-116 GROUP INSTRUCTION IN SECONDARY PIANO (1-1) I, II Ah Chan
Continuation of 113-114.

117-118 INTRODUCTION TO MUSIC SKILLS (1-1) Yr. Staff
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 Staff
Elementary music skills including instruction on the ukulele. Not open to those who have had 150 or 117-118. (Not offered 1967-68.)

150 ELEMENTARY MUSICIANSHIP (3) I, II Staff
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.

165-166 HISTORY OF WESTERN MUSIC (3-3) Yr.  
Development of music from its origins to the present. Nationalities, schools, and composers. Pre: 160 or 181 or consent of instructor.

170 MUSIC IN WORLD CULTURE (3) II  
Role of music in societies—ancient and modern, sophisticated and non-sophisticated, Western and non-Western, child and adult. Representative styles and regional characteristics.

181-182 ELEMENTARY THEORY (2-2) Yr.  
Basic elements of 18th- and 19th-century music, including writing, analysis, and keyboard application. To be taken concurrently with 185-186.

183-184 INTERMEDIATE THEORY (2-2) Yr.  
Detailed theoretical study of music written since 17th century, including writing, analysis, and keyboard application. To be taken concurrently with 187-188 and 165-166. Pre: 182.

185-186 AURAL TRAINING (1) Yr.  
Systematic study of problems in the recognition and discrimination of musical sounds and their notation. Emphasis on sight singing. To be taken concurrently with 181-182.

187-188 ADVANCED AURAL TRAINING (1-1) Yr.  
Continuation of 185-186 with emphasis on dictation. Taken concurrently with 183-184. Pre: 186.

200 UNIVERSITY CHORUS (1) I, II  
3 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 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 major subject area is not music. Pre: 150 or 118; junior standing in education.

257-258 Conducting (1-2) 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
Kerr
Methods and materials for class and private instruction in piano. Pre: 182 or consent of instructor.

269 PIANO LITERATURE (2) I
Kerr
Survey of styles and forms of music for the piano and its forerunners. Pre: 198 (piano) or consent of instructor. (Not offered 1967–68.)

281 ORCHESTRATION (2) I
McKay
Arranging and composing for band, orchestra, and chamber groups. Pre: 152, 182, or consent of instructor.

394–395 SENIOR HONORS THESIS (4) Yr.
Staff

400 UNIVERSITY CONCERT CHOIR (1) I, II
Rian
Performances of a cappella literature and other major choral works including masses and cantatas. 3 hours a week. May be repeated for credit. Pre: audition or consent of instructor.

401 ENSEMBLE MUSIC (1) I, II
Staff
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
Winkler
Performance of orchestra literature. May be repeated for credit. Pre: audition or consent of instructor.

409 UNIVERSITY CONCERT BAND (1) I, II
Lum
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 (3) II
Staff
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
Winkler
Advanced playing, teaching techniques, and materials for string instruments. Pre: 152.

452 ADVANCED WOODWIND METHODS (2)
Uchima
Advanced playing, teaching techniques, and materials for woodwind instruments (41) flute, (42) oboe, (43) clarinet, (44) bassoon. May be repeated for credit. Pre: Music 155.

453 ADVANCED BRASS METHODS (2) II
Lum
Advanced playing, teaching techniques, and materials for brass instruments. Pre: 154.

455 ADVANCED PERCUSSION METHODS (2) I
L. Russell
Advanced playing, teaching techniques, and materials for percussion instruments. Pre: 155.
Credit in 160 or 181 or consent of instructor, is necessary for 461, 462, 463, 464, 470, 471.

461 SYMPHONIC MUSIC (2) I
Herand
Historical study of the symphony orchestra and its literature from Bach to the present.
462 CHORAL MUSIC (2) I
Historical study of choral literature from Palestrina to the present.

463 MUSIC OF THE ROMANTIC PERIOD (2) I
Emergence of the romantic style of the 19th century. Major composers. (Not offered 1967–68.)

464 CONTEMPORARY MUSIC (2) II
From Debussy to the present. Schoenberg, Bartok, Hindemith, Stravinsky, and contemporary American composers. (Not offered 1967–68.)

470 ART MUSIC OF ASIA (2) I
Aesthetic composition and performance practice as exemplified in representative major works.

471 MUSIC OF NON-LITERATE PEOPLES (3) II
Music of non-literate people and changes in musical style resulting from contact with Western culture. Emphasis on Pacific islands. Recordings, demonstrations, pictures, etc.

481 ADVANCED ORCHESTRATION (2) II
Arranging and composing for band, orchestra, and choral groups. Pre: 281.

482-484 COUNTERPOINT (2–2) I, II
Sixteenth and 18th century contrapuntal techniques and their implications for contemporary styles. Pre: 184. (Not offered 1967–68.)

485-486 FORM AND ANALYSIS (2–2) Yr.

487-488 COMPOSITION (2–2) I, II
Creative writing beginning with smaller forms. Pre: 184 or consent of instructor.

489-490 ADVANCED COMPOSITION (2–2) I, II
Creative writing in larger forms. Pre: 488 or equivalent.

491–492 MOVEMENT NOTATION (2–2) Yr.
Analysis and recording of movement through Labanotation; reconstruction of notated exercises and dances.

554 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.

580 THEORETICAL ASPECTS OF MUSICAL STYLE (3) II
Study of the theoretical concepts, and practices distinguishing the baroque, classical and romantic periods. Application in writing and listening. Pre: 182 and 466. (Not offered 1967–68.)

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.

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.

652 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.
657–658  ADVANCED CONDUCTING (2–2) I, II  
Practical experience with instrumental and choral groups, including public performance. Pre: 258.

660  STUDIES IN MUSIC LITERATURE (3) II  
Detailed study of music literature approached from various standpoints, i.e., the works of specific composers, forms, or periods. Pre: 166 or consent of instructor. May be repeated for credit.

661  BIBLIOGRAPHY AND RESEARCH METHODS IN MUSIC (3) I  
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) Asia, (2) Oceania. May be repeated for credit.

680  ADVANCED PROBLEMS IN MUSIC THEORY (2) I, II  
(1) Counterpoint, (2) form and analysis, (3) orchestration, (4) pedagogy, (5) transcription of performance practices. May be repeated for credit. Pre: graduate standing and 184 or equivalent.

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.

800  THESIS RESEARCH (arr.) I, II  

APPLIED MUSIC

Instruction is given in piano, organ, harpsichord, koto, 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.

Assignment to applied music courses is based on tests and auditions given by the department during the advising and registration period for new students.

Information regarding specific requirements in applied music courses may be obtained from the music department.

FEES PER SEMESTER

Class Instruction: Music 121 .................................$25.00
Music 122, 123 ....................................................no fee

Individual Instruction: One half-hour lesson per week........$55.00
Two half-hour lessons per week.........................$90.00

121  CLASS INSTRUCTION (1) I, II  
Class instruction at the beginning level in voice and Asian instruments.
122-123 CLASS PIANO INSTRUCTION (1–1) I, II
Class instruction at the beginning level in piano.

131 INDIVIDUAL INSTRUCTION (arr.) I, II
Voice, piano, organ, harpsichord, orchestral, Hawaiian chant, or Asian instruments. Non-music majors at freshmen-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 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 sophomore level. For prospective music majors. Pre: 136 or consent of instructor.

221 CLASS INSTRUCTION (1) I, II
Class instruction in voice or Asian instruments. Pre: 121 or consent of instructor.

231 INDIVIDUAL INSTRUCTION (arr.) I, II
Voice, piano, organ, harpsichord, orchestral, Hawaiian chant, or Asian instruments. Non-music 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 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 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, harpsichord, orchestral. Hawaiian chant, or Asian instruments at 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.

Oceanography (Ocean)

Professors Bader, Brock, Chave, Groves, Murphy, Wyrtki; Associate Professors Chamberlain, Stroup; Assistant Professors Clutter, Düng, Gallagher, Malahoff, Pasby

201 SCIENCE OF THE SEA (3) I, II
Chamberlain
Introduction to biological, geological, chemical and physical aspects of oceanography. Based on classroom lectures and use of oceanographic equipment and techniques at sea aboard ship and in near-shore zone.

620 PHYSICAL OCEANOGRAPHY (3) I
Wyrtki
Introduction to properties of sea-water, oceanographic instruments and methods, heat budget, general ocean circulation, formation of water masses, dynamics of circulation, regional oceanography, waves, tides, and sea level. Pre: Math 136.

621 BIOLOGICAL OCEANOGRAPHY (3) II
Brock
Marine organisms, factors governing productivity; distribution, ecology, environmental influences; marine resources, their availability and utilization. Desirable preparation: 620.
622 GEOLOGICAL OCEANOGRAPHY (3) II
Marine geological processes and forms, including ocean basin structure and geomorphology, near-shore processes, and marine sedimentation and stratigraphy. Pre: 620.

623 CHEMICAL OCEANOGRAPHY (2) I
Study of chemical processes in marine waters including composition of sea water, nutrients, extraction of materials, carbon dioxide systems. Desirable preparation: 620.

623 CHEMICAL OCEANOGRAPHY (2) I
Study of chemical processes in marine waters including composition of sea water, nutrients, extraction of materials, carbon dioxide systems. Desirable preparation: 620.

631 MARINE PHYTOPLANKTON (3) I (2, 1 3-hr Lb)
Identification, systematic morphology, distribution and abundance. Desirable preparation: 620. (Same as Bot. 631.)

632 LITTORAL GEOLOGICAL PROCESSES (3) I (2 3-hr Lb)
Geological processes and forms peculiar to the near-shore marine environment. Pre: 620, 622.

633 CHEMICAL OCEANOGRAPHY LABORATORY METHODS (2) I
Standard chemical methods of analysis. Pre: Chem 331 or consent of instructor.

636 PHYTOPLANKTON ECOLOGY (2) I (1 Lb)
Phytoplankton-environmental relations and community ecology; phytoplankton-zooplankton interactions; plankton community synecology. Pre: 620, 631 or consent of instructor.

640 ADVANCED PHYSICAL OCEANOGRAPHY (3) II
Dynamics of ocean currents; equations of motion and continuity; ocean circulation; heat budgets. Pre: 620, Math 402.

641 MARINE ZOOPLANKTON (1) I (1 3-hr Lb)
Systematic morphology, identification and classification of major groups of mid-Pacific zooplankton, exclusive of protozoa. Pre: Zool 205 or consent of instructor.

642 RECENT MARINE SEDIMENTS (3) II 2 3-hr Lb)

643 MARINE GEOCHEMISTRY (3) II

644 MARINE GEOLOGIC AND GEOPHYSICAL TECHNIQUES (3) I
Applications of established sea-borne geological and geophysical exploration techniques to study the composition and configuration of the ocean floor and the subbottom structure. Use of physiographic and structural interpretation techniques. Pre: 622 and consent of instructor.

646 ZOOPLANKTON ECOLOGY (3) I
Sampling, distributing patterns, population dynamics, community structure, and energy flow in the pelagic environment. Pre: consent of instructor; 620, 641.

651 DYNAMICS OF MARINE PRODUCTIVITY (3) II (2 3-hr Lb)
Primary productivity, its variation and methods of assessment; conversion of energy in food chains, ecosystems; factors affecting productivity. Pre: 621. (Same as Bot. 651.)

660 OCEAN WAVE THEORY (3) II
Generation and propagation of waves at sea; tsunamis; internal waves; observation and recording of ocean waves; wave spectra and forecasting. Pre: either 640, Math 492, or consent of instructor.
661 TIDES (3) I
Mechanics of particles and finite bodies; tide-generating forces; response of ocean and earth; harmonic and non-harmonic methods of analysis and prediction; geophysical implications of the tide. Pre: either 640, Math 432, or consent of instructor.

662 MARINE HYDRODYNAMICS (3) I
Introduction to classical hydrodynamics and the development of the Navier-Stokes equations as applied to the oceans. Techniques for solution on various scales of oceanic motion, including turbulence; potential theory, dimensional analysis, vertical integration, boundary effects and statistical representations. Pre: Math 432 or consent of instructor.

663 MEASUREMENTS AND INSTRUMENTATION (2) II
Oceanographic measurements; their accuracy and precision. Design principles, and operation of selected instruments for physical oceanography. Reduction and evaluation of measured data.

672 OCEAN BASINS (3) II
Origin, structure, and geomorphology of ocean basins. Pre: 622.

699 DIRECTED RESEARCH (arr.) I, II
Pre: approval of instructor.

701 NEKTON ECOLOGY (2) II
Relationship of larger ocean animals to physico-biological environment and to each other. Patterns of life history as related to environment, problems of exploitation, and response to exploitation. Pre: 641 and Zool 631 or consent of instructor.

735 SEMINAR IN OCEANOGRAPHY (2) I, II

750 TOPICS IN BIOLOGICAL OCEANOGRAPHY (2) I, II
Seminar. Literature and concepts in one of several active fields of biological oceanography considered in detail. May be repeated for credit. Pre: consent of instructor.

799 SEMINAR (1) I, II
Student presentations based on literature reviews and research. Pre: approval of graduate adviser.

800 THESIS RESEARCH (arr.) I, II

Overseas Career Program (OCP)
Professor Allison; Associate Director Hackler

601 INTERNSHIP IN AN ASIAN COUNTRY (3)
Active duty for at least 6 months (in many cases up to 12 months) with governmental or private agencies in Asia. Periodic and final reports required. Limited to candidates for the Overseas Career Certificate.

631–632 OVERSEAS CAREER TRAINING SEMINAR (3–3) Yr.
Interdisciplinary study of problems of Americans living and working in Asia with emphasis on the application of regional and individual country studies, and the practical aspects of the interaction of American and Asian cultures. Consideration of overseas career services, such as American Foreign Service, and study of case histories of specific positions available to Americans in various Asian countries. Open only to graduate students and required of all candidates for the Overseas Career Certificate.

See Graduate Division Bulletin for description of Overseas Career Program and requirements for the Overseas Career Certificate.
Philosophy (Phil)

Professors Chang, Deutsch, Kaplan, McCarthy, Nagley, Saksena; Associate Professor Inada; Assistant Professors Borrmann, Cheng, Resnik, Smaby, Wargo, Winnie, Yamasaki

One of the following is generally a prerequisite to each advanced course: 100, 110, 150, 155, 200 or the equivalent:

100 INTRODUCTION TO PHILOSOPHY (3) I, II
Problems, methods, and fields of philosophy.

110 INTRODUCTION TO ETHICS (3) I
Major philosophies and typical theories of the nature of the good life.

150 HISTORY OF PHILOSOPHY (3) I
Western philosophy from era of great Greek thinkers to Renaissance.

155 MODERN PHILOSOPHY (3) II
Western philosophy from Renaissance to present. Desirable preparation: 150.

200 INTRODUCTION TO LOGIC (3) I, II
Principles of modern deductive logic.

WESTERN

400 GREEK PHILOSOPHY (3) I
Basic philosophical works of schools and thinkers of Greek philosophy from Pre-Socratics to Neoplatonism.

402 MEDIEVAL PHILOSOPHY (3) I
Metaphysical, epistemological, ethical problems of medieval philosophy, with particular reference to Augustine, Anselm, Thomas Aquinas, Duns Scotus and William of Ockham.

404 BRITISH EMPIRICISM (3) II
Analysis of development of empiricism in writings of Locke, Berkeley and Hume. Special attention to concepts of substance, sensation, self, nature, causation, mathematics, morality, religion.

406 CONTINENTAL RATIONALISM (3) I
Epistemological, metaphysical, and ethical problems in Continental Rationalism. Particular attention to Descartes and Spinoza.

408 NINETEENTH CENTURY PHILOSOPHY (3) I
The major philosophical writings of German Idealists from Kant through Hegel and of Marx, Kierkegaard, Nietzsche and Freud.

410 TWENTIETH CENTURY PHILOSOPHY (3) I
Survey of recent developments in Western philosophy.

415 ETHICAL THEORY (3) I
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.

432 POLITICAL PHILOSOPHY (3) II
Combined systematic and historical approach to major problems of Western political philosophy. Special attention given to European political theory.
436 PROBLEMS OF PHILOSOPHY (3) II  
Persistent specific problems of philosophy, primarily those concerning nature, man, 
God.

450 SYMBOLIC LOGIC I (3) I  
Quantification theory. Pre: 200 or permission of instructor.

460 PHILOSOPHY OF THE PHYSICAL SCIENCES (3) I  
Systematic study of methods and procedures of reliable knowledge in the formal 
and natural sciences.

465 PHILOSOPHY OF THE SOCIAL SCIENCES (3) II  
Substantive and methodological problems in current analyses of the social sciences.

470 AMERICAN PHILOSOPHY (3) I  
Major trends in development of American philosophy in relation to socio-political 
background and influence.

500 PHILOSOPHY OF ART (3) I  
Study of art from 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.

520 EXISTENTIAL PHILOSOPHY (3) II  
Survey of main themes of European existential philosophy. Particular attention 
to Kierkegaard and Heidegger.

ASIAN AND COMPARATIVE

420 INDIAN PHILOSOPHY (3) I  
Philosophical systems and movements: Vedas, Upanishads, Six systems of Hinduism, 
Charvaka, Jainism, Buddhism.

422 BUDDHIST PHILOSOPHY (3) I  
Survey of basic schools and tenets of Buddhist philosophy.

424 CHINESE PHILOSOPHY (3) I  
Historical survey of important philosophical schools and tendencies in China, an­ 
cient and modern.

565 PHILOSOPHY, EAST AND WEST (3) I  
Basic systems and methods of Eastern and Western philosophy, with special atten­ 
tion to similarities and contrasts.

For Graduates

Pre: graduate standing; consent of instructor. All seminars may be repeated.

WESTERN

600 INDIVIDUAL WESTERN PHILOSOPHERS (3) I, II  
(a) Plato, (b) Aristotle, (c) Thomas, (d) Kant, (e) Hegel, (f) Kierkegaard.
605 PHILOSOPHY OF LANGUAGE (3) II
Cheng
Concepts of meaning, truth, existence, reference, predication and quantification; analysis of analyticity and modalities, with applications to philosophy, science and art.

610 SYMBOLIC LOGIC II (3) II
Staff

615 PHILOSOPHY OF MATHEMATICS (3) II
Resnik
Philosophical problems concerning mathematics—mathematical truths, axioms and proof. Emphasis on contemporary research on foundations of mathematics. Pre: 610 or 12 credits in mathematics.

699 DIRECTED RESEARCH (arr.) I, II
Staff
(a) Greek philosophy, (b) modern classical philosophy, (c) contemporary philosophy. Available to advanced graduate students; may be repeated; consent of instructor and chairman required.

735 SEMINAR IN ANCIENT-MEDIEVAL PHILOSOPHY (3) I
Staff

740 SEMINAR IN MODERN CLASSICAL PHILOSOPHY (3) I, II
Nagley

745 SEMINAR IN CONTEMPORARY PHILOSOPHY (3) I, II
Staff

750 SEMINAR IN PHILOSOPHY OF SCIENCE (3) I
Winnie

ASIAN AND COMPARATIVE

601 INDIVIDUAL ASIAN PHILOSOPHERS (3) I, II
Staff
(a) Ramanuja-Shankara, (b) Confucius, (c) Chuang Tzu, (d) Nagarjuna, (e) Nishida.

630 VEDANTA (3) I
Saksono
The development and the many facets of Vedanta will be examined in their richness and complexity.

635 INDIAN SOCIAL PHILOSOPHY (3) II
Saksono
Basic codes of Indian moral and social philosophy (Dharma-sastras) and their historical developments and their practical significance.

640 THERAVADA BUDDHIST PHILOSOPHY (3) II
Inada
Analysis of early Buddhist conceptions of the nature of man. Pre: 422; consent of instructor.

641 MAHAYANA BUDDHIST PHILOSOPHY (3) II
Inada, Wargo
Basic principles and major schools. Emphasis upon Indian, Chinese, and later Japanese developments. Pre: 422; consent of instructor.

642 ZEN PHILOSOPHY (3) I
Chang, Inada
Origin and development of Zen; influence on Oriental cultural traditions and contemporary scene. Pre: 422; consent of instructor.

650 CONFUCIANISM (3) I
Chang
Doctrinal, ethical, social and institutional problems from Confucius to the present. Pre: 424; consent of instructor.

651 NEO-CONFUCIANISM (3) II
Chang
Examination of logic, theory of knowledge, metaphysics, and ethics of major Chinese Neo-Confucian philosophers in period from 11th to 16th century.
652 TAOISM (3) II
Study and analysis of the philosophical ideas of Lao Tze, Chuang Tzu, and later Neo-Taoists.

699 DIRECTED RESEARCH (arr.) I, II
(d) Indian philosophy, (e) Buddhist philosophy, (f) Chinese philosophy, (g) East-West philosophy. Available to advanced graduate students; may be repeated; consent of instructor and chairman required.

760 SEMINAR IN INDIAN PHILOSOPHY (3) I, II
Deutsch, Saksena

770 SEMINAR IN BUDDHIST PHILOSOPHY (3) I, II
Chang, Inada

780 SEMINAR IN CHINESE PHILOSOPHY (3) II
Chang, Cheng

790 SEMINAR IN COMPARATIVE PHILOSOPHY (3) II
Deutsch

Physics (Phys) and Astronomy (Astr)

Senior Professor K. WATANABE; Professors HENKE, HOLMES, JEFFERIES, ORRALL, PETERSON, SINTON, STEIGER, S. F. TUAN, M. S. WATANABE, ZIRKER; Associate Professors BONSACK, CENCE, McALLISTER, PONG; Assistant Professors DOBSON, HEE, NOSE, PETERS, STENGER, BOESGAARD, HAYES

Mathematics 231 and Physics 160–161 or 170–173 are prerequisites to all courses numbered 300 or above.

100 SURVEY OF PHYSICS (3) I, II
Introduction to physics; basic concepts. Not open to those with previous college physics experience.

101 LABORATORY (1) I, II
Simple experiments in basic concepts of physics. Pre: concurrent enrollment in 100.

110–111 ASTRONOMY (4–3) Yr. (3 L, 1 Lb) 1st semester
Staff
Introduction to nature of astronomical universe with much emphasis on scientific method and development of scientific thought. Laboratory in first semester develops some familiarity with observational techniques and affords an opportunity for some actual observing. Pre: Math 102 or high school trigonometry.

140 ELEMENTARY PRINCIPLES OF SOUND (2) II
Study of the principles 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. (3 L, 1 Lb)
Nose
Fundamental principles, theories, experimental methods. Pre: Math 102 and credit or registration in Math 134.

164 ELEMENTARY MODERN PHYSICS (4) I
Pong
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: 161 or equivalent, Math 136.

170 GENERAL PHYSICS (3) I, II
Henke
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.

172 GENERAL PHYSICS (3) I, II  
Fundamental laws of electricity and magnetism and their applications. Pre: 170, 171.

173 GENERAL PHYSICS LABORATORY (1) I, II (1 3-hr. Lb)  
Experiments in heat, electricity, and magnetism. Pre: credit or registration in 172.

174 GENERAL PHYSICS (4) I, II  
Heat, light, and modern physics. Pre: 172 and 173, or 161; credit or registration in Math 291.

175 GENERAL PHYSICS LABORATORY (1) I, II (1 3-hr. Lb)  
Experiments in light and modern physics. Pre: credit or registration in 164 or 174.

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 I (3) I  
Particle dynamics, rigid body, statics, rigid body dynamics, planetary motion.

311 THEORETICAL MECHANICS II (2) II  
Rigid body mechanics (cont.), fields, fluid dynamics, wave motion, the Lagrangian and Hamiltonian methods. Pre: 310.

350 ELECTRICITY AND MAGNETISM (3) I, II  
Experimental laws, field theory, and mathematical application to special problems. Pre: credit or registration in Math 292.

399 INDIVIDUAL WORK IN ADVANCED PHYSICS (arr.) I, II  
Limited to senior majors with 2.7 grade-point ratio or 3.0 in physics.

440 PHYSICAL ELECTRONICS (3) I, II  
Theory of electronic phenomena in solids. Pre: 174 or 164, credit or registration in 350.

460 PHYSICAL OPTICS (3) II  
Geometrical and physical optics. Pre: 164 or 174, 350.

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 164; 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.

540 QUANTUM ELECTRONICS (3)  
Basic physical concepts of absorption, stimulated emission, and spontaneous emission, with special emphasis on interaction of radiation with gases and solids. Pre: Phys 440 and Math 402 or equivalent.
550 ELECTROMAGNETIC WAVES (3) II
Field equations, plane and spherical waves, and guided waves. Pre: 350.

600–601 METHODS OF THEORETICAL PHYSICS (3–3) Yr.
Study of the mathematical tools of physics, including series, transcendental functions, Fourier and Laplace transforms, integral equations, Green's functions, Group theory. Emphasis 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

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. (Alt. yrs.)

621 STELLAR ATMOSPHERES I (3) I
Excitation, ionization, dissociation and radiative transfer in stellar atmospheres. Model atmospheres. Elements of continuum and line formation. Interpretation of stellar spectra. Pre: 530, 480, 600.

622 STELLAR ATMOSPHERES II (3) II
Detailed theory of the formation of spectrum lines and continuum. Pre: 621.

623 STELLAR INTERIORS AND EVOLUTION (3) II
Equilibrium structure of stars and their evolution in time. Interpretation of the observed color-luminosity and mass-luminosity and mass luminosity relations. Nuclear reactions, radiative opacity, convection and model star calculations. Pre: 481, 600.

624 SOLAR PHYSICS (3) I
Chromospheres and coronal physics, solar activity and its manifestations, photospheric structure, analysis of solar observations. Pre: 621.

625 MODERN ASTROPHYSICS I (3) II
Broad survey course covering such topics as stellar atmosphere, 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 625. The sun and planets, interstellar medium galactic structure and evolution. Pre: 625.

627 GALACTIC STRUCTURE I (3) I
628 GALACTIC STRUCTURE II (3) II  
Dynamics of star clusters, galaxies, and systems of galaxies. Dynamics of interstellar medium. Pre: 627.

629 ASTRONOMICAL TECHNIQUES (3) II  

630 STATISTICAL MECHANICS (3) I  
Probability and statistics, classical and quantum-mechanical statistical mechanics, relation to thermo-dynamical variables, applications. Pre: 530, 610, 670. (Alt. yrs.)

632 ASTRONOMICAL SPECTRA (3) II  
Description and interpretation of spectra of such objects as: stars with extended atmospheres, planetary and gaseous nebulae, H II regions, novae. Pre: 621.

633 SPECIAL TOPICS IN ASTRONOMY (3) I, II  
Course content to reflect special interest of staff and visiting faculty but to include detailed discussion of such topics as planetary astronomy, stellar pulsation, cosmology, interstellar medium, variable stars. Pre: consent of instructor.

650 ELECTRODYNAMICS I (3) II  

651 ELECTRODYNAMICS II (3) I  

660 ADVANCED OPTICS (3) I  
Wave motion, interference, diffraction, fundamentals of spectroscopy, optics from the point of view of electromagnetic theory, lasers. Pre: 460. (Alt. yrs.)

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 or Phys 600.

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) II  
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. (Alt. yrs.)

685 SOLID STATE THEORY (3) I  
Crystalline state, lattice vibration, lattices defect, ferroelectrics, ionic crystals, theory of metals, band theory, semiconductors. Pre: 440, 670. (Alt. yrs.)
690 SEMINAR (1) I, II Holmes
Discussions and reports on physical theory and recent development. Pre: graduate standing or consent of the chairman.

695 SEMINAR ON ATOMIC AND SOLID-STATE PHYSICS (1). Holmes
Discussions and reports on recent development of atomic and solid-state physics. May be repeated for credit. Pre: graduate standing or consent of chairman.

699 DIRECTED RESEARCH (arr.) I, II Staff
Pre: consent of instructor.

700 SEMINAR ON ELEMENTARY PARTICLE PHYSICS (1) I, II Peterson
Report and discussion of recent developments in the field of elementary particle physics. Pre: consent of instructor. (May be repeated for credit for a maximum of 4 semesters.)

710 QUANTUM THEORY OF FIELDS (3) II Tuan
Quantization of the electromagnetic field; formal and phenomenological meson theories, with applications to elementary particle physics; general relativity. Pre: 611, 651, 671. (Alt. yrs.)

800 THESIS RESEARCH (arr.) I, II Staff

Political Science (PolSc)

Professors Friedman, Kariel, Levi, Meller, Riggs, Spellacy, Stauffer; Associate Professors Becker, Cahill, Goldstein, Kuroda, Miwa, Rummel; Assistant Professors Alschuler, Haas, Lee, Neff, Shapiro, Tabb

110 is a prerequisite for all other courses, except when waived by the department.

110 INTRODUCTION TO POLITICAL SCIENCE (3) I, II Staff
Introduction to political problems, systems, ideologies, and processes.

210–211 AMERICAN GOVERNMENT CORE (3–3) I, II Miwa, Shapiro, Tabb
Organization and functioning of the American political system.

215 TOPICS IN AMERICAN GOVERNMENT (3) Staff
Topics may include American legislative process and American civil liberties, as pre-announced.

300–301 POLITICAL THOUGHT CORE (3–3) I, II Goldstein, Kariel, Shapiro, Tabb
Consideration of major elements of political theory.

305 TOPICS IN POLITICAL THOUGHT (3) Staff
Topics may include empirical theory, regional political thought, and modern ideologies, as pre-announced.

Integrated introduction to international relations and organization. (320 prerequisite for 321 unless waived by department.)

325 TOPICS IN INTERNATIONAL RELATIONS (3) Haas, Lee, Levi, Neff, Rummel
Topics may include global and regional organizations, comparative foreign policies, international relations of the Far East, South and Southeast Asia, as pre-announced.

330–331 POLITICS CORE (3–3) I, II Cahill, Goldstein
Genesis, organization, expression, efficacy of political demands.
335 TOPICS IN POLITICS (3)  
Topics may include campaigns and elections, propaganda and public opinion, and community politics, as pre-announced.

340-341 COMPARATIVE GOVERNMENT AND POLITICS CORE (3-3) I, II  
Alschuler, Kuroda, Stauffer  
Integrated introduction to comparative political institutions and patterns.

345 TOPICS IN COMPARATIVE GOVERNMENT AND POLITICS (3)  
Alschuler, Kuroda, Stauffer  
Topics may include Asian governments, other areas and regional problems, as pre-announced.

350-351 PUBLIC ADMINISTRATION CORE (3-3) I, II  
Friedman, Meller  
Integrated introduction to public organization and management theory, administrative institutions and processes. (350 prerequisite for 351.)

355 TOPICS IN PUBLIC ADMINISTRATION (3)  
Friedman, Meller, Riggs  
Topics may include problems of policy and techniques of implementation, as pre-announced.

360-361 COURTS AND POLITICS CORE (3-3) I, II  
Becker  
Integrated introduction to interrelationship between judicial process and political system. (360 prerequisite for 361.)

365 TOPICS IN COURTS AND POLITICS (3)  
Becker  
Topics may include cases concerned with due process of law, interstate commerce, etc., and administrative law, as pre-announced.

390, 391 COLLOQUIUM IN POLITICAL SCIENCE (3) I, II  
Staff  
Seminar dealing with specialized subjects in subfields of political science. (Admission by consent of instructor only.)

394-395 SENIOR HONORS THESIS (4) I, II  
Staff  
First semester, selection of topic; second semester, completion of thesis, under direction of selected adviser.

600 SCOPE AND METHODS OF POLITICAL SCIENCE (3) I, II  
Staff  
Main concepts delineating boundaries of discipline; approaches to knowledge employed by political scientists, including philosophical, legal, historical, comparative, behavioral. (Required for all degree students.)

601 POLITICAL ANALYSIS, THEORY BUILDING AND TECHNIQUES (3)  
Staff  
Anatomy of empirical and normative theory; problems in theory-building; validity and reliability in research design; role of deduction. (Required for doctoral students.)

602 RESEARCH PRACTICUM (3)  
Staff  
Research techniques in current use by department members, including content analysis, survey and interviewing, experimentation, etc. Students will assist in a relevant research project. (Offered as staff conditions permit.)

610 POLITICAL THOUGHT (3) I, II  
Goldstein, Kariel, Shapiro, Tabb  
Each semester a topical or chronological section on normative Western political thought; in addition, sections with geographical delimitation (as American, Asian, etc.) offered as staff conditions permit.

620 AMERICAN GOVERNMENT (3) I, II  
Miwa, Shapiro, Tabb  
At least one section a semester, with focus of sections varying among national, state, and local governments, and special topics.
630 INTERNATIONAL RELATIONS (3) I, II
Haas, Lee, Levi, Neff, Rummel
At least one section a semester, with focus of sections varying among foreign policy, international law, theoretical problems in international relations, and global or regional organization.

631 INTERNATIONAL RELATIONS OF ASIA (3) I, II
Lee, Levi
At least one section a semester on international relations of all or parts of Asia.

640 COMPARATIVE GOVERNMENT AND POLITICS (3) I, II
Alschuler, Kuroda, Stauffer
At least one section a semester, with focus of sections varying among East Asia, Southeast Asia, South Asia, Europe, and development politics. (Frequent offerings of Asian sections will be scheduled.)

650 PUBLIC ADMINISTRATION THEORY (3) I, II
Friedman, Meller, Riggs
One section each semester, with focus of sections varying among theoretical approaches to study of administration, comparative, and development administration.

651 FUNCTIONAL ASPECTS OF PUBLIC ADMINISTRATION (3)
Staff
Sections on functional aspects of American administration (personnel and financial administration, planning, etc.) offered as staff conditions permit.

660 PUBLIC LAW AND JUDICIAL SYSTEMS (3)
Becker
At least one section a year surveying the literature on interaction of judiciaries and political systems.

670 POLITICS (3)
Cahill, Goldstein, Shapiro
At least one section a year surveying the literature on the study of politics and political interaction.

699 DIRECTED READING AND RESEARCH (arr.) I, II
Staff
Individual problems. Pre: consent of instructor.

710* SEMINAR: POLITICAL THOUGHT (3)
Goldstein, Kariel, Shapiro
Pre-announced topics; at least one section a year.

720* SEMINAR: AMERICAN GOVERNMENT (3)
Miwa, Shapiro, Tabb
Pre-announced topics; at least one section a year.

730* SEMINAR: INTERNATIONAL RELATIONS (3) I, II
Haas, Lee, Levi, Neff, Rummel
Pre-announced problems of both international organization and politics; at least one section a semester.

740* SEMINAR: COMPARATIVE GOVERNMENT AND POLITICS (3) I, II
Alschuler, Kuroda, Stauffer
Pre-announced topics; at least one section a semester.

750* SEMINAR: PUBLIC ADMINISTRATION (3) I, II
Friedman, Meller, Riggs
Administrative theory, comparative and development administration, and functional aspects, as pre-announced; at least one section a semester.

760* SEMINAR: JUDICIAL SYSTEMS (3)
Becker
Research projects emphasizing American system or comparative analysis, as pre-announced; at least one section a year.

770* SEMINAR: POLITICS (3)
Cahill, Goldstein
Pre-announced topics; at least one section a year.

800* THESIS I, II
Staff
*Consent of instructor prerequisite. Seminars may be repeated for credit.
Psychology (Psy)

Professors Arkoff, Bitner, Crowell, Diamond, Digman, Dole, Oakes, Staats, Weaver; Associate Professors Herman, Suinn; Assistant Professors Ames, Blanchard, Carlson, Griffitt, Mansson, Moely, Ono, Townsend

100 SURVEY OF PSYCHOLOGY (3) I, II
Principles of human behavior, individual differences, motivation, emotion, perception, learning, etc. Not open to those who have had 111; intended for non-majors.

110 PSYCHOLOGY OF ADJUSTMENT (3) I, II

111 INTRODUCTION TO THE SCIENCE OF PSYCHOLOGY (3) I, II
General study of behavior through application of the scientific method. Concurrent enrollment in 112 required.

112 INTRODUCTORY LABORATORY IN PSYCHOLOGY (3) I, II
Laboratory to accompany 111.

113 STATISTICAL TECHNIQUES (3) I, II
Frequency distributions; graphic methods, central tendency; variability; correlation; reliability; tests of significance. Pre: two years of high school algebra or equivalent. Pre: 111, 112.

214 LEARNING AND MOTIVATION (3) II
Major conditions influencing learning and forgetting; the role of practice, reward, motivation, drive and emotion; theoretical interpretations of learning and motivation. Pre: 111, 112.

215 SENSORY PROCESSES (3) II
Psychophysics; vision, audition, taste; smell. Pre: 111, 112, 113.

216 INDIVIDUAL DIFFERENCES AND MEASUREMENT (3) I, II
Individual differences in personality, aptitude, intelligence; construction, validation, and administration of tests; interpretation of scores. Pre: 111, 112.

317 PHYSIOLOGICAL PSYCHOLOGY (3) I
Psychological basis of vision, audition, motivation, emotion, and learning. Pre: 111, 112.

318 ANIMAL PSYCHOLOGY (3) I
Animal studies in learning, perception, motivation, physiological mechanisms. Pre: 111, 112.

319 EXPERIMENTAL PSYCHOLOGY (3) II
Original experiments with emphasis upon laboratory techniques. Control of variables, apparatus design, and statistics in research. Pre: 111, 112, 113.

320 DEVELOPMENTAL PSYCHOLOGY (3) I, II
Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels. Pre: 100 or 111.

321 PSYCHOLOGY OF PERSONALITY (3) II
The scientific study of personality, its meaning, assessment, development, and relation to cultural-social determinants. Pre: 100 or 111.
322 SOCIAL PSYCHOLOGY (3) I
Staff
Interpersonal relations; social attitudes; group dynamics; intergroup relations; class and cultural influences. Pre: 100 or 111.

423 HISTORY OF PSYCHOLOGY (3) II
Staff
Background of modern psychology. Origin and development of contemporary points of view. Pre: 111, 112.

424 ABNORMAL PSYCHOLOGY (3) II
Staff
Nature and causes of psychoneuroses and psychoses; abnormalities of intelligence; psychotherapy. Pre: 100 or 111.

425 PSYCHOLOGICAL TESTING (3) I
Staff
Rationale of test construction and validation, and administration; fundamentals of statistical test theory. Pre: 216.

426 INDUSTRIAL PSYCHOLOGY (3) I
Staff
Job motivation, satisfaction, morale, leadership. Job analysis, selection, training, safety, fatigue, efficiency, human engineering. Consumer research. Pre: 100 or 111.

427 THE EXCEPTIONAL CHILD (3) II (odd numbered years)
Staff
Evaluation of physical, emotional, and intellectual deviations and their effects upon growth and development of children. Pre: 320.

428 SOCIAL DEVELOPMENT OF CHILDREN (3) II (even numbered years)
Staff
Survey of the socialization process and acquisition of social behavior. Pre: 320.

429 SENIOR MAJORS SEMINAR (3) I, II
Staff
Coverage in depth of some area of research and theory. May be repeated. Pre: consent of instructor.

499 DIRECTED READING OR RESEARCH (3) I, II
Staff
Pre: consent of instructor and department chairman.

600 SEMINAR (3) I, II
Staff
(1) General, (2) history and theory, (3) statistics and measurement, (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
Staff
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
Staff
Major theoretical problems in psychological science, treated from various viewpoints, but with 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
Staff
Basic concepts and techniques in psychological statistics and research design.

621 QUANTITATIVE METHODS II (3) II
Staff
Advanced statistical techniques, including analysis of variance. Pre: 620.

626 QUANTITATIVE METHODS III (3) I
Staff
Scaling theory, test theory, factor analysis. Pre: 620, 216 or consent of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>630</td>
<td>EXPERIMENTAL PSYCHOLOGY I (3) I</td>
<td>Advanced techniques and research procedures, with central focus on problems of learning, problem solving, etc.</td>
</tr>
<tr>
<td>631</td>
<td>EXPERIMENTAL PSYCHOLOGY II (3) II</td>
<td>Advanced techniques and research procedures, with central focus on problems of perception, motivation, or other basic topics.</td>
</tr>
<tr>
<td>650</td>
<td>DEVELOPMENTAL PSYCHOLOGY I (3) I</td>
<td>Theoretical movements and research in child and adolescent psychology.</td>
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<tr>
<td>652</td>
<td>DEVELOPMENTAL PSYCHOLOGY II (3) II</td>
<td>Theoretical movements and research in the psychology of maturity and old age.</td>
</tr>
<tr>
<td>660</td>
<td>PERSONALITY (3) II</td>
<td>Theory and research in personality, with emphasis upon primary sources, such as Freud, Jung, Adler, Rogers, Murray, Lewin, Murphy. Prerequisite: 321 or equivalent.</td>
</tr>
<tr>
<td>662</td>
<td>SOCIAL PSYCHOLOGY (3) II</td>
<td>Methods and objective verification of hypotheses; interpersonal relations, group structure and process, social conflict, propaganda, etc.</td>
</tr>
<tr>
<td>670</td>
<td>APPLIED SOCIAL PSYCHOLOGY (3) II</td>
<td>Survey of basic problems in the use of social psychological principles and techniques in the fields of human relations, business and industry, and communication.</td>
</tr>
<tr>
<td>678</td>
<td>PSYCHOLOGY OF OCCUPATIONS (3) II</td>
<td>Vocational development, determinants of career choice, personality correlates, job requirements and human disabilities, vocational guidance.</td>
</tr>
<tr>
<td>682</td>
<td>PSYCHOLOGICAL APPRAISAL (A) (3) I</td>
<td>Introduction to clinical study of the individual. Appraisal theory and practice. Emphasis on individual intelligence tests. Prerequisite: 216; consent of instructor.</td>
</tr>
<tr>
<td>683</td>
<td>PSYCHOLOGICAL APPRAISAL (B) (3) II</td>
<td>Advanced clinical study of individual. Emphasis on projective and other personality measures. Prerequisite: 682; consent of instructor.</td>
</tr>
<tr>
<td>684</td>
<td>PSYCHOLOGICAL APPRAISAL (C) (3) I, II</td>
<td>Field experience in appraisal. Prerequisite: 682; consent of instructor. May be repeated.</td>
</tr>
<tr>
<td>699</td>
<td>DIRECTED RESEARCH (arr.) I, II</td>
<td>Pre: consent of instructor and department chairman.</td>
</tr>
<tr>
<td>730</td>
<td>RESEARCH IN EXPERIMENTAL PSYCHOLOGY (1–3) I, II</td>
<td>Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.</td>
</tr>
<tr>
<td>750</td>
<td>RESEARCH IN DEVELOPMENTAL PSYCHOLOGY (1–3) I, II</td>
<td>Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.</td>
</tr>
<tr>
<td>760</td>
<td>RESEARCH IN PERSONALITY (1–3) I, II</td>
<td>Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.</td>
</tr>
<tr>
<td>762</td>
<td>RESEARCH IN SOCIAL PSYCHOLOGY (1–3) I, II</td>
<td>Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.</td>
</tr>
</tbody>
</table>
779 PSYCHOLOGY OF REHABILITATION (3) II

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: 216; 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 variety of cases and in variety of settings. Pre: 783; consent of instructor. May be repeated.

**Religion (Rel)**

Associate Professors Aoki, Bobilin, Seifert; Assistant Professor Crawford

150 INTRODUCTION TO STUDY OF RELIGION (3) I, II
Aoki, Bobilin
Introduction to world’s living religions—Hinduism, Buddhism, Shinto, Confucianism, Taoism, Judaism, Christianity, Islam.

151 RELIGION AND THE MEANING OF EXISTENCE (3) I, II
Staff
Introduction to 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) II
Seifert
Study of developing beliefs and practices of Hebrew religion as set forth in Old Testament. Emphasis on meaning of its faith for modern world.

201 UNDERSTANDING THE NEW TESTAMENT (3) I
Crawford

309 THE LIFE AND TEACHINGS OF JESUS (3) II
Crawford
Critical study of the life and teachings of Jesus. Interpretation of meaning of Jesus Christ for Christian faith.

310 THE PROPHETS AND SAGES OF THE OLD TESTAMENT (3) I
Seifert
Prophetic and wisdom literature of Old Testament. (Not offered 1967–68.)

321 GREAT PERSONALITIES IN CHRISTIANITY (3) II
Crawford
Examination of lives and thought of some outstanding representatives. (Not offered 1967–68.)

340 WESTERN RELIGIOUS THOUGHT TO 1492 (3) I
Crawford
Ideas of major religious thinkers and movements in Western world to 1492; evaluation of Roman Catholicism. (Not offered 1967–68.)

341 WESTERN RELIGIOUS THOUGHT FROM 1500 (3) II
Crawford
Period of Protestant Reformation to present, with evaluation of Protestant movement. (Not offered 1967–68.)
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.

451 EXISTENTIAL INTERPRETATION OF BIBLICAL FAITH (3) II
   Interpretation of Biblical faith on basis of critical theological thought and existential analysis with reference to the visual arts and literature.

471 CHRISTIAN THOUGHT IN CONTEMPORARY ASIA (3) I
   Study of Asian contributions in field of Christian theology, with special emphasis on Indian and Japanese Christian thinkers. (Not offered 1967-68.)

482-483 THE HISTORY OF LIVING RELIGIONS (3-3) Yr.
   482: Basic beliefs and practices of Hinduism, Confucianism, Taoism, Buddhism, Shintoism. 483: Judaism, Roman Catholicism, Protestantism, their history, beliefs, contributions. Semesters are independent.

486 CHRISTIAN ETHICS (3) I
   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)

Professor Weaver; Associate Professor Matson; Instructor Geschwind, Springfi.

300-301 MAN IN SOCIETY (3-3) Yr.
   Some basic problems and processes of contemporary society, jointly examined by the several social sciences. Pre: sophomore standing or consent of instructor.

Sociology (Soc)

Senior Professor Lind; Professors Ball, Cheng, Glick, Hormann, Yamamura; Associate Professors Barringer, Bloombaum, Krauss, Wittermans; Assistant Professors Brodie, Chandler, Sakamoto, Wegner, Weinstein, Won, Yamamoto; Instructor Swift

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
   Lind, Hormann
   Basic factors and forces in contemporary society as exemplified in Hawaii.

258 RACE RELATIONS (3) I, II
   Glick, Lind
   Race relations in world perspective; typical situations; conflict and accommodation; caste; race prejudice; miscegenation; effects upon personality.

264 SOCIAL INSTITUTIONS (3) II
   Wittermans, Cheng
   Culture as a conceptual tool. Origin, structure, function, and growth of institutions. Interrelation and integration.

270 SOCIAL CONTROL (3) I, II
   Wittermans
   Analysis of the processes by which individuals become amenable to social and mass definitions of conduct and behavior.

300 SOCIAL DISORGANIZATION (3) II
   Hormann
   Factors in community, institution, and group disorganization; behavioral deviancy and social pathology. An integrated approach to social problems.

306 CRIMINOLOGY (3) I, II
   Cheng
   Crimes and criminals; causative theories of criminality; institutional problems of apprehension, prosecution, incarceration, correction and rehabilitation.

324 PERSONALITY AND CULTURE (3) I, II
   Bloombaum
   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
   Wittermans
   Structural-functional organization. Impact of technology on institutions, value orientation, power structures, systems of roles, and stratification.

394 HONORS THESIS
   Staff

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
   Yamamura
   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
   Hormann
   Community types as affected by the transition from subsistence to commercial and industrial agriculture.

436 THE URBAN COMMUNITY (3) II
   Krauss, Sakumoto
   Sociological principles as applied to the modern city. Structure, growth, social and personal life organization.

444 PEOPLE AND INSTITUTIONS OF CHINA (3) I, II
   Cheng
   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
   Yamamoto
   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  
Glick  
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  
Cheng, Yamamura  
Culturally distinctive family types as background for analysis and interpretation of the American family.

480 SOCIOLOGY OF RELIGION (3) I  
Hormann, Wittermans  
Structure, function, and dynamics of religion in various types of society.

486 INDUSTRIAL SOCIOLOGY (3) I, II  
Wen  

490 SOCIAL STRATIFICATION (3) II  
Krauss  
Analysis of social class; local and national stratification patterns; social mobility in industrial and non-industrial societies.

504 JUVENILE DELINQUENCY (3) I, II  
Sakumoto  
Nature and extent of juvenile delinquency; theories and research; sociology of correction.

530 SOCIOLOGY OF SMALL GROUPS (3) I  
Staff  
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  
Glick  
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  
Glick, Bloobaum  
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  
Yamamura  
Introduction to statistical methods and resources as applied to social research data.

580 SOCIOLOGICAL THEORY (3) II  
Sakumoto  
History of sociology as reflected in writings ranging from early Greek thought to modern authors such as Durkheim, Pareto, Simmel, Parsons, Merton.

610 METHODS AND STATISTICS I (3) I  
Staff  
The logic of social research; principles of conceptualization, formal design, and observation. Pre: 570 or equivalent.

611 METHODS AND STATISTICS II (3) II  
Staff  
The logic of social research; statistical treatment of social data. Pre: 610.

612 CLASSICS OF SOCIOLOGICAL THEORY (3) I  
Staff  
Study in depth of selected works by early sociologists such as Emile Durkheim and Max Weber. The influence of such works upon modern sociology will be traced. Pre: consent of instructor.

613 CONCEPTS AND PROPOSITIONS IN SOCIOLOGY (3) II  
Staff  
Survey of major propositions in modern sociology. Sociological concepts such as primary group, social role, and social class will be related to these propositions and their place in sociological theory and research will be discussed. Pre: consent of instructor.
714 SEMINAR IN METHODS OF RESEARCH (3) I, II Staff
Individual or group projects providing training in (1) the design of social research, (2) field techniques. Pre: consent of instructor.

715 SEMINAR IN SOCIAL STATISTICS (3) I, II Staff
Advanced statistical procedures; may include individual projects. (1) Measurement of social variables, (2) data analysis. Pre: consent of instructor.

716 SEMINAR IN THEORY CONSTRUCTION (3) II Staff
Application to sociology of logical or mathematical deductive systems. Both the nature of such systems and their application to sociology will be discussed. (1) Logical models, (2) mathematical models. Pre: consent of instructor.

720 SEMINAR IN SOCIAL ORGANIZATION (3) I, II Staff
The structural elements of human group life. (1) Industrial sociology, (2) social stratification, (3) social control. Pre: consent of instructor.

721 SEMINAR IN SOCIAL INSTITUTIONS (3) I, II Staff
The structure, function, and growth of social institutions. (1) Sociology of law, (2) sociology of religion, (3) the family, (4) political sociology, (5) Chinese society, (6) Japanese society. Pre: consent of instructor.

722 SEMINAR IN GROUP RELATIONS (3) I, II Staff
Major theoretical developments and research problems in the fields of race relations and minority relations. (1) Race relations, (2) minority relations. Pre: consent of instructor.

730 SEMINAR IN SOCIAL DISORGANIZATION (3) I, II Staff
Theory and research in social disorganization; institutionalization of criminals and juvenile delinquents. (1) Deviant behavior, (2) juvenile delinquency and criminal behavior, (3) penology. Pre: consent of instructor.

731 SEMINAR IN SOCIAL CHANGE (3) I, II Staff
Principles, processes, and problems of social change. Emphasis on non-Western societies undergoing industrialization. (1) Social change in developing areas, (2) social movements, (3) community development. Pre: consent of instructor.

740 SEMINAR IN SOCIAL PSYCHOLOGY (3) I, II Staff
Individual behavior in social contexts; may include individual projects. (1) Social interaction, (2) socialization, (3) social conflict. Pre: consent of instructor.

741 SEMINAR IN CULTURE AND COMMUNICATION (3) I Staff
Theories of communication; interaction between oral traditions, the press and audio-visual mass media in cultural context. Pre: consent of instructor.

750 SEMINAR IN DEMOGRAPHY AND HUMAN ECOLOGY (3) I, II Staff
Principles and techniques in population analysis, and factors affecting the distribution of population, public utilities, and social institutions. (1) Demography, (2) human ecology. Pre: consent of the instructor.

751 SEMINAR IN URBAN AND RURAL SOCIOLOGY (3) I, II Staff
Structure and dynamics of major types of human communities; effects on social and personal life organization. (1) Urban, (2) rural. Pre: consent of instructor.

799 DIRECTED RESEARCH (arr.) I, II Staff
Pre: graduate standing; consent of instructor.

800 THESIS RESEARCH (arr.) I, II Staff
Speech (Sp)


110 INTRODUCTION TO GENERAL AMERICAN PHONOLOGY (2) I, II Staff
Introduction to the phonology of general American speech. Articulatory, rhythmic, and melodic differences between general American and Hawaii's sub-standard dialect.

135 INTERPRETATIVE READING OF CHILDREN'S LITERATURE (1) I, II Staff
Principles of reading poetry and prose to preschool and elementary school children; intensive classroom practice.

145 EXPOSITORY AND PERSUASIVE SPEAKING (3) I, II Staff
Practice in systematic analysis of expository and persuasive ideas with instruction in their preparation for public discourse. Weekly lectures. Pre: permission from Speech Communication Center.

180 PRINCIPLES AND TYPES OF DISCUSSION (2) I, II Staff
Discussion of problems, using cooperative investigation, round table, panel, symposium, case and incident methods, parliamentary procedure.

210 PHONETICS (3) I, II Wong
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 Gordon
Improvement of skills in voice emphasizing control of projection, clarity, and flexibility.

230 READING ALOUD (3) I, II Breneman
Principles of interpretative reading. Practice in textual analysis and in transmitting intellectual and aesthetic content of literature.

250 PUBLIC SPEAKING (3) I, II Staff
Principles of oral composition and delivery with attention to texts of British and American speeches. Pre: sophomore standing.

270 BROADCASTING (3) I Staff
Analysis and survey of radio and television as communications media and as industries.

271 RADIO PRODUCTION (3) II Staff
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 Staff
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 Staff
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.

335 STORYTELLING (2) I, II Breneman
The oral story as 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
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
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.

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 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 department chairman.
610 SEMINAR IN ENGLISH PHONETICS AND PHONEMICS (3) I, II  
Phelps, Dykstra  
Problems in advanced phonetics and phonemics; contrastive analyses at the phonological level.

615 PHONETICS AND PHONEMICS OF AMERICAN ENGLISH (3) I, II  
Phelps, Dykstra  
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  
Phelps, Dykstra  
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.)

630 SEMINAR IN INTERPRETATION (3) I, II  
Breneman  
Current literature in interpretation; reports; lecture-recitals. Pre: consent of instructor.

650 SEMINAR IN Rhetoric AND Public Address (3) I, II  
Staff  
Review on rhetoric and public address. Pre: consent of instructor.

651 HISTORY AND CRITICISM OF BRITISH ORATORY (3) I  
Staff  
Analytical and critical study of rhetorical elements in representative British oratory from 1700 to present. Pre: 450 or consent of instructor.

652 HISTORY AND CRITICISM OF AMERICAN ORATORY (3) II  
Staff  
Analytical and critical study of rhetorical elements in representative American oratory from colonial period to present. Pre: 450 or consent of instructor.

653 CLASSICAL RHETORICAL THEORY (3) II  
Staff  
Significant movements in development of rhetorical theory and criticism. (Alt. yrs.)

660 GENERAL SEMINAR (3) I, II  
Staff  
Significant topics and problems in speech. May be repeated.

670 SEMINAR IN BROADCASTING PROGRAM CRITICISM AND SOCIAL EFFECTS (3) II  
Staff  
Advanced study in history, theory, and development of programming; critical analysis of social effects; research literature and original research projects.

690 SEMINAR IN RESEARCH METHODS (3) I  
Heinberg  
Research methods, analysis and reporting of data; bibliography; contemporary research.

699 RESEARCH (arr.) I, II  
Staff  
Same fields as in 598. 4 credits may be earned. Pre: recommendation of advisory committee, consent of instructor or department chairman.

800 THESIS RESEARCH (arr.) I, II  
Staff  
Zoology (Zool)

Senior Professors HIATT, TESTER; Professors BANNER, BERGER, CHU, GOSLINE, HSIAO, MATHEWS, TOWNSLEY, TUTHILL, van WEEL; Associate Professors CHENG, KAMEMOTO, MUIR, REESE; Assistant Professors DAVIS, EBERT

201–202 is normally prerequisite for all advanced courses, unless otherwise stated.

101 PRINCIPLES OF ZOOLOGY (4) I, II (3 L, 1 Lb)  
Davis  
Introduction to zoology for non-science majors. Living animals, their structure, development, reproduction, derivation, habits, and ecology, with emphasis on their relationship to man and society.
161 GENERAL ENTOMOLOGY (4) I, II (2 L, 2 Lb)  
Mitchell  
Structure, habits, biology, and classification of insects; insects characteristic of  

201–202 GENERAL ZOOLOGY (4–4) Yr. (3 L, 1 Lb)  
Kamemoto  
Introduction to zoology for science majors: origin of life, functional aspects of  
protoplasm, cells, tissues, organs; development and inheritance; evolution and phylo-  
geny; comparative morphology; interaction with environment. Pre: Chem 103, 106.

301 EMBRYOLOGY (3) I (2 L, Lb)  
Hsiao  
Descriptive and analytical embryology of selected vertebrates and invertebrates.

345 ANIMAL PHYSIOLOGY (3) I (2 L, 2 Lb)  
Davis  
Properties of protoplasm; functions of organ systems, fundamental principles. Pre:  
Chem 141; desirable: Chem 331; Phys 161.

361 INSECT MORPHOLOGY (3) I (2 L-Lb)  
Namba  
Comparative and gross morphology; homologies of structures; anatomy; develop­  
ment in representative groups. Pre: 161.

362 SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)  
Tuthill  
Classification of insects; orders and families. Use of taxonomic tools. Pre: 361.

390 GENERAL ZOOLOGY SEMINAR (1) II  
Staff  
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.  
Staff  

399 DIRECTED READING OR RESEARCH (arr.) I, II  
Staff  
Limited to senior majors with 2.7 grade-point ratio or 3.0 grade-point ratio in  
zooology.

401 PRINCIPLES OF ECOLOGY (2) I  
Ebert  
Physical, physiological, population, and community ecology are discussed in relation  
to the ecosystem.

405 INVERTEBRATE ZOOLOGY (4) I (2 L, 2 Lb)  
Townsley  
morphology, evolution, systematics, ecology, and life history of invertebrate phyla.

406 VERTEBRATE ZOOLOGY (4) II (2 L, 2 Lb)  
Hsiao  
Classification, evolution, functional anatomy, and development of vertebrates.

410 PARASITOLOGY (3) II (2 L, 2 Lb)  
Chu  
Parasitology with reference to man and domestic animals; classification, compara­  
tive morphology, life history, control.

416 HISTOLOGY (3) I (2 L, 2 Lb)  
Hsiao  
Studies of tissues, principles of histology, and microscopic anatomy of a limited  
number of vertebrate animals. Pre: 301. (Alt. yrs.; offered 1968–69.)

425 MICROTECHNIQUE (3) I, II (2 L-Lb)  
Matthews  
Fixing, staining, mounting of tissues, entire animals and organs.

431 BIOMETRY (3) I (2 L-Lb)  
Tester  
Elementary statistical methods; confidence interval, chi-square, t-test, normal  
432 ADVANCED BIOMETRY (3) II (2 L-Lb)  
Analysis of variance and covariance, curvilinear regression, multiple correlation, design of experiments. Pre: 431; desirable: Math 136.

441 HISTORY OF ZOOLOGY (2) II  
Development of zoological science as a specialized field of human knowledge.

450 NATURAL HISTORY OF HAWAIIAN ISLANDS (2) II (2 L-Lb)  
Geography, geology, climatology, and biotic environment of the Pacific Basin and the Hawaiian Islands; evolution of the terrestrial biota of oceanic islands. Pre: 101, 201 or Bot 101.

460 AVIAN BIOLOGY (3) II (2 L, 1 Lb)  
Introduction to anatomy, physiology, annual cycle, behavior, distribution, and taxonomy of birds; special attention given to Hawaiian and oceanic birds. (Alt. yrs.; offered 1968-69.)

470 LIMNOLOGY (3) II (2 L, Lb)  
Biology, physics, and chemistry of lakes, streams, and estuaries, including field and laboratory techniques. Pre: Bot 101; Chem 106. (Alt. yrs., offered 1967-68.)

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.

510 BIOLOGY OF SYMBIOSIS (4) I (2 L, 2 Lb)  
Obligatory and facultative relationships between animal species, including mutualism, commensalism, and parasitism, examined from structural and physiological viewpoints. Pre: 405 or 410; desirable: Chem 143-144.

525-526 GENERAL ICHTHYOLOGY (3-3) Yr.  

602 PREPARATION OF SCIENTIFIC MANUSCRIPTS (1) I, II  
Use of bibliographical tools; styles and methods of preparation for publication. Required of all students for Ph.D. degree in zoology or entomology.

603 ZOOGEOGRAPHY (2) I  
Animal distributions; physiographic, climatic, and historic factors. Desirable preparation: 401; Geol 151. (Alt. yrs.; offered 1968-69.)

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.

606 ANIMAL BEHAVIOR (3) I (2 L, 2 Lb)  
Orientation and the ethological approach are stressed; behavioral physiology and learning theory are included. Pre: 345; 405 or 525, or consent of instructor. (Not offered 1967-68.)

607 PHYSIOLOGICAL BASES OF ANIMAL BEHAVIOR (3) II (2 L, Lb)  
Sensory, neural, and endocrine determinants of animal behavior patterns and communication. Pre: 345, 606.
608 GROWTH AND FORM (4) II (2 L, 2 Lb) Davis

611 PRINCIPLES OF SYSTEMATIC ZOOLOGY (3) I Gosline
Taxonomic categories; processes of evolution in their development; taxonomic data; rules of nomenclature. (Alt. yrs.; offered 1967–68.)

620 MARINE ECOLOGY (3) II (2 L, 2 Lb) Ebert
Principles of ecology are discussed in relation to the marine biota and environment. Pre: 401, 405 or 525, or consent of instructor.

621 PHYSIOLOGICAL ECOLOGY (3) I (2 L-Lb) van Weel
Physiological adaptations to environmental, physical, and biotic features. Pre: 345; desirable: 401 or 620, 646. (Alt. yrs.; offered 1967–68.)

622 ISOTOPE TRACERS IN BIOLOGY (3) II (2 L, 1 Lb) Townsley
Chemical and physical features of radioactive isotopes used in biological work. Methods of detection; application to biological systems.

629 METHODS OF FISHERIES INVESTIGATION (3) I Muir
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 Muir
Fundamentals of population growth, mortality and equilibrium. Consideration of mathematical models developed for various animal populations, including man. Pre: Math 136, or consent of instructor.

645 ADVANCED GENERAL PHYSIOLOGY (3) I (2 L-Lb) van Weel

646 COMPARATIVE INVERTEBRATE PHYSIOLOGY (3) II (2 L-Lb) van Weel
Life processes, with emphasis on marine invertebrates. Pre: 345; desirable: Phys 161.

691 SEMINAR IN ZOOLOGY (1) I, II Staff
Reports on research or reviews of literature. Graduate students required to take this course or 692.

692 SEMINAR IN FISHERIES BIOLOGY (1) II Muir
Investigations and literature pertaining to fisheries biology; stress on problems relating to pelagic fisheries of the Pacific. Consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II Staff
Directed research and reading in various fields of zoology.

715 TOPICS IN INVERTEBRATE ZOOLOGY (3) I, II (2 L, 2 Lb) Staff
Comparative morphology, development, taxonomy, and phylogeny of invertebrate taxa. Pre: 405.

732 FISHERIES MANAGEMENT (3) II Muir
Once the administration building for the University, Hawaii Hall today houses offices for the College of Business Administration and College of General Studies.
Preparation for business leadership in Hawaii and the Pacific area is the function of the College of Business Administration. Students are provided with a solid foundation, both theoretical and practical, in the structures, functions, and objectives of business enterprise. A two-year upper-division program leads to the bachelor of business administration degree.

Prior to admission to the College, each pre-business student will have completed a broad foundation of courses in liberal arts, humanities, and physical and social sciences which serves as a base for an economic minor, a solid core of basic business subjects, and a specialized field of business activity selected by the individual student.

Juniors and seniors in the College of Business Administration will complete additional general requirements. Each student will select one of the following specializations: accounting, finance, business economics and statistics, foreign trade, insurance, management, marketing, personnel and industrial relations, and real estate. The School of Travel Industry Management offers a special program; students entering the University as freshmen should indicate their wish to enter this program.

**Admission and Degree Requirements**

Students are admitted only as upper-division students. Students who wish to enter the College must apply for admission. Students classified as freshmen and sophomores in the College prior to June 1, 1966, were permitted to continue their programs as classified students in the College.

To be admitted to the College, a pre-business student must have completed a minimum of 60 credits with a cumulative grade-point average of 2.0 or better, including the following:
General Education Requirements (see pp. 34-37)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Communications</td>
<td>9</td>
</tr>
<tr>
<td>Quantitative Reasoning (Math 134)</td>
<td>4</td>
</tr>
<tr>
<td>World Civilizations</td>
<td>6</td>
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<tr>
<td>Humanities</td>
<td>9</td>
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<tr>
<td>Natural Sciences</td>
<td>10-12</td>
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<tr>
<td>Social Sciences (Econ 150 is required,</td>
<td>9</td>
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<tr>
<td>and Geog 102 for TIM majors)</td>
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Pre-Business Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Economics 150 (see above)</td>
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<tr>
<td>Accounting 100-101 (sophomore standing)</td>
<td>6</td>
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<tr>
<td>BAS 110</td>
<td>3</td>
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</table>

Additional Requirements for Pre-Business Students

in Travel Industry Management

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>TIM 101</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec 123</td>
<td>3</td>
</tr>
<tr>
<td>TIM 200-201</td>
<td>0-0</td>
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</tbody>
</table>

In order to qualify for a degree a student must:
1. Meet all pre-admission requirements to the College;
2. complete one of the ten curricula of the College;
3. complete the University curricular requirements (see p. 35);
4. earn an aggregate of at least 124 semester hours of credit;*
5. earn a 2.0 grade-point ratio for all registered credits, and in the major field (see "Undergraduate Degree Requirements").

Curricula

All students must complete the following:†

Group I. Economics (9 credit hours): Business Economics 303, 340, 341.

Group II. Business Core (24 credit hours): Business Analysis and Statistics 300-301; Finance 300, Law 300; Management 300, 350; Marketing 300; and Personnel and Industrial Relations 350.

*Applies to students entering the College after June 1, 1966; TIM excepted.
†Travel Industry Management is an exception; see requirements listed under majors.
Group III. A major of 15 credit hours (18 for Accounting and Travel Industry Management). See below.

Group IV. English 209, and 12 credit hours of upper division courses, at least 6 of which must be outside of the College of Business Administration.

*Majors*


FINANCE. Required: Acc 320, 325; Fin 305, 310. Elective: one of BAS 315, Econ 450, Ins 300, Law 310, RE 300.


FOREIGN TRADE. Required: BEc 360, 361; Mkt 315, 380. Elective: one upper division business administration course.

INSURANCE. Required: Ins 300, 310, 320, 330. Elective: one of BAS 315, Fin 310.


PERSONNEL AND INDUSTRIAL RELATIONS. Required: PIR 351, 352, 361, 362; Mgt 340.

REAL ESTATE. Required: RE 300, 310, 330, 340. Elective: one of Acc 325, RE 320, 350.

TRAVEL INDUSTRY MANAGEMENT (Hotel, Restaurant, and Tourism Administration): Students planning to major in TIM, after consulting with the dean, should have completed all the courses indicated on pp. 35–36 under the University General Education Requirements, Pre-Business Requirements, and Additional Requirements for Pre-Business Students in TIM; upper-division requirements include all courses listed under Group I, Group II except that TIM 301 is substituted for Mgt 300; and Group IV. Group III includes the following courses: TIM 320, 321, 330, 350,

*Any substitutions in major requirements must have the written approval of the department chairman on recommendation of the student's adviser.*
Trans 350, 351, Home Ec 234, 235. TIM majors emphasizing Hotel Management and Food Service Management will choose one course from TIM 320 or 321, and Trans 350 or 351; TIM majors emphasizing Tourism will choose one course from TIM 330 or 350, and Home Ec 234 or 235. All other courses listed will be required of all TIM majors; total credit hours in the major: 18. Total credit hours to graduate: 126–127. Students who know that they intend to major in TIM in the College of Business Administration should establish relationship at an early date after arrival on campus with the office of the dean of TIM in order to receive counsel on placement in their Internship Program, a requirement which is best met in the first two years.

BUSINESS ADMINISTRATION COURSES

Senior Professor ROBERTS; Professors ADLER, ASCHER, BAILEY, BARNET, BUCHELE, CORBIN, DARBYSHIRE, EVANS, FERGUSON, GILSON, GRAYSON, HOSLETT, IGE, JACOBSEN, LEONG, LOWE, McINTYRE, MICCIO, PENDLETON, RICHMAN, SASAKI, WHITEHILL; Associate Professor HOPKINS; Assistant Professors BELL, BESS, BURY, CHUNG, CONGDON, FREITAS, HEYE, JACOBS, KIM, KIRKPATRICK, LEE, PIERSON, SEO, STELLMACHER, TRINE; Lecturers BROWN, CANFIELD, ITO, NOREM

DEPARTMENT OF ACCOUNTING AND FINANCE

Accounting (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.

200–201 INTERMEDIATE ACCOUNTING (3–3) Yr.

300 ADVANCED ACCOUNTING (3) I, II
Consolidated statements, fiduciaries, and other special problems of accounting. Pre: 201.

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: 315.

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: 200.

320 MANAGEMENT ACCOUNTING (3) I, II
325 **INCOME TAX PROBLEMS (3) I, II**  
Federal income tax laws and related accounting problems; individual, partnership and corporation returns. Pre: 201 or 320.

330 **AUDITING (3) I, II**  

435 **GOVERNMENTAL ACCOUNTING (3) II**  
Account classification, budgetary procedure, fund accounting, revenues, operating costs. Pre: 201.

660 **ADVANCED AUDITING (3)**  
Advanced studies of auditing standards, internal control, professional ethics and audit reports, including those required by the S.E.C. and illustrative cases.

661 **ADVANCED COST AND CONTROLLERSHIP (3)**  
Specialized cost accounting systems: uses and interpretations by management. The controllership function in the business organization.

662 **ADVANCED TAXES (3)**  
Advanced aspects of incomes, deductions, exclusions, credits, as they relate to tax problems of individuals, estates, trusts, partnerships, corporations.

665 **ACCOUNTING HISTORY AND THEORY (3)**  

670 **CONTEMPORARY ACCOUNTING THEORY (3)**  
Consideration of contemporary issues, with emphasis on recent journal literature.

675 **SEMINAR IN ADVANCED ACCOUNTING (3)**  
Special problems in professional accounting: systems, auditing, cost accounting, fund accounting, consolidations, governmental accounting, taxes.

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**Finance (Fin)**

300 **BUSINESS FINANCE (3) I, II**  
Study of the forms and sources of financing business firms large and small, corporate and non-corporate. Emphasis on financial planning and developing judgment in formulating decisions on financial problems. Financial policies also considered in their social, legal, and economic effects. Pre: Acc 101, Econ 150.

305 **PROBLEMS OF BUSINESS FINANCE (3) I, II**  
Application of principles of finance to the financial management of business enterprises with particular reference to corporate distributions, mergers, and reorganizations. Pre: 300, BEc 303 or consent of instructor.

310 **INVESTMENTS (3) I, 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: 300.

700 **PROBLEMS IN BUSINESS FINANCE (3)**  
Application of financial principles and analytical techniques to current financial problems and developments from the point of view of the business firm.
701 INVESTMENT ANALYSIS AND MANAGEMENT (3)
Techniques of securities analysis, theory of investment and investment decisions, with applications to portfolio planning for institutional and individual investors.

702 THE FINANCIAL SYSTEM (3)
Major financial institutions of our business economy, their inter-relations, and their importance in facilitating economic activity.

Insurance (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.

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.

320 CASUALTY INSURANCE (3) II
Emphasis on third-party liability coverages: general liability, automobile insurance, and workmen's compensation.

330 LIFE INSURANCE (3) II
Policy forms; calculation of premiums, reserves, and non-forfeiture values; underwriting; regulation of policy provision; and related coverages.

710 THEORY AND PRACTICE OF INSURANCE (3)
General course in insurance, including insurance and risk theory, insurance contracts, rates, reserves, and regulation.

711 RISK MANAGEMENT (3)
Management problems in recognizing risks; alternative methods of handling these risks.

Law (Law)

300 PRINCIPLES OF BUSINESS LAW (3) I, II
American system of jurisprudence, elements of torts, criminal law, property trusts and estates, law of contracts and agency.

310 INTERMEDIATE BUSINESS LAW (3) I, II
Law of business organizations, with emphasis on partnerships and corporations and law of sales, bailments, and negotiable instruments; provisions of Uniform Negotiable Instrument Law and Uniform Commercial Code. Pre: 300.

770 LEGAL ENVIRONMENT OF BUSINESS (3)
Analysis of contemporary American business and contractual law with critical examination of contracts, agencies, corporations, trusts, partnerships, Uniform Commercial Code and anti-trust legislation.
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 134.

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.

300-301 BUSINESS STATISTICS (3–3) Yr.
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.

310 SAMPLING METHODS (3) I
Design and use of random, systematic, stratified, and sequential samples for the estimation of universe characteristics. Pre: 301.

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.

320 INTRODUCTION TO QUANTITATIVE ANALYSIS (3) I, 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: 110, Math 134.

396 METHODS OF SCIENTIFIC RESEARCH APPLIED TO BUSINESS AND ECONOMIC PROBLEMS (3) I
Study of the fundamentals of research methodology, including planning, organizing and executing a research project; techniques of gathering data; use of library facilities and other sources of information; analysis and interpretation of the data; art and strategy of presenting the findings.

680 STATISTICAL DECISION THEORY (3)
Modern statistical decision theory as applied to business decision-making. Topics covered include probability theory, statistical decision problems including Bayes decision rules.

681 OPERATIONS RESEARCH (3)
Methods of operations 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.

682 QUANTITATIVE METHODS OF BUSINESS AND ECONOMIC FORECASTING (3)
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.
Business Economics (BEc)

Economics 150 is prerequisite to all other courses.

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.

305 BUSINESS ENTERPRISE AND BUSINESS FLUCTUATIONS (3) II
   Characteristics and causes of business fluctuations; ways and means of coping with recession and inflation by business firms and government, and of business forecasting.

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, technological change; problems of uncertainty. Pre: Math 134, BAS 110.

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: 340.

360 FOREIGN TRADE AND AMERICAN INDUSTRY (3) I
   Introduction to world trade, its development and current status; study of the principles of foreign trade, including international commercial problems and policies, tariff policies, and exchange controls that affect exporting and importing industries.

361 FOREIGN TRADE POLICY AND FINANCE (3) II
   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.

372 PUBLIC UTILITIES (3) I
   Economic nature and history of public utilities, critical discussion of their control by governments. (Not offered 1967-68.)

375 BUSINESS ENTERPRISE AND PUBLIC POLICIES (3) I, II
   Study of interrelations between business and government, with special attention to 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 use of government financing to regulate business.

691 MANAGERIAL ECONOMICS (3)
   Applications of economic analysis to a wide variety of problems in business. Topics covered include management decision theory, profit, demand, production, cost, pricing, competition, and capital budgeting.

692 CURRENT ECONOMIC PROBLEMS (3)
   Study of modern issues and problems in business economics. Topics may vary from term to term.

693 CAPITAL MARKETS AND INTERNATIONAL FINANCE (3)
   Supply and demand for capital in national and international markets. Nature of capital movements and the role of capital in industrialization of regions and nations.
DEPARTMENT OF MANAGEMENT, MARKETING, AND INDUSTRIAL RELATIONS

Management (Mgt)

300 PRINCIPLES OF MANAGEMENT (3) I, II
Basic management functions of planning, controlling, organizing, staffing, directing; emphasis on human factors and quantitative analysis in developing a sound philosophy of management; critical evaluation of current practices in business firms.

320 OPERATIONS MANAGEMENT I (3) I, II
Planning for effective office and manufacturing operations: historical development, human factors, methods analysis, work measurement, location layout, machines and equipment, and records management.

321 OPERATIONS MANAGEMENT II (3) I, II
Control techniques for office and manufacturing operations: inventory and production planning and control, inspection and statistical quality control, computers and automation. Pre: 320.

340 HUMAN FACTORS IN MANAGEMENT (3) I, II
Human relations in business; contributions of sociology and psychology to the management process and to an understanding of individual behavior in organizations.

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.

720 ORGANIZATION THEORY AND PRACTICE (3)
The evolution of organization theory and practice with major emphasis on contemporary organizational problems, issues, and developments.

721 COMPARATIVE MANAGEMENT (3)
Cross-cultural analysis of the values and environmental constraints which shape management patterns and policies. Emphasis on Pacific area nations.

722 PRODUCTION AND OPERATIONS MANAGEMENT (3)
Critical review of the development of production and operations management. Planning, decision-making, control of office and manufacturing operations.

Marketing (Mkt)

300 PRINCIPLES OF MARKETING (3) I, II
Fundamental concepts and problems of marketing within the present economic, legal, and social environments; consumer analysis, functional analysis, and marketing institutions.

315 MARKETING MANAGEMENT (3) I, II
Analysis and solution of problems involving pricing, distribution, product strategy, promotion, and marketing research from the management point of view. Economic and social responsibilities of the marketing function emphasized.

330 ADVERTISING MANAGEMENT (3) I, II
Advertising decision making, advertising's role in the marketing mix, primary demand stimulation, selective demand stimulation, building complete programs, and advertising agency relationships.
340 RETAILING MANAGEMENT (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.

380 MULTI-NATIONAL MARKETING (3) I, II
  Methods and organization peculiar to international marketing, with emphasis on practical and technical aspects.

730 MASS MARKETING MANAGEMENT (3)
  Concepts and awareness required for survival of the firm in a dynamic transition from local to regional to national and international marketing for the mass and the class-mass markets.

731 MARKETING COMMUNICATION AND PROMOTIONAL STRATEGY (3)
  Variables that affect or control communication process: theoretical considerations stressed in presenting hypotheses, techniques, and research studies. Within this framework advertising, personal selling, and promotion viewed analytically.

732 MARKETING RESEARCH METHODOLOGY (3)
  Research aids to marketing management: problem specification, hypothesis formulation, sample design, questionnaire construction, data collection, analysis, and policy recommendations.

Personnel and Industrial Relations (PIR)

350 PERSONNEL AND LABOR RELATIONS (3) I, II
  Introduction to labor and trade unionism; introduction to personnel management principles and practices.

351 PERSONNEL SELECTION AND TRAINING (3) I, II
  Policies and procedures essential to staffing, developing, and maintaining proper relationships at all levels of the organization.

352 PERSONNEL COMPENSATION (3) II
  Wage and salary systems, payments, and incentives; fringe benefits; evaluation of jobs at all levels.

361 LABOR PROBLEMS AND TRADE UNIONISM (3) I
  Problems and economics of labor; history, structure, government, and activities of trade unions; social and labor legislation.

362 COLLECTIVE BARGAINING AND DISPUTE SETTLEMENT (3) II
  Principles and concepts of collective bargaining; methods of settling disputes over rights and interests.

740 MANAGEMENT STAFFING AND DEVELOPMENT (3)
  Line and staff responsibilities for attraction, motivation, appraisal, and development of managerial personnel at all levels of organization.

741 PROBLEMS IN ORGANIZATIONAL HEALTH (3)
  Analysis of selected internal and external problems involving human resources in management within the context of complex situations.

742 PROBLEMS AND PRACTICES OF LABOR DISPUTE SETTLEMENT (3)
  Policies and practices of labor contract administration; fundamentals of grievance handling; fact-finding and mediation techniques; emphasis on arbitration as a method of reducing industrial conflict.
SCHOOL OF TRAVEL INDUSTRY MANAGEMENT

Real Estate (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.

310 REAL ESTATE LAW (3) II
Application of property law to the real estate business. Pre: 300.

320 REAL ESTATE FINANCE AND INVESTMENT (3) I
Capital needs and investment opportunities in creating, transferring, and holding real property; comparison of functions and techniques of financing organizations. Pre: 300, Fin 300.

330 PROPERTY VALUATION (3) II
Economic, social, legal, and physical factors influencing property values; emphasis on local residential market. Pre: 300.

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.

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: 300.

750 REAL ESTATE (3)
Application of business techniques to real property resources.

751 ADVANCED REAL ESTATE: LAND DEVELOPMENT (3)
Study and analysis of techniques of planning, developing, and marketing of land resources.

Transportation (Trans)

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.

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.

Travel Industry Management (TIM)

(HOTEL, RESTAURANT, AND TOURISM ADMINISTRATION)

101 INTRODUCTION TO TRAVEL INDUSTRY MANAGEMENT (3) I, II
Broad general principles of hotel management and tourism particularly from 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.
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.

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.

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.

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.

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.

350  STUDIES IN HOTEL MANAGEMENT CONTROLS (3) I, II
Procedures, problems, policies, and planning involved in hotel management.

760  ADVANCED TRAVEL INDUSTRY MANAGEMENT (3)
Analysis of factors fostering local, national, and international development through travel industry expansion. Actions of international organizations, quasi-governmental, and commercial institutions will be studied to identify the economic and social forces melding into new marketing and implementy institutions.

**Graduate Courses in Business Administration**

*Courses in Master of Business Administration Program (Groups I, II, IV are required; Group III is elective).*

**Group I—FOUNDATION COURSES—9 credit hours**

**Bus 605  BEHAVIORAL SCIENCE FOR BUSINESS (3)**
Analysis of social and cultural forces that change the environmental context for management decision-making. Business problems derived from changing patterns of life will be examined in terms of social sciences, such as: anthropology, psychology, and sociology.

**Bus 610  ECONOMIC ANALYSIS FOR BUSINESS (3)**
Economic analysis and background of the business firm, economic decisions, and the economic environment of business.

**Bus 615  QUANTITATIVE METHODS FOR BUSINESS (3)**
Mathematical methods and techniques of statistical inference that are used in business.

**Group II—CORE COURSES—15 credit hours**

**Bus 620  ACCOUNTING (3)**
Introduction to financial and managerial accounting, with emphasis on uses of accounting information in the planning and control of business enterprise by decision-makers.
Bus 625 ADMINISTRATION (3)
Development of administrative theory and practices; analysis of the administrative process as an integrated whole; evaluation of current trends and problems. (A student may receive credit for only one of the following courses: Bus 625, Administration 600. Administration 600 is similar to Bus 625 but offered to a group consisting of students from other departments [Political Science, Educational Administration, Public Health and Social Work] as well as from Business Administration. Administration 600 is accepted as a substitute for Bus 625.)

Bus 630 FINANCE (3)

Bus 635 MARKETING (3)
Analysis of the fundamental problems in marketing management and modern methods of attacking them. Emphasis is upon strategy, decision-making, and the relationship of the firm to its customers.

Bus 640 PERSONNEL AND INDUSTRIAL RELATIONS (3)
Analysis and critical evaluation of those issues, policies, and trends in personnel and labor relations which are of concern to management.

Group III—ELECTIVE COURSES—9 credit hours
All elective courses are listed by subject area under respective departments.

Group IV—INTEGRATION COURSE—3 credit hours

Bus 645 BUSINESS POLICY (3)
Analysis of comprehensive business problems to provide an integration of learning through the resolution of policy issues and through practice in administrative decision-making. Pre: all Foundation and Core courses.
Reorganized as an upper-division college, the College of Education brings together young men and women who intend careers as teachers, administrators, or counselors.
College of Education

The functions of the College of Education include the preparation of teachers and administrators for elementary and secondary schools and the professional development of teachers and administrators in service. Professional preparation for teaching positions in the public schools of Hawaii includes one year of course work subsequent to the bachelor's degree including some graduate work in education. The College offers programs leading to the B.Ed. in elementary and secondary education, the B.S. in recreation, the Five-Year Diploma, the M.Ed., and the Ph.D. In addition, a Classified Professional Certificate (CPC) program is offered to non-education graduates to enable them to complete requirements for the professional certificate granted by the Hawaii Department of Education. Information concerning the M.Ed. and the Ph.D. degrees can be obtained from the Graduate Division of the University and from the departments offering the various programs.

Admission Requirements

The College of Education admits students who have junior standing or higher. Applicants pursuing all programs except those leading to the M.Ed. and the Ph.D. degrees must arrange a personal interview with the staff of the College of Education office of student services. Additional interviews will be arranged with the department of health and physical education for prospective candidates for the B.S. in recreation, and with the department of curriculum and instruction for students intending to complete the B.Ed., Five-Year Diploma, or Classified Professional Certificate programs. Specific program requirements are available from the respective departments.

In addition to the University requirements listed on pages 24–29, students entering the College for enrollment in the B.Ed., Five-Year Diploma, or Classified Professional Certificate programs are required:

1. To be competent in written English and have adequate speech patterns;
2. to show evidence of being able to adjust to the demands of teaching and to cope with the problems of working with students;
3. to obtain medical clearance showing no physical limitations which would interfere with teaching effectiveness;
4. to achieve a satisfactory score on a standardized comprehensive examination covering the liberal arts and sciences;
5. to present transcripts of all college records indicating a cumulative grade-point average according to the following classifications:
   a) for entering juniors, not less than the end-of-year cumulative mean GPA of all University of Hawaii sophomores;
   b) for entering seniors, not less than the end-of-year cumulative mean GPA of all University of Hawaii juniors;
   c) for entering graduates, not less than the end-of-year cumulative mean GPA of all University of Hawaii seniors;
6. to submit an application form to the office of student services, College of Education, at least 60 days prior to the beginning of the program course work.

Bachelor of Education Degree Requirements
To be eligible for the B. Ed. degree, a student must:
1. Fulfill all University requirements (see pp. 34–37);
2. complete student teaching and the four-year course requirements of one of the five-year curricula;
3. achieve a satisfactory score on the National Teachers' Examination taken during or subsequent to practice teaching;
4. acquire an aggregate of 114 semester hours of credit in addition to practice teaching;
5. have a final cumulative grade-point average not less than that required of him for admission to the College.

Five-Year Diploma Requirements
This diploma is awarded by the College of Education to graduate students in recognition of satisfactory completion of five years of preparation for teaching at the elementary or secondary school level. It meets the academic requirements of a Professional Teachers' Certificate of the Hawaii State Department of Education. To be eligible for the Five-Year Diploma, a student must:
1. Have the B.Ed. degree or its equivalent including:
   a) student teaching for which a grade of not less than C was earned;
   b) course background in general and professional education comparable to the specific four-year requirements of one of the five-year curricula offered by the College;
2. complete the course requirements of one of the five-year curricula;
3. acquire an aggregate of 30 semester hours of credit subsequent to the B.Ed. or its equivalent;
4. have a five-year cumulative grade-point average not less than that required of him for admission to the College.

**Classified Professional Certificate (CPC) Requirements**

The Professional Teachers' Certificate for teaching in the public elementary and secondary schools of Hawaii is granted by the state Department of Education. It is based on a five-year program of preparation including the following:

1. A minimum of 30 semester hours of collegiate credit subsequent to the bachelor's degree;
2. a minimum of 24 semester hours of credit in professional education (which may be a part of the 30-credit requirement above), at least 6 credits of which must be in courses designed primarily for graduate students;
3. satisfactory completion of student teaching at the level and/or in the teaching field specified by the certificate requested;
4. completion of the subject requirements of one of the teaching fields (secondary certification only).

In addition to the requirements for admission to the College of Education, applicants for the Classified Professional Certificate program are required:

1. To have a non-education bachelor's degree from an accredited institution;
2. to take refresher courses in the teaching field for those credits earned more than ten years prior to admission, as deemed necessary by admissions personnel of the College;
3. to make up deficiencies in the academic or teaching field major of one of the five-year curricula;
4. to submit recommendations from former employers and/or college advisers, teachers, or administrators.

**Five-Year Curricula Requirements in Elementary and Secondary Education**

**General Education**

The basic core requirements of the University (pp. 34–37) with certain modifications constitute most of the non-major courses in the liberal arts and sciences for prospective elementary and secondary teachers. Additional requirements and recommended curricula for freshman and
sophomore pre-education students may be obtained from the College of Education office of student services.

**Curricula for Elementary School Teachers**

Professional education: student teaching in addition to 19 credits in social, psychological, and curriculum foundations, and methods courses in the principal curricula taught in the elementary school; Academic subject major: a minimum of 24 credits* varying with the major; Distributive major: 36 credits* including courses specially related to elementary teaching or to the academic subject major.

**Curricula for Secondary School Teachers**

Professional education: student teaching in addition to 12 credits in social, psychological, and curriculum foundations, and a methods course in the teaching field major; Teaching field major: a minimum of 36 credits* varying with the major; Teaching field minor or courses related to the major: sufficient credits to total (with the major) a minimum of 60 credits* varying with the teaching field.

**Student Teaching**

The office of field services of the College of Education plans for, arranges, and coordinates the student teaching experiences in the elementary and secondary public and non-public schools of Hawaii. In spite of the hundreds of requests for student teaching during the year, selection of assignments will consider as many personal preferences as possible. Semester preferences will be considered to the extent they allow a balance of teachers in the field during the fall and spring.

Prior to registering for student teaching (Ed CI 390), a student is required:

1. To be enrolled in the College of Education as a classified student;  
2. to complete a 30-hour field experience with children of the age group requested in student teaching;  
3. to have a cumulative GPA not less than that required of him for admission to the College, and a GPA in the teaching field (secondary level only) not less than 2.5;  

*Specific requirements are available in the College of Education office of student services. The courses and the number of credits required by the majors and minors may include some of the basic core requirements of the University.*
4. to be cleared for student teaching by the office of student services;
5. to be accepted for student teaching by the office of field services
   upon the recommendations of the instructor(s) of the appropriate
   methods course(s); and
6. to request student teaching of the office of field services no later
   than October 15 or March 15 for teaching during the subsequent
   semester.

**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. Interested persons should contact the chair­
man of the department of health and physical education.

**Vocational Home Economics Education**

Prospective vocational home economics teachers obtain their under­
graduate preparation in the College of Tropical Agriculture. Basic pro­
fessional education courses and student teaching are required. Selective
standards used in the College of Education, including those in English,
apply to prospective vocational teachers. Students in this program register
in the College of Education for the fifth (graduate) year.

**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 in the department of educational psychology.

**Certification in Teaching the Mentally Retarded**

The College offers a one-year graduate program for elementary and
secondary education majors leading to recommendation for certification
as a teacher of the mentally retarded. Graduates with a degree in an
area other than education may also receive recommendation for certifi­
cation to teach mentally retarded children upon completion of a one-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 in the department of educational psychology.

Fellowship support is available for students in the area of mental retardation.

**Certification in Teaching the Emotionally Disturbed**

The University of Hawaii in cooperation with the state Department of Education is currently developing certification requirements in the area of the emotionally disturbed. See course offerings in this area.

Fellowship support is available for students in the area of the emotionally disturbed.

**Certification in School Administration**

School administration credentials—elementary, intermediate, secondary, and adult—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 Administrative Intern 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. Interested candidates should confer with the chairman of the department of educational administration.

**Educational Communications**

The department of educational communications offers a program which permits students who enroll to gain competencies in the planning, creation, selection, and educational utilization of new media including audiovisual, educational television, programmed instruction, and systems approaches to the improvement of instruction. Laboratory resources include the multi-media learning facilities of the Communications Center, the Instructional Materials Center of the College of Education, the television laboratory and staff of the Hawaii Educational TV Network, and the closed circuit television laboratory of the College of Education. Those interested should confer with the chairman of the department of educational communications.
EDUCATION COURSES

See p. 50 for a discussion of course descriptions.

Curriculum and Instruction (Ed C1)

Professors R. Alm, In, Martin, Meyer, Nelson, Porter; Associate Professors Carr, Hayes, Ihara, Jenkins, Pickens, Poyzer; Assistant Professors J. Alm, Braun, Campbell, Fultz, Gillespie, Inn, Moore, Paul, Reddin, Tominaga, Whitman

The following courses have as prerequisite, enrollment in the College of Education as classified student or permission of the department chairman: 225, 235, 237, 238, 320, 321, 322, 323, 324, 326, 329, 330, 331, 332, 333, 334, 335, 337, 339, 346, 348, 349.

225 CHILDREN'S LITERATURE (2) I, II Gillespie, Jenkins
Acquaintance with a wide range of children's books; criteria for judging literature on the basis of needs and interests.

235 LITERATURE FOR ADOLESCENTS (2) I J. Alm
Literature for the secondary school level; helping students appreciate the significance and meaning of literature; materials suitable for varying levels of ability and interests.

237 MATHEMATICS IN THE JUNIOR HIGH SCHOOL (2) I Whitman
Arithmetic beyond fundamental processes; "general mathematics" courses; arithmetic in other courses. Pre: 341.

238 PHYSICAL EDUCATION, SECONDARY (2) I, II Staff
Methods and materials in conduct of the physical activities program; techniques in leadership; selection of activities and program evaluation. Pre: 341.

320 LANGUAGE ARTS, ELEMENTARY (2) I, II Gillespie, Jenkins, Reddin
Modern approach to the teaching of language arts—reading, oral and written expression. Pre: 341.

321 READING, ELEMENTARY (2) I, II Gillespie
Survey of reading process: development of reading readiness, word recognition, comprehension, reading rate, vocabulary, reading interests, and reading in the content areas. Selection and use of reading materials, evaluation and appraisal of reading progress.

322 SOCIAL STUDIES, ELEMENTARY (2) I, II Ezer, Inn
Major purposes: to point out special contribution of the social studies to the elementary curriculum; to aid students in developing sound instructional programs and procedures in elementary social studies. Pre: 341.

323 SCIENCE, ELEMENTARY (2) I, II Carr
Science education in the elementary school; developing concepts and understandings. Pre: 341.

324 MATHEMATICS, ELEMENTARY (2) I, II Staff
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: 341, Math 111.
326  CREATIVE ART, ELEMENTARY (2) I, II
  Understanding scope and importance of art in the elementary school curriculum, and creative use of art media through laboratory experiences. Pre: 341, Art 101.

329  CREATIVE EXPRESSION IN ELEMENTARY EDUCATION (3) I
  Development of communication skills through creative dramatics, rhythmic movement, and the related arts. Pre: 341 or consent of instructor.

330  LANGUAGE ARTS, SECONDARY (3) I, II
  Teaching of speaking, reading, writing, and listening in the secondary school; literature, grammar, usage, spelling. Pre: 341.

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. Pre: 341.

332  SOCIAL STUDIES, SECONDARY (3) I, II
  Scope and organization of social studies in the secondary school; development of social knowledge and understanding. Pre: 341.

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: 341; basic courses in physics, chemistry, biology.

334  MATHEMATICS, SECONDARY (3) I, II
  Purposes and procedures; development of basic mathematics concepts. Pre: 341; Math 311, 351.

335  FOREIGN LANGUAGES, SECONDARY (3) I, II
  Techniques and materials; aims, motivation, tests; infusion of cultures; use of instructional aids. Pre: 341.

336  ART, SECONDARY (3) I, II
  Purposes and procedures; the arts in relation to all school subjects. Pre: 341; Art 103-104.

337  SCHOOL MUSIC, SECONDARY (3) I, II
  Objectives, materials, and procedures of general, instrumental, and choral music in the secondary school. Pre: 341.

339  SPEECH AND DRAMATICS, SECONDARY (3) I, II
  Techniques for teaching types of speech and play analysis and direction, production and management problems. Pre: 341.

341  FOUNDATIONS IN CURRICULUM AND INSTRUCTION (3) I, II
  Study of objectives and organization of the school's curriculum; discussion of principles and practices; the roles of the teacher in the school. Sections: preschool, elementary school, secondary school. Pre: EP 372 (not required of students who have had Ed EE 220, 221, 224, or Ed SE 230).

346  METHODS OF INSTRUCTION, INDUSTRIAL EDUCATION (3) I
  Techniques of individual and group instruction in laboratory and related classes; evaluation of various methods. Pre: 341.

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: 341.
348 TYPEWRITING AND SHORTHAND (2) I

349 BOOKKEEPING AND OFFICE PRACTICE (2) II
Teaching bookkeeping, office practice, and other subjects in the secondary school business education curriculum. Pre: 341; BE 273; Acc 100-101.

390 STUDENT TEACHING (8) I, II
Supervised experience in the public schools. Follows public school calendar. (1) Elementary education, (2) secondary education. Pre: requirements for registration listed under “Student Teaching.”

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.

440 PRACTICUM IN CURRICULUM DEVELOPMENT (2) I, II

537 COMMUNITY COLLEGE (3) II
Development of two-year comprehensive community college in the United States, and its emerging role in higher education. Functions, organization, curricular structure, achievement in relation to objectives, and crucial issues are examined. Pre: consent of instructor. (Identical with EF 537.)

620 TEACHING READING IN THE ELEMENTARY SCHOOL (2) I, II Gillespie
Theory and practice in teaching of reading from initial readiness stage through intermediate (upper elementary) grades. Current practices in methodology, organizational patterns, and evaluation examined critically. Pre: teaching experience.

621 MODERN LANGUAGE ARTS PROGRAM, ELEMENTARY (2) II Jenkins, Reddin
Current research; critical examination of educational procedures in teaching the language arts. Pre: basic course in teaching language arts; teaching experience.

622 ELEMENTARY SCHOOL CURRICULUM (3) I, II Braun, Jenkins, Porter
Theoretical foundations of curriculum development; curriculum research; critical examination of current practices in curriculum development for the elementary school. Pre: 341 or equivalent; teaching experience.

623 THE ELEMENTARY SCIENCE CURRICULUM (3) I, II Carr
Application of recent development in science, curriculum construction, and learning theory to the elementary school. Science content as well as methodology stressed. Pre: 323 and teaching experience.

624 THE ELEMENTARY MATHEMATICS CURRICULUM (3) I
Analysis of research relating to teaching and learning arithmetic with attention to application of research findings to classroom procedures. Appraisal of recent curricular trends along with critical examination of the assumptions underlying proposed change. Pre: 324 and teaching experience.
625 THE ELEMENTARY SOCIAL STUDIES CURRICULUM (3) II
Examination and evaluation of social science content, societal values, and research findings as basis for development and revision of social studies materials, texts, curriculum guides, and methodology. Pre: 322 and teaching experience.

626 ART IN ELEMENTARY EDUCATION (3) 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: 326; Art 101.

629 CURRICULUM DEVELOPMENT IN CREATIVE EXPRESSION (3) II
Leadership training for teachers of creative dramatics, rhythmic movement, and the related arts. Pre: 329 or consent of instructor.

634 EXTRACLASS ACTIVITIES IN SECONDARY SCHOOLS (2) II (alternate semesters)
Exploring the potential contribution and utilization of extraclass activities: home-room, student council, athletics, intramurals, clubs, dramatics, publications, speech activities, assemblies, etc.

635 JUNIOR HIGH SCHOOL CURRICULUM (3) I
Programs for the intermediate school; relationship of teachers, administrators, and parents; curriculum problems; evaluation. Pre: teaching experience.

636 SECONDARY SCHOOL CURRICULUM (3) I, II
Principles and techniques of curriculum improvement at secondary school level. Pre: teaching experience.

637 ART IN SECONDARY EDUCATION (3) I
Principles of and problems in teaching art in secondary school; current approaches in teaching art. Pre: 336 and consent of instructor.

640 SEMINAR IN TEACHING FIELDS (3) I, II
Study of trends, research, and problems of implementation in special areas of teaching in the secondary school: (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) reading education, (9) science education, (10) social studies education, (11) speech education. Pre: undergraduate special methods course in appropriate teaching field; teaching experience. Field of study must be designated at registration. Consent of instructor.

667 CURRICULUM TRENDS IN EARLY CHILDHOOD EDUCATION (3) I
Study of current issues in nursery, kindergarten, and early elementary education with emphasis on research and theory basic to curriculum development and program planning. Pre: 341 or equivalent and teaching experience.

679 SUPERVISION OF STUDENT TEACHING (2) I
Principles and methods; role of the supervisor; human relations in supervision of student teaching. (1) Elementary education. (2) secondary education. Pre: teaching experience; consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II
Pre: consent of instructor and department chairman.

722 SEMINAR IN ELEMENTARY CURRICULUM FOUNDATIONS (3) II
Advanced study in the development and improvement of the curriculum of the elementary schools. Pre: 622; consent of instructor. May be repeated once for credit.
733 SEMINAR IN CURRICULUM, SECONDARY (3) I, II  Martin, Meyer
Advanced study in development and improvement of the curriculum of the secondary schools. Required for Plan B M.Ed. candidates in their final semester or summer session. Pre: 636; consent of instructor. May be repeated once for credit.

737 FOUNDATIONS IN ART EDUCATION (3) II  Pickens
Advanced study in development and growth of art in secondary education. Pre: 336; consent of instructor; desirable, Phil 500.

**Industrial Education (IE)**

101 WOOD FABRICATION AND TECHNOLOGY (3) I  Staff
Fundamental operations and technology of wood fabrication. Design and fabrication of projects.

102 METAL FABRICATION AND TECHNOLOGY (3) I  Staff
Fundamental operations in metal fabrication. Projects in benchmetal, sheet-metal, tempering, machining.

107 BASIC DRAFTING AND DESIGN FOR INDUSTRIAL EDUCATION (3) I  Staff
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.

108 DRAFTING AND DESIGN FOR INDUSTRIAL EDUCATION (3) II  Staff
Continuation of 107. Machine and assembly drafting; auxiliary views and sectioning, architectural and technical illustration.

201 ELECTRICITY (3) I  Staff
Series and parallel circuits, magnetism, electromagnetism, measuring instruments, generator and motor principles.

202 ELECTRICITY (3) II  Staff
Circuits, coils, motors, generators, transformers; inductance; conduit wiring; radio.

206 POWER MECHANICS (3) I  Staff
Basic power units: internal combustion engines. Experience with hand tools in repair of two- and four-cycle engines.

300 INDUSTRIAL CRAFTS—JEWELRY AND LAPIDARY PROCESSES (2) I  Staff
Design, processes and materials of jewelry making; lapidary processes and materials for polishing semi-precious gemstones; black coral polishing and mounting.

301 INDUSTRIAL CRAFTS—LEATHER (2) II  Staff
Design and fabrication of leather products. Materials and processes taught through creative projects and problems.

302 INDUSTRIAL CRAFTS—PLASTICS AND WOOD SCULPTURE (3) II  Staff
Design and fabrication of plastic projects; materials and processes of metal enameling; other industrial crafts native to Hawaii.

303 ADVANCED WOOD FABRICATION AND TECHNOLOGY (3) I  Staff
Nomenclature, setup, and operation of power equipment. Design, patterns, jigs, templates; production procedures.

304 ADVANCED METAL FABRICATION AND TECHNOLOGY (3) II  Staff
Organization, layout, equipment, management, uses of instructional material. Selected projects in benchmetal, forging, heat-treating, machine shop, oxyacetylene welding, cutting.
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.

309 THE GRAPHIC ARTS (3) II
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.

348 INDUSTRIAL ARTS FOR ELEMENTARY TEACHERS (2) II
Hand and simple machine tool instruction taught through selected elementary education projects and units.

401 PROBLEMS IN INDUSTRIAL EDUCATION (arr.) I
Program arranged for specialization in several technical areas. May be repeated for total of 5 credits.

402 IMPROVEMENT OF INSTRUCTION, INDUSTRIAL EDUCATION (arr.) II
Consideration of problems in teaching industrial education. May be repeated for total of 5 credits.

764 SEMINAR IN INDUSTRIAL EDUCATION (2) II
Individual study of special problems.

Educational Administration (Ed EA)

Professors Crossley, Everly, Jackson; Associate Professors Ingils, Johnson

600 THEORY OF ADMINISTRATION (3) I, II
Critical review of key current and classic writings in theory and practice of administration; development of comprehensive, integrated understanding of nature of administration. Pre: consent of instructor. (Same as Interdisciplinary Studies 600, p. 46.)

670 SUPERVISION OF INSTRUCTION (3) I
Principles of supervision and development of supervisory programs. Pre: 680; CI 622 or 636.

671 SCHOOL PUBLICITY AND PUBLIC RELATIONS (3) I
Application of principles, techniques, policies, organization of a school-community information program. Pre: 680 or consent of instructor.

680 SCHOOL ORGANIZATION (3) 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, or consent of instructor.

685 EDUCATIONAL ADMINISTRATION: THEORY AND PRINCIPLES (3) I, II
Theory and principles of administration. Included in requirements for the M.Ed. Pre: 680, teaching experience, or consent of instructor.

689 SCHOOL PLANT (3)
Problems and techniques in school plant planning, operation, and maintenance; working with other agencies and with classified personnel. Pre: 680 or consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II
Individual reading and/or research. Pre: consent of instructor and department chairman.
768 RESEARCH SEMINAR IN EDUCATIONAL ADMINISTRATION (3) I, II  
Jackson  
Basic concepts of research in Educational Administration. Study and discussion of significant topics and problems; includes preparation and reporting of a scholarly paper. Required of Plan B M.Ed. candidates. Pre: consent of instructor.

770 SEMINAR IN SUPERVISION OF INSTRUCTION (3) II  
Crossley  
Application of methods and tools of supervision; faculty meetings; classroom observation; conferences; evaluation. Pre: 670, teaching experience, and consent of instructor. May be repeated.

780 SEMINAR IN EDUCATIONAL ADMINISTRATION (3) I, II  
Staff  
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: 670, 680, 685, or consent of instructor. May be repeated.

782 SCHOOL LAW (3) I  
Johnson  
Functions, relationships, and responsibilities of school districts and school personnel with interpretations of legal status as shown by constitutions, statutes, and court decisions. Pre: 680, 780, or consent of instructor.

784 SCHOOL FINANCE (3) II  
Johnson  
School revenues, apportionments, budgetary procedures, costs, and business management. Pre: 680, 780, or consent of instructor.

785 SEMINAR AND INTERNSHIP IN ADMINISTRATIVE LEADERSHIP (arr.) I, II  
Staff  
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 Communications (Ed EC)

Professor Wittich; Associate Professors Reed, Sanderson; Assistant Professors Kucera, Lauda, Lubitz, Wileman; Instructor Yoshishige

514, its equivalent, or consent of department chairman is a prerequisite to all other courses.

514 AUDIO-VISUAL MEDIA (3) I, II  
Kucera, Wileman, Wittich  
Communication theory, characteristics of A-V media: 2-D visuals, realia, 16mm. sound motion picture films, programmed learning, television, projected and opaque materials, maps and models. Emphasis on utilization.

620 INTRODUCTION TO INSTRUCTIONAL MATERIALS PRODUCTION (3) I  
Wileman, Lubitz  
Preparation of two- and three-dimensional instructional materials, charts, graphs, learning displays, television graphics, pictures, slides, overhead transparencies, manipulative tactile materials, and audio recordings.

623 SURVEY AND PRODUCTION OF ASIAN STUDY MATERIALS (3) I or II  
Wileman  
Selection, evaluation, and use of instructional materials available to those who teach secondary school Asian studies subjects. Adapting existing materials or creating new materials: maps and models, audio recordings, flat pictures, slide sets, projectuals, filmstrips, realia and films for use in teaching Asian social studies subjects.
625 PRODUCTION OF EDUCATIONAL FILM AND MULTIMEDIA PRESENTATIONS (3) II
Wileman
Planning and producing educational still and motion pictures and multimedia learning experiences; communication and aesthetic theories as they relate to planning and production. Emphasis on meeting curriculum goals through the systematic development of film and multimedia presentations.

630 TELEVISION IN EDUCATION (3) I, II
Reed, Kucera
Research background; development and utilization of television in education including fundamentals of television production and teaching on television with emphasis on the utilization of television in the school. Pre: 514, its equivalent, or consent of instructor.

635 ADVANCED EDUCATIONAL TELEVISION (3) II
Reed, Kucera
Research and study of educational development and utilization of instructional television with emphasis on ETV and the systems approach to multimedia instruction in specific learning situations. Pre: 630, its equivalent, or consent of instructor.

640 PROGRAMMED LEARNING (3) II

700 SEMINAR IN EDUCATIONAL MEDIA RESEARCH (3) I
Winich
Review of general and current audio-visual research. Applications of same to problems in the improvement of instruction. Pre: 514, its equivalent, or consent of instructor.

710 SEMINAR IN ORGANIZATION AND ADMINISTRATION OF MEDIA PROGRAMS (3) II
Winich
Current principles and practices in organization and administration of programs utilizing new learning media: audio-visual, automated learning, educational television, facilities for such purposes. Pre: 514, its equivalent, or consent of instructor.

Educational Foundations (Ed EF)

Professors Amioka, Anderson, Austin; Associate Professors Boyer, KeppeI, Potter, Stueber; Assistant Professors Jaeckel, Kobayashi, Walsh

320 FOUNDATIONS OF AMERICAN EDUCATION (3) I, II
Staff
Contemporary educational theory and practice as related to major historical, philosophical, and social factors in American culture.

360 FUNDAMENTAL IDEAS IN EDUCATION (2) I
Stueber
Examination of basic ideas influencing modern education; sociological, psychological, and philosophical considerations; for juniors in the Honors Program.

394-395 SENIOR HONORS THESIS (2-2) Yr.
Stueber
For seniors in the Honors Program.

409 CULTURALLY AND ECONOMICALLY DISADVANTAGED PUPIL (3) II
Chang
Survey of social and psychological factors related to the culturally and economically disadvantaged pupil and his education. Review of local resources and facilities to assist these pupils. Pre: consent of instructor. (Identical with EP 409.)
537 COMMUNITY COLLEGE (3) II  
Development of two-year comprehensive community college in the United States, 
and its emerging role in higher education. Functions, organization, curricular structure, 
achievement in relation to objectives, and crucial issues examined. Pre: consent of 
instructor. (Identical with CI 537.)

570 ANTHROPOLOGY AND EDUCATION (3) II  
Boggs 
Education as a means of transmitting culture. Socialization in non-literate soci­
eties; universal aspects of the process. Cross-cultural education. (Offered as Anth 
550, 3 credits.)

650 HISTORICAL FOUNDATIONS OF WESTERN EDUCATION (3) I, II  
Jaeckel, Keppel, Stueber 
History of European thought and practice as a basis for the study of modern 
education.

651 HISTORY OF AMERICAN EDUCATION (3) I, II  
Jaeckel, Keppel, Stueber 
Introduction to the history of American educational thought from the 17th cen­
tury to the present.

650 PHILOSOPHY OF EDUCATION (3) I, II  
Amioka, Austin, Boyer, Keppel 
Philosophical considerations essential to theories of education. Pre: student teaching.

670 COMPARATIVE EDUCATION: EUROPE AND AMERICA (3)  
Walsh 
Comparison of ways in which contemporary Western societies undertake to meet 
their educational problems.

671 COMPARATIVE EDUCATION: ASIA (3) I  
Anderson, Kobayashi 
Study of the educational institutions, practices, and problems in the countries 
of Asia, viewed against the backdrop of their traditional culture.

672 EDUCATION AND THE WORLD COMMUNITY (3) I  
Staff 
World community and its relationship to education; representative cultures; 
aims and programs of the U.N.; cross-cultural learning.

681 THE CHURCH AND THE SCHOOL (2)  
Staff 
Church, state, and school relationships in the U.S., Canada, Latin America, and 
Europe. Pre: 660.

683 SOCIAL FOUNDATIONS OF EDUCATION (3) I, II  
Boyer, Keppel, Walsh 
Impact on education of major social trends and forces operating in American 
society; social change and education. Pre: consent of instructor.

684 INTERPERSONAL RELATIONSHIPS IN EDUCATION (3)  
Lampard 
Philosophical and psychological considerations in personal relationships in family 
and school.

685 EDUCATION IN AMERICA (3) I  
Austin, Kobayashi, Walsh 
Comprehensive overview of the American educational scene from nursery school 
to graduate and professional schools, public and private; problems of support, organiz­ 
alization, curriculum, methods, teacher preparation. Open to Asian and T.I.P. students 
only.

699 DIRECTED RESEARCH (arr.) I, II  
Staff 
Pre: consent of instructor and department chairman.

751 RECENT HISTORY OF AMERICAN EDUCATION (3) II  
Keppel 
19th- and 20th-century history of American educational thought and practice. 
Pre: 650 or 651.
757 EDUCATIONAL CLASSICS (2) II
Intensity study of English translations of major contributions to Western educational thought from Plato to Dewey. Pre: 650.

763 SEMINAR IN EDUCATIONAL THEORY (2) I, II
When offered, focus of the seminar will be selected from among the following: (1) Educational Issues; (2) John Dewey; (3) Contemporary Educational Philosophers; (4) Japanese Educational Philosophy; (5) History of Education. Pre: 660. May be repeated.

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.

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. Pre: EP 708.

770 SEMINAR IN COMPARATIVE EDUCATION (2) II
When offered, the focus of the seminar will be selected from among the following: (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: 670 or 671. May be repeated.

Educational Psychology (Ed EP)

Professor Adkins, R. A.M., Bevers, Clark, Collins, Fullmer, Ryan, Staats; Associate Professor Chang, Ileton, T. McIntosh, Reid; Assistant Professors P. Cartwright, Connor, Dunn-Rankin, Fargo, Fischer, Haehnlen, Kennedy, D. McIntosh, NiyeKawa; Instructor C. Cartwright

372 and 416 or their equivalents are prerequisites for all graduate courses in Educational Psychology.

315 ARTS AND CRAFTS FOR MENTALLY RETARDED (2) II
Construction and use of learning aids for mentally retarded children. May be taken concurrently with 406 with consent of instructor.

372 PSYCHOLOGICAL FOUNDATIONS (3) I, II
Principles of learning and individual differences; the relationships of these factors to classroom experience. Pre: Psy 100.

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.

404 EDUCATION OF EXCEPTIONAL CHILDREN (3) I
Survey of characteristics of children who deviate from the average in mental, sensory, physical, and social attributes; reviews adaptations made by schools to abilities and disabilities of exceptional children.

405 THE MENTALLY RETARDED (3) I
Review of the psychological, social, and vocational problems related to mentally retarded children and their families.
406 CURRICULUM DEVELOPMENT FOR MENTALLY RETARDED CHILDREN (3) I  P. Cartwright
Study of curriculum and materials used in the education of mentally retarded children. Pre: 405.

408 THE EMOTIONALLY DISTURBED CHILD (3) I  Fargo
Study of the behavioral characteristics, methods of identification and management of emotionally disturbed children in regular and special classes within public schools, private day schools, clinics, residential schools, and hospitals.

409 CULTURALLY AND ECONOMICALLY DISADVANTAGED PUPIL (3) II  Fargo
Survey of social and psychological factors related to the culturally and economically disadvantaged pupil and his education. Review of local resources and facilities to assist these pupils. Pre: consent of instructor. (Identical with EF 409.)

410 CURRICULUM DEVELOPMENT FOR THE EMOTIONALLY DISTURBED (3) I  C. Cartwright
Study of teaching methods and materials, techniques of curriculum development, and methods of classroom organization and management used in the education of emotionally disturbed children. Pre: 408.

415 CLINICAL ASSESSMENT OF EXCEPTIONAL CHILDREN (3) I  Fargo
Diagnostic instruments used in clinical appraisal of exceptional children. Theoretical considerations will buttress field appraisal experience. Pre: 404, 416.

416 TESTS AND MEASUREMENTS (3) I, II  Adkins
Theory and techniques of measurement and evaluation in education, including supervised experience in instrument development and analysis.

429 INTRODUCTORY STATISTICS (3) I  Adkins
Introduction to statistical methods, with laboratory applications to educational and psychological data, especially scores on educational measurement devices and other indices of learning or behavioral change. Pre: one year of high school algebra or one college course in mathematics. 372 and 416 desirable.

450 PRACTICUM EXPERIENCE WITH THE MENTALLY RETARDED (9) II  P. Cartwright
Observation and supervised student teaching with mentally retarded children at two school levels: elementary and secondary. Includes a two-hour seminar each week. Pre: 405, 406, 407.

451 PRACTICUM FOR TEACHERS OF EMOTIONALLY DISTURBED CHILDREN (9) II  C. Cartwright
Classroom and clinical experiences to prepare teachers for work with children whose learning problems are associated with behavioral disorders. Pre: 408. 451 may be taken concurrently with 408.

500 STUDENT PERSONNEL SERVICES IN THE COMMUNITY COLLEGE (3) I  Haehnlen, Fischer
Principles and practices of selected student personnel services: guidance, counseling, placement, student organizations.

507 REMEDIAL READING (3) II  Alm
Techniques for motivating and helping children whose reading skills are below their capacity and needs.

601 GUIDANCE IN THE SCHOOL (3) I, II  Fullmer
Basic principles of guidance; consideration of techniques, organization, materials, resources.
602 ELEMENTARY SCHOOL GUIDANCE (3) I
Collins
Principles, techniques, and organization of guidance services in the elementary school.

604 OCCUPATIONAL INFORMATION IN GUIDANCE (3) I
Clarke
Occupational research and survey techniques; trends, sources of materials, use of occupational information in vocational guidance. Pre: 601.

605 PROBLEMS OF SCHOOL ADJUSTMENT (3) I
Clarke
Principles of behavior which affect human relationships in the school, with emphasis upon application to actual situations.

607 CLINICAL PROCEDURES IN READING (3) I, II
Alm
Diagnosis and improvement of reading in elementary and secondary schools. Pre: course in teaching of reading; consent of instructor; may be repeated for credit.

609 TESTS AND INVENTORIES IN GUIDANCE (3) II
Loton

614 EDUCATION OF GIFTED CHILDREN (3) II
Chang

616 SEMINAR IN EDUCATION OF MENTALLY RETARDED (3) II
P. Cartwright
Advanced problems in the education of mentally retarded children. Pre: 20 credits in MR endorsement plan; teaching experience in mentally retarded classes.

629 EDUCATIONAL STATISTICS (3) I, II
Dunn-Rankin
Statistical inference including the applications of parametric and non-parametric methods to educational problems. Pre: 429 or its equivalent.

640 PROGRAMMED LEARNING (3)
Staff
Learning theory, experimental procedures and related systems and readings in the study and development of programmed learning. Evaluation, selection and utilization of programs in the classroom. Pre: 672. (Identical with EC 640.)

672 ADVANCED EDUCATIONAL PSYCHOLOGY: LEARNING (3) I, II
Staff
Application of experimental evidence in learning upon major educational problems; analysis of research methods in classroom learning. Pre: consent of instructor.

673 ADVANCED EDUCATIONAL PSYCHOLOGY: PSYCHO-SOCIAL DEVELOPMENT (3) I
Niizakawa
Research methods and findings involving classroom group structures, attitude and personality development, and psycholinguistic behavior. Pre: consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II
Staff
Pre: consent of instructor and department chairman.

701 SEMINAR IN GUIDANCE (3) I, II
Staff
Current issues and problems. (1) School psychology, (2) testing, (3) counseling, (4) vocational, (5) elementary school, (6) administration, (7) group procedures. Pre: 8 credits in guidance courses; consent of instructor; may be repeated for credit.

702 GROUP GUIDANCE (3) II
Collins
COLLEGE OF EDUCATION—HPE

703 GUIDANCE PRACTICUM (3) I, II  
Supervised experience in guidance activities in schools. Guidance majors only. Pre: consent of instructor; may be repeated for credit.

708 EDUCATIONAL RESEARCH METHODS (3) I, II  
Research techniques and thesis development. Pre: 429 or its equivalent; consent of instructor.

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: 416, 429.

729 SCALING QUALITATIVE DATA (3) II  
Theory and construction of major types of scales with examples from education, psychology, and sociology. Pre: 429 or its equivalent.

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: consent of instructor.

Health and Physical Education (HPE)

Professor SAAKE; Associate Professors CHUI, GUSTUSON, O'BRIEN, VASCONCELLOS; Assistant Professors ASATO, BEAMER, GIBSON, SAKAMOTO, TOMINAGA, VAN DEGRIFT; Instructors FURUKAWA, SEICHI, THOMPSON

Medical Clearance Requirement: At registration time students are required to show evidence of medical clearance issued by Student Health Service for the following courses: 101 through 162, 232 through 236, 333 through 337, 433 and 434. Students without medical clearance will not be allowed to register in the courses indicated.

101 PHYSICAL FITNESS (1) I, II  
Conditioning exercises and activities to develop and maintain physical efficiency. Motor fitness tests administered to measure status and progress. Separate sections for men and women.

103 SWIMMING: BEGINNING (1) I, II  
Adjusting to water, immersing in water, floating, sculling; correct arm stroke, leg kick, breathing techniques and their coordination.

104 SWIMMING: INTERMEDIATE (1) I, II  
Emphasis on perfecting and integrating basic strokes with added emphasis on swimming for distance and speed.

105 SWIMMING: ADVANCED (1) II  
Correct techniques used in competitive swimming, racing starts, correct turning techniques, long distance swimming.

107 TENNIS: BEGINNING (1) I, II  
Rules, etiquette, grip, forehand and backhand strokes, serving, volleying, and singles and doubles play.
108 TENNIS: ADVANCED (1) II  
Staff  
Emphasis on improving the serve, forehand and backhand strokes, volleying, 
chop shot, competitive strategy, problems in rules.

110 GOLF: BEGINNING (1) I, II  
Vasconcellos  
Rules, etiquette, grip, stance, drive, normal iron shots, approach shots, putting.

111 GOLF: ADVANCED (1) II  
Seichl  
Emphasis on improving drive, fairway wood shots, long iron shots, control shots, 
trouble shots, putting, course management, competitive strategy, problems in rules. 
Actual play on golf course requires additional green fees.

115 BOWLING (1) I, II  
Gibson  
Rules, etiquette, arm swing, approach, execution, scoring, spare pickups. Class 
participation at bowling alley requires additional bowling fees.

120 BADMINTON (1) I, II  
Beamer  
Rules, etiquette, grip, forehand and backhand strokes, serving, smash, drive, net 
play, offensive and defensive strategy in singles and doubles play.

123 FOLK AND NATIONAL DANCES (1) I  
Beamer  
Selected dances of various national groups now in popular use with emphasis 
on analytical knowledge and practical experience. Square dance included.

124 DANCES OF HAWAII (1) I, II  
Beamer  
Background and fundamentals of the hula. Selected dances with and without 
instruments.

126 RHYTHMIC ACTIVITIES (1) I, II  
Staff  
Emphasis on awareness of many factors related to enjoyment of social dances 
including ballroom dances, mixers, etc.

135 VOLLEYBALL (1) I, II  
Thompson, Seichi  
Rules, serving, passing, setting-up, spiking, blocking, and offensive and defensive 
team play strategy. Separate sections for men and women.

137 BASKETBALL (1) I, II  
Thompson, Seichi  
Rules, passing, shooting, dribbling, rebounding, individual defensive and offens­ 
ive maneuvers, two-man plays, three-man plays, team offense and defense. Separate 
sections for men and women.

151 ADAPTED AND PRESCRIBED EXERCISES (1) I, II  
Staff  
Small group and individual guidance and instruction for those students recom­ 
mented by the Student Health Service.

152 WEIGHT TRAINING (1) I, II  
Gustuson  
Kinesiology of lifting and weight training, various types of exercises and various 
methods of training with resistance.

154 TUMBLING AND REBOUND TUMBLING (1) I, II  
Gustuson  
Single and combination stunts of tumbling mats and trampoline, balancing stunts 
and correct techniques of spotting and safety procedures.

156 HEAVY APPARATUS (1) II  
Gustuson  
Single and combination stunts on side horse, horizontal bar, parallel bars, still 
rings, and correct techniques of spotting and safety procedures.
160 JUDO (1) I  
Staff  
Rules, etiquette, correct method of falling and breaking the fall, simple throws and their counters, simple holds and the breaking of such holds, and randori.

161 AIKIDO (1) II  
Staff  
Rules, etiquette, basic rolls, simple holds and the breaking of such holds, and specific physical conditioning exercises.

162 KARATE (1) II  
Staff  
Rules, etiquette, basic stances, blocks, thrusts, kicks, ippon kumite, and selected kata.

190 MODERN HEALTH: PERSONAL (1) I, II  
O'Brien, Saake, Van Degrift  
Mental-emotional health, family-living, and scientific health information as a basis for personal hygienic living.

195 MODERN HEALTH: PERSONAL AND COMMUNITY (2) I  
Van Degrift  
Intended primarily for majors in health education, physical education and recreation. Mental-emotional health, family-living, and scientific health information as a basis for personal and community health.

Courses numbered 201 and above are not open to lower division students.

201 SCHOOL HEALTH PROBLEMS: ELEMENTARY (2) I, II  
O'Brien  
Responsibilities of the elementary school teacher in recognizing and meeting needs of the elementary school child with emphasis on the teacher's role in health instruction, health services, school health policies.

202 SCHOOL HEALTH PROBLEMS: SECONDARY (2) I, II  
Van Degrift  
Responsibilities of the secondary school teacher in recognizing and meeting needs of the secondary school pupil with emphasis on health instruction, health services, healthful school living, school health policies.

203 INTRODUCTION TO PHYSICAL EDUCATION (2) I, II  
Tominaga  
Aims and objectives of physical education; basic concepts of the body in movement; physical education as an academic discipline and relationship to related fields such as health education, recreation, and athletics.

204 INTRODUCTION TO COACHING ATHLETICS (2) I, II  
Asato  
Personal and professional requirements of the coach; nature and responsibilities of the coach as a professional worker; scientific principles applicable to coaching methodology and athletic competition.

208 INTRODUCTION TO RECREATION (2) I  
Saake  
Aims, objectives, and foundations of recreation with emphasis on historical analysis of forces and influences affecting recreation and leisure in modern society; recreation as a professional field.

231 METHODS AND MATERIALS IN HEALTH EDUCATION (2) II  
O'Brien  
Organization and content, methods and materials for health teaching in elementary and secondary schools. Pre: 201 or 202.

232 SAFETY PROCEDURES AND FIRST AID (2) I, II  
Saake  
Preventive and emergency treatment of injuries; emphasis on school, playground, athletic situations; practical work in first aid. Red Cross certificate may be earned.

233 PHYSICAL EDUCATION: ELEMENTARY (3) I, II  
Curtis  
Content and methods for physical education in the elementary school with emphasis on selection, planning, teaching, and evaluation of movement exploration and physical activities.
235 TEAM SPORTS FOR SECONDARY GIRLS (2) II Beamer
Fundamental skills, rules, and strategy of team sports for secondary school girls. Includes hockey, soccer, speedball, basketball, volleyball, softball.

236 TEAM SPORTS FOR SECONDARY BOYS (2) II Asato
Fundamental skills, rules, and strategy of team sports for secondary school boys. Includes touch football, soccer, basketball, volleyball, softball, water polo.

238 OUTDOOR RECREATION (2) II Staff
Objectives and values of outdoor recreation; characteristics and determinants of the program; planning, organization, leadership and facilities for recreational uses of the natural environment.

241 HEALTH EDUCATION CURRICULUM (2) I O'Brien
Objectives of the school health program with emphasis on scope and sequence of health instruction; critical examination of health curriculum guides from various states. Pre: 201 or 202.

249 SOCIAL RECREATION (2) I Kaina
Objectives and values of social recreation; social club organization; selections; planning, conduct, and evaluation of social activities; characteristics and responsibilities of leadership. Pre: 208.

271 EVALUATION IN HEALTH EDUCATION (2) I Chui
Processes involved in assessment of the school health education program with emphasis on measurement criteria and instruments, interpretation of data and content, organization and conduct of the evaluation program. Pre: 201 or 202.

301 HEALTH OF THE SCHOOL CHILD (2) I Van Degrlft
Health problems of the school child and role of the school in meeting them with emphasis on symptoms, causes, treatment. Pre: 201 or 202 desirable; consent of instructor.

302 SCHOOL'S ROLE IN COMMUNITY HEALTH (2) I Tominaga
Functional interrelationships between the school and other community health organizations in solving community health problems. Pre: 201 or 202 desirable, consent of instructor.

328 COMMUNITY RECREATION (2) I Sako
Organized community recreation; recreation and government; recreation and the social institutions; industrial recreation; commercial recreation interests; special groups. Pre: 208 desirable.

329 ORGANIZATION AND SUPERVISION OF RECREATION (2) II Sako
Community organization, planning, personnel, areas and facilities, programs and services, and finance and business procedures related to organized recreation. Pre: 208 and 328 desirable.

333 COACHING OF FOOTBALL AND BASKETBALL (2) I Sako, Vasconcellos
Fundamentals, position play, team play, strategy, rules, scouting, planning and conduct of practice, specific training problems. Pre: 204.

334 COACHING OF BASEBALL AND VOLLEYBALL (2) II Sako, Solochi
Fundamentals, position play, team play, strategy, rules, scouting, planning and conduct of practice, specific training problems. Pre: 204.
335 COACHING OF TRACK AND FIELD (2) II  
Vasconcellos  
Techniques and rules of sprinting, distance running, relay racing, hurdling, long jumping, high jumping, pole vaulting, shot putting, discus and javelin throwing; conduct of a track and field meet; specific conditioning and training problems. Pre: 204.

336 COACHING OF SWIMMING (2) II  
Sakamoto  
Techniques and rules of free-style, breast-stroke, back-stroke, butterfly-stroke, relay racing, starting, turning, diving; conduct of a swimming meet; specific conditioning and training problems. Pre: 204.

337 COACHING OF INDIVIDUAL AND DUAL SPORTS (2) I  
Seichi, Staff  
Coaching and developing players for interscholastic teams in golf, tennis, bowling. Emphasis on rules, individual play under match conditions, dual or partnership strategy. Pre: 204.

338 FIELD WORK IN RECREATION: BASIC (arr.) I, II  
Asato, Saake  
Students assigned to supervised leadership experience in recreational agencies. One hour per week in class discussion sessions. For recreation majors only. May be repeated once by consent of recreation adviser. Pre: consent of recreation adviser.

348 PROGRAMS IN RECREATION (2) I  
Beamer  
Factors in planning recreation programs; standard classification of recreation programs with critical analysis of nature, scope, materials, and resources of each classification. Pre: 208 desirable.

399 DIRECTED READING (arr.) I, II  
Chui  
Individual problems. Limited to senior majors in health education, physical education, or recreation with at least a 2.7 overall grade-point ratio in major field.

401 CURRENT TRENDS IN HEALTH (3) II  
O'Brien  
Critical analysis of current problems and trends in basic health education areas which contribute to healthful living in the community, home, school. Pre: 201 or 202, 302 desirable; consent of instructor.

423 ORGANIZATION AND SUPERVISION OF PHYSICAL EDUCATION (3) II  
Asato, Beamer  
Organization and supervision of physical education instructional, intramural, and varsity athletic programs with emphasis on program content, policy and legal aspects, budget and finance, personnel, facilities and equipment, public relations, special problems. Pre: 203, 233 desirable.

433 MUSIC AND RHYTHMS IN PHYSICAL EDUCATION (2) I, II  
Kaina  
Use of music in physical education program with emphasis on selection of appropriate music for specific activities as expressive or creative movement, movement exploration, rhythmic gymnastics, dancing. Pre: Mus 117 and 118 desirable; consent of instructor.

434 TECHNIQUES OF OFFICIATING IN ATHLETICS (2) I  
Beamer, Seichi  
Techniques used by officials in selected sports with emphasis on general concepts of role of the official and a working knowledge of the basic mechanics of officiating. Primarily for physical education and recreation majors. Separate sections for men and women.

438 FIELD WORK IN RECREATION INTERNSHIP (arr.) II  
Asato, Chui  
Students assigned as interns to supervised experience in recreational agencies. One hour per week in class discussion sessions. Limited to senior or graduate majors with 2.7 grade-point ratio or higher in recreation. Pre: consent of recreation adviser.
453 ANATOMY IN PHYSICAL EDUCATION (3) II  
Gross human anatomy with emphasis on identification and description of parts of the musculo-skeletal system and selected applications to motor activity. Primarily for physical education majors but open to others with consent of instructor. Pre: Zool 115 and 116 or equivalent.

454 PHYSIOLOGY IN PHYSICAL EDUCATION (3) I  
Emphasis on physiological responses to exercise and physical training as related to strength, muscular endurance, circulo-respiratory endurance. Primarily for physical education majors, but open to others with consent of instructor. Pre: 453, Zool 115 and 116 or equivalent.

463 KINESIOLOGY (3) II  
Concepts and scientific principles essential to efficient human movement; proper application of kinesiological and mechanical principles to fundamental movements and selected complex motor skills. Pre: 453.

534 ADAPTED PHYSICAL EDUCATION (3) II  
Factors essential to the practice of adapted physical education; disabilities, problems and needs of physically handicapped pupils with emphasis on accepted procedures for meeting these. Pre: 454, 463.

573 EVALUATION AND MEASUREMENTS IN PHYSICAL EDUCATION (3) I  
Processes involved in assessment of physical education program with emphasis on measurement criteria and instruments, interpretation of data, and content, organization and conduct of evaluation program. Pre: 208, Psy 220 or Ed EP 416 desirable.
College of Engineering

The program of study leading to an engineering degree provides a well-rounded university education designed to develop the general qualities of leadership and human understanding inherent in an educated person. In addition, the engineering graduate is equipped with a sound theoretical background to meet the new and demanding problems of a rapidly expanding technology. Career opportunities in engineering, both in Hawaii and throughout the world, have never been brighter. The graduate of the accredited engineering programs offered at the University of Hawaii is well-prepared to meet the challenges of our technology-oriented society.

Admission and Degree Requirements

Engineering programs require special preparation in addition to the general admission requirements of the University (pp. 24–29). Students are admitted to the College of Engineering on the basis of aptitude tests and high school records. Successful completion of an engineering curriculum requires a full academic program each semester, and those students who will be working to assist themselves financially or who elect to take advanced military may wish to plan their program to take four and a half or five years.

To receive the bachelor of science degree in engineering a student must:

1. Fulfill all University degree requirements (pp. 34–37);
2. complete the course work for one of the engineering curricula (pp. 201–204);
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

The College of Engineering offers the bachelor of science degree in civil, electrical, general, and mechanical engineering. The program of study in each of these disciplines provides a fundamental science-oriented university education with adequate coverage of communications, the humanities, and social sciences; the basic physical sciences of mathematics, physics, and chemistry; the engineering sciences common to all engineering areas, such as thermodynamics and electricity; and the engineering elective courses which represent a synthesis of the preparatory course work and introduce the engineering method of design.

The first year is common to all four curricula and includes the following course work:

Common First Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 108 Fundamentals of Chem†</td>
<td>5</td>
<td>GE 105 Engineering Graphics†</td>
<td>3</td>
</tr>
<tr>
<td>Eng 101 Expository Writing</td>
<td>3</td>
<td>Eng 102 Expository Writing</td>
<td>3</td>
</tr>
<tr>
<td>GE 100 Orientation</td>
<td>1</td>
<td>Math 136 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Math 135 Calculus I*</td>
<td>4</td>
<td>Phys 170 General Physics</td>
<td>3</td>
</tr>
<tr>
<td>Sp 145 Expository Sp.</td>
<td>3</td>
<td>Phys 171 General Physics Lab</td>
<td>1</td>
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<tr>
<td></td>
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<td>Health &amp; Phys. Ed.</td>
<td>1</td>
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<tr>
<td>Total</td>
<td>16</td>
<td>Total</td>
<td>15</td>
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</tbody>
</table>

At the beginning, or during, the sophomore year the engineering student selects the field of study in which he wishes to receive his degree, and pursues one of the curricula listed on the following four pages in civil, electrical, general, or mechanical engineering. Included in each of these programs of study are the general educational requirements of the University.

Those engineering students who are unusually well qualified academically are encouraged to participate in the Selected Studies and Honors Program (pp. 43–44). There is an Honors Coordinator for the College of Engineering who works with the faculty adviser of the honor student to assure that a challenging program of study is established. Upon recommendation of the Coordinator, the honor student is allowed some flexibility in course selection from the curricula that follow.

* Math 134 may be required if math preparation is inadequate.
† If prerequisite for GE 105 has not been met, GE 101–102 will be substituted.
‡ If prerequisite for Chem 108 has not been met, Chem 103–104 will be substituted.
## Civil Engineering Curriculum

### SECOND YEAR

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CE 111 Surveying I</td>
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<tr>
<td>CE 170 Applied Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>GE 110 Computer Prog.</td>
<td>1</td>
</tr>
<tr>
<td>Health &amp; Phys. Ed.</td>
<td>1</td>
</tr>
<tr>
<td>Math 231 Adv. Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>Phys 172 General Physics</td>
<td>3</td>
</tr>
<tr>
<td>Phys 173 General Physics Lab</td>
<td>1</td>
</tr>
<tr>
<td>Hist 151 World Civ.</td>
<td>3</td>
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<td><strong>Total</strong></td>
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### THIRD YEAR

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CE 220 Fluid Mechanics I</td>
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<tr>
<td>CE 221 Hydraulic Lab</td>
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</tr>
<tr>
<td>CE 241 Mechanics of Materials Lab</td>
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<td>CE 273 Mechanics of Materials</td>
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<tr>
<td>EE 102 Electrical Science</td>
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<tr>
<td>Econ 150 Principles</td>
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<td><strong>Total</strong></td>
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### FOURTH YEAR

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>CE 331 Sanitary Engineering</td>
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</tr>
<tr>
<td>CE 360 Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 380 Structural Design</td>
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</tr>
<tr>
<td>CE 321 Hydraulics or</td>
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<tr>
<td>CE 385 Structural Analysis</td>
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<td>GE 301 Engineering</td>
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<td>Management</td>
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<tr>
<td>CE Electives*</td>
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<tr>
<td>Elective†</td>
<td>3</td>
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<td><strong>Total</strong></td>
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</table>

*CE Electives CE 325, 326; or CE 386, 388; or CE 362, 364, 311; Science Electives. Approved by adviser.
†Consent of adviser.
## Electrical Engineering Curriculum

### Second Year

**First Semester**

<table>
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<th>Course</th>
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<tr>
<td>CE 170 Applied Mechanics I</td>
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</tr>
<tr>
<td>GE 110 Computer Programming</td>
<td>1</td>
</tr>
<tr>
<td>Econ 150 Principles</td>
<td>3</td>
</tr>
<tr>
<td>Health &amp; Phys. Ed.</td>
<td>1</td>
</tr>
<tr>
<td>Math 291 Advanced</td>
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<tr>
<td>Math 231 Advanced</td>
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</tr>
<tr>
<td>Phys 172 General Physics</td>
<td>3</td>
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<tr>
<td>Hist 151 World Civ.</td>
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**Second Semester**

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<th>Course</th>
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<tbody>
<tr>
<td>CE 271 Applied Mechanics II</td>
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<tr>
<td>EE 211 Circuit Theory I</td>
<td>3</td>
</tr>
<tr>
<td>Math 232 Advanced</td>
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</tr>
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<td>Phys 174 General Physics</td>
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<tr>
<td>Phys 175 General</td>
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<td>Hist 152 World Civ.</td>
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### Third Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ME 460 Electronic Proc. in Materials or ME 243</td>
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<tr>
<td>EE 312 Circuit Theory II</td>
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</tr>
<tr>
<td>EE 223 Circuits Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Phys 440 Physical Electronics</td>
<td>3</td>
</tr>
<tr>
<td>EE 275 Fields &amp; Waves I</td>
<td>3</td>
</tr>
<tr>
<td>Elective*</td>
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**Second Semester**

<table>
<thead>
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<tbody>
<tr>
<td>EE 221 Electronics I</td>
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<tr>
<td>EE 232 Waves &amp; Networks Lab</td>
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<tr>
<td>EE 351 Energy Conversion</td>
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<tr>
<td>EE 353 Conversion Lab</td>
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</tr>
<tr>
<td>EE 373 Fields &amp; Waves II</td>
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<td>Elective*</td>
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### Fourth Year

<table>
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<tr>
<td>EE 321 Electronics II</td>
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<tr>
<td>ME 231 Thermodynamics</td>
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</table>

**Electives* must satisfy University requirements. College requirements must include at least 6 credits in EE electives, and 9 credits in technical electives (engineering courses numbered 200 or above, mathematics and physics courses 300 or above).
# General Engineering Curriculum

## Second Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GE 110 Computer Program</td>
<td>1</td>
<td>CE 271 Applied Mechanics II</td>
<td>3</td>
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<tr>
<td>CE 111 Surveying I</td>
<td>2</td>
<td>Math 232 Advanced</td>
<td>3</td>
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<tr>
<td>CE 170 Applied Mechanics I</td>
<td>3</td>
<td>Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>Hist 151 World Civ.</td>
<td>3</td>
<td>Phys 174 General Physics</td>
<td>4</td>
</tr>
<tr>
<td>Health &amp; Phys. Ed.</td>
<td>1</td>
<td>Hist 152 World Civ.</td>
<td>3</td>
</tr>
<tr>
<td>Math 291 Advanced Calculus I</td>
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<td>Phys 172 General Physics</td>
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<td>Phys 173 General Physics Lab</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>Total</strong></td>
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## Third Year

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<table>
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<tbody>
<tr>
<td>CE 241 Mechanics of Materials Lab</td>
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<tr>
<td>CE 273 Mechanics of Materials</td>
<td>4</td>
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<tr>
<td>ME 231 Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 150 Principles</td>
<td>3</td>
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<tr>
<td>EE 273 Fields &amp; Waves I</td>
<td>3</td>
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<td>Elective (Human. or Soc. Sciences)</td>
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## Fourth Year

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<tbody>
<tr>
<td>Eng 210 or 215</td>
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<tr>
<td>EE 203 or 223</td>
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<tr>
<td>EE 301 or 312</td>
<td>3</td>
</tr>
<tr>
<td>ME 366 Materials Science</td>
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</tr>
<tr>
<td>Phys 440 Physical Electronics</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Human. or Soc. Sciences)</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
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</tbody>
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* (a) EE 223, 232, 321, 323, 351, 353, 373.
(b) ME 234, 367, 371, 373, 374, 475.
(c) CE 112, 222, 321, 331, 351, 360, 380, 385.
(d) GE 301; BAS 301; Mgt 300, 340, 350; PIR 350, 361.
# Mechanical Engineering Curriculum

## SECOND YEAR

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>CE 170 Applied Mechanics I</td>
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<td>CE 271 Applied Mechanics II</td>
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<tr>
<td>Health &amp; Phys. Ed.</td>
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<td>GE 110 Computer Prog.</td>
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<tr>
<td>Math 231 Adv. Calculus I</td>
<td>3</td>
<td>Hist 152 World Civ.</td>
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<tr>
<td>Phys 173 General Physics Lab</td>
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<td>Phys 174 General Physics Lab</td>
<td>4</td>
</tr>
<tr>
<td>Hist 151 World Civ.</td>
<td>3</td>
<td>Elective (Human. or Soc. Sciences)</td>
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## THIRD YEAR

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<tbody>
<tr>
<td>ME 230 Mechanics of Fluids</td>
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<td>ME 231 Thermodynamics</td>
<td>3</td>
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<tr>
<td>ME 243 Mechanics of Solids</td>
<td>3</td>
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<tr>
<td>ME 366 Materials Science</td>
<td>3</td>
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<tr>
<td>Econ 150 Principles</td>
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<td>Elective (Human. or Soc. Sciences)</td>
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## FOURTH YEAR

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<tr>
<td>ME 333 Mechanical Engr. Lab</td>
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<td>ME 373 Optimum Design of Mechanical Elements</td>
<td>3</td>
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<tr>
<td>ME 475 Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EE 301 Electronics Circuits</td>
<td>3</td>
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<tr>
<td>Elective (Technical) *</td>
<td>3</td>
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<tr>
<td>Elective (Human. or Soc. Sciences)</td>
<td>3</td>
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<td>17</td>
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</table>

*Technical Electives: Any mathematics, physics, or engineering courses numbered 200 or above approved by adviser, 6 credits must be ME courses.  
†Consent of adviser.
**Ocean Engineering**

The University of Hawaii is one of the first schools in the United States to offer a degree in ocean engineering, which is defined as the application of engineering principles and techniques to the ocean environment. The current program is an interdisciplinary one at the Master of Science level, and involves the departments of oceanography as well as civil, electrical, and mechanical engineering. Graduate students in this program must have received a B.S. degree in engineering, or in a related science with engineering prerequisites. Specific information regarding ocean engineering and additional graduate activity to the doctoral level in other engineering disciplines may be found in the University of Hawaii Graduate Division Bulletin.

**Center for Engineering Research**

The purpose of the Center for Engineering Research is to promote and coordinate research activity within the College of Engineering. Current areas of research interests are in structural engineering, water resources, coastal engineering, waste-water treatment and disposal, theoretical mechanics, heat transfer, information theory, microwaves, and atmosphere ionization. The center cooperates with other University agencies such as the Hawaii Institute of Geophysics, the Water Resources Research Center, and the Pacific Biomedical Research Center, to bring the full resources of the University to bear on multidisciplinary research projects.

The James Look Laboratory of Oceanographic Engineering is one of the major research facilities of the Center for Engineering Research. This facility is the first structure of the Kewalo Oceanographic Research Center, and permits research activity that has direct bearing on many ocean-related problems occurring throughout the state of Hawaii. A partial list of current and planned research with this facility includes the following: tsunami wave action on harbor installations; structures and ship moorings; harbor pollution studies; beach erosion; and small harbor craft design.
ENGINEERING COURSES

See p. 50 for a discussion of course descriptions.

Civil Engineering (CE)

Professors Chiu, Daniel, Evans, Go, Tinniswood; Associate Professors Haselwood, Jordaan, Lau, Mitsuda, Tung, Yuen; Assistant Professors Grace, Green, Hummel, Mikasa, Taoka, Williams, Yuasa

111 SURVEYING I (2) I (1 L, 1 Lb) Staff
Basic principles, computations, and use of instruments involving horizontal and vertical measurements. Pre: Math 102; GE 101 or GE 105.

112 SURVEYING II (3) II (2 L, 1 Lb) Staff
Topographic mapping; curves; earthwork; computer applications; route problems. Pre: Math 135, CE III and GE 110.

170 APPLIED MECHANICS I (3) I, II Mikasa
Equilibrium of particles, rigid bodies, frames and machines; vectors, centroids, friction, and moments of inertia. Pre: Phys 170.

220 FLUID MECHANICS I (3) I, II Grace, Yuen
Properties of fluids, fluid statics, kinematics and kinetics; principles of momentum and energy; real fluid effects. Pre: 271 or Phys 310.

221 HYDRAULICS LABORATORY (1) I, II Grace, Williams
Experiments and demonstrations of fluid flow in open and closed conduits, fluid measurements and hydraulic machinery. Pre: credit or concurrent registration in 220.

222 FLUID MECHANICS II (3) II Grace, Yuen
Principles of ideal and real fluid flow applied to incompressible fluids with introduction to compressible fluid motion. Pre: 220.

241 MECHANICS OF MATERIALS LABORATORY (1) I, II Taoka
Introduction to experimental techniques, observation of materials under various loading conditions. Pre: credit or concurrent registration in 273.

271 APPLIED MECHANICS II (3) I, II Evans
Dynamics of particles and rigid bodies; force acceleration, impulse-momentum, work-energy. Pre: 170, Math 136.

273 MECHANICS OF MATERIALS I (4) I, II (3 L, 1 Lb) Evans
Elastic stress-strain relationship and the behavior of members under flexural, torsional, and axial loading. Pre: 170.

274 MECHANICS OF MATERIALS II (3) II Green
Inelastic behavior, unsymmetrical bending, theories of failure, curved beams, torsion, energy methods, buckling. Pre: 273.

311 PHOTOGRAMMETRY (3) I Staff
Basic principles; photographic equipment; control, method of compilation; mosaics. Pre: 112.

321 HYDRAULICS (3) I Grace, Yuen
Open channel flow emphasizing backwater curves, hydraulic jump, surges, flood-routing; pipe networks; surges, water hammer in hydro systems; pumps, turbines. Pre: 220.
325 APPLIED HYDROLOGY (3) II
Introduction to the occurrence, distribution, circulation of surface and ground water through precipitation, streamflow, evaporation, transpiration, infiltration. Engineering applications. Pre: 220 or equivalent.

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: 321, 380, and credit or concurrent registration in 325.

331 SANITARY ENGINEERING (3) I
Water resources. Fundamental aspects and design of water works. Pre: 220.

332 SANITARY ENGINEERING (3) II
Pollution control. Fundamental aspects and design of wastewater works.

351 SOIL MECHANICS (3) I, II (2 L, 1 Lb)

360 TRANSPORTATION ENGINEERING (3) I
Introduction to the technology of transportation systems. Historical development, economics, planning, administration, geometric design, operation. Pre: 351.

362 ADVANCED TRANSPORTATION ENGINEERING (3) II
Traffic engineering, urban traffic analysis, mass transit, transportation technology. Pre: 360.

364 SOILS AND FOUNDATION ENGINEERING (4) II (3 L, 1 Lb)
Application of soil mechanics to highways, airports, dams, and foundations. Pre: 351.

380 STRUCTURAL DESIGN (4) I (3 L, 1 Lb)
Design of elements of steel and reinforced concrete structures, with emphasis on ultimate strength theory. Pre: 273.

385 STRUCTURAL ANALYSIS (3) I

386 STRUCTURAL DESIGN II (4) (3 L, 1 Lb)
Continuation of 380. Design of structural systems in timber, steel, and reinforced concrete, introduction to prestressed concrete design. Design project. Pre: 380 and credit or concurrent registration in 388.

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: 385.

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.

571 ADVANCED DYNAMICS (3) I
581 PRESTRESSED CONCRETE (3) I, II
Analysis and design of prestressed beams, columns, slabs, and composite sections. Special problems. Pre: 386 or equivalent.

621 ADVANCED FLUID MECHANICS I (3) I
Mechanics of an ideal fluid, potential flow, conformal mapping, vortex motion, deep and shallow water wave theory, introduction to gas dynamics. Pre: Math 232, CE 222 or consent of instructor.

622 ADVANCED FLUID MECHANICS II (3) II
Mechanics of a real fluid, boundary layer and turbulence theory, drag, diffusion, and other topics of advanced fluid mechanics. Pre: Math 232, CE 222, or consent of instructor.

623 SURFACE-WATER HYDROLOGY (3) II
Quantitative studies of the water cycle and relationships among the principal hydrologic elements: precipitation, runoff, infiltration and evapotranspiration with emphasis on engineering and management of surface waters. Pre: consent of instructor.

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.

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.

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.

627 OCEAN HYDRODYNAMICS LABORATORY (2) II
Experimental studies of ocean wave, current and sediment hydrodynamics and their relation to established theory. Look Laboratory of Oceanographic Engineering and nearby ocean front will be utilized. Pre: 625 or Ocean 620.

628 GROUND-WATER HYDROLOGY (3) I
Ground-water occurrence, movement, quality, conservation, development and management. Hydromechanics of ground-water. Pre: 325 or consent of instructor.

631 ENVIRONMENTAL AND SANITARY ENGINEERING THEORY I (3) I
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.

632 ENVIRONMENTAL AND SANITARY ENGINEERING THEORY II (3) II
Principles of waste water and solids waste handling, treatment and re-use, and a study of the factors involved in disposal of waste to natural waters. Pre: 631.

633 ENVIRONMENTAL AND SANITARY ENGINEERING I (3) I (1 L, 2 Lb)
Functional design of modern water and air purification systems. Pre: consent of instructor.

634 ENVIRONMENTAL AND SANITARY ENGINEERING DESIGN II (3) II (1 L, 2 Lb)
Functional design of modern waste water and solids waste treatment systems. Pre: 633.
635 ENVIRONMENTAL AND SANITARY ENGINEERING CHEMISTRY (4) I (2 L, 2 Lb) Young
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.

636 ENVIRONMENTAL AND SANITARY ENGINEERING MICROBIOLOGY (4) (2 L, 2 Lb) Klemmer
Fundamental microbiology involved in environmental engineering processes and research with special emphasis on mixed culture systems, biochemistry, and physiological chemistry. Pre: consent of instructor.

637 ENVIRONMENTAL AND SANITARY ENGINEERING LAB (3) II (2 L, 1 Lb) Young
Studies of the chemistry and physics of the various unit processes in waste water and solids waste treatment, including laboratory work necessary for development of design criteria and operation and control of these systems. Pre: consent of instructor.

638 ENVIRONMENTAL AND SANITARY ENGINEERING PUBLIC HEALTH (3) II Burbank
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.

650 SOIL MECHANICS (3) II Evans, Hummel
Theories of soil resistance, seepage, consolidation settlement analysis, bearing capacity, stability considerations. Pre: consent of instructor.

651 APPLIED SOIL MECHANICS I (3) I (2 L, 1 Lb) Evans
Foundation and stability analysis of retaining walls, footings, piles, load tests on footing and piles, mass stability, compilations and analysis of test data. Pre: 650 or consent of instructor.

652 APPLIED SOIL MECHANICS II (3) II (2 L, 1 Lb) Evans
Continuation of 651 to include seepage settlement, mass stability, sheet piling and tunnels. Pre: 651.

671 THEORY OF ELASTICITY (3) I Tung
Analysis of stress and strain, equilibrium and compatibility. Torsion and bending of prismatic bars. Plane stress and plane strain problems. Pre: consent of instructor.

672 THEORY OF ELASTICITY II (3) II Tung, Stuiver
Stress, strain and elasticity relations in indicial notation. Solution of two and three dimensional problems by complex variables, potential functions, and transform methods. Special topics. Pre: 671.

673 THEORY OF PLASTICITY (3) II Mitsuda

674 STABILITY OF STRUCTURES (3) II Stuiver
Elastic and inelastic buckling of columns. Lateral buckling of beams. Stability of frameworks and elastically supported columns. Pre: consent of instructor.

675 THEORY OF VIBRATIONS (3) I Taoka
Principal modes and natural frequencies of discrete and continuous elastic systems. Approximate methods. Forced motions, damping effects and wave propagation. Pre: consent of instructor.
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<th>Course</th>
<th>Title</th>
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<tr>
<td>676</td>
<td>STRUCTURAL DYNAMICS (3) II</td>
<td>Taoka</td>
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<td></td>
<td>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: 675.</td>
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<td>678</td>
<td>THEORY OF PLATES (3) II</td>
<td>Tung</td>
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<td>Analysis of stress and deformation in thin plates bent by transverse loads under various edge conditions. Applications to circular, rectangular, and other shapes. Introduction to large deflections or thick plates. Pre: 671 or consent of instructor.</td>
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<td>679</td>
<td>THEORY OF THIN SHELLS (3) I</td>
<td>Mitsuda</td>
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<td>Fundamental theories of shells with application to shell-type structures such as shell roofs, tanks, pressure vessels. Membrane theory of shells, shells of revolution, moment theory of shells, shallow shells. Pre: 671 or consent of instructor.</td>
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<td>680</td>
<td>ENERGY METHODS IN APPLIED MECHANICS (3) II</td>
<td>Taoka</td>
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<td>Variational principles of mechanics and their application to engineering problems. Virtual work, minimum potential energy, minimum complementary energy. Applications to structures, solid mechanics. Pre: 671.</td>
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<td>681</td>
<td>ADVANCED INDETERMINATE STRUCTURES (3) I</td>
<td>Staff</td>
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<td>Energy methods, elastic center, column analogy, indeterminate trusses, arches, influence lines, elements of matrix analysis and introduction to plastic theory. Pre: consent of instructor.</td>
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<tr>
<td>682</td>
<td>NUMERICAL METHODS OF STRUCTURAL ANALYSIS (3) II</td>
<td>Staff</td>
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<td>683</td>
<td>ADVANCED REINFORCED CONCRETE DESIGN I (3) I</td>
<td>Go</td>
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<td></td>
<td>Ultimate strength theory, composite beams using precast and cast-in-place concrete, rigid frames and slabs. Pre: consent of instructor.</td>
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<tr>
<td>684</td>
<td>ADVANCED REINFORCED CONCRETE DESIGN II (3) II</td>
<td>Go</td>
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<td>Continuation of 683. Spherical, cylindrical and hyperbolic paraboloid shells, circular and rectangular tanks, folded plates structures. Pre: 683.</td>
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<td>685</td>
<td>PLASTIC ANALYSIS OF METAL STRUCTURES (3) I</td>
<td>Taoka</td>
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<td>696</td>
<td>SELECTED TOPICS IN CIVIL ENGINEERING (3) I or II</td>
<td>Staff</td>
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<td></td>
<td>Highly specialized topics in structural, soils, hydraulics, sanitary, and ocean engineering. Pre: consent of instructor.</td>
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<td>697-698</td>
<td>SEMINAR IN CIVIL ENGINEERING (1–1) Yr.</td>
<td>Staff</td>
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<td>Discussions and reports on literature, research, developments, and activities in one of these areas: (1) structural engineering; (2) environmental and sanitary engineering; (3) soil and foundation engineering; (4) hydraulic engineering. Pre: consent of instructor. Required of all graduate students.</td>
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<td>699</td>
<td>DIRECTED READING OR RESEARCH (arr.) I, II</td>
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<td>Pre: consent of instructor.</td>
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<tr>
<td>800</td>
<td>THESIS RESEARCH (arr.)</td>
<td>Staff</td>
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Electrical Engineering (EE)

Professors Abramson, Gott, Kinariwala, Kuo, Lenz, Peterson, Yuen; Associate Professors Granborg, Hwang, Weaver; Assistant Professors Lin, Najita, Roelofs, Seo

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 136; Phys 172.

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: registration in 301.

211 CIRCUIT THEORY I (3) II (3 L)

221 ELECTRONICS I (3) II (3 L)
Study of properties of electron tubes and semiconductor devices and their application as circuit elements. Pre: 211; Phys 440.

223 CIRCUITS LABORATORY (1) I (1 Lb)
Laboratory for 312. Pre: 211; registration in 312.

232 TRAVELING WAVES AND NETWORKS LABORATORY (1) II (1 Lb)
Experiments on the properties of linear active networks and distributed-parameter systems. Pre: 223; registration in 221, 273.

273 FIELDS AND WAVES I (3) I (3 L)
Stationary and traveling waves in distributed-parameter systems. Stationary electric and magnetic fields. Pre: registration in Math 232.

301 ELECTRONICS CIRCUITS (3) I (3 L)

312 CIRCUIT AND SYSTEM ANALYSIS (3) I (3 L)
S-plane analysis, transfer functions, Laplace transforms, Fourier analysis, sampling and correlation. Pre: 211, Math 232.

321 ELECTRONICS II (3) I (3 L)
Theory and design of oscillators, waveforming circuits, modulators, demodulators, and logic circuits. Instrumentation. Pre: 221.

323 ELECTRONICS LABORATORY (1) I (1 Lb)
Laboratory for 321. Pre: 232; registration in 321.

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: 211, 273.

353 ELECTROMECHANICAL ENERGY CONVERSION LABORATORY (1) II (1 Lb)
Experiments on electromechanical energy conversion using a generalized machine. Pre: 223; registration in 351.

373 FIELDS AND WAVES II (3) II (3 L)
Solution of Maxwell’s equations under various boundary conditions. Introduction to microwave theory. Pre: 273.
396 PROJECT (2) I, II
Investigation of advanced engineering problems. Pre: senior standing.

399 SPECIAL PROBLEMS (arr.) I, II
Research or development problem. Pre: senior standing with 3.0 grade-point ratio in major field.

421 MICROWAVE THEORY AND TECHNIQUES (3) I (3 L)
Theory and techniques of energy generation and transmission at microwave frequencies. Principles of operation of microwave tubes, devices, and systems. Pre: 221, 373.

431 ELECTRONIC INSTRUMENTATION (3) II (3 L)

433 INSTRUMENTATION LABORATORY (1) II (1 Lb)
Laboratory for 431. Pre: credit or registration in 431.

441 PRINCIPLES OF COMMUNICATION (3) II (3 L)
Signal representation, modulation, communication systems, noise. Introduction to information theory. Pre: 321.

451 FEEDBACK CONTROL SYSTEMS (3) I (3 L)
Principles of linear feedback control systems with emphasis on methods, analysis, and synthesis to meet prescribed performance criteria. Electronic, electromechanical, and electrohydraulic components; stability criteria; root locus, Nyquist and Bode techniques; cascade and feedback compensation of control system. Pre: credit or registration in 221, 351, or equivalent.

452 FEEDBACK CONTROL SYSTEMS LABORATORY (1) I (1 Lb)
Laboratory for 451. Pre: credit or registration in 451.

461 DIGITAL TECHNIQUES (3) I (3 L)
Number systems, Boolean algebra and combinational digital circuits. Logical design. Sequential circuits. Machine language instructions. Organization of a simple computer. Pre: credit or registration in 221, or consent of instructor.

463 ANALOG COMPUTERS (3) II (3 L)
Concepts and principles of analog computation. Scaling and programming linear and non-linear, and time-varying differential equations; direct stimulation of electrical and mechanical systems. Pre: 312, 221.

465 INFORMATION THEORY AND CODING (3) I (3 L)
Abramson
Fundamental properties of information. Sources and channels and coding of information. Applications to communication, linguistics, music, economics, and psychology. Method of study based on elementary probability theory, but emphasis on significance of results. Open to all students. Pre: Math 134; junior standing or consent of instructor.

471 SYNCHRONOUS MACHINES AND POWER SYSTEMS (3) I (3 L)
Analysis of rotating machines. Relationship of machine characteristics to power system characteristics. Power system transmission, distribution, and protection. Pre: 273, 351.

493-494 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (3-3) I, II (3 L)
Course content will reflect special interests of visiting and permanent faculty, and will be oriented toward junior and senior undergraduates. In general, these will be in fields of control systems, information sciences, radioscience. Pre: consent of instructor.
495–496  SPECIAL TOPICS LABORATORY (1–1) I, II (1 Lb)  Staff
Lab for 493–494. Pre: consent of instructor.

601–602  ELECTROMAGNETIC THEORY AND APPLICATIONS (3–3) Yr. (3 L)  Weaver
Solutions and applications of Maxwell’s equations to radiation and propagation of electromagnetic waves. Pre: 373 or equivalent; Math 232 or equivalent.

604  MAGNETO-IONIC THEORY (3) II (3 L)  Roelofs
Electromagnetic waves in ionized medium with a superimposed magnetic field. Applications. Pre: 475.

605–606  NETWORK SYNTHESIS (3–3) Yr. (3 L)  Gott
Properties of driving-point and transfer immittances, lossless and lossy. Approximation techniques. Transfer function synthesis and techniques using active elements. Pre: 312 or equivalent.

608  ANALYSIS OF NONLINEAR SYSTEMS (3) II (3 L)  Najita

609  LINEAR SYSTEM ANALYSIS (3) I (3 L)  Kuo
Discussion of fundamental concepts. Study of linear graphs, network equations and computational algorithms in linear algebra. Use of state-space methods, Fourier transforms, and generalized functions. Study of random signals in linear systems. Pre: 312 or equivalent.

621–622  ADVANCED MICROWAVE THEORY (3–3) Yr. (3 L)  Yuen
Advanced topics in microwave theory. Pre: 421.

631  ADVANCED ELECTRONIC INSTRUMENTATION (3) I (3 L)  Seo
Electronic conversion transducers for control and measurements; special-purpose amplifiers; analog and digital components and circuits; applications. Pre: 431 or equivalent.

641  STATISTICAL COMMUNICATIONS THEORY (3) I (3 L)  Chow
Statistical approach to electrical communications theory. Pre: 441.

651  ADVANCED FEEDBACK CONTROL SYSTEMS (3) I (3 L)  Granborg
Analytical and numerical methods for investigation and solution of non-linear control systems, derivation of z-forms, the phase plane, describing function techniques, relay systems, sampled-data systems, non-linear compensation techniques, adaptive control systems. Pre: 451 or equivalent.

652  OPTIMIZATION TECHNIQUES IN CONTROL SYSTEMS (3) II (3 L)  Granborg
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: 451 or equivalent.

653  ADAPTIVE CONTROL (3) II (3 L)  Lenz
Control in a variable environment; definition of performance criteria; plant identification; time-variant control parameters; logical control processes; basic optimization processes; pertinent analog and digital control techniques; introduction to linear and dynamic programming for control; multi-dimensional control processes. Pre: 651 or consent of instructor.

655  SAMPLED-DATA CONTROL SYSTEMS (3) I (3 L)  Granborg
Theory and application of sampled-data control systems; sampling and filtering theorems, Z-transforms, modified Z-transforms, digital compensation and stability, op-
timization, application of state variable theory to sampled-data systems, on-line digital computer systems. Pre: 451 or equivalent.

657 HYBRID AUTOMATIC CONTROL SYSTEMS (3) II (3 L)  Granberg

661 THEORY AND DESIGN OF DIGITAL MACHINES (3) I (3 L)  Peterson

663 INFORMATION THEORY (3) I (3 L)  Peterson
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.

667 APPLIED STATISTICAL DECISION THEORY (3) II (3 L)  Abramson
Random signals and noise; data processing and statistical decision theory. Detecting signals in the presence of noise; applications to problems in communications, radar and radio astronomy. Signal processing in two dimensions with applications to tsunami detection and filtering of seismic signals. Adaptive decision making and pattern recognition. Pre: 642 or equivalent.

668 ERROR-CORRECTING CODES (3) II (3 L)  Peterson
Basic mathematical properties of block and convolutional codes, cyclic codes, correction of random and burst errors, implementation, use in practical error control systems. Pre: Math 311 or consent of instructor.

693 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (3) I, II (3 L)  Staff
Course content will reflect special interests of visiting and permanent faculty, generally in the fields of control systems, information sciences, and radioscience. Pre: consent of instructor.

697–698 SEMINAR IN ELECTRICAL ENGINEERING (1–1) Yr.  Staff
Pre: graduate standing, consent of instructor.

699 DIRECTED READING OR RESEARCH (arr.) I, II  Staff
Pre: graduate standing, consent of instructor.

800 THESIS RESEARCH (arr.) I, II  Staff
Pre: candidacy for M.S. in E.E.

General Engineering (GE)
Associate Professor Avery; Instructors Smith, Stoutemyer

100 ENGINEERING ORIENTATION (1) I  Staff
Nature of the engineering profession and the aims of engineering education.

101 ENGINEERING GRAPHICS (2) I, II (1 L, 2 Lb)  Avery, Reinhard, Staff
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.
102 ENGINEERING GRAPHICS (2) I, II (1 L, 2 Lb)  
Avery, Reinhard, Staff  
Continuation of 101 in analyzing and solving spatial problems pertaining to points, lines, planes, and their application to engineering. Vector geometry, graphical calculus, and a design problem. Pre: 101.

105 ENGINEERING GRAPHICS (3) I, II (1 L, 2 Lb)  
Avery, Reinhard, Staff  
Analysis and solution of spatial problems pertaining to points, lines, and planes, and their application to engineering. Vector geometry, graphical calculus, and a design problem. Pre: 1 year high school mechanical drawing. Not open to students who have credit in 102.

110 DIGITAL COMPUTER PROGRAMMING (1) I, II  
Avery, Stoutemyer  
Introduction to FORTRAN IV language and application to engineering problems using IBM 360. Pre: Math 135. Not open to students with previous credit in FORTRAN.

301 ENGINEERING MANAGEMENT (3) I, II  
Tinniswood  

**Mechanical Engineering (ME)**

Professors Burgess, Fand, Stuiver; Associate Professors Chai, Chou, Larsen-Badse; Assistant Professors Fox, Htun, Munchmeyer; Visiting Professor DuBois

230 MECHANICS OF FLUIDS (3) I  
Staff  

231 THERMODYNAMICS (3) I, II  
Staff  

232 APPLIED THERMODYNAMICS (3) II  
Staff  

234 MEASUREMENTS LABORATORY (2) II  
Staff  

243 MECHANICS OF SOLIDS (3) I, II  
Staff  
Analysis of deformable bodies. Stresses, strains, and criteria for yielding and fracture. Torsion, bending, and buckling. Pre: CE 170.

333 MECHANICAL ENGINEERING LABORATORY (2) I  
Munchmeyer  

335 INTRODUCTION TO NUCLEAR ENGINEERING (3) I  
Chai  

336 NUCLEAR REACTOR ENGINEERING (3) II  
Chai  
Thermal and mechanical design aspects of nuclear power plant. Heat generation and removal, fluid flow, structural and moderator materials, mechanical and structural components, radiation shield, reactor design, and reactor system. Pre: 335. (Not offered 1967–68.)
341 INTERNAL COMBUSTION ENGINES (3) I

342 AIR CONDITIONING AND REFRIGERATION (3) II

343 AUTOMATIC CONTROL (3) I

344 TURBOMACHINERY (3) II
Theoretical analysis of energy transfer between fluid and rotor; principles, performance, and design of compressors and turbines. Pre: 232.

346 INTRODUCTION TO GAS DYNAMICS (3) II
One-dimensional compressible flow involving change of area, normal shock, friction, and heat transfer. Pre: 230, 232.

350 MARINE ENGINEERING (3) II

366 MATERIALS SCIENCE (3) I
Behavior of materials as determined by structure and environment. Interrelationships between microscopic and macroscopic structure and phenomenological properties. Pre: Phys 174.

367 MATERIALS PROCESSING (3) II (2 L, 1 Lab)
Development, processing, and fabrication of engineering materials. Energy requirements of various manufacturing methods and their effect upon material properties. Pre: 366.

371 DYNAMICS OF MACHINERY (3) II

373 OPTIMUM DESIGN OF MECHANICAL ELEMENTS (3) I (2 L, 1 Lab)
Analysis and design of machine components for strength, rigidity, fatigue, etc. Fastenings, transmission devices, and selected topics. Pre: 243, 367.

374 INTRODUCTION TO ENGINEERING DESIGN (4) II (2 L, 2 Lab)

382 POWER PLANTS (3) I

390 PROJECT (arr.) I, II
Investigation of advanced problems in mechanical engineering design or development. Pre: senior standing.

460 ELECTRONIC PROCESSES IN MATERIALS (3) II
Physical basis of electric, magnetic, and optical properties of solids. Effects arising from material and processing variables and from impurities, imperfections, domains, and grain boundaries. Pre: 366 or Phys 440.
475  HEAT TRANSFER (3) I  

477  FUNDAMENTALS OF SPACE DYNAMICS (3) I  

601  ADVANCED ENGINEERING THERMODYNAMICS I (3) I  

602  ADVANCED ENGINEERING THERMODYNAMICS II (3) II  
Development of techniques necessary for the study of combustion reactions and the behavior of solutions, films and electromagnetic systems. Introduction to statistical thermodynamics of ideal gases and solids. Pre: 601.

605  HEAT TRANSFER I (3) I  

606  HEAT TRANSFER II (3) II  
Heat transfer in laminar and turbulent boundary layer including channel flow. Analogy between heat, momentum, and mass transfer. Free convection, evaporation, condensation, and mass transfer by diffusion. Pre: 475 or equivalent.

631  MECHANICAL PROPERTIES OF MATERIALS (3) I  

635  CORROSION (3) I  

636  MATERIALS FOR THE OCEAN ENVIRONMENT (2) II  
Application of materials science and corrosion theory to the study of materials problems associated with the ocean and to the selection of materials of construction for this environment. Pre: 635 or equivalent.
THE COLLEGE OF GENERAL STUDIES is primarily concerned with meeting the continuing education needs of individuals and groups in the state. Programs designed for this purpose include conferences, institutes, informal courses, lyceums, lectures, and educational experiences designed for particular purposes or groups. These continuing education programs are available to all interested adults.

The College also provides educational opportunities for students who cannot because of time or distance attend courses regularly scheduled on campus. Degree credit courses for these persons are scheduled in the evening on campus and at various other places and times on Oahu and the other islands. Such courses are open to all students who have been regularly admitted to the University.

In addition the College administers the academic affairs of students who have been admitted to the University, but are not candidates for a degree at this institution. These students may attend full or part time in the day or evening. Inasmuch as they have no required program of study, such students have great latitude in the selection of their courses. They must, however, comply with other requirements and regulations of the University and must have completed any prerequisites required for the courses they choose.

Credit Courses. A group of basic courses, including the general education courses required by all degree curricula, are offered both on and off-campus. Advanced courses are offered when needed by a substantial number of evening students. Admission is governed by general University requirements, and regular residence credit is given, including graduate credit where applicable.

On-campus accelerated evening courses are scheduled four times a year. Off-campus accelerated programs are also offered four times a year at Fort Shafter, Hickam Air Force Base, Kaneohe MCAS, Pearl Harbor, Schofield Centers, Tripler Army Hospital, Waipahu, Wheeler Air Force Base, and other off-campus locations. Courses are also taught on Hawaii,
Maui, Kauai, 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 program within the state, the College operates overseas centers at Kwajalein and Midway. Selected courses for credit are given in an effort to meet the needs of personnel, both military and civilian, stationed in these areas.

**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 and off campus. These and other special courses are offered when needed to provide training in specific professional or vocational areas, to prepare candidates for professional licensing examinations, or to assist with special local problems. Non-credit courses are generally scheduled 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.

**Program for Afloat College Education.** The PACE Program is currently offering Polaris Submarine personnel the opportunity to further their formal education while serving aboard submarines. The program consists of lower division University courses taught by regular faculty. The program is unique in that the courses are conducted both in a classroom setting at Pearl Harbor and on submarines at sea.

**Conferences and Institutes.** This division was established in the College in 1961. Its program serves the College itself as well as community groups and University departments by providing planning and administration services for conference, institute, and workshop programs. The staff works closely with University departments and with both public and private organizations on all levels of continuing education activity in the state. In coordinating University resources with community needs, reliance is placed particularly on the advice and working cooperation of interested departments and divisions.

Institutes, workshops, and conferences are also initiated and presented where need is evident and resources are available. Such programs are developed with the advice and assistance of individuals and groups in the University and the community.

Services include assistance in planning; preparation and administration of budgets; procurement of resource persons; arrangement of travel, living accommodations, and facilities, including related services; preparation of final financial and proceedings reports. Flexible scheduling of activities makes it possible to accommodate requests as they arise.
Lyceum and Speakers' Bureau. The Lyceum program of the College presents an annual series of lectures, dance, drama, literary and musical events using both local and imported talent. This series is presented throughout the state.

The Speakers' Bureau provides single lectures and plans lecture series for both civilian and military organizations. A $10 fee is charged for this service. A file of available lecturers is compiled yearly.

Television broadcasts are sponsored by the College as part of its ongoing education responsibility to the community.

Civil Defense Training Program. Under contract with the Department of Defense, the College offers courses to train Shelter Management and Radiological Monitor instructors. Additional courses offered are Radiological Defense Officer, Civil Defense Management, Shelter Management, and Emergency Operating Center Simulation Workshops. The program is also responsible for conducting conferences in civil defense for business and industry. Courses and conferences are offered on Oahu, Hawaii, Kauai, and Maui.

Labor-Management Education Program. The objectives of this program are to provide basic leadership training for those associated with management and labor, to the end that there shall be (1) understanding by both groups of the fundamental problems of mutual interest with which they must deal; (2) knowledge of the factors which are essential to productive relations between them; and (3) appreciation of the public's interest in the satisfactory solution of their common problems.

The program offers a number of general courses primarily designed for persons who are engaged in a leadership capacity in the unions, and in a supervisory capacity for management. Special courses are conducted for union and management personnel separately. These are planned with participating organizations and limited to the persons designated by those organizations.

The program also conducts or participates in staff training programs, conferences, and weekend institutes dealing with industrial relations and labor problems.

Manuscript Criticism Service. Writers of fiction, non-fiction, poetry, and drama may submit manuscripts for professional opinion and advice of qualified faculty members. Reading fees are available on request.

Announcements and other information concerning these varied programs will be made available by the College of General Studies upon request.
College of Health Sciences and Social Welfare

The College of Health Sciences and Social Welfare provides educational programs and fosters research in the health fields of medicine, public health, nursing, and social work.

The School of Medicine carries students through the first two years in medicine, after which two further years in a mainland school lead to the M.D. degree; or, alternately, may lead to an advanced degree in a basic medical science, or in public health.

The School of Public Health offers programs leading to the M.P.H. or M.S. degrees.

The School of Nursing prepares students in professional nursing, technical nursing, and dental hygiene. The programs in dental hygiene and in technical nursing are lower division programs; that in professional nursing includes an upper division program leading to the B.S. degree, and a graduate program in psychiatric-mental health nursing leading to the M.S. degree.

The School of Social Work offers a two-year graduate program leading to the M.S.W. degree. The School also offers courses on the undergraduate and preprofessional levels for juniors and seniors.

SCHOOL OF MEDICINE

Admission and Degree Requirements

a. Medical Students

"Medicine has 1,000 doors," some for skillful clinicians, some for teachers and researchers; some for those who wish to work with people, some for those who wish to work with figures, chemicals, or animals; some for those who wish to work at home and some for those who want to work in the international scene. The School seeks students with various talents and interests, and a serious attempt is made to recognize and foster these special qualities.
Applicants to the School of Medicine for the curriculum in medicine must have completed at least three years (about 90 semester units) of college work. Preference will be given those who possess a bachelor’s degree. Students at the University of Hawaii will commonly have a bachelor’s degree in biological sciences, but the degree may be in any field. An effort toward breadth of learning, both in the humanities and in the sciences, should be made.

The following specific work is required for entry into the Medical School:

**Special Requirements for Admission to the School of Medicine**

**Biology:** at least 10 units; work through comparative anatomy, embryology, and the fundamentals of genetics is desirable.

**Chemistry:** at least 16 units, including quantitative analysis and organic chemistry. Organic chemistry laboratory and physical chemistry are desirable.

**Physics:** at least 8 units.

**Mathematics:** work through one year of calculus, and elementary statistics.

**Medical College Admission Test (MCAT):** required of all medical applicants.

The first year class is limited in 1967-68 to 25 students. Applicants and supporting papers must be received before December 1 for consideration for admission the following September.

Correspondence regarding admission should be directed to: Admissions Office, School of Medicine, 2538 The Mall, University of Hawaii, Honolulu, Hawaii 96822.

b. Non-medical students

Applicants to the School of Medicine for B.S., M.S., or Ph.D. degrees should fulfill the requirements as noted for the specific disciplines, for instance, biochemistry, or medical technology.

Application for admission to any of the departments of the School of Medicine as a candidate for a master’s degree or doctor’s degree in a specific discipline should be directed to the Dean of the Graduate Division; for a bachelor’s degree it should be directed to the admissions office noted above.

**Curriculum for Medical Students**

Medical students will follow a two-year curriculum designed to make transfer possible at the end of the second year to the junior class of any mainland medical school. Elective time is provided in both years to allow development of special interests.
Provision is made for a limited number of students who wish to take the work spread over a three-year period, or longer.

### CURRICULUM

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<th>YEAR</th>
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### Allied Medical Sciences

**Division of Speech Pathology and Audiology (SPA)**

Professor ANSBERRY; Associate Professor RITTER; Assistant Professor PANG-CHING; Associate Clinical Professor WATSON

The division of speech pathology and audiology offers training leading to the B.S. and M.S. degrees. Students are prepared for work in the fields of speech correction, hearing rehabilitation, and related areas.

### UNDERGRADUATE COURSES

**200 INTRODUCTION TO SPEECH CORRECTION (3) I**  
**Ansberry**  
Survey of field of speech correction; study of defective articulation, delayed speech, voice problems, cleft palate, cerebral palsy, stuttering, language disorders.
201 INTRODUCTION TO AUDIOLOGY (3) I  
Basic principles of hearing rehabilitation; hearing problems and their treatment.

202 METHODOLOGY OF SPEECH CORRECTION (3) II  

203 TESTING OF HEARING (3) II  
Methods of administering screening testing programs; threshold determinations by conventional methods and special tests of hearing; interpretation of results. Pre: 201.

300 PATHOLOGY OF SPEECH (3) I  

310 PRACTICUM IN SPEECH PATHOLOGY (3) II  
Clinical practice in use of diagnostic procedures and rehabilitation techniques with a variety of defects and disorders at various age levels. Pre: 200, 202.

311 PRACTICUM IN AUDIOLOGY (3) I  
Clinical practice in testing of hearing, hearing conservation, auditory training, speech reading, speech correction and conservation. Pre: 203.

320 SPEECH AND HEARING SCIENCE (3) II  
General introduction to the science of speech and hearing including anatomy and physiology of the organs involved.

GRADUATE COURSES

600 ORGANIC DISORDERS OF SPEECH (3) I  
Study of disorders of speech resulting from organic anomalies: cleft palate, cerebral palsy, laryngectomy, and brain injury.

601 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.

602 FUNCTIONAL DISORDERS OF SPEECH (3) II  
Diagnostic and therapeutic approaches to disorders of speech which are primarily functional in nature—artication, voice, rhythm, language.

603 LANGUAGE DEVELOPMENT FOR CHILDREN WITH HEARING DEFICIENCIES (3) II  
Language acquisition by hard-of-hearing and deaf children; methods of stimulating growth.

610 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, stuttering.

611 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.

621 ADVANCED AUDIOLOGY (3) II  
Instrumentation; selection of hearing aids; special tests of hearing; functional vs. organic hearing loss; vocational problems of impaired hearing.
630 RESEARCH METHODS (3) I  
Research methods applicable to the field of speech pathology and audiology; analysis and reporting of data; bibliography; contemporary research. Required of all graduate students.

640 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.

641 SEMINAR IN AUDIOLOGY (3) I  
Review of research and literature in the field of hearing. May be repeated.

650 GENERAL SEMINAR (3) I, II  
Significant topics and problems in speech pathology and audiology. May be repeated.

699 RESEARCH (1–4) I, II  
Required of all graduate students in speech pathology and audiology who are following the non-thesis program; open to other qualified graduate students.

800 THESIS (6) I, II  
Limited to students enrolled in the thesis program (Plan A).

Division of Comparative Medicine

Associate Veterinarian PALUMBO

The division of comparative medicine provides veterinary facilities, materials, and guidance for research and participates in graduate instruction.

450 THE USE OF ANIMALS IN RESEARCH (2) I  
To acquaint students with concepts and methods in the use and care of experimental animals.

Anatomy (Anat)

Professor NOYES; Associate Professors De Feo, KANE; Assistant Professors BHAGAVAN, YANAGIMACHI; Assistant Clinical Professor GORDON

Instruction in the department of anatomy is planned primarily to meet the needs of students in medicine but, insofar as facilities permit, all of the courses are open to other properly qualified third- and fourth-year undergraduate and graduate students. Those who are not registered in medicine but wish to take work in the department should make arrangements in advance with the instructors concerned.

Facilities are available for a limited number of doctors of medicine, or others with equivalent training, who may wish to do special dissections or pursue work on problems within the scope of the department. Graduate study may be undertaken in such aspects of anatomy as are indicated by the courses listed. Programs combining work in anatomy and other fields of biology or medicine may be arranged.
Biochemistry (Bioch) and Biophysics (Bioph)

Professors PIETTE, WINNICK, YASUNOBU; Associate Professors BARBER, MOWER; Assistant Professors HALL, MCKAY, MANDEL, SCOTT

The biochemistry and biophysics department offers graduate programs leading to the M.S. and Ph.D. degrees, and provides the requisite courses for medical students.

561-562 (or the equivalent) is prerequisite for all graduate work in this department.

BIOCHEMISTRY

441 BASIC BIOCHEMISTRY (3) I
Lectures on composition of biological substances and their metabolic transformation in animals, plants, and micro-organisms. Pre: Chem 103-104, 143-144 or equivalent.

442 BASIC BIOCHEMISTRY LABORATORY (1) I (1 Lb)
Experiments to accompany 441.

561-562 GENERAL BIOCHEMISTRY (3-3) Yr.
Comprehensive survey of chemistry, structure, metabolism, and physiological functions of important components of living organisms. Pre: Chem 143-144, Chem 551-552, or consent of instructor.

571-572 GENERAL BIOCHEMISTRY LABORATORY (2-2) Yr. (2 Lb)
Selected physico-chemical and metabolic experiments to illustrate important principles of 561-562.

615 ADVANCED CARBOHYDRATE METABOLISM (2) I*
Chemistry and metabolism of sugars, polysaccharides, glycopeptides, glycolipids, and glycoproteins. Role of carbohydrates in immunology. Pathway of photosynthesis.

630 NUCLEIC ACIDS AND VIRUSES (2) II*
Current topics on DNA and RNA, radiation effects, cytoplasmic inheritance, mutagenesis, chemistry of the gene. Molecular biology of bacteriophages.

*Given in alternate years.
671–672 SEMINAR (1) I, II  
Weekly discussions and reports on various subjects; current advances in biochemistry and biophysics.

699 DIRECTED RESEARCH  
Students may register on approval of the department.

800 THESIS RESEARCH (arr.) I, II  
Approval of department faculty required.

BIOPHYSICS

601 SURVEY OF BIOPHYSICS (3) I  
Theory and application of various physico-chemical techniques used in molecular biology, including optical absorption, light scattering, magnetic resonance, ultracentrifugation, viscometry, microscopy, circular dichroism and optical rotary dispersion. Pre: Chem 451–452 (physical chemistry) and Math 136.

602 SURVEY OF BIOPHYSICS (3) II  
Structure and biological significance of water, physical chemistry of biopolymers and the relationship of their structure to biological function. Pre: 601.

603 BIOPHYSICS LABORATORY (3) II  
Application of physio-chemical techniques to biological systems. Use of the analytical ultracentrifuge, optical absorption, electron spin resonance, viscometry, diffusion and light scattering. Pre: 601 and 602.

701 MOLECULAR STRUCTURE AND FUNCTION OF CHROMOSOMES (2) I*  
Physical properties of phage and bacterial chromosomes as determined by sedimentation velocity, buoyant density, ultraviolet absorption autoradiography and electron microscopic techniques, and their correlation with genetic structure and function. Pre: 601 and 602.

702 ELECTRON AND NUCLEAR MAGNETIC RESONANCE STUDIES IN BIOLOGICAL SYSTEMS (2) II*  
Theory of nuclear and electron magnetic resonance. Considerations of relaxation mechanisms and applications to biological systems.

703 CONFORMATIONAL ANALYSIS OF BIOPOLYMERS (2) I  
Discussion of the applications of statistical mechanics to the study of macromolecules in solution with special emphasis on biopolymers. Calculation of the average dimensions of randomly coiling macromolecules, including polyelectrolytes, the helix-coil transition in polypeptides and polynucleotides and a discussion of protein and nucleic acid denaturation. Pre: 601 and 602.

704 THE ROLE OF FREE RADICALS IN BIOLOGICAL SYSTEMS (2) II  

705 BEHAVIORAL TECHNIQUES IN SENSORY BIOPHYSICS (2) I  
Techniques for testing correlations of biophysics data to behavior. Studies of nerve impulse inhibition in the nervous system, transformations in the ear, nervous interaction in the eye, will be explored in their relation to behavior.

*Given in alternate years.
Genetics (Genet)

Professors Ashton, Beckman, Morton; Associate Professors Hiraizumi, Hunt; Assistant Professor Mi; Associate Clinical Professors Halperin, Waxman

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 acid to genetic fine structure, mutagenesis, the transfer of genetic information and control of development. Pre: 451 and one semester of biochemistry recommended.

611 MEDICAL GENETICS (2) I  
Principles of genetics for medical students. Pre: consent of instructor.

618 CYTOGENETICS (3) II (2 L, 1 Lb)  

625 ADVANCED TOPICS IN GENETICS (2) II  
Advanced treatment of frontiers in genetics. Pre: graduate standing in genetics or consent of instructor.

650 POPULATION GENETICS (3) II  

654 GENETICS SEMINAR (1) I, II  
Research and topical literature reports in genetics. May be repeated. Pre: graduate standing in genetics or consent of instructor.

660 STATISTICAL METHODOLOGY IN GENETICS (3) I  
Application of statistics to genetics and human biology, with emphasis on high speed computing methods. Pre: 451 or equivalent, calculus, and biometry or statistics. (Alt. yrs.; offered 1967–68.)

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 655 Radiation Biology
ANIMAL SCIENCES 645 Advanced Animal Breeding
MICROBIOLOGY 671 Microbial Genetics
Medicine (Med)

Professors Blaisdell, Gault, Nugent; Associate Professor Budy; Associate Clinical Professors Arnold, Bassett, Berk, Gilbert, Hartwell, Jim, Lin, Nordyke, Orbison, Yim, Yokoyama; Assistant Clinical Professors Chesne, Ching, Davis, Fong, Goshi, Goto, Lee, Miyahara, Nakamura, Oishi, Palmer, Roth, Seto, Siemsen, Yamada; Clinical Instructors Akina, Ball, Beddow, Botticelli, Chun, Fong, Ho, Horio, Kim, Kobashigawa, Lau, Limber, Lum, Morris, Neilson, Okihiro, Popper, Suzuki, Wakai

For up-to-date and detailed information see Bulletin of the School of Medicine, available in the dean's office.

The department of medicine will provide clinical teaching for medical students in their second and third years; research throughout the clinical areas will also be sponsored.

699 DIRECTED RESEARCH (arr.) I, II
Pre: consent of instructor.

550 HISTORICAL INTRODUCTION TO MEDICINE (1) I
Historical, ethical, social, and scientific aspects of medicine, broadly defined. Correlation with concurrent courses in anatomy and biochemistry where appropriate. For first-year students.

600 INTRODUCTION TO CLINICAL MEDICINE (2) I, II
Lectures in the second year to orient the student in internal medicine, psychiatry and obstetrics, stressing normal mechanisms and processes.

601 INTRODUCTION TO CLINICAL MEDICINE (2) I, II
Lectures in the third year to orient the student in medicine, surgery, pediatrics and other clinical subjects, stressing the relationship of the disease process to the normal.

610 PHYSICAL DIAGNOSIS (3) I, II
Lectures and bedside teaching in history taking and physical examination for the third-year students.

650 LABORATORY DIAGNOSIS (2) I, II
Lectures and practical work in the theory and techniques of clinical pathology (given jointly with Pathology 650).

Microbiology (Micro)

(Affiliate from the College of Arts and Sciences)

Professors Benedict, Bushnell, Chu, Herzberg, Loh; Associate Professors Berger, Contois, Folsome, GunderSEN; Assistant Professor Siegel

151 is prerequisite to all more advanced courses.
(See course descriptions under Arts & Sciences—Microbiology, p. 126.)

130 MICROBES AND MAN (2) I, II
151 GENERAL BACTERIOLOGY (4) I, II (3 L, 2 Lb)
361 IMMUNOLOGY (4) I (3 L, 2 Lb)
Pathology (Path)

Professors Nishimura, Skinsnes; Associate Professor Hokama; Assistant Professor Uemura; Associate Clinical Professors Haber, Lynd, Stemmermann, Will; Assistant Clinical Professors Gordon, Kelley; Clinical Instructor Sprague

Instruction in pathology is given to second-year medical students. The emphasis in the first semester will be general pathology which underscores important biologic events leading to reaction patterns of injury resulting from a variety of exogenous and endogenous etiologic factors. Systemic pathology, which is primarily concerned with the classification, causation and clinical correlation of diseases, will be taught in the second semester. Lectures, informal seminars, clinical-pathologic correlations and demonstrations of gross specimens drawn from Kaiser, Kauikeolani Children's, Kuakini, Leahi, St. Francis, Tripler and Queen's hospitals will provide adequate material for instruction. Selected microscopic slides of human and animal tissues will be utilized for the laboratory teaching of pathologic histology. Dynamic events in the pathogenesis of certain lesions will be studied by the students during laboratory exercises which employ experimental animals.

The course in laboratory diagnosis will be taught during the second year in conjunction with the department of medicine. Biological variance
and the significance of results obtained by laboratory tests will be evaluated by the students. Correlation of laboratory data with clinical features of certain diseases will be emphasized. Limited didactic instruction, student participation of carefully selected laboratory procedures and techniques will be offered with appropriate demonstrations of more complex methodologies.

Elective courses in immunopathology and research are offered for advanced students and residents (M.D.) in specialty training (Pathology).

600 HUMAN PATHOLOGY (4) I  
Nishimura, Staff  
General pathology. Biological response to injury from internal and external causes.  
(Not offered 1967–68.)

601 HUMAN PATHOLOGY (4) II  
Nishimura, Staff  
Systemic pathology. Classification and clinical pathologic correlation of diseases.  
(Not offered 1967–68.)

650 LABORATORY DIAGNOSIS (2) I, II  
Nishimura, Staff  
Lectures, demonstrations, practical work and theory in clinical pathology. (Given jointly with Med 650.) (Not offered 1967–68.)

670 IMMUNOPATHOLOGY SEMINAR (1) II  
Hokama, Staff  
Autoimmune diseases and transplantation immunity. Pre: Micro 361 or 625 and Path 600. (Not offered 1967–68.)

699 DIRECTED RESEARCH I, II  
Pre: consent of instructor.

700 RESEARCH IN PATHOLOGY RESIDENCY PROGRAM (arr.) I, II  
Selected topics. Pre: M.D. degree and residency in pathology in affiliated hospital.

Medical Technology Section

Instructors Taylor, Wulff

At present the medical technology program provides for three years of academic work on campus, and a fourth year of work in an approved hospital school of medical technology. It leads to a Bachelor of Science degree in Medical Technology. Beginning with the summer session preceding the fourth year and continuing throughout the year, students are registered for MT 266, 267, 268, for which a total of 28 credits is granted. Completion of this curriculum allows the student to take the examination for certification as a Registered Medical Technologist given by the National Registry of the American Society of Clinical Pathologists. For the first two years of this program, the student is registered in the College of Arts and Sciences, but since scheduling of science courses is most important, a prospective student should consult with the medical technology adviser. The last two years of the program are administered by the College of Health Sciences and Social Welfare and the degree is granted by the School of Medicine.
Current plans for revision of the medical technology curriculum call for a four-year academic program leading to a bachelor of science degree before internship. This program will be inaugurated in 1967 and be fully established in 1968. Thus, freshmen entering school in the fall of 1967 can look forward to a senior year spent on campus for which a variety of courses in clinical science are being planned, such as hematology, clinical laboratory instrumentation, immuno-hematology, etc. Interim students may take the courses as they are offered and may have the option of either curriculum when all senior-year courses are available on campus.

Admission and Degree Requirements

Application for admission to the medical technology program in the School of Medicine should be made during the second semester of the sophomore year. The student must have completed 66 credits, including the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>Literature</td>
<td>6</td>
</tr>
<tr>
<td>History of Civilization</td>
<td>6</td>
</tr>
<tr>
<td>Humanities elective</td>
<td>3</td>
</tr>
<tr>
<td>Social Science electives</td>
<td>6</td>
</tr>
<tr>
<td>Math (pre-calculus)</td>
<td>4</td>
</tr>
<tr>
<td>General Chemistry and Qual. Analysis</td>
<td>9</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>7</td>
</tr>
<tr>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Principles of Zoology</td>
<td>4</td>
</tr>
<tr>
<td>Survey of Physics (Option II)</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Medical Technology</td>
<td>4</td>
</tr>
<tr>
<td>Chem 331 (Option I)</td>
<td>4</td>
</tr>
</tbody>
</table>

To be entitled to a degree of bachelor of science in medical technology the student must:

1. Complete the subjects specified here in the curriculum of medical technology, including 30 hours of the major.
2. Offer at least 60 hours of credit in other than introductory courses, meeting the University core requirement.
3. Acquire an aggregate of 130 semester hours of credit.
4. Earn at least a 2.0 grade point ratio (C average) for all registered courses and in the major field.
5. Submit an application for graduation to the office of admissions and records during the semester preceding the awarding of the degree.

Currently enrolled medical technology students will follow Option I (or may elect to take Option II when courses are established).

Freshmen entering the University in September, 1967, will be required to follow Option II.
CURRENT CURRICULUM—OPTION I

Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochem 441 and 442</td>
<td>4</td>
<td>Zool 410</td>
<td>3</td>
</tr>
<tr>
<td>Micro 361</td>
<td>4</td>
<td>Micro 362</td>
<td>4</td>
</tr>
<tr>
<td>MT 151</td>
<td>2</td>
<td>MT 152</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>8</td>
<td>Zool 425 or MT 364</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

Senior Year (Internship)

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Session MT 266</td>
</tr>
<tr>
<td>Fall Semester MT 267</td>
</tr>
<tr>
<td>Spring Semester MT 268</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

PROPOSED CURRICULUM—OPTION II
(When new Med. Tech. courses are established)

Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro 361</td>
<td>4</td>
<td>Micro 362</td>
<td>4</td>
</tr>
<tr>
<td>MT 371</td>
<td>4</td>
<td>MT 372</td>
<td>4</td>
</tr>
<tr>
<td>MT 367</td>
<td>3</td>
<td>MT 364</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>Total</td>
<td>17</td>
</tr>
</tbody>
</table>

Six credits of the above indicated electives must be non-science.

Medical Technology Courses (MT)

151–152 INTRODUCTION TO MEDICAL TECHNOLOGY (2–2) I, II Wulff
Designed to acquaint the student with the relationship of medical technology to the medical field.

266 MEDICAL TECHNOLOGY (4) SS Staff
267–268 MEDICAL TECHNOLOGY (12–12) Yr. Staff
266, 267 & 268 make up the internship in an affiliated hospital laboratory.

364 IMMUNOHEMATOLOGY (3) II (2 L, 1 Lb) Taylor
Antigen-antibody relationships in human blood, study of blood groups, clinical problems in transfusion. Pre: Micro 361 or consent of instructor.

Other courses in Option II will be listed when established. They include Hematology, Clinical Laboratory Instrumentation, Directed Reading and Research, and a comprehensive year course, The Clinical Laboratory.
The department of physiology and pharmacology offers the requisite work for medical students, and also both the M.S. and Ph.D. degrees in either discipline.

Intended candidates for the M.S. or Ph.D. in physiology or pharmacology must have or acquire adequate preparation in biology, chemistry, physics, and mathematics. The course work required includes basic courses in related sciences, or demonstrated competence in these fields, plus other course work adapted to the needs of the particular student as determined by the major professor and the thesis committee. Most students will be expected to take graduate courses in biochemistry, microbiology, and genetics. When it is possible to include them, minimum courses in pathology and clinical medicine will be recommended for some students.

601 HUMAN PHYSIOLOGY (3) I
Lecture course in regulatory physiology for advanced students.

602 PHYSIOLOGY OF MUSCLE AND NERVE (3) II
Consideration of excitability, impulse transmission, and contractility.

603 SEMINAR IN HUMAN PHYSIOLOGY (1) I
Discussion of current research in one of the following areas: respiration, circulation, muscle-nerve, body fluids, endocrinology and gastro-intestinal physiology.

611 PHARMACOLOGY: ACTIONS AND USES OF DRUGS (3) II
Systematic consideration of the history, chemistry, action, danger, fate, and use of the major classes of drugs in medicine.

612 PHARMACOLOGY OF MARINE TOXINS (1) II
Baslow

613 SEMINAR IN PHARMACOLOGY (1) I, II
Reporting and discussion of current research in pharmacology.

699 DIRECTED RESEARCH (arr.) I, II
Staff

800 THESIS RESEARCH (arr.) I, II
Staff

614 PHARMACOLOGY: CLINICAL TOXICOLOGY (2) I
Systematic consideration of the side reactions of therapeutic agents and other chemicals and toxins, with emphasis on symptomatology and antidotal procedures.
615 PHARMACOLOGY: BIOASSAY (4) I
Haley, Staff
Study of biological methods utilized in the estimation of endogenous and exogenous drugs and chemicals. Emphasis placed on the extraction of normal body secretions, neurohormones, etc., as well as potency comparisons between synthetic chemicals with similar actions on given biological systems.

616 PHARMACOLOGY: STRUCTURE ACTION RELATIONSHIPS (3) II
Haley, Staff
Study of relationship between chemical structure and biological activity with emphasis on the chemical group modifications which either increase or decrease biological activity or toxicity.

617 PHARMACOLOGY: EXPERIMENTAL PHARMACODYNAMICS (3) I
Haley, Staff
Study of procedures using isolated organs or intact preparations, utilized in evaluation of the biological properties of new drugs or chemicals. Included will be estimations of potency, effectiveness and sites of action.

99 INTRODUCTION TO HUMAN PHYSIOLOGY (5) I

301 ELEMENTS OF HUMAN PHYSIOLOGY (4) I
Pre: 1 year of introductory zoology or biology, Chem 101–102, or Chem 103–104.

Public Health (PH)
(Affiliate from the School of Public Health)
Professors Lee, Burbank, Char, Chung, Connor, Grossman, Worth; Associate Professors Brown, Clark, Manoharan, Milham, Mytinger, Park, Voulgaropoulos, Wolff; Assistant Professors Hayakawa, Richie

The School of Public Health provides instruction to students in the Medical School and serves the academic function of a department of public health for the Medical School. See Bulletin of the School of Medicine for course listings and courses required for medical students.

The following courses are part of the required curriculum for medical students:

655 PRINCIPLES OF COMMUNITY MEDICINE I (1) I
Worth, Staff

656 PRINCIPLES OF COMMUNITY MEDICINE II (1) II
Worth, Staff

658 PREVENTIVE MEDICINE (1) II
Worth, Staff
SCHOOL OF PUBLIC HEALTH

The School of Public Health is concerned primarily with maintaining and improving the general health of the community, and, accordingly, offers graduate programs designed to prepare individuals who will: (1) contribute to the base of knowledge in the sciences pertinent to public health, or (2) actually perform public health services in the community, or (3) do both. Courses which give the student an appreciation of the broad field of public health are required, but each student's program may be tailored to emphasize an aspect of public health. Primary areas of emphasis include biostatistics, environmental sanitation, epidemiology, maternal and child health, public health administration, public health education, public health engineering, public health laboratory, and public health nutrition. Supplemental areas of study offered at present are health services administration, international health, mental health, mental retardation, and population studies and family planning. All programs leading to degrees require the following courses: PH 601 Public Health Organization and Administration I, PH 602 Public Health Organization and Administration II, PH 620 Public Health Statistics, PH 636 Environmental Health I, and PH 651 Principles of Epidemiology.

Admission and Degree Requirements
Leading to the Master of Public Health (M.P.H.) Degree

The master of public health degree program is designed to train persons for a variety of careers in the broad field of public health at local, state, national, and international levels. In addition to meeting the admission requirements of the Graduate Division, candidates must have earned at least a bachelor's degree in a discipline appropriate to his chosen area of public health in which he plans to be employed. Depending on the candidate's background and interest, an appropriate course of study is prescribed, including courses in related fields, and incorporating the student's selected area of emphasis. Candidates must complete 30 or more semester hours, an essay or report, and suitable field training approved by his program committee. A student must pass a general diagnostic examination on public health before formal admission to candidacy and must pass a final seminar appearance near the completion of his program.

Traditionally, M.P.H. candidates have been largely physicians, dentists, veterinarians or other personnel in the health or related professions with at least three years of experience; for these, the program may be completed in one year. The M.P.H. program at the University of Hawaii's School of Public Health is open not only to such experienced personnel but also to students who hold at least a bachelor's degree with a minimum of 18 credit hours in the natural, social, and behavioral sciences and who
meet the academic requirements of the Graduate Division; for these, the program usually requires up to two years to complete. For further information, see the Bulletin of the School of Public Health.

**Admission and Degree Requirements**

**Leading to the Master of Science (M.S.) Degree**

The master of science program (Plan A and Plan B) is open to persons who meet the admission requirements of the Graduate Division, present at least a minimum of 18 credit hours in the natural, social and behavioral sciences in their undergraduate work, and desire research training in some specific aspect of public health (see above for areas of emphasis in public health). The Plan A program requires 30 or more semester hours including thesis research and, if appropriate, some form of appropriate short-term field work. Plan B requires 30 or more semester hours, an essay or report and field training approved by the program committee and a final seminar appearance. Both programs usually require two years to complete. For complete information, see the Bulletin of the School of Public Health.

**Public Health (PH)**

Professors Burbank, Char, Chung, Connor, Grossman, Lee, Suvarnakich, Worth; Associate Professors Bassett, Brown, Clark, Manoharan, Matsumoto, Milham, Mytinger, Park, Voulgaropoulos, Wolff; Assistant Professors Hayakawa, Richie, Suehiro, Young; Lecturers Alexander, Goto, Kau, Shepard, Tokuyama

601 **PUBLIC HEALTH ORGANIZATION AND ADMINISTRATION I (3)** Mytinger, Staff
Development of the modern health movement; current organizational patterns and programs at all levels, with special emphasis on public health functions in health education, maternal and child health, nutrition, nursing, and mental health.

602 **PUBLIC HEALTH ORGANIZATION AND ADMINISTRATION II (2)** Mytinger
Administrative problems associated with delivery of public health services at all levels; management techniques in program planning, staffing, budgeting, and operating public health services; legal aspects. Pre: 601.

603 **ORGANIZATION OF MEDICAL CARE SYSTEMS (3)** Mytinger
Introduction to the organization of medical care services; need and demand for medical care and methods of financing medical care; national plans for medical care.

604 **INSTITUTIONAL HEALTH CARE FACILITIES (3)** Staff
Principles and practices relating to the organization and function of general and special hospitals and extended care facilities. Pre: concurrent enrollment in 605.

605 **NON-INSTITUTIONAL HEALTH CARE FACILITIES (2)** Staff
Organization and function of ambulatory care services including clinics, group practices, home care services, disease detection programs, and laboratory and pharmaceutical services. Pre: concurrent enrollment in 604.

606 **MANAGEMENT OF HEALTH SERVICES (3)** Staff
Principles and practices of managing health and medical institutions and programs. Pre: 603, 604 and 605.
607 PLANNING AND CONTROL OF HEALTH SERVICES (4) I
Principles and methods of appraising, developing, allocating, financing and controlling medical resources, including area-wide and comprehensive planning. Pre: 606.

609 SEMINAR IN HEALTH SERVICES ADMINISTRATION (1) I, II
Advanced study of current issues and problems. (1) Social and bureaucratic organization of medical care systems, (2) direction of health programs, (3) planning and integration of health services. May be repeated for credit. Pre: concurrent enrollment in courses pertinent to seminar emphasis.

612 ECONOMICS FOR HEALTH ADMINISTRATORS (3) II
Economic analysis as a basis for individual and societal decision-making; supply and demand aspects of health and medical activities; health aspects of economic development. Pre: consent of instructor.

613 SEMINAR IN MEDICAL CARE ORGANIZATION (2) II
Survey of the medical care field, including considerations of needs, costs and organization in medical care; comparative medical care systems.

620 PUBLIC HEALTH STATISTICS (3) I
Analysis, evaluation, interpretation, and uses of statistics as they relate to problems in public health. Pre: college algebra or equivalent or consent of instructor.

621 BIOSTATISTICS (3) I
More theoretical treatment than 620 of elementary statistical concepts and methods of analysis of vital and health statistics. Pre: Math 134 or equivalent or consent of instructor.

622 ADVANCED BIOSTATISTICS (3) II
Extension of 620 and 621. Further treatment of estimation and tests of hypothesis, analysis of variance and covariance, and multiple regression and correlation as related to public health problems. Pre: 620, 621 or consent of instructor.

623 TECHNIQUES IN DEMOGRAPHIC ANALYSIS (2) II
Statistical methods of analysis of population data including construction of life tables, adjustment of rates, evaluation of census and vital statistics data, migrations, population projections and survey methods. Concurrent registration in 685 recommended. Pre: 620 or 621.

624 STATISTICAL METHODS IN EPIDEMIOLOGICAL RESEARCH (3) II
Introduction to design, data processing, and analysis of epidemiological studies of non-infectious diseases with the emphasis of computer applications.

625 SEMINAR IN BIOSTATISTICS (1) I, II
Discussion of specific problems in biostatistics as related to public health.

630 PUBLIC HEALTH NUTRITION I (2) I
Principles of human nutrition underlying organization and administration of nutritional services in public health agencies.

631 PUBLIC HEALTH NUTRITION II (2) II
Extension of 630. Organizing for and evaluating community nutrition programs.

632 SEMINAR IN PUBLIC HEALTH NUTRITION (1) I, II
Specific nutrition problems in preventive medicine and public health. Pre: 630 or consent of instructor.
633 DENTAL PUBLIC HEALTH (2) I  
Kau  
Principles of conservation of the oral structures and prevention of dental diseases through dental health programs. Pre: consent of instructor.

636 ENVIRONMENTAL HEALTH I (3) I  
Burbank  
Characteristics of disease associated with environmental factors, means of transmission, and principles of control of such communicable disease.

637 ENVIRONMENTAL CONTROL OF DISEASE THROUGH FOOD PROTECTION (2) II  
Burbank, Staff  
Organization, administration and application of sanitary methods used to investigate and control food-borne diseases of environmental significance.

638 VECTOR CONTROL IN ENVIRONMENTAL HEALTH (2) II  
Burbank, Staff  
Organization, administration and application of vector control methods in the control of diseases of environmental significance.

640 EDUCATIONAL APPROACH TO PUBLIC HEALTH (2) I  
Clark  
Consideration of socio-cultural and psychological factors involved in health education of the public; the role of the health worker as an agent of planned change; principles, concepts and methods of public health education; theoretical considerations in the development of educational activity.

641 ADVANCED COMMUNITY HEALTH EDUCATION (2) II  
Grossman  
Program planning and development in community health education; theoretical considerations; current studies and research; educational dimensions of selected programs; local, state, national and international trends in planning and development.

642 COMMUNITY HEALTH EDUCATION LABORATORY I (2) I  
Hayakawa  
Field laboratory experiences correlated with content of 640. Emphasis on community study and analysis with particular attention to the diagnosis of community health education problems and opportunities.

643 ADVANCED COMMUNITY HEALTH EDUCATION LABORATORY II (2) II  
Hayakawa, Clark  
Field laboratory correlated with content of 641. Students will participate in problem-solving activities related to planning, development and evaluation of educational components of community health action programs.

644 GROUP METHODS IN PUBLIC HEALTH (2) I  
Grossman  
Consideration of theory and practice of group development as an educational component of community public health efforts. Lectures on theory of group processes and relevance to public health. Laboratory on group process analysis and application of theory to group problem solving.

645 HEALTH INFORMATION PROCESSES IN PUBLIC HEALTH—THEORY AND PRACTICE (2) II  
Clark  
Philosophy and practices in the health information aspects of public health program development; theoretical considerations from communication theory and research. Analysis and field testing of information media.

646 EDUCATIONAL PROGRAM EVALUATION IN PUBLIC HEALTH (2) I  
Grossman  
Unique aspects of educational evaluation in public health; consideration of evaluation as an educational process; development of procedures for adequate educational data collection; function of evaluative efforts in program development.
647 IN-SERVICE TRAINING AND STAFF DEVELOPMENT IN PUBLIC HEALTH (2)  I  Clark
Theory and practice of training program development in health fields; analysis of training needs and methodologies; consideration of new approaches to manpower development in public health; design and testing of training materials and programs with special emphasis on public health and medical care settings.

648 ADVANCED SEMINAR IN SPECIAL PUBLIC HEALTH EDUCATION PROBLEMS (2)  I  Grossman, Clark, Hayakawa
Current research implications for educational activity in newly emerging fields of public health interest such as family planning, community mental health, accidental injury prevention, and home care. Content will vary with needs and interests of students and the status of available literature. May be repeated for credit.

650 INFECTIOUS DISEASES OF MAN IN THE PACIFIC AREA (3)  I  Worth, Staff
Systematic presentation of existing knowledge of important infectious diseases in the Pacific area. Emphasis on public health rather than clinical aspects of each disease.

651 PRINCIPLES OF EPIDEMIOLOGY (3)  II  Worth, Staff
Basic epidemiologic principles, methods, and their application with particular reference to geographic patterns of diseases in the Pacific area. Pre: 620 or equivalent.

660 COMMUNITY MENTAL HEALTH (2)  II  Staff
Review of the nature of community and individual mental health and of social and cultural forces influential in the incidence, prevention, or alleviation of community and individual mental illness.

665 SOCIO-CULTURAL ASPECTS OF HEALTH AND ILLNESS (3)  I, II  Wolff
Public health practices and orientation in socio-cultural perspective. Pre: consent of instructor.

670 MEDICAL ASPECTS OF DISABILITY (3)  I  Shepard
Systematic presentation of medical conditions causing disability. Pre: consent of instructor. (Alt. yrs.)

675 EVALUATION AND MEASUREMENT OF ENVIRONMENTAL FACTORS IN HEALTH PROBLEMS (3)  II  Young
Theory and practice in use of common field and laboratory equipment available for evaluation of environmental factors that influence health.

680 MATERNAL AND CHILD HEALTH I (2)  I  Connor
Basic principles and practices in maternal and child health programs.

681 MATERNAL AND CHILD HEALTH II (2)  II  Connor
Advanced course in maternal and child health. Pre: 680.

682 THE HANDICAPPED CHILD (2)  II  Connor, Staff
Problems and programs relative to children with handicapping conditions.

683 PRINCIPLES OF COMPREHENSIVE MATERNITY CARE (1)  II, SS  Richie
Objectives and organization of comprehensive maternity care from the public health viewpoint. Pre: 680 or consent of instructor.

684 HEALTH SERVICES FOR THE MENTALLY RETARDED (2)  I  Connor
Etiology, prevention, management, and community programs for the mentally retarded. Pre: consent of instructor.

685 DEMOGRAPHY AND WORLD POPULATION PROBLEMS (3)  II  Staff
Introduction to study and description of human populations, including recent trends in world populations, analysis of projected trends. Pre: consent of instructor.
686 STAFF SEMINAR IN POPULATION DYNAMICS (2) I, II  
Ecological considerations of the factors involved in human population dynamics.  
Pre: consent of instructor.

687 FERTILITY AND REPRODUCTION (2) II  
Historical and contemporary methods of control of fertility. Pre: consent of instructor.

692 SEMINAR ON HEALTH OF THE SCHOOL-AGE CHILD (2) II  
Health needs of the school-age child with particular emphasis on health problems which may present obstacles to the learning process; role and responsibility of health personnel in working with these problems.

695 INTERNATIONAL HEALTH I (1) I  
Introduction to international health, its development, agencies and issues as related to economic, social and political development.

696 INTERNATIONAL HEALTH II (2) II  
Directed individual program development by students for country or area of interest. Pre: 695.

699 DIRECTED RESEARCH (arr.) I, II, SS  
Pre: consent of instructor.

710 ADVANCED PUBLIC HEALTH PRACTICE IN (Area of Emphasis) (3) I, II, SS  

800 THESIS RESEARCH (arr.) I, II, SS  
Pre: consent of instructor.
SCHOOL OF NURSING

The School of Nursing offers programs to prepare students for professional nursing, technical nursing, and dental hygiene. A bachelor of science degree is granted for completion of the undergraduate program in professional nursing. 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.

A program leading to the master of science in nursing prepares graduates of accredited baccalaureate nursing programs for clinical specialization in psychiatric-mental health nursing. (See Graduate Bulletin for further information.)

Admission and Degree Requirements

Applicants for all programs must meet University admission requirements (pp. 24–29). Further selection is made on the basis of scores on selected tests, quality of high school and/or previous college work and references. Specific requirements for the bachelor of science degree in nursing are listed below.

BACHELOR OF SCIENCE DEGREE IN NURSING. Complete curriculum requirements and earn at least 140 credits with a grade-point average of at least 2.0 (C) and a grade of C or higher in each major course.

ASSOCIATE OF SCIENCE DEGREE IN NURSING. Complete curriculum requirements and earn at least 62 credits with a grade-point ratio of at least 2.0, and C or higher in each major course.

CERTIFICATE IN DENTAL HYGIENE. Complete curriculum requirements and earn at least 71 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.

Pre-nursing students enroll in the College of Arts and Sciences and are admitted to the professional nursing curriculum at the end of the sophomore year upon completion of a minimum of 60 credits in the liberal arts, including the following:
General Requirements

English 101-102, or 105, 150-151, or 152-153, or 154-155 ................................................................. 12
Speech 145 ................................................................................................................................. 3
History 151-152, or 161-162, or 251-252 ........................................................................... 6
Mathematics or Philosophy 200 .......................................................................................... 3
HPE—one activity course ........................................................................................................ 1

Pre-Nursing Requirements

Humanities—one course from either sub-group ...................................................................... 3
   I. Phil 100, 150   II. Art 101
       Rel 150, 151       Music 160

Social Sciences—all courses in group I; one semester
   course from group II .................................................................................................... 12
   I. Psych 100 or 200-201   II. Econ 150, 151
       Psych 350         Geog 102, 151
       Soc 151         Pol Sci 110

Natural Sciences—all courses in group I ............................................................................. 20
   I. Chem 103-104   II. Physics 160-161
       or Chem 107
       Micro 151 (with lab)
       Zool 201-202

Other
   Home Econ 240 ............................................................................................................. 3

The upper division curriculum in professional nursing consists of five semesters of sequential nursing courses of increasing complexity, and continuing requisite and elective courses in Arts and Sciences. Seniors now enrolled in the School of Nursing will complete the program as stated in the 1964-65 catalog. Students accepted into the program will complete upper division requirements as described in the next section.

Upper Division Requirements

At least 15 credits of non-introductory courses will be selected from the area requirements (I, II, III) listed below on the bases of relevance to the nursing major and the individual interests and long-range planning needs of students. Additional courses may be selected as electives (10 units). All students will complete requirements listed under IV Medical Science and V Nursing.

Area Requirements

I. Humanities ......................................................................................................................... 3-10
   Courses selected from: English, Drama,
   Philosophy, Religion, Art, Music or
   languages in accordance with goals
   and interests of student.
II Natural Sciences 4-10
Courses selected from: Botany, Chemistry, Geology, Physics, Oceanography, Genetics, Microbiology, Physiology, Zoology.
Required: Physiology 301 (4)

III Social Sciences 3-10
Courses selected from: Anthropology, Psychology, Sociology, Economics, Geography, Political Science.
Psych 220 strongly recommended 15

IV Medical Science 9
Med Sc 301-302 (3-3)
Med Sc 401 (3) 9

V Nursing 46
Nursing 305-306 (6-6)
Nursing 415-416 (8-8)
Nursing 425 (12)
Nursing 450 (3)
Nursing 451 (3) 46

VI Electives 10

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. However, the University of Hawaii, in common with many other universities, allows students to take the regular University department examinations in courses in which it is deemed the student has had equivalent training. If successful, credit is granted for the course. (See p. 37.)

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 one six-week summer session. 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

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#### SUMMER SESSION—6 Weeks

Technical Nursing 112 | 4

### SECOND YEAR

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### Two-Year Program in Dental Hygiene

#### Leading to a Certificate in Dental Hygiene

The program is planned to provide for the education and training required of the dental hygienist as a member of the dental health team for the rendering of professional preventive dental hygiene services and for educating the public in oral health.

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<td>English 102</td>
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<td>Health &amp; Phys. Ed. 190</td>
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<td>Home Economics 126</td>
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#### SUMMER SESSION*

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*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 232. A copy of the Red Cross certificate must be filed in the office of the chairman of the department of dental hygiene.
SECOND YEAR

Dental Hygiene 151 2 Dental Hygiene 170 2
Dental Hygiene 166 2 Dental Hygiene 171 2
Dental Hygiene 169 2 Dental Hygiene 180 5
Dental Hygiene 179 5 Dental Hygiene 182 2
Dental Hygiene 181 2 Dental Hygiene 188 1
Microbiology 151 4 Dental Hygiene 190 1

Psychology 100 or
Sociology 151 3

17 16

DENTAL HYGIENE COURSES

See p. 50 for a discussion of course descriptions.

Dental Hygiene (DH)

Associate Professors Ah Moo, Nobuhara (Supervising Dentists); Assistant Professor Koga; Instructor C. Lee and Lecturers

120 INTRODUCTION TO DENTAL AND ORAL HYGIENE (2) I Staff
Orientation to the profession; relationship of dental hygienist to dental hygiene and dentistry; role of hygienist in preventive dentistry.

130 ORAL ANATOMY AND TOOTH MORPHOLOGY (3) I (2 L, 1 Lb) Staff
Anatomy of teeth, bones of skull; muscles of mastication, tongue, face, pharynx; glands of oral cavity; 5th, 7th cranial nerves, blood vessels of head and neck; laboratory procedures in drawing and carving of anterior and posterior teeth.

140 INTRODUCTION TO DENTAL PROPHYLAXIS PROCEDURES AND TECHNIQUES (1) II Staff
Clinical instruction and practice on manikin and few patients in operative technical procedures of instrumentation, polishing, charting.

150 INTRODUCTION TO DENTAL HISTOLOGY AND EMBRYOLOGY (1) II Staff

151 DENTAL HISTOLOGY AND EMBRYOLOGY (2) I Staff
Formation, structure and function of enamel, dentin, cementum, pulp, periodontium, alveolar process and gingiva. Pre: 150.

165 INTRODUCTION TO HUMAN PATHOLOGY (1) II Ah Moo
Basic causes of disease, their progress and termination. Emphasis on defensive mechanisms of the body. Pre: 150 or concurrent registration.

166 ORAL PATHOLOGY (2) I Ah Moo
Study of oral diseases of interest to the dental hygienist. Pre: 165, 151 or concurrent registration.

169-170 SURVEY OF DENTISTRY (2-2) Yr. Staff
Familiarization with procedures used in dentistry, dental specialties. Subject areas covered include dental materials, operative dentistry, prosthodontics, orthodontics, periodontics, pedodontics, endodontics, oral surgery, anesthesiology.
171 DENTAL HEALTH EDUCATION (2) II  
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, mouthwashes.

188 DENTAL PUBLIC HEALTH (1) II  
Theory and practice of preventive dentistry with emphasis upon community dental health; role of 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.

NURSING COURSES

See p. 50 for a discussion of course descriptions.

Nursing (N)

Professors Dunlap, Olson; Associate Professors Bermosk, Gross, Smith; Assistant Professors Fancher, Ivey, Kim, Love, Ortel, Ozaki, Reit; Instructors Brodd, DeCristofaro, Ferdun, Horiuch, Jung (on leave), Kuykendall, Laughlin, Leton, Lum (on leave), Patten, Shimamoto, Tilton, Weiser, Williams

(Registration is restricted to students preparing for nursing except by special permission.)

300 PSYCHIATRIC NURSING (6) I, II  
Kuykendall, Williams
Mental health concepts in nursing and their significance to the nurse herself. Guided experience in total care of patients with mental illness. 3 hours lecture and 12 hours laboratory weekly. (Not offered after Spring 1968.)

305-306 BASIC NURSING SCIENCE (6-6) Yr.  
Patten, Staff
Overview of basic concepts and theoretical basis of nursing practice. Introduction of beginning skills in communication, interviewing, role identification and observation. Synthesis of knowledge from the biological, natural, and social sciences and the humanities in understanding bio-psycho-social man and his patterns of daily living. Variety of community resources utilized for observation and laboratory study. 3 hours lecture and 9 hours laboratory weekly. Pre: acceptance in department of professional nursing or consent of instructor.
340 **PUBLIC HEALTH NURSING** (6) I, II  
DeCristofaro, Shimamoto  
Principles of public health nursing and guided laboratory experience, including home visiting, clinic services, school health programs, and use of community agencies. 3 hours lecture and 12 hours laboratory weekly. (Not offered after Spring 1968.)

345 **ADVANCED NURSING** (6) I, II  
Laughlin, Weiser  
Identification and application of scientific principles in the provision for care of patients presenting complex nursing problems. 2 hours lecture and 16 hours laboratory weekly. (Not offered after Spring 1968.)

350 **SOCIAL FORCES IN NURSING** (3) II  
Dunlap, Gross  
Study of the forces which influence the development of nursing as a profession. (Not offered after Spring 1968.)

383 **PUBLIC HEALTH** (3) I  
Ivey  
Principles of public health and preventive medicine; application in protecting the health of citizens through organized community effort. (Not offered after Fall 1967.)

394-395 **SENIOR HONORS THESIS** (2-2) Yr.  
Ortelt  
Preparation of research paper under individual faculty supervision. Required for graduation with honors. Pre: 399.

399 **DIRECTED READING OR RESEARCH** (arr.) I, II  
Ortelt, Staff  
Limited to seniors and juniors in nursing.

415-416 **CLINICAL NURSING SCIENCE** (8-8) I, II  
Horiuchi, Staff  
Orientation to the analytical process for understanding, identification and solution of nursing problems. Consideration and clinical study of dynamics of interruptions and disruptions in normal functions in individual, family, and community. Opportunities provided for application of appropriate nursing intervention while caring for patients of all age groups, of differing cultures, and in various settings. 4 hours lecture and 12 hours laboratory weekly. Pre: 305-306 or consent of instructor.

425 **NURSING LEADERSHIP** (12) I  
Olson, Weiser  
Study of theoretical concepts basic to planning, organizing, implementing, and evaluating nursing care for individual and groups of patients and for understanding role of the professional nurse on nursing and health teams. Opportunities provided to increase abilities of students in approaching nursing care problems in a systematic way and in assuming beginning leadership roles. Provides introduction to the world of work and for experiences in the direction and supervision of nursing team members in selected clinical settings. 4 hours lecture and 24 hours laboratory weekly. Pre: 415-416 or consent of instructor.

450 **NURSING IN THE CHANGING SOCIAL ORDER** (3) II  
Kim  
Study of social foundations of nursing practice. Content focuses on the historical base as well as the interpersonal and moral and legal ramifications of the formal and informal components of the social systems in which nursing is practiced.

451 **STUDY OF THE NURSING PROFESSION** (3) I  
Dunlap, Gross, Staff  
Study of institutional, associational and societal aspects of professional nursing practice with emphasis on the rights and obligations of professional status within nursing, between professionals, and in relation to the community.

600–601 **METHODS OF RESEARCH** (2–2) I, II  
Olson  
Pre: statistics.
610 CURRICULUM DEVELOPMENT (3) I  
Critical evaluation of present-day nursing curricula, with consideration of objectives, teaching methods, source materials, community resources, and sequence of instruction. Individual and group studies. Pre: graduate standing; consent of instructor.

620 CONCEPTS OF LEADERSHIP IN NURSING (3) I or II  

630 SEMINAR (1) ADVANCED PSYCHIATRIC NURSING  
CONCEPTS (2) I, II (each semester)  
Exploration of present status, role and function of psychiatric nursing; study of concepts formulated from nurse-patient interactions in the institutional and community mental health setting. Pre: graduate standing; consent of instructor.

640 PRATICUM (1) ADVANCED PSYCHIATRIC NURSING: ADULTS; CHILDREN;  
COMMUNITY PSYCHIATRY (2) I, II (each semester)  
Supervised experience in intensive therapeutic nurse-patient relationships within context of community psychiatry with individuals, groups, families. Pre: graduate standing, consent of instructor.

655-656 ADVANCED PSYCHIATRIC CONCEPTS (2-2) Yr.  
Psychoanalytic theories of personality development. Principles of psychopathology; major mental illnesses and methods of treatment. Pre: graduate standing, consent of department chairman.

699 DIRECTED STUDY OR RESEARCH (arr.) I, II  
Directed study of a problem related to psychiatric nursing theory and practice. Open only to 2nd-year graduate students. May be repeated.

Technical Nursing (TN)

Associate Professor C. Barnes; Assistant Professors Boys, J. Johnson; Instructors R. Davis, Futrell, A. Hong, Krumme, Savage, Tegtmeier, Weston, Zane

108 FUNDAMENTALS OF NURSING (5) I  
Introduction to basic principles of nursing and fundamental skills in patient care. Guided clinical experience. 3 hours lecture and 7 hours laboratory per week.

109 FUNDAMENTALS OF NURSING (6) II  
Expansion of principles and fundamental skills presented in 108 with guided clinical experience. 3 hours lecture and 9 hours laboratory per week. Pre: 108.

112 PSYCHIATRIC NURSING (4) (Summer—6 weeks)  
Basic concepts and principles of psychiatric nursing with guided clinical experience. 6 hours lecture and 15 hours laboratory per week. Pre: 109 or equivalent.

114 MATERNAL-CHILD NURSING (8) I  
Study of child-bearing and child-rearing periods of the life cycle utilizing the family-centered approach. Guided clinical experience. 3 hours lecture and 15 hours laboratory per week.

119 MEDICAL-SURGICAL NURSING (8) II  
Study of major health problems of adults in different age cycles. Guided clinical experience. 3 hours lecture and 15 hours laboratory per week. Pre: 114 or equivalent.

120 NURSING TRENDS (2) II  
Development of nursing and future trends, including socio-economical influences. 2 hours lecture per week. Pre: 119.
**SCHOOL OF SOCIAL WORK**

The School of Social Work offers a two-year graduate program leading to the M.S.W. degree. It also offers courses on the undergraduate and preprofessional levels for juniors and seniors. The School is accredited by the Commission on Accreditation of the Council on Social Work Education. For specific information on admission and degree requirements write School of Social Work, Wist Hall 207, 1776 University Avenue, Honolulu, Hawaii 96822.

**Social Work (SW)**

Professors DelliQuadri, Handley, Jambor, Walsh, Fisher; Associate Professor Merritt; Assistant Professors Asato, Hartman, Ishimoto, Kumabe, Takase, Tyson; Lecturers Schnack, Takasaki

**GRADUATE PROGRAM**

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<th>Course Code</th>
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<td>605</td>
<td>SOCIAL CASEWORK (2) I</td>
<td>Hartman, Kumabe</td>
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<td>Introduction to the basic principles and processes of social casework.</td>
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<td>606</td>
<td>SOCIAL CASEWORK (2) II</td>
<td>Hartman, Kumabe</td>
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<td>608</td>
<td>SOCIAL GROUP WORK (2) I</td>
<td>Merritt</td>
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<tr>
<td></td>
<td>Introduction to the basic principles and processes of group work.</td>
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<td>609</td>
<td>SOCIAL GROUP WORK (2) II</td>
<td>Merritt</td>
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<td>Continuation of 608. Emphasis upon understanding the individual in groups, and skill in use of the helping process. Concurrent with 660-661. Pre: 608.</td>
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<td>610-611</td>
<td>HUMAN GROWTH AND BEHAVIOR (3-3) Yr.</td>
<td>Walsh</td>
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<td>Designed to provide a synthesized understanding of physical, mental, and emotional growth, with due regard to social and cultural influences on individual development.</td>
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<td>612</td>
<td>GROUP WORK PROGRAM ACTIVITIES (1-1) Yr.</td>
<td>Ishimoto</td>
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<td></td>
<td>The program as a tool in meeting individual and group needs. To be taken concurrently with 660-661.</td>
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<tr>
<td>615</td>
<td>COMMUNITY ORGANIZATION (2) II</td>
<td>Jambor</td>
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<tr>
<td></td>
<td>Methods and processes of community organization in social work.</td>
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<tr>
<td>626</td>
<td>TREATMENT OF JUVENILE DELINQUENCY (2) II</td>
<td>Jambor</td>
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<td>Social work practice in relation to problems of juvenile delinquency.</td>
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<tr>
<td>627</td>
<td>SOCIAL SERVICES (2) I</td>
<td>Jambor</td>
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<tr>
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<td>Income maintenance programs in public and private social welfare fields.</td>
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<tr>
<td>628</td>
<td>SOCIAL SERVICES (2) II</td>
<td>Jambor</td>
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<tr>
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<td>Social services (other than income maintenance) with emphasis on selected programs such as those in children's field, health field, corrections, etc.</td>
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652 SOCIAL RESEARCH AND STATISTICS (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.

UNDERGRADUATE PROGRAM

The School of Social Work offers the following courses on the undergraduate level (Pre: junior standing).

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. Interrelationship of social, cultural, political, and economic factors in the development of social welfare. Open to seniors.

305 COMMUNITY PLANNING AND DEVELOPMENT IN SOCIAL WELFARE (3) II  
Current trends in community welfare planning programs. Material from the fields of social work, sociology, social psychology, and others included. Pre: 300–301 (interdisciplinary course).

315 SOCIAL WORK METHODS (3) I  
Analysis of techniques most commonly used in social work practice. Casework, group work, community organization, administration, and research. Open to seniors. Pre: 300–301.

320 SOCIAL WORK WITH JUVENILE AND ADULT OFFENDERS (3) I  
Study of social welfare resources and institutions for treatment of offenders. Pre: 300–301.

335 SEMINAR IN SOCIAL WELFARE (3) II  
Designed to coordinate and integrate social welfare concepts with practice. To be taken concurrently with 340. Pre: 315.

340 FIELD EXPERIENCE (2) II  
Short-term experience in a social agency with opportunity to observe and participate in the agency service at the appropriate level. Limited to social work majors. To be taken concurrently with 335.
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 four options—entomology, animal sciences, soil science, and tropical horticulture. Agricultural economics has two options—agricultural economics and agricultural business.

Six curricula are offered in home economics: fashion design and merchandising, general home economics, home economics education, food and nutritional sciences, food service administration, and human development.

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 the same as those for the University (pp. 24–29). Students who lack some of this required preparation are unable to follow the regular programs and may need more than four years to complete the degree requirements.

To be eligible for the degree a student must:

1. Complete the general requirements prescribed by the University (pp. 34–37);
2. Complete the course requirements of a curriculum;
3. Have a 2.0 grade-point ratio for all registered credits.

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.

In addition to the general University requirements in communications, quantitative reasoning, world civilization, humanities, natural sciences and social sciences (pp. 34–37) the College requirements include a basic core consisting of Ag 100, AS 141, Hort 262, Ag Econ 120, Ent 161 and Soils 481. Curricular requirements are:

**AGRICULTURAL TECHNOLOGY:** Ag Eng 231, Agron 501, Ent 372, Hort 361, PPath 310, Soils 482 and

(a) in the *General Agriculture option:* 18 credits from Agronomy, Agriculture, Ag Engineering, Animal Sciences, Botany, Plant Sciences; 18 credits from humanities, social sciences, HPE.

(b) in the *Tropical Crops Production option:* Phys 160, 161, AE 431, 435, Ag Econ 327, Botany 470, and 15 credits from Agronomy, Horticulture, Botany and Ag Engineering.

**AGRICULTURAL SCIENCE:** Chem 143, Chem 144 or Ag Biochem 402, Genet 451, Phys 160, 161, Micro 151 and

(a) in the *Animal Science option:* AS 245, 341; 9 credits from AS 342, 343, 344, 345, 346; Micro 151, Zool 206; 16 credits from Ag Biochem 402; Ag Econ 327, Ag Eng 231, Agron 502, 503; AS 442, 443, 445, 446, Chem 331, Econ 150, Ent 372; Zool 301, 345, 410, 416, 425, 431, 432.

(b) in the *Entomology option:* Ent 361, 362, 372; one year of a foreign language: German, French, Spanish, Japanese or Russian; 15 credits from Agr Eng 231, Bot 105, 360, 470, 353; Chem 331, Geog 420, Geol 200, Hort 392, 453, 462, 463; Phil 200; PPath 310; Soils 482, 483, Zool 401, 410, 416, 425, 431, 432.

(c) in the *Soil Science option:* Chem 331, Soils 399, 482, 483, and 18 credits from Agro 502, Ag Eng 435; Bot 160, 201, 353, 470, 673; Chem 432, 451-452, 551-552; Geog 101, 420, 430; Geol 101, 102, 424, Hort 392, 462, 463; Math 136, 315, Phil 200, Soils 484; Zool 431, 432.

(d) in the *Tropical Horticulture option:* 25 credits from the following: Ag Biochem 402; Ag Eng 231, 435; Bot 105, 160, 201, 353, 360, 410, 412, 418, 454, 461, 470, 480; Chem 331; Ent 161, 372; Genet 451; Ger 101-102; Hort 361, 462, 369, 392, 453, 463, 471, 481, 494; Math 135, 136, 231; Micro 151; PPath 310; Soils 482, 483; Zool 431, 432.

**AGRICULTURAL ECONOMICS:** Econ 150, 151, 240, 300; Acc 100, PolSc 110; Ag Econ 321, 322, 327, 428, 434 and
(a) in *Agricultural Business options*: Management 300, Marketing & Foreign Trade elective, Law 300, Ag Econ 423, 430 and two electives from Econ, Business, Ag Engineering;

(b) *Agricultural Economics option*: seven electives from agronomy, economics, business, ag engineering.

**AGRICULTURE COURSES**

*See p. 50 for a discussion of course descriptions.*

**Agriculture (Ag)**

Associate Professors Chun, S. Goto

100 **ORIENTATION COURSE** (1) I Goto

Lectures and field trips to acquaint the student with background of agriculture and to help him select a major.

299 **AGRICULTURAL PRACTICE** (arr.) I, II, SS Staff

Agricultural practice on projects at the Pearl City facility. May be repeated.

399 **AGRICULTURAL THESIS** (arr.) I, II, SS Staff

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 Chun

Objectives and organization. Methods, selection, and training of voluntary leaders; basic principles in program development and appraisal.

**Agricultural Biochemistry (AgBio)**

Professor Matsumoto; Assistant Professor Hylin

402 **PRINCIPLES OF METABOLISM** (4) I (3 L, 1 Lab) Hylin

Study of fundamental metabolic processes common to all living organisms. Pre: Chem 103-106 or 107, and 141, or consent of instructor. Approved for graduate credit.

**Agricultural Economics (Ag Ec)**

Professors Davidson, Peters, Philipp, Scott; Associate Professors Barmettler, Ishida, Keeler, Larson, Spielmann; Assistant Professors Boyer, Collier; Lecturers Baker, Gertel, Hogg, Lucas, Wallrabenstein

120 **AGRICULTURAL ECONOMICS** (3) I Barmettler

Introduction to economics of agricultural production, marketing, prices, income, policy. Includes government policy and program 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 Lab) Collier

Factors affecting prices of agricultural products; evaluation of governmental price policy. Pre: a course in economics.
322 MARKETING AGRICULTURAL PRODUCTS (3) I (2 L, 1 Lb)  Ishida
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)  Lucas
Principles of organization and management of individual farms and ranches; choice of enterprises; farm planning; budgeting; business aspects; records; farm and plantation visits.

399 DIRECTED STUDY (arr.) I, II  Staff
Limited to exceptional undergraduate students who are qualified to carry on advanced study. Pre: consent of instructor.

423 AGRICULTURAL COOPERATIVES (3) II  Barmetilder
History; appraisal of methods and operations; problems of management, membership relations, accounting. Pre: 322 or consent of instructor. (Alt. yrs.; offered 1967-68.)

424 MARKETING OF TROPICAL AND SUBTROPICAL AGR. PRODUCTS (3) II  Scott
Marketing system and market analysis for sugar, rice, pineapple, coffee, citrus, other tropical and subtropical crops. Pre: 322 or consent of instructor. (Alt. yrs.; offered 1967-68.)

425 MARKETING OF LIVESTOCK, POULTRY AND DAIRY PRODUCTS (3) II  Barmetilder
Marketing systems and market analysis for livestock, poultry and dairy products. Pre: 322 or consent of instructor. (Alt. yrs.; not offered 1967-68.)

426 AGRICULTURAL ECONOMICS EXTENSION (3) I  Ishida
Methods of disseminating agricultural economic information to extension agents, producers, manufacturers, distributors, retailers. Includes methods of developing price and outlook reports and economic techniques in applied farm management. (Alt. yrs.; offered 1967-68.)

428 PRODUCTION ECONOMICS (3) I  Philipp
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: 327 or consent of instructor.

429 AGRICULTURAL POLICY AND PLANNING (3) II  Spielmann
Roles of government and private enterprise in agriculture. Pre: Econ 150-151, or consent of instructor. (Alt. yrs.; offered 1967-68.)

430 AGRICULTURAL FINANCE (3) II  Lucas
Financing of agricultural production and marketing enterprises and operation of agricultural credit systems. Pre: 327 or consent of instructor. (Alt. yrs.; offered 1967-68.)

431 FOREST ECONOMICS (3) II  Baker
Economic principles involved in the utilization of forest land and timber, and the distribution of forest products. Pre: consent of instructor. (Alt. yrs.; offered 1967-68.)

433 ADVANCED MANAGEMENT AND PLANTATION ECONOMICS (3) II (2 L, 1 Lb)  Keeler
Advanced work in management and organization of commercial farms; farm business analysis; plantation economics. Pre: 327 or consent of instructor. (Alt. yrs.; not offered 1967-68.)
434 STATISTICAL METHODS (3) I Larson
Principles and methods of statistical analysis. Frequency distributions, probability, tests of significance, confidence intervals, regression and correlation, analysis of variance. Applications to problems in agricultural economic research.

435 CONSUMER ECONOMICS AND FOOD DISTRIBUTION (3) I Boyer
Consumer buying. Store layout, organization, management and procurement. Pre: 322 or consent of instructor. (Alt. yrs.; offered 1967–68.)

624 MARKETING RESEARCH (3) II Davidson
Research methodology, analysis of data, presentation of findings. Original research project. Pre: 321, 322, or consent of instructor. (Alt. yrs.; not offered 1967–68.)

625 ECONOMICS OF AGRICULTURE: TROPICAL COUNTRIES AND ASIA (3) I Philipp
Agricultural development, 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 Wallrabenstein
Methods of collection of agricultural data for regular programs and for special purposes. Pre: 434 or consent of instructor.

629 ADVANCED PRODUCTION ECONOMICS (3) II Davidson
Economics of resource allocation at the firm and industry levels. Advanced analytical techniques of analysis: linear programming; synthesis; budgeting; statistical analysis. Pre: 428 or consent of instructor.

630 MARKET DEVELOPMENT FOR AGRICULTURAL PRODUCTS (3) II Scott
Methodology for determining market potentials and methods and costs of market development for products of agricultural origin. Pre: 322 or consent of instructor. (Alt. yrs.; offered 1967–68.)

632 ECONOMICS OF AGRICULTURAL PROCESSING INDUSTRIES (3) II Scott
Economic studies of processing efficiency, economic feasibility of new processing methods, and the role of processing in the marketing of agricultural products. Pre: 322 or consent of instructor. (Alt. yrs.; not offered 1967–68.)

634 ADVANCED AGRICULTURAL PRICES AND STATISTICAL ANALYSIS (3) II Larson
Research methodology in 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.

635 SEMINAR: AGRICULTURAL PRICE ANALYSIS AND STATISTICS (3) I
Selected topics in the application of statistics to research in agricultural production and marketing. Pre: 634 or consent of instructor.

636 SEMINAR: AGRICULTURAL POLICY (3) II Spielmann
Economic analysis of agricultural policy at state, national, and international levels, with particular reference to influence of policy on economic development in agriculture. Pre: 429 or consent of instructor. (Alt. yrs.; not offered 1967–68.)

637 ECONOMICS OF AGRICULTURAL RESOURCE DEVELOPMENT (3) II Gertel
Theory of the economics of agricultural resource development, economic development of agriculture in relation to other sectors of the economy; economic evaluation of domestic and international problems of agricultural development in emerging and underdeveloped countries. Pre: 428 or consent of instructor. (Alt. yrs.; offered 1967–68.)
638 SEMINAR: LAND USE IN DEVELOPING COUNTRIES (3) I Gertel
Role of the pattern of land use on agricultural economic development and the welfare of rural people in emerging agricultural nations. Pre: Real Estate 340 or consent of instructor. (Alt. yrs.; not offered 1967-68.)

639 FINANCING AGRICULTURE IN DEVELOPING COUNTRIES (3) I Spielmann
Sources of credit and the functions of credit in agricultural economic development with particular reference to credit problems in underdeveloped nations. Pre: 430 or consent of instructor. (Alt. yrs.; not offered 1967-68.)

699 DIRECTED RESEARCH (arr.) I, II Staff
Pre: consent of instructor.

Agricultural Engineering (AgEng)

Professor Kinch; Associate Professor Wang; Assistant Professors Gitlin, Wu; Instructor Sellenberger

231 MECHANIZING AGRICULTURAL PRODUCTION (4) II (3 L, 1 Lb) Kinch
Introduction to theory and practices of mechanized production and processing of food and fiber crops.

411 METHODS OF POST HARVEST HANDLING OF AGRICULTURAL PRODUCTS (3) I (2 L, 1 Lb) Wang
Theory and techniques of precooling, cold storage, drying, bulk handling, and physical damage to agricultural products. Pre: 231.

431 AGRICULTURAL POWER AND EQUIPMENT (3) I (2 L, 1 Lb) Kinch
Integration of power and equipment on the plantation, ranch, and farm; methods of evaluating its capacity, efficiency, and cost of use. Pre: 231 or consent of instructor.

435 IRRIGATION PRINCIPLES AND PRACTICES (3) II (2 L, 1 Lb) Wu
Basic principles of irrigation science with applications to irrigation methods; water conveyance, distribution, and measurement; water requirements of crops; and irrigation efficiency and cost. Pre: 231 or consent of instructor.

631 ANALYSIS OF IMPLEMENT DESIGN (3) I (2 L, 1 Lb) Kinch
Application of machine design principles and the basic soil, crop requirements in solving typical equipment design problems. Pre: ME 374 or equivalent.

635 FARM IRRIGATION SYSTEM DESIGN (3) II (2 L, 1 Lb) Wu
Design based on water requirements; design of water conveyance and diversion structures and of application methods. Irrigation economics. Pre: CE 321 or equivalent.

647 METHODS OF AGRICULTURAL ENGINEERING (3) I (3 L) Wang
Study of mathematical tools of agricultural engineering, including dimensional analysis, model studies, queuing theory and its application, boundary value problems and its application to theory of drying and vibrations of elastic bodies. Term paper required. Pre: Math 402.

648 POST HARVEST PROCESS ENGINEERING (3) II (3 L) Wang
Advanced topics in heat transfer; forced convection, condensing vapor, boiling liquid; physical properties of agricultural products; design of pre-cooling systems. Pre: ME 475, Math 402.
699 DIRECTED RESEARCH (arr.) I, II  

700 SEMINAR (1) I, II  
Review of recent literature. Can be repeated once for credit. Pre: consent of instructor.

Agronomy and Soil Science

Senior Professor G. D. Sherman; Professors Ekern, Fox, Sanford, Swindale; Associate Professors Kanehiro, Takahashi, Uehara; Assistant Professors Bartholomew, Green, Rotar, Silva, Urata, Young

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.

502 PRINCIPLES OF AGRONOMY (3) II (2 L, 1 Lb)  
Field crop production, ecology, geography. Pre: Bot 101; Chem 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: Bot 101. (Alt. yrs.; offered 1967-68.)

510 SUGAR CANE AGRONOMY (3) II  
The cane plant; breeding, physiology, culture, growth, harvesting, milling, and marketing; field practices and management; international agreements.

511 SEMINAR IN PINEAPPLE CULTURE (2) I, II  
Historical development of pineapple culture in the world. Morphological and physiological peculiarities of the pineapple plant. Agronomic practices used in pineapple culture in Hawaii.

605 SEMINAR IN ADVANCED AGRONOMY (1) I  
Review of recent research findings in tropical agronomy. Pre: graduate standing.

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: Chem 104.

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 Lab)  
Physical properties of soils; structure and moisture relationships. Pre: Phys 161 or 181; 481.

486 SOIL EROSION: CAUSES AND CONTROLS (3) I  
Physical properties of soil which influence erodibility; energy sources and mechanics of water and wind erosion; principles of vegetative and mechanical controls; survey of development and spread of the conservation movement.

487 METEOROLOGY IN AGRICULTURE (3) II  
Elements and mechanics of weather; response of plants to weather elements; manipulation of microclimate; weather requirements of major crops; weather and plant disease and insects; weather and warm-blooded animals, including man.

685 SOIL FORMATION AND CLASSIFICATION (4) I  
Weathering and alteration of rocks and sediments, formation of soils; comprehensive reviews of effects of climate, vegetation, drainage, topography, and time on formation of soils and sediments; comparative survey of soil classification systems. Particular emphasis on tropical soils. Pre: consent of instructor.

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, technology. Pre: graduate standing.

688 SOIL AND CLAY MINERALOGY (3) II (2 L, 1 Lab)  
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 Lab)  
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  
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 Sciences (An Sc)

Professors Brooks, Ross, Wayman; Associate Professors Cobb, Hugh, Stanley; Assistant Professors Herrick, Iwanaga; Lecturers Miyahara, Smith

141 ANIMALS AND MAN (3) II  
Study of major farm animals and poultry and their contribution to man, origin of species, distribution and economic importance.

241 FEEDS AND FEEDING (3) I (2 L, 1 Lab)  
Basic principles of feeding farm animals; composition and nutritional value of feeds; nutritional requirements of beef cattle, dairy cattle, horses, poultry and swine; balancing rations for specific productive purposes. Pre: Chem 104 or 106.
341 LIVESTOCK MANAGEMENT LABORATORY (3) SS (5 L, 1 Lb for 6 weeks) Staff
Assigned problems and practical experience in management of livestock; evaluating, feeding and housing beef cattle, dairy cattle, poultry, swine. Recommended for Animal Sciences majors during summer between junior and senior years. May be taken by other students with adequate background. Pre: consent of chairman.

342 BEEF PRODUCTION (3) II Wayman
World beef production problems, resources and opportunities; selection of breeding stock, principles of handling and feeding on the range and in the feedlot. Pre: 141. (Alt. yrs.; not offered 1967-68.)

343 TROPICAL DAIRYING (3) II Koshi
Principles involved in economical milk production within the tropics; breeds of dairy cattle, selection, raising young animals; care, housing and management of the milking herd; factors affecting quantity and quality of milk produced. Pre: 141. (Alt. yrs.; offered 1967-68.)

344 SWINE PRODUCTION (3) I Hugh
Principles of efficient pork production including breeds, breeding, feeding, management, marketing. Pre: 141. (Alt. yrs.; not offered 1967-68.)

345 POULTRY PRODUCTION (2) II Herrick
Principles involved in the economical production of poultry meat and eggs; breeding, feeding, housing, and management of different types of poultry. Problems associated with tropical environment emphasized. Pre: 141, 241 or consent of instructor. (Alt. yrs.; offered 1967-68.)

346 HORSES AND HORSEMANSHIP (3) I (2 L, 1 Lb) Smith
Origin of the species, breeds, nutrition, care and management. Laboratory on management practices with work on light horses.

442-443 PHYSIOLOGY OF DOMESTIC ANIMALS (4-4) Yr. (3 L, 1 Lb) Wayman
Organ systems of the body, their anatomical arrangement, structure and function. Emphasis on most important species. (Alt. yrs.; offered 1967-68.)

444 ANIMAL NUTRITION (4) II (3 L, 1 Lb) Brooks
Sources, digestion, metabolism, functions, requirements and inter-relationships of nutrients for maintenance and production of domestic animals. Pre: 241, AgBio 402. (Alt. yrs.; not offered 1967-68.)

445 ANIMAL BREEDING (3) I Cobb
Application of genetic principles to improvement of livestock, including poultry. Pre: Genet 451 or consent of instructor. (Alt. yrs.; offered 1967-68.)

446 ANIMAL DISEASES AND THEIR CONTROL (3) I (2 L, 1 Lb) Miyahara
Disease problems of livestock and poultry; prevention, control, eradication. Pre: 141, and consent of instructor.

499 DIRECTED STUDY OR RESEARCH (arr.) I, II Staff
Limited to exceptional undergraduate students. Generally a student must present a 2.7 overall GPR or 3.0 in major. Exceptions may be granted students with high achievement in last 3 semesters. Pre: consent of instructor.

641 SEMINAR IN ANIMAL SCIENCE (1) I, II Staff
Topics of current interest and current research related to nutrition, genetics, physiology. Pre: consent of instructor.
642 **RUMINANT NUTRITION (2)** II
Stanley
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: 442-443, 444; AB 402. (Alt. yrs.; not offered 1967-68.)

643 **PHYSIOLOGY OF REPRODUCTION (3)** I
Wayman
Comparative differentiation, development, growth, function of the reproductive systems of mammals and birds; external factors which influence response; artificial insemination. Pre: 442-443 or equivalent. (Alt. yrs.; not offered 1967-68.)

645 **QUANTITATIVE GENETICS (3)** II (2 L, 1 Lb)
Cobb
Concepts relating to genetic properties of populations and to the inheritance of quantitative traits. Pre: Genet 451. (Alt. yrs.; not offered 1967-68.)

699 **DIRECTED RESEARCH** (arr.) I, II, SS
(I) Genetics—Cobb; (2) Nutrition—Brooks, Ross, Stanley, Palafox; (3) Physiology—Wayman, Herrick; (4) Management—Staff.

**Entomology** (Ento)

Senior Professors BESS, HARDY; Professors NISHIDA, M. SHERMAN; Associate Professors BEARDSLEY, MITCHELL, NAMBA; Assistant Professors HARAMOTO, TAMASHIRO

161 **GENERAL ENTOMOLOGY (4)** I, II (2 L, 2 Lb)
Hardy, Mitchell

361 **INSECT MORPHOLOGY (3)** I (2 L-Lb)
Namba
Comparative and gross morphology; homologies of structures; anatomy; development in representative groups. Pre: 161.

362 **SYSTEMATIC ENTOMOLOGY (3)** II (2 L-Lb)
Beardsley
Classification of insects; orders and families. Use of taxonomic tools. Pre: 361.

372 **ECONOMIC ENTOMOLOGY (4)** II (2 L, 2 Lb)
Sherman
Insect pests; principles of chemical, biological and cultural control. Laboratories on Hawaiian insects of households, plants, animals. Pre: 161; Chem 104.

399 **DIRECTED RESEARCH** (arr.) I, II
Staff
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)
Hardy

662 **ADVANCED SYSTEMATIC ENTOMOLOGY (3)** II (2 L-Lb)
Hardy
Classification of special groups. Nomenclatorial problems; international code. Pre: 362.

663 **SCALE INSECTS (3)** I (2 L-Lb)
Beardsley
Coccids of Hawaii. Taxonomy, techniques, economic importance, control. Pre: 161; desirable Bot 460.
664 IMMATURE INSECTS (3) II (2 L, 2 Lb) Beardsley
Identification, structure, literature, and economic significance, emphasis on the Holometabola. Pre: 362.

671 INSECT ECOLOGY (3) II (2 L, 1 Lb) Bess, Nishida

672 ACAROLOGY (3) II (2 L, 2 Lb) Haramoto

673 INSECT PATHOLOGY (3) I (2 L, 1 Lb) Tamashiro
Diseases of insects; histopathology; microbe agents and biological control. Pre: 372.

675 BIOLOGICAL CONTROL OF PESTS (3) II (2 L, 1 Lb) Bess, Nishida

680 INSECT TOXICOLOGY (4) I (2 L, 2 Lb) Sherman
Mode of action of insecticides. Relationship of toxicology and physiology to use of insecticides. Pre: 372; Chem 141.

686 INSECT TRANSMITTED DISEASES OF PLANTS (3) II (2 L-Lb) Namba

697 ENTOMOLOGY SEMINAR (1) I, II Staff
Current entomological literature. Reviews and reports. Required of graduate students in entomology.

699 DIRECTED RESEARCH (arr.) I, II Staff
Directed research and reading in various fields of entomology.

Food Science and Technology (Fd Sc)

Professor Ross; Associate Professors Frank, Yamamoto; Assistant Professor Moy

301 FOOD TECHNOLOGY (2) I Ross
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. (Alt. yrs.; offered 1967–68.)

510 PRINCIPLES OF TROPICAL FOOD PROCESSING AND PRESERVATION (3) I (2 L, 1 3-Hr Lb) Moy
Engineering principles of processing and preservation; unit operations in dehydration, freezing, freeze-drying, irradiation, thermal processing, and chemical preservation of tropical foods; review in fluid mechanics, heat transfer, and psychrometry. Pre: 1 year each of general physics, general chemistry, and algebra.

511 CHEMISTRY AND TECHNOLOGY OF TROPICAL FOOD PRODUCTS (3) II (2 L, 1 3-Hr Lb) Moy
Physical chemistry of food texture, color, and flavor; instrumentation and chemical analysis of tropical food products; food packaging and quality control. Experimental test methods in new product development. Pre: consent of instructor.

601 PRINCIPLES IN FOOD SCIENCE AND TECHNOLOGY (3) II Ross
Integration of physical, chemical, and biological concepts to formulate basic principles in food science and technology; scientific basis of food preservation. Pre: general physics, biochemistry, and microbiology. (Alt. yrs.; not offered 1967–68.)
603 MICROBIOLOGY OF FOODS (3) I
Frank
Description of micro-organisms encountered in foods; different types of food spoilage; various methods used for food preservation. Pre: Micro 151 and consent of instructor. (Alt. yrs.; offered 1967–68.)

604 LABORATORY METHODS FOR FOOD MICROBIOLOGY (2) I (2 Lb)
Frank
Laboratory methods for studying food spoilage, its control and prevention. Pre: Micro 151 and consent of instructor. (Alt. yrs.; not offered 1967–68.)

620 SEMINAR IN FOOD SCIENCE (1) I
Staff
Special topics, reports, and informal discussion of graduate student research. Pre: consent of instructor.

630 BIOCHEMICAL ASPECTS OF FOOD SCIENCE (3) II
Yamamoto
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
Staff
Pre: consent of department chairman.

701 SEMINAR IN RECENT ADVANCES IN FOOD RESEARCH (1) II
Staff
Reports and discussions from current literature in food science and technology.

Horticulture (Hort)

Professors Brewbaker, Gilbert, Hamilton, Kamemoto, Sagawa, Warner, Watson; Associate Professors Nakasone, Romanowski, Suhjiian; Assistant Professors Hartmann, Poole, Yee

101 GENERAL HORTICULTURE (2) I
Yes
Horticulture and horticultural research intended for students who want a general knowledge but who do not plan to specialize in these fields.

262 PRINCIPLES OF HORTICULTURE (3) I (2 L, 1 Lb)
Romanowski
Relationships of plant structures, nutrients, environment, and cultural methods to plant growth. Pre: Bot 101; credit or concurrent registration in Chem 104.

361 PRINCIPLES OF PLANT PROPAGATION (3) I (2 L, 1 Lb)
Nakasone

369 ORNAMENTAL PLANT MATERIALS (3) II
Hartmann
Lawns, ground covers, vines, shrubs, herbaceous plants, and trees in Hawaii. Pre: 262; Bot 360; or consent of instructor.

392 COMMERCIAL VEGETABLE PRODUCTION (3) I (2 L, 1 Lb)
Gilbert
Production methods and current problems from choosing seed to marketing. Emphasizes top ten Hawaiian vegetables. Pre: 262; credit or concurrent registration in Ento 161.

453 PRINCIPLES OF PLANT BREEDING (3) I (2 L, 1 Lb)
Hartmann

462 TROPICAL FRUIT CROPS (3) II (2 L, 1 Lb)
Nakasone
463 FLORICULTURE (3) I (2 L, 1 Lb) Kamemoto

464 ORCHIDOLOGY (3) II (2 L, 1 Lb) Kamemoto
Classification, culture, cytotgenetics, and breeding of orchids. Pre: Bot 101; Genet 451. (Alt. yrs.; not offered 1967–68.)

471 POST-HARVEST HANDLING (3) II (2 L, 1 Lb) Akamine, Romanowski
Handling and storage of horticultural crops. Pre: 262 or consent of instructor. (Alt. yrs.; offered 1967–68.)

481 WEED SCIENCE (3) I (2 L, 1 Lb) Romanowski
Weed classification and principles of control. Pre: 262 or Agron 502. (Alt. yrs.; not offered 1967–68.)

494 SYSTEMATIC VEGETABLE CROPS (3) II (2 L, 1 Lb) Gilbert
Adaptation, qualities, disease and insect resistance, taxonomic comparison of types grown in Hawaii; pedigrees and breeding of major varieties. Pre: 262. (Alt. yrs.; not offered 1967–68.)

603 EXPERIMENTAL DESIGN (3) I (2 L, 1 Lb) Brewbaker
Design of experiments and variance analyses in biological and agricultural research. Pre: Zool 431 or Ag Econ 434 or equivalent. Desirable: Zool 432.

611 ADVANCED PLANT BREEDING (3) II (2 L, 1 Lb) Gilbert

618 CYTOGENETICS (3) II (2 L, 1 Lb) Sagawa

662 ADVANCED TROPICAL FRUIT SCIENCE (3) II (2 L, 1 Lb) Hamilton
Origin, taxonomic relationships, genetics, breeding and technical aspects of culture of fruit and nut crops commercially important in Hawaii. Pre: 462. (Alt. yrs.; offered 1967–68.)

666 RADIATION BIOLOGY (3) II (2 L, 1 Lb) Brewbaker
Types and sources of radiation; effects of irradiation on living organisms; applications in agricultural research. Pre: consent of instructor. (Alt. yrs.; not offered 1967–68.)

667 HORTICULTURE SEMINAR (1) I, II Staff
Presentation of reports upon research or reviews of current literature in horticulture.

668 GROWTH REGULATORS IN HORTICULTURE (2) II Poole

691 CROP ECOLOGY (3) I (2 L, 1 Lb) Warner
Climatic, edaphic, and biotic factors influencing tropical and subtropical crops; instrumentation and data interpretation. Pre: 262 or consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II Staff
Pre: consent of instructor.

711 SPECIAL TOPICS IN EXPERIMENTAL HORTICULTURE (arr.) Staff
Discussion of recent advances in horticultural research with detailed study of specific areas in this field. Pre: consent of instructor.

800 THESIS RESEARCH (arr.) I, II Staff
Plant Pathology (PPath)

Professor Buddenhagen; Associate Professors Aragaki, Hine, Holtzmann, Ishii; Assistant Professor Trujillo

310 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: Bot 101.

610 PRINCIPLES OF PLANT DISEASE CONTROL (3) II (2 L, 1 Lb)  
Methodology and application of plant disease control. Pre: 310. (Alt. yrs.; offered 1967–68.)

615 PLANT NEMATOLOGY (3) II (2 L, 1 Lb)  
Collection, classification, morphology, biology, and control of nematodes which attack economic crops. Pre: 310; Zool 101, or consent of instructor. (Alt. yrs.; not offered 1967–68.)

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: 310; Microbiology 151; or consent of instructor.

625 ADVANCED PLANT PATHOLOGY (2) II  
Analysis of basic concepts of plant diseases; emphasis on physiology of parasitism, etiology, and epidemiological principles. Pre: 310, 610; or consent of instructor. (Alt. yrs.; not offered 1967–68.)

630 PLANT ViroLOGY (3) (2 L, 1 Lb)  
Plant viruses, the diseases they cause in economic plants, their biological and physical properties. Pre: 310, or consent of instructor. (Alt. yrs.; offered 1967–68.)

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

Professors Cool, Siegel; Associate Professors Friend, 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
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, 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.

In addition, the department offers interdisciplinary courses designed to serve other professional schools and as electives for the general student body.

Admission and Degree Requirements

Admission requirements are the same as those for the University (pp. 24–29). To be entitled to a bachelor's degree in home economics, a student must:

1. Complete the University's general education requirements (pp. 34–37);
2. complete, in addition to the general education requirements, 60 hours or more of non-introductory courses;
3. offer the prescribed requirement for home economics courses and courses from related fields under one of the specialized home economics major sequences (may overlap 1 and 2);
4. include Home Economics Orientation and, in addition, a minimum of two home economics courses from areas other than the major sequence. Students in Home Economics Education need not meet the latter requirement since their program embraces all areas of home economics;
5. complete a minimum of 1 unit of health and physical education;
6. earn at least a 2.0 grade-point ratio (C average) for all registered credits. Students may not register in the junior year as a major in Home Economics Education with a grade-point ratio under 2.5.

Graduate work leading to the master's degree is offered in the field of nutrition. Intended candidates must present the following undergraduate preparation: general chemistry, qualitative analysis, quantitative analysis, organic chemistry, biology, general physics, college algebra, trigonometry and an adequate undergraduate preparation in nutrition.

Specialized Home Economics Major Sequences

HOME ECONOMICS EDUCATION. HE 103, 112, 120, 214, 222, 240, 250, 251, 252, 262, 270, 356, 358, 470. Chem 103, 104; Econ 150; Micro 151; Psy 350; Zool 201, 202 and in addition the professional sequence in Education.

FOOD AND NUTRITIONAL SCIENCES. HE 120, 223, 240, 356, 401–402, 403–404, 441, 447. Chem 103, 106, 141 or 143, 331; Ag Biochem 402; Math 134; Micro 151; Zool 201, 202; Physiology 301.


GENERAL HOME ECONOMICS. Students may satisfy degree requirements with a general home economics major by following the sequence under Home Economics Education, omitting the professional education and adding additional credit hours in an area of specialization in consultation with the adviser.

FASHION DESIGN

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### Fashion Merchandising

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*See pp. 34–37.

Sixty credits in non-introductory courses required for graduation.
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- **Psy 516** 3
- **Eng 209** 3
- **HE 418** 3
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### HOME ECONOMICS EDUCATION

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*UH Core.

†Graduates need 9 credits in Clothing & Textiles and 18 credits (plus student teaching) in Education to meet DE requirements for certification.
## FOOD AND NUTRITIONAL SCIENCES

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**Suggested Electives:**

- Anthro 200
- *Math 135, 136
- *Chem 451-452
- Food Science 301; 510-511
- HE 103; 222; 250
- Psy 220; 350
- Zool 431; 432; 505
- Speech 370
- Soc 151; 435
- Ag Econ 434
- *Physics 160-161

*For those planning graduate study.*
FOOD SERVICE ADMINISTRATION
Emphasis A—Therapeutic Dietetics

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FOOD SERVICE ADMINISTRATION
Emphasis B—Industrial Management

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HE 234 3  HE 223 3
Zool 201 4  Zool 202 4
Micro 151 or Chem 143 4  Micro 151 or Chem 141 4
Humanities (Eng 154) 3  Econ 150 3
HE 338 3  Humanities (Eng 155) 3

Total 17  Total 17

HE 240 3  HE 235 3
Hist 341 or Asian St 301 3  Hist 341 or Asian St 302 3
Mgrnt 300 3  HE 339 3
Acc 100 3  Acc 101 3
Bus Stat 300 or Psy 220 3  Elective (HE 440, Summer) 3
Food Tech 301 2

Total 17  Total 17

Bus Econ 340 or
Mgrnt 340 3  HE 320 2
HE 441 or HE 351 3  HE 436 3
Acc 200 3  Bus Finance 300 3
PIR 350 3  Electives 4
Electives 3

Total 15  Total 15

Home Economics (HE)

Professors Kraemer, Beaton, Hartley; Associate Professors Allen, Lichton, Tull, Umbel, Young; Assistant Professors Ching, Cooksey, Eder, Fargo, Furer, Herrick, Hilker, Standal, Weddle, Wenkam; Instructor Takahashi; Lecturers Schwitters, Melin

100 ORIENTATION (1) I (1 L) Kraemer
Nature of higher education and role of University in personal development. Home Economics as field of study and as professional preparation.

HUMAN DEVELOPMENT

103 CHILD STUDY AND OBSERVATION (3) I, II (2 L, 1 Lb) Schwitters
Principles of development and guidance of children. Observation in the nursery school and other situations involving children.

262 FAMILY RELATIONSHIPS (3) I, II Allen
Study of interrelationships of individual and family through various stages of the life cycle. Pre: Psy 100 and Soc 151 or 201.

330 HUMAN NEEDS AND COMMUNITY RESOURCES (2) I, II Fargo
Cross cultural and historical study of organization and implementation of community-wide programs for meeting family needs. Role of individual and family in coordination of home and community resources.
350 CULTURAL ASPECTS OF CHILD REARING (3) II (3 L)  
Staff  
Cultural context of socialization: class and ethnic differentials. Cultural influences on individual and family, on child rearing practices and personality development. Pre: Psy 350 and Anth 200.

351 GROUP LEADERSHIP (3) I, II  
Allen  
Sociological and psychological concepts pertaining to individual motivation and internal and external group forces. Application of group techniques to use in planning and conducting activities related to human resources development.

361 INTERPRETATION OF BEHAVIOR (2) II  
Fargo  
Interpretation of behavior and development during the preschool years through directed observation in the laboratory and selected readings. Pre: Psy 350 and consent of instructor.

422 WORK WITH PARENTS (3) II (2 L, 1 Lb)  
Fargo  
Study of parental behavior as function of individual personality and the cultural and societal context. Interpretation of research in behavioral sciences made with view to policy and practices of working with parents. Field experience through association with parent groups in local community. Pre: senior standing and consent of instructor.

430-431 PRESCHOOL PRACTICUM (4-4)  
Staff  
Application of theory of early childhood education to experience in preschool. Students will arrange morning hours 2 days each week for participation in the preschool. Pre: 361 and consent of instructor.

450 MALE-FEMALE SUBCULTURES (2) I  
Hartley  
Interdisciplinary approach to study of male and female roles in family and society. Consideration given to cross cultural variation and to the impact of social change.

650 SEMINAR IN HUMAN DEVELOPMENT, FAMILY RELATIONSHIPS (3) I, II  
Staff  
Review and analysis of literature related to human development and interpersonal relationships within the family. Projects carried out according to interests of the group.

FASHION DESIGN, TEXTILES, & MERCHANDISING  
(Numbers in parentheses refer to former numbers of these courses.)

110 ESTHETICS OF CLOTHING (3) I, II (2 L, 1 Lb)  
Herrick  
Factors involved in clothing selection. Principles of line, color, and design for individual figures. Consumer buying of wardrobes. Open to freshmen and sophomore women.

112 BASIC CLOTHING CONSTRUCTION (3) I, II (1 L, 2 Lb)  
Takahashi  
Selection and use of equipment and commercial patterns. Basic principles of construction and fitting. Lectures introducing psychological and socio-economic aspects of clothing.

125 (324) FASHION ANALYSIS (3) I  
Melin  
Dynamics of fashion and analysis of trends. History, structure, and terminology of the fashion industry. Fashion merchandise resources—mainland, Hawaiian, and import markets.

214 (114) TEXTILES (3) I, II (2 L, 1 Lb)  
Herrick  
Fibers, yarns, fabric construction, and finishes related to selection, use, and care of textiles.
215 (115) BLOCK PATTERN DESIGNING (2 or 3) I (2 L or 2 L, 1 Lb) Umbel, Furer

216 (218) FASHION DESIGN AND SKETCHING (3) II (2 L, 1 Lb) Takahashi
Development of apparel design through sketching the fashion figure. Sources of design inspiration. Pre: 110, 125, 215.

315 (214) DRAPING (3) I (1 L, 2 Lb) Umbel
Principles of pattern making through draping muslin models to standard measurements. Pre: 215, 216.

316 (215) ADVANCED BLOCK PATTERN DESIGNING (3) II (1 L, 2 Lb) Furer
Fashion designs made by the flat pattern method. Muslin proofs constructed and patterns graded to standard measurements. Pre: 315.

325 FASHION SALES PROMOTION (3) II Melin
Consumer buying motivation. Analysis of selling techniques and procedures. Promotion of fashion merchandise through variety of media. Pre: 125, Mkt 300.

416 (216) CREATIVE CLOTHING CONSTRUCTION (1 or 3) I, II (1 L, 2 Lb) Umbel
(Lecture-demonstration = 1 credit; plus two laboratories = 3 credits)
Clothing construction as form of creative expression. Construction techniques that contribute to individuality in dress. Pre: 112.

417 (117) COSTUMES OF THE WESTERN WORLD (3) I Furer
Chronological study of costume as related to culture and customs from ancient through modern times. Pre: Hist 151-152.

418 COSTUMES OF ASIA (3) II Umbel
Development and characteristics of costumes and fabrics of China, Japan, Korea, Philippines, India, Southeast Asia; relation to customs and culture. Pre: Hist 151-152.

419 (319) APPAREL DESIGN STUDIO (3) I (2 Lb) Furer
Designing, executing patterns, muslin proofs, grading, and completion of ready-to-wear collection by senior students. Pre: 216, 316.

420 (320) APPAREL DESIGN STUDIO (3) II (2 Lb) Furer
Interpreting fashion sketches and developing muslin proofs; continuation of grading. Pre: 419.

421 FIELD EXPERIENCE (2) II Furer
Field experience in the fashion industry including weekly discussion period. Pre: concurrent with 420; 3.0 GPR for fashion design courses; consent of instructor.

422 (322) ADVANCED FASHION DESIGN AND SKETCHING (2) II Furer

427 (326) FASHION MERCHANDISING (3) I Staff
Major considerations involved in buying and selling fashion merchandise. Organization and types of outlets, sources of buying information, resident and central buying offices, value determinants in selection of merchandise. Pre: 325.

428 FASHION MERCHANDISE PLANNING AND CONTROL (3) II Staff
Theories and procedures in purchase planning and inventory methods involved in the successful operation of a fashion department or shop. Pre: 427, Acct 100-101.
FOOD AND NUTRITIONAL SCIENCES

120 FOOD PREPARATION (3) I, II (2 L, 2 lb) Weddle
Scientific principles underlying preparation of foods to yield products of standard quality.

126 INTRODUCTION TO NUTRITION (2) II (2 L) Staff
Basic principles of nutrition. Food sources of nutrients; essentials of an adequate diet. Not open to food and nutritional sciences and institution administration majors.

222 MEAL MANAGEMENT (3) I, II (1 L, 2 Lb) Weddle
Management of time, energy, and money in relation to feeding the family. Consideration of nutritional needs and food patterns. Advance registration required. Pre: 120.

223 ADVANCED FOODS (3) II (1 L, 2 Lb) Weddle
Comparative food studies with emphasis on physical and chemical variables. Pre: 120 and Chem 104 or 106.

240 PRINCIPLES OF NUTRITION (3) I, II (3 L) Staff

401-402 HUMAN NUTRITION (3-3) I, II (3 l) Staff
Biochemistry and physiology of nutrition; fundamental concepts of human nutrition. Pre: Ag Biochem 402 or Biochem 441 or equivalent.

403-404 HUMAN NUTRITION LABORATORY (1-1) I, II (2 Lb) Staff
Survey of methodology; analysis of foods and biological materials. Concurrent with 401-402. Pre: consent of instructor.

441 CULTURAL ASPECTS OF FOOD (3) II (3 L) Wonken
International and regional influences on meal patterns. Cultural and esthetic values of food.

445 DIET AND DISEASE (3) II (3 L) Staff

447 SEMINAR IN NUTRITION (2) I, II Staff
Scientific literature in foods and nutrition. Discussion of selected materials from the literature. Pre: consent of instructor; senior standing.

GRADUATE COURSES IN NUTRITION (Nutr)

621 TOPICS IN NUTRITION (2) I, II Hilker
Reports and discussion of a specific topic of current interest in nutrition. Pre: consent of instructor.

622 NUTRITIONAL AND METABOLIC DISEASES (2) I (2 L) Lichton
Survey of disease mechanisms in undernutrition, overnutrition, malabsorption and fluid imbalances; selected examples of disorders, or inborn errors of metabolism. Pre: 401-402 or consent of instructor.

651 NUTRITION SURVEYS (2) II Standal
Methods of conducting surveys including dietary, biochemical, and clinical evaluation of nutritional status. Pre: consent of instructor.

699 DIRECTED READINGS AND RESEARCH (arr.) I, II Staff
Pre: consent of instructor.
701 SEMINAR (1) I
Student presentations of literature reviews and research. May be repeated. Pre: consent of instructor.

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.

470 SPECIAL PROBLEMS IN HOME ECONOMICS EDUCATION (2) I, II
Individual and group problems selected according to interests and needs of fourth- and fifth-year students in home economics education. Development of teaching materials.

HOME MANAGEMENT AND FAMILY ECONOMICS

250 HOME MANAGEMENT (3) I, II (3 L)
Concepts of management of resources applied to family living; functions of decision-making; roles of management and decision-making in the realization of family goals.

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.

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.

356 FAMILY ECONOMICS (3) I, II
Role of the family as a consumer unit in the economy. Pre: Econ 150.

358 HOME MANAGEMENT LABORATORY (3) I, II
Option I—UNMARRIED STUDENTS

Option II—MARRIED STUDENTS (3) II
Readings, group discussions and home projects involving management concepts and decision-making. Pre: senior standing; 250 and 222.

560 MANAGEMENT OF PERSONAL AND FAMILY FINANCES (3) I
Application of management principles to major financial alternatives. Role of decision-making in financial management. Relationship of financial decisions to the life cycle of the individual and the family.

FOOD SERVICE ADMINISTRATION

123 BASIC PRINCIPLES OF QUANTITY FOOD SERVICE MGMT. (3) I, II (1 L, 2 Lb)
Introduction to fundamentals of nutrition and scientific principles of basic food preparation, stressing interrelationship of physical, biological, and chemical changes in food caused by heat application and freezing. Beginning analysis of menu writing and quantity food production problems.

234 QUANTITY FOOD PRODUCTION (3) I, II (2 L, 1 Lb)
Basic principles of menu planning, production control, work methods analysis, employee training, preparation techniques, and quality analysis of food processed in quantity. Pre: 123.
235 CLASSICAL FOOD AND BEVERAGE MANAGEMENT (3) I (2 L, 1 Lb) Staff
Food service planning around classical cuisines and beverage, banquet organization, and cost control. Lab projects provide opportunities to experiment with ethnic cookery and practice fine traditional service. Pre: 234.

320 FOOD COST ACCOUNTING (2) I Staff
Basic accounting principles applied to food service operations, with special emphasis on interpretation of financial statements. Budgeting and control of food and labor costs. Pre: Acc 100–101.

338 SELECTION AND PROCUREMENT OF FOOD AND SUPPLIES (3) I Staff
Study of principles of procurement and its relationship to purchasing ethics, policies, and specifications; quality standards for food, china, glassware, silver, linen, and other supplies. Field experience requirement. Pre: 234.

339 FOOD FACILITIES SYSTEM PLANNING (3) II (1 L, 2 Lb) Staff
Application of work methods principles in layout and design of dining and kitchen facilities and auxiliary space; purchase of furnishings and heavy-duty mechanical equipment. Actual layout and design project. Field trips to typical institution kitchens arranged. Pre: 338.

436 SEMINAR IN FOOD SERVICE OPERATION PROBLEMS (3) II Staff
Scientific methods of problem-solving and decision-making in analyses of case problems in public food service organizations. Current problems in management and business trends will be supplemented by guest lecturers from the Hawaiian food service industry. Pre: open to seniors who have completed general course requirements in major field, plus Econ 290 or Mgmt 300.

440 FIELD EXPERIENCE IN INSTITUTIONAL MANAGEMENT (0–3) I, II Staff
Organized on-the-job program of learning experience supervised by the employer and the coordinating instructor. Arrangements made for work experience in an institutional food service relating to student's major area of interest.

DIRECTED READING OR RESEARCH

399 DIRECTED READING OR RESEARCH (arr.) I, II Staff
(1) Child development, (2) family relationships, (3) clothing and textiles, (4) home management, equipment and family economics, (5) foods and nutrition, (6) institution administration. Limited to senior students with 3.0 grade-point average.

699 DIRECTED READING OR RESEARCH (arr.) I, II Staff

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 Waialee, 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.

The Cooperative Extension 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:


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.
Current problems in the disciplines are discussed in graduate seminar courses, such as the one above in public health.

Graduate Division

The Graduate Division 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, astronomy, biochemistry, botany, chemistry, drama and theatre, educational psychology, electrical engineering, entomology, genetics, geography, geosciences, history, horticulture, linguistics, microbiology, pharmacology, philosophy (Western, Asian, and comparative), physics, physiology, political science, psychology, soil science, zoology, and biophysics;
National grants support much of the research being conducted by such units as the new Sensory Sciences Laboratory and the Hawaii Institute of Geophysics.

2) the master's degree in agricultural economics, agricultural engineering, agronomy, American studies, animal sciences, anthropology, art, Asian studies, astronomy, biochemistry, botany, business administration, chemistry, Chinese, civil engineering, drama and theatre, economics, education, electrical engineering, English, entomology, food science, French, genetics, geography, geosciences, German, history, horticulture, Japanese, library studies,* linguistics, mathematics, mechanical engineering, microbiology, music, nursing, nutrition, ocean engineering, oceanography, Pacific islands studies, pharmacology, philosophy, physics, physiology, plant pathology, political science, psychology, public health,* social work,* sociology, soil science, Spanish, speech, speech pathology and audiology, teaching of English as a second language, and zoology, and biophysics;
3) the professional certificate for teachers in the employ of the State Department of Education (see p. 177).

*For these programs see the Graduate Bulletin or bulletins of the respective schools.

Students may likewise earn graduate credit at the University for transfer to other institutions.

To obtain the 1968–69 issue of the Graduate Bulletin, send your order and 25¢ in coin or money order to: University Bookstore, 1760 Donaghho Road, University of Hawaii, Honolulu, Hawaii 96822. Available after June 1968.
School of Library Studies

The Graduate School of Library Studies exists to prepare professional personnel for academic, public, school and special libraries, and to promote library service in general through research and field study.

Requirements for Admission*

1. Graduation from an approved institution of higher learning with a bachelor's degree representing a broad cultural background plus a field of specialization.

2. Evidence in the college record of above-average scholastic ability and promise for successful graduate study, usually shown by graduation with a B average, or by a Graduate Record Examination Aptitude Test score of 500 in both parts of the test.

3. Ability to read at least one modern foreign language.

4. Evidence of professional promise as shown by reference reports and/or personal interviews.

Students may be admitted to the Graduate School of Library Studies as Regular Students, Probational Students, or Special Students, depending on qualifications, background, and purpose.

Requirements for the Degree. Thirty to 36 credit hours of approved graduate study, depending upon previous education and library service, are required for the M.L.S. degree. The maximum course load is 15 credit hours per term, and 36 hours would therefore require two terms and a summer on a full-time basis. The program may be undertaken on a part-time schedule with the expectation that it will normally be completed within a two- to three-year period.

Master of Library Studies Program. The program leading to the degree of Master of Library Studies consists of a core curriculum to provide the basic professional equipment for all types of library work and enough electives to enable each student to explore one area of specialization.

*For application forms or for more information write to: The Graduate School of Library Studies, University of Hawaii, Honolulu, Hawaii 96822.
The normal basic curriculum includes the following courses, to be taken generally in the order given: LS 610, LS 601, LS 605, LS 678, LS 647, LS 602, LS 650, LS 615. School librarians, in addition, will take LS 681, LS 682, and LS 683.

**Library Studies (LS)**

**Professors AYRAULT, DEANGELO, SCHOFIELD, SHAW, R. STEVENS; Associate Professors ANDREWS, HARRIS, SHARP; Assistant Professors DUMONT, McNEIL; Lecturers CROZIER, McALISTER, H. STEVENS**

**601 BIBLIOGRAPHY AND REFERENCE SOURCES (3)**  
Staff  
Analysis of means by which availability and content of graphic materials are recorded; characteristics and problems of national and subject bibliography; 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.

**602 ADVANCED REFERENCE SOURCES (3)**  
Harris  
Continued discussion of various types of general reference tools. Introduction to the subject approach in reference work through three major areas: sciences, social sciences, and humanities. Each area analyzed in terms of characteristics of the literature and of typical problems and methods of reference work; major works in each area studied as examples. Pre: 601.

**605 BASIC CATALOGING AND CLASSIFICATION (3)**  
Ayrault, McAlister  
Designed as introduction to cataloging in research or large general library and as terminal course in cataloging for the school or small popular library. Covers principles and practice of descriptive cataloging, structure and application of Dewey Decimal Classification and Sears’ List of Subject Headings, and the use of printed cards.

**606 ADVANCED CATALOGING AND CLASSIFICATION (3)**  
Ayrault  
Continues 605, using especially Library of Congress scheme to illustrate principles and practices of organization of materials and subject analysis in research and large general libraries. Considers problems peculiar to handling of certain forms of materials; provides opportunity for study of cataloging in collections specialized by subject. Pre: 605.

**610 SOCIAL FUNCTIONS OF LIBRARIES (3)**  
Dumont  
Introduction to librarianship. Four aspects include: librarianship as a profession, history of books and libraries, survey of current programs and trends in American libraries, and international aspects of librarianship.

**615 BUILDING LIBRARY COLLECTIONS (3)**  
McNeil  

**618 GOVERNMENT DOCUMENTS (3)**  
R. Stevens  
Sources, types, and uses of government documents, both state and federal; their acquisition and organization for use.

**642 AUDIO-VISUAL SERVICES IN LIBRARIES (3)**  
H. Stevens  
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 viewed, audited, and judged.
647 MANAGEMENT OF LIBRARY OPERATIONS (3) Andrews, Dumont
Study of philosophies and techniques of scientific management, their application to library operations such as circulation, acquisition, cataloging routines. Provides foundation in principal routines in libraries of all types and in 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.

650 ADMINISTRATION OF LIBRARIES (3) R. Stevens
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, housing. Case studies used.

660 SCIENCE AND TECHNOLOGY LITERATURE (3) Crozier
Study of 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, engineering.

662 BUSINESS AND ECONOMIC LITERATURE (3) Sharp
Study of 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, university, and company libraries.

670 LITERATURE SEARCHING AND DOCUMENTATION (3) Shaw
Special intellectual and mechanical tools for storage, searching, reproduction, and transmission of information. Deals with audience and materials of documentation. Of particular value to service in special research and large public and university libraries.

678 READER SERVICES (3) Harris
Introduction to major forms of library services to the reader as developed in libraries of all types. Emphasis on study of the community served as basis for program of reader services. Wide reading, class lectures and discussion, student projects, and opportunity to observe services provided in public, school, college, and special libraries in the area.

681 READING MATERIALS FOR CHILDREN (3) DeAngelo, H. Stevens
Historical background of children's literature; selection aids, criteria for evaluating, evaluation of contemporary children's books and recordings on basis of development needs of children through the sixth grade. Opportunity to develop skills in storytelling.

682 READING MATERIALS FOR YOUTH (3) DeAngelo
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.

683 SERVICE FOR CHILDREN AND YOUNG PEOPLE (3) DeAngelo
Organization and provisions 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.

698 FIELD SEMINAR (3) Staff
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 practice teaching course for school librarians.
701 ADMINISTRATION OF LIBRARIES IN ASIA (3)  Nunn
Governmental and fiscal policies and programs, personnel administration, policy making, buildings and equipment for libraries in Asian countries.

705 ASIAN REFERENCE SOURCES (3)  Nunn
Bibliographical and reference tools and services in Asian countries with special attention to source materials in other than Western languages.

706 TECHNICAL SERVICES FOR FAR EASTERN COLLECTIONS (3)  Tsuneishi

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.
Hilo Campus

The University of Hawaii’s Hilo Campus is located on Hawaii, “The Big Island,” 200 miles southeast of Honolulu. Within a five-minute drive of downtown Hilo, the campus is away from traffic on spacious grounds surrounded by state lands, an atmosphere encouraging quiet and relaxed study. There are magnificent views of Hilo Bay and of the two highest peaks in the Hawaiian Islands—Mauna Loa and Mauna Kea.

Established in 1947 as an Extension Division in Hilo with 46 students, renamed Hilo Branch in 1951, the institution acquired its present campus in 1953 and became the Hilo Campus of the University of Hawaii. Current enrollment is over 500 students.

Academic Program. Courses are presently grouped into three divisions: Humanities, Sciences, and Social Sciences. The instructional program offers a wide range of freshman and sophomore courses in the College of Arts and Sciences, permitting the student to complete the courses necessary for junior standing upon transfer to the Manoa campus or to the upper division of another university. A few lower division courses in engineering and in tropical agriculture are also offered.

English Language Institute (ELI) courses are offered at Hilo Campus for foreign students as required according to the testing and placement of the Institute at Manoa Campus.

The academic year is divided into two 18-week semesters and a 12-week summer session which offers two 6-week terms (see p. 3).

Campus buildings and facilities are designed for maximum and varied uses by students, faculty, and community. Recent construction includes the library and a physical science building which houses laboratories, offices, and research facilities for chemistry and physics. The laboratories and offices of the East Hawaii Branch of the Agricultural Experiment Station are on campus; other offices of the Cooperative Extension Service in Hawaii County are at Naalehu, Kealakekua, Honokaa, and Kohala. The Cloud Physics Observatory of the Hawaii Institute of Geophysics was established at the Hilo Campus in 1965.
The library is planned to serve students, faculty, and persons in the community with professional research or reference interests. It contains approximately 40,000 volumes, and currently receives about 500 periodicals, periodical indexes, and bibliographic services; noteworthy is a Filipiniana collection. An inter-library loan arrangement exists with the University of Hawaii Sinclair Library in Manoa. An official depository of U.S. government publications, the Hilo library also receives state of Hawaii publications.

A dormitory, completed in 1962, houses 28 women and 24 men students in separate wings off a large central lounge. A new theatre-auditorium is planned for construction.

Center of athletic activity, the gymnasium has folding bleachers which permit a variety of daytime and evening functions. Next to it, the ten-acre athletic field provides for baseball, softball, and tennis courts. A municipal golf course and a swimming pool are available for use by students. Bus service is provided for classes using these facilities. The Hilo Civic Auditorium and Hoolulu Park are also used for some athletic contests.

East-West Center Students. An undergraduate program for East-West Center grantees was initiated in the fall of 1965 with ten students from Laos, Western and American Samoa, Tonga, and Saipan. This program will be expanded to accommodate additional students as the need arises.

Community and Professional Services. The Hilo Campus sponsors a number of public lectures and discussions by visiting scholars and officials from the international to the county levels. Faculty members give occasional public lectures and participate in various educational workshops. Students are active in community and educational affairs and have sponsored political forums and a film series.

Hilo Campus works closely with the Historical and Archeological Society, the Department of Education, the Friends and Alumni of Hilo Campus, the American Association of University Women, the American Association of University Professors, the Bernice P. Bishop Museum, and other professional organizations.

Communications. Address all inquiries to: Director, University of Hawaii Hilo Campus, Hilo, Hawaii, 96720.

**COURSES OFFERED AT HILO CAMPUS 1967-68**

Within each of the three area divisions—Humanities, Sciences, Social Sciences and Education—courses are listed alphabetically by departmental titles in numerical order. Credit hours are shown in parentheses, and also "Lb" when there is laboratory. Two-semester sequences are indicated by hyphenated numbers for both courses and credit hours; unless otherwise noted, such courses should be taken in sequence. Fees, prerequisites, etc., as noted.
Lower division courses are numbered 100-199, upper division courses 200-599.
Class time and room schedules are issued prior to registration for each semester or
summer session.

**Humanities Division**

Professor Nelson; Associate Professors Allen (Chairman), Pilecki; Assistant Professors
H. Drost, Lavy, Moon; Acting Assistant Professor Weld; Instructors Black, Cremer,
Y. Drost, Hicks, Kartsounis, Knox, Mathey, Miller; Lecturer Saigo

Art 101 INTRODUCTION TO THE VISUAL ARTS (3)
Nature of visual art and its expression in various forms. Lectures, demonstrations,
museum visits.

Art 113 INTRODUCTORY STUDIO A (3) I, II
Emphasis on perception: visual responses to nature; materials, techniques, modes
of representation. Problems in two and three dimensions involving photography, draw-
ing, painting, sculpture and construction. Required of education majors.
Pre: 101 (may be taken concurrently).

Art 114 INTRODUCTORY STUDIO B (3) I, II
Emphasis on light: environmental; general intensity; value range; sources; chiar-
osuro; pattern; principles of color. Problems in two and three dimensions involving
drawing, painting, sculpture and design. Pre: 101 and 113.

Art 223 PAINTING A (3) I, II

Art 224 PAINTING B (3) I, II

Drama 140 INTRODUCTION TO DRAMA AND THEATRE (3)
Representative plays from Miller's *Death of a Salesman* to Aeschylus' *Agamemnon*,
studied as illustrative of changing forms in the theatre and dramatic literature.

Eng 101-102 EXPOSITORY WRITING (3-3) Yr.
101: training in analysis of expository essays; introduction and practice of prin-
cipal expository procedures, including assertion, exemplification, definition, classification.
102: study and practice of argument and persuasion; assembling and organizing re-
search materials; analysis and evaluation of one or two works of imaginative literature;
introduction to study of prose style. English 101-102 or 105 prerequisite to all sopho-
more literature courses.

Eng 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 prerequisite to all advanced courses in English.

Eng 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.

Eng 154-155 TYPES OF LITERATURE (3-3)
Practical criticism in major types of European and American literature. Open
only to students in agriculture, home economics, business administration, engineering,
medical technology, recreational leadership.

Eng 156-157 SURVEY OF AMERICAN LITERATURE (3-3) Yr.
156: literature produced in America from the beginnings to the Civil War. 157:
from the Civil War to the present. Not open to English majors.
Eng 231 INTRODUCTION TO POETRY (3)
Written and oral analysis of imagery, sound, language, and form and structure of poems, leading to increased awareness of the nature of poetry.

Eng (Journalism) 111 PUBLICATIONS WORKSHOP (1)
Reporting, copy editing, advertising copywriting, proofreading, and photography under supervision of publications executives and instructor. May be repeated for credit.

Fr 101-102 ELEMENTARY FRENCH (3–3) Yr.
Conversation, laboratory drill, grammar, reading.

Fr 151-152 INTERMEDIATE FRENCH (3–3) Yr.
Reading, conversation, laboratory drill, composition. Pre: 102 or equivalent.

Fr 211-212 CONVERSATION AND COMPOSITION (3–3)
Reading and discussions to develop insight into French literature and culture with major emphasis on strengthening facility with the language; lab drill. Pre: 152.

Ger 101-102 ELEMENTARY GERMAN (3–3) Yr.
Reading, conversation, laboratory drill, grammar.

Ger 151-152 INTERMEDIATE GERMAN (3–3) Yr.
Reading, conversation, laboratory drill, composition. Pre: 102 or equivalent.

Jap 101-102 ELEMENTARY JAPANESE (3–3) Yr.
Development of four skills: listening, speaking, reading, writing. Structural points introduced inductively. Meets 1 hour daily Monday through Friday. 4 out of 5 hours devoted to directed drill and practice. Daily laboratory work.

Jap 153-154 INTERMEDIATE JAPANESE—READING (3–3) Yr.
Continuation of 104. More difficult colloquial texts and additional kanji.

Mus 150 ELEMENTARY MUSICIANSHP (3)
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.

Mus 160 INTRODUCTION TO MUSIC LITERATURE (3)
Styles and forms of Western music. From the listener's point of view. Lab section required.

Mus 200 UNIVERSITY CHORUS (1)
3 hours a week. May be repeated for credit.

Phil 100 INTRODUCTION TO PHILOSOPHY (3)
Problems, methods, and fields of philosophy.

Phil 150 HISTORY OF PHILOSOPHY (3) I
Western philosophy from the era of great Greek thinkers to the Renaissance.

Span 101-102 ELEMENTARY SPANISH (3–3)
Beginning course, primarily emphasizing oral practice. Laboratory drill.

Span 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.

Sp 110 INTRODUCTION TO GENERAL AMERICAN PHONOLOGY (2)
Introduction to the phonology of general American speech. Articulatory, rhythmic, and melodic differences between general American and Hawaii's non-standard dialect.
Sp 145 EXPOSITORY AND PERSUASIVE SPEAKING (3)
Practice in systematic analysis of expository and suasive ideas with instruction in their preparation for public discourse. Weekly lectures.

*Speech 145 is prerequisite to all courses bearing a higher number. Every student admitted to 145 is required to present permission from the Language Laboratory.*

Sp 180 PRINCIPLES AND TYPES OF DISCUSSION (2)
Discussion of problems, using cooperative investigation, round table, panel, and symposium.

Sp 250 PUBLIC SPEAKING (3)
Basic principles of speech composition and delivery; preparation and delivery of speeches with attention to principles studied. Special attention to individual problems.

Sp 285 PUBLIC DISCUSSION AND DEBATE (1)
Training in debate and discussion; analysis of social, political, and economic problems. Public discussion and debate required. May be repeated for total of 3 credits.

Sciences Division

Professor Workman; Associate Professors Noda, Reimer; Assistant Professors Baldwin, DORITY (Chairman), Fullerston, Levenberg, Little, Sood; Instructors Edwards, Hwang; Lecturers Fujimoto, Ito, Kon, Landgraf, Niwao, Thompson

Ag 100 ORIENTATION COURSE (1)
Lectures to acquaint the student with agriculture in Hawaii and help select major.

Ag 201 INTRODUCTION TO FORESTRY (3)
Aims and scope of forestry; economic and social importance of forests; basic resources of forest lands: water, timber, wildlife habitat, recreation and forage; principles and philosophy of sustained multiple-use land management. Pre: Bot 101.

AEc 120 AGRICULTURAL ECONOMICS (3)
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.

An Sc 141 ANIMAL HUSBANDRY (3)
Study of important domestic animals, their origin, distribution, and economic importance with an introduction to feeding, breeding, and management for each species.

Bot 101 GENERAL BOTANY (4) (2 L, 2 Lb)
Basic principles of plant biology. This course and Zool 101 comprise an introduction to biology.

Chem 103–104 GENERAL CHEMISTRY (4–4) Yr. (3 L, 1 Lb)
Fundamental laws, principles, and methods. Pre: high school algebra and plane geometry.

Chem 106 QUALITATIVE ANALYSIS (5) (3 L, 2 Lb)

Chem 108 CHEMICAL CALCULATIONS (1)
For freshmen accepted in accelerated program, with Chem 106. Pre: permission of staff.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 110</td>
<td>SCIENTIFIC GLASSWORKING (1)</td>
<td></td>
<td>Lab course in techniques of scientific glassworking.</td>
</tr>
<tr>
<td>Chem 141</td>
<td>ELEMENTS OF ORGANIC CHEMISTRY (4) (3 L, 1 Lb)</td>
<td></td>
<td>Intensive course in chemistry of carbon compounds. Pre: Chem 103 or 106.</td>
</tr>
<tr>
<td>Chem 143-144</td>
<td>ORGANIC CHEMISTRY (4–4) Yr. (3 L, 1 4-hr. Lb)</td>
<td></td>
<td>Carbon compounds: classification, structure, reactions. Laboratory techniques. Pre: 106.</td>
</tr>
<tr>
<td>Chem 199</td>
<td>DIRECTED RESEARCH (Lower Division) (1–3)</td>
<td></td>
<td>Intended for chemistry majors to familiarize them with basic research techniques, including the use of literature. Pre: permission of staff.</td>
</tr>
<tr>
<td>Chem 331</td>
<td>ELEMENTARY QUANTITATIVE ANALYSIS (4) (2 L, 2 Lb)</td>
<td></td>
<td>Beginning gravimetric and volumetric analysis. Pre: 106; Math 103.</td>
</tr>
<tr>
<td>CE 111</td>
<td>SURVEYING I (2) (1 L, 1 Lb)</td>
<td></td>
<td>Basic principles, computations, and use of instruments involving horizontal and vertical measurements. Pre: Math 102; GE 101 or GE 105.</td>
</tr>
<tr>
<td>CE 112</td>
<td>SURVEYING II (2) (2 L, 1 Lb)</td>
<td></td>
<td>Topographic mapping; curves; earthwork; computer applications; route problems. Pre: Math 140; CE 111, GE 110.</td>
</tr>
<tr>
<td>CE 170</td>
<td>APPLIED MECHANICS I (3)</td>
<td></td>
<td>Equilibrium of particles, rigid bodies, frames and machines; vectors, centroids, friction, and moments of inertia. Pre: Math 141; Phys 170.</td>
</tr>
<tr>
<td>CE 271</td>
<td>APPLIED MECHANICS II (3)</td>
<td></td>
<td>Dynamics of particles and rigid bodies, impulse-momentum, work-energy. Pre: CE 170; Math 142.</td>
</tr>
<tr>
<td>GE 105</td>
<td>ENGINEERING GRAPHICS (3) (1 L, 2 Lb)</td>
<td></td>
<td>Analysis and solution of spatial problems pertaining to points, lines, planes, and their application to engineering. Surface intersections, vector geometry, and graphical calculus. Pre: one year high school mechanical drawing. Not open to students who have credit in GE 102.</td>
</tr>
<tr>
<td>GE 110</td>
<td>DIGITAL COMPUTER PROGRAMMING (1)</td>
<td></td>
<td>Introduction to the FORTRAN language and application to engineering problems using IBM 7040. Pre: Math 141.</td>
</tr>
<tr>
<td>Geosc 101–102</td>
<td>INTRODUCTION TO GEOSCIENCES (4–4) Yr. (3 L, 1 Lb)</td>
<td></td>
<td>Characteristics of science and interactions of society with science, illustrated by topics from physical and biological science. Sequence starts in the fall semester.</td>
</tr>
<tr>
<td>Sci 120–121</td>
<td>INTRODUCTION TO SCIENCE (4–4) Yr.</td>
<td></td>
<td>Characteristics of science and interactions of society with science, illustrated by topics from physical and biological science. Sequence starts in the fall semester.</td>
</tr>
<tr>
<td>Hort 162</td>
<td>PRINCIPLES OF HORTICULTURE (3) (2 L, 1 Lb)</td>
<td></td>
<td>Relationships of plant structures, nutrients, environment, and cultural methods to plant growth. Pre: Bot 101; credit or concurrent registration in Chem 104.</td>
</tr>
<tr>
<td>Math 99</td>
<td>MATHEMATICS REFRESHER (0)</td>
<td></td>
<td>Review of mathematical ideas for students with insufficient background in high school mathematics.</td>
</tr>
</tbody>
</table>
Math 111  INTRODUCTION TO MATHEMATICS (3)
Study of structure and concepts of arithmetics. (Primarily for education majors.)

Math 134  PRE-CALCULUS MATHEMATICS (4)
Basic operations; algebraic functions and equations; trigonometric functions; lines, conics. Pre: two years of high school algebra and 1 year of plane geometry or consent of department.

Math 135  CALCULUS I (4)
Basic concepts and techniques, derivatives, conics, and integrals. Pre: 103 or two years of high school algebra and trigonometry.

Math 136  CALCULUS II (4)
Exponential, logarithmic, trigonometric, and hyperbolic functions; techniques of integration; vectors; three dimensional space; multiple integration. Pre: 135 or equivalent.

Math 231  APPLIED ADVANCED CALCULUS I (3)

Math 232  APPLIED ADVANCED CALCULUS II (3)

Micro 130  MICRObes AND MAN (2)
Microorganisms as they affect people and their possessions. Not open to those who have had credit in 151.

Micro 151  GENERAL BACTERIOLOGY (4) (3 L, 2 Cr)
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.

Phys 160–161  COLLEGE PHYSICS (4–4) Yr. (3 L, 1 Cr)
Fundamental principles, theories, experimental methods. Pre: Math 102 and credit or registration in Math 103.

Phys 170  GENERAL PHYSICS (3)
Mechanics of particles, rigid bodies, fluids; properties of matter; wave motion; sound. Pre: credit or registration in Math 136.

Phys 171  GENERAL PHYSICS LABORATORY (1) (1 3-hr. Lb)
Experiments in statics, dynamics, properties of matter, periodic motion, sound. Pre: credit or registration in 170.

Phys 172  GENERAL PHYSICS (3)
Fundamental laws of electricity and magnetism and their applications. Pre: 170, 171; credit or registration in Math 231.

Phys 173  GENERAL PHYSICS LABORATORY (1) (1 3-hr. Lb)
Experiments in heat, electricity, and magnetism. Pre: credit or registration in 172.

Phys 174  GENERAL PHYSICS (4)
Heat, light, and modern physics. Pre: 172, 173 or concurrent registration, or 160–161; credit or registration in Math 231.

Phys 175  GENERAL PHYSICS LABORATORY (1) (1 3-hr. Lb)
Experiments in light and modern physics. Pre: credit or registration in 161 or 174.
Zool 101 GENERAL ZOOLOGY (4) (2 L, 2 Lb)
Zoological principles; studies of structure, development, relationships, and distribution of animals. (101 is prerequisite to all advanced courses except 111 and 115.)

Zool 111 PRINCIPLES OF HUMAN BIOLOGY (3)
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.

Zool 115–116 ELEMENTARY HUMAN ANATOMY AND PHYSIOLOGY (4–4) Yr. (3 L, 1 Lb)
General survey of gross anatomy and physiology. Not open to students who have had 345.

Zool 161 GENERAL ENTOMOLOGY (4) (2 L, 2 Lb)
Structure, habits, biology, and classification of insects; insects characteristic of Hawaii.

Social Science and Education Division

Associate Professors MARKEY, SMUCK; Assistant Professors BONK (Chairman), DIXON, LIER, SWANN, WARSH; Instructors FUKUDA, GOYA, HAMAI, USHIJIMA, YANAGISAKO

Anth 150 INTRODUCTION TO ANTHROPOLOGY (3)
General survey of the subject as a study of man from the biological as well as the cultural viewpoints.

Anth 151 INTRODUCTION TO ANTHROPOLOGY (4) (3 L, 1 3-hr. Lb)
Similar to 150 but with laboratory and field trips. Not open to those who have had 150.

Anth 199 DIRECTED READING OR RESEARCH (Lower Division) (1–3)
Permission of instructor required. Pre: Anth 150 or 151.

Anth 200 CULTURAL ANTHROPOLOGY (3)
Nature of cultures; basic concepts for analyzing cultural behavior; patterning, integration, dynamics of culture; culture and the individual.

Anth 250 OCEANIA (3)
General cultural survey of the Pacific area, with special emphasis on Polynesia, Micronesia, Melanesia. Discussion of origins, prehistory, language, and cultural institutions of the native peoples as well as an examination of the changes that have taken and are taking place in the Pacific.

Anth 253 THE AMERICAS (3)
Asiatic origin and New World settlement. Cultural diversity in pre-Columbian America, North and South. United States Indians as a minority group.

Asian Studies 301 (3)

Bus 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.

Bus 110 APPLIED MATHEMATICS (3)
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).

Bus 300 PRINCIPLES OF BUSINESS LAW (3)
American system of jurisprudence, elements of torts, criminal law, property, trusts and estates, law of contracts and agency.
Econ 150 PRINCIPLES OF ECONOMICS (3)
Analysis of economic systems with emphasis on forces determining levels and changes of national income and employment. Basic economic institutions, e.g., markets, money, banks, labor organizations, corporations.

Econ 151 PRINCIPLES OF ECONOMICS (3)
Analysis of how commodity and factor prices are determined. Discusses policies for efficient allocation of scarce resources.

Econ 240 MONEY AND BANKING (3)
Study of relation of monetary system to price level, employment, and income. Considers nature and function of money and banking, role of money in international trade, monetary theories, inflation.

Geog 101 ELEMENTS OF PHYSICAL GEOGRAPHY (3)
Survey of man's natural environment; distribution and interrelationships of climates, vegetation, soils, and landforms. Laboratory problems in map interpretation.

Geog 102 WORLD REGIONAL GEOGRAPHY (3)
Geography of world's major cultural regions; emphasis on geographic aspects of contemporary economic, social, and political conditions.

Geog 151 ECONOMIC GEOGRAPHY (3)
Man's use of the earth. World patterns of physical resources, population, economic activity and development. Elements of location theory; problems of resource management.

Geog 425 ANALYSIS OF LAND FORMS (3)
Geog 430 CARTOGRAPHY (3)
Geog 450 URBAN GEOGRAPHY

HPE 101 PHYSICAL FITNESS (1)
Conditioning exercises and activities to develop and maintain physical efficiency. Motor fitness tests administered to measure status and progress. Separate sections for men and women.

HPE 103 SWIMMING: BEGINNING (1)
Adjusting to water, immersing in water, floating, sculling; correct arm stroke, leg kick, breathing techniques and their coordination.

HPE 104 SWIMMING: INTERMEDIATE (1)
Emphasis on perfecting and integrating basic strokes with added emphasis on swimming for distance and speed.

HPE 107 TENNIS: BEGINNING (1)
Rules, etiquette, grip, forehand and backhand strokes, serving, volleying, singles and doubles play.

HPE 108 TENNIS: ADVANCED (1)
Emphasis on improving the serve, forehand and backhand strokes, volleying, chop strokes, competitive strategy, problems in rules.

HPE 110 GOLF: BEGINNING (1)
Rules, etiquette, grip, stance, drive, normal iron shots, approach shots, putting.

HPE 111 GOLF: ADVANCED (1)
Emphasis on improving drive, fairway wood shots, long iron shots, control shots, trouble shots, putting, course management, competitive strategy, problems in rules. Actual play on golf course requires additional fees.
HPE 115 BOWLING (1)
Rules, etiquette, arm swing, approach, execution, scoring, spare pickups. Class participation at bowling alley requires additional fees.

HPE 120 BADMINTON (1)
Rules, etiquette, grip, forehand and backhand strokes, serving, smash, drive, net play, offensive and defensive strategy in singles and doubles play.

HPE 126 RHYTHMIC ACTIVITIES (1)
Emphasis on awareness of factors related to enjoyment of social dances including ballroom, mixers, etc.

HPE 136 TEAM SPORTS (1)
Skills, knowledge, attitudes, and appreciation. Combination volleyball and softball; combination basketball and soccer. Separate sections for men and women.

HPE 151 ADAPTED AND PRESCRIBED EXERCISES (1)
Small group and individual guidance and instruction for students recommended by Student Health Service.

HPE 190 MODERN HEALTH: PERSONAL (1)
Mental-emotional health, family-living, and scientific health information as a basis for personal hygienic living.

HPE 233 PHYSICAL EDUCATION ELEMENTARY (3)
Content and methods for physical education in the elementary school with emphasis on selection, planning, teaching, and evaluation of movement exploration and physical activities.

HPE 263 INTRAMURAL ATHLETICS (2)
Organization, program, and procedures used in conducting a sports program for students outside of regular class hours.

Hist 151–152 WORLD CIVILIZATION (3–3) Yr.
Development of civilization from ancient Orient and classical Greece and Rome to the present. Devoted primarily to presenting, in broad outline, the main cultural and historical development in each area.
First semester, 151, ends with the Reformation in Europe. Second semester, 152, covers the period from 16th century to the present. Primary emphasis on Western development.

Hist 181–182 AMERICAN HISTORY (3–3) Yr.
Interpretative survey of United States history. 181: 1500 to Civil War; 182: Civil War and Reconstruction period to present.

Hist 199 DIRECTED READING OR RESEARCH (LOWER DIVISION) (1–3)

Hist 377 ECONOMIC HISTORY OF THE UNITED STATES (3)
Emphasis on role of techniques, agricultural developments, the entrepreneur and the rise of the labor movement. Econ 150-151 recommended as preparation.
(Not offered 1967–68.)

Hist 425 EUROPE IN THE NINETEENTH CENTURY (3)
Major political, social, economic, and intellectual trends in the evolution of Europe from Napoleon to the end of World War I.

Hist 461 COLONIAL HISTORY (3)
History of the United States to the drawing-up of the Constitution. Expansion of Europe in the Western hemisphere; establishment of American independence.
Hist 492  THE SOUTH IN AMERICAN HISTORY (3)
Southern economic, social, intellectual, and political development, with special
attention to race relations.

PolSc 110  INTRODUCTION TO POLITICAL SCIENCE (3)
Examination of major types and practices of government and consideration of
modern governments within the democratic-autocratic framework.

PolSc 210–211  AMERICAN GOVERNMENT CORE (3–3)
Organization and functioning of the American political system.

PolSc 300  ELEMENTS OF POLITICAL THEORY (3)
Analysis of works of representative political philosophers from Plato to the 20th
century.

PolSc 360  INTRODUCTION TO INTERNATIONAL RELATIONS (3)
Examination of theoretical and historical basis for relations among sovereign na­
tions, the institutions for international relations, and the problems posed for world
government.

Psy 100  SURVEY OF PSYCHOLOGY (3)
Principles of human behavior. Individual differences, motivation, emotion, per­
ception, learning, etc. Not open to those who have had 200.

Psy 180  PSYCHOLOGY OF ADJUSTMENT (3)
Understanding and improving adjustment. Needs, frustrations, conflicts, anxiety,
patterns of adjustment. Not open to majors.

Psy 199  DIRECTED READING OR RESEARCH (Lower Division) (1–3)
Permission of instructor required. Pre: Psy 100.

Psy 200  INTRODUCTION TO THE STUDY OF SOCIETY (3)
General study of behavior through application of scientific method.

Psy 201  INTRODUCTORY LABORATORY IN PSYCHOLOGY (2)
Lab course to accompany 200.

Psy 203  LEARNING AND MOTIVATION (3)
Major conditions influencing learning and forgetting; the role of practice, reward,
motivation, drive, and emotion; theoretical interpretations of learning and motivation.
Pre: 200, 201.

Psy 220  STATISTICAL TECHNIQUE (3) (2 L, 1 2-hr. Lb)
Types of data; graphic methods, central tendency; variability; correlations; reliabil­
ity; tests of significance. Pre: 2 years of high school algebra or Math 101.

Psy 350  DEVELOPMENTAL PSYCHOLOGY (3)
Emotional, mental, physical, social development from infancy to adulthood; inter­
ests and abilities at different age levels. Pre: 100 or 200.

Soc 151  INTRODUCTION TO THE STUDY OF SOCIETY (3) I, II
Basic social relationships, norms, social structures, and processes affecting social
change. Pre to all advanced courses.

Soc 232  COMMUNITY FORCES IN HAWAII (3)
Basic factors and forces in contemporary society as exemplified in Hawaii.

Soc 324  PERSONALITY AND CULTURE (3)
Origin and development of personality as the subjective aspect of culture; function
of communication; human nature and mores; personal life organization.
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 Central Programs.

Institute for Student Interchange

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 incidental allowance. The scholarships may include a field study grant to the mainland United States or Asia. Scholarships are for 9 or 12 months with provisions for extensions for those who qualify.

Scholarships for American and Asia/Pacific students are primarily for graduate study at the University of Hawaii. There are some undergraduate scholarships for those students who come from countries where there is only a limited number of higher educational institutions. There is also a specialized Asian language program for American undergraduate students.

Field Study Grants. The field study grant provides opportunity to study in Asia or the Pacific islands for those American students in good standing who demonstrate their seriousness, maturity, and ability. Generally, students seeking advanced degrees request up to one semester for research purposes or 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 or fall semester, after two semesters have been spent at the University of Hawaii.

Students on scholarship are expected to participate in intercultural activities as their academic requirements may allow.

**Language Requirements.** 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.

American students are required to complete at least two years of Asian language study before the end of their grants.

**Asia-America Program.** Seminars conducted for East-West Center students 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 variations in culture 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.

**Institute for Technical Interchange**

The Institute for Technical Interchange administers training projects for technical participants from Asia, the Pacific, and the United States. Training, planned on a long- and short-term, group or individual 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 medical workers; agricultural and economic development in the Pacific and Asia; 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 of Advanced Projects 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 and scholarly materials.

The Senior Specialists-in-Residence program brings together distinguished persons from Asia, the Pacific area, and the United States for informal seminars, research, and writing. 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.

Research Translations not only translates scholarly materials from and into Asian languages, but also compiles teaching and research aids, such as bilingual dictionaries and annotated bibliographies.

The institute also administers the Jefferson Fellowships program, a non-degree program of 17 weeks designed for mature journalists and others in the several communications media to pursue, not studies in journalism, but projects of their own choosing available to them from the wide resources of the University of Hawaii and the East-West Center.

Panels of advisers and consultants on substantive matters have been established to aid the program directors in selection of candidates and subject-matter emphases.

Central Programs

Central Programs, which service the entire East-West Center, include Central Administration, East-West Center Library, East-West Center Press, Public Affairs, Conference Program, Community Relations, and the Alumni Office. 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. The East-West Center Press publishes new books originating within the Center as well as from other institutions throughout the world. It exports American books to Asia and imports Asian books in English. The Public Affairs Office prepares and distributes mass media publicity, exhibits, and other information materials about the Center and its multiple programs. The Community Relations Office coordinates activities of the Center and its grantees with Hawaii's residents, working with the Friends of the East-West Center (an organization of volunteers). It also conducts visitor tours. The Conference Program plans and conducts conferences designed with the basic mission of the Center in mind, schedules exhibits for the East-West Center Gallery, and administers use of all Center conference facilities.
GENERAL INFORMATION

The East-West Center complex includes Thomas Jefferson Hall, the administration building which houses 50 offices, a food center, conference rooms, and the Gallery; Hale Manoa, men's residence; Hale Kuahine, women's residence; John F. Kennedy Hall, theatre-auditorium; Abraham Lincoln Hall, which houses the Institute of Advanced Projects, the library and press, and the alumni office. A Japanese garden is adjacent to the administration building.

The East-West Center has an advisory board called the International Panel of Advisers. There is also a National Review Board which advises the U.S. Department of State regarding the East-West Center.

FOR FURTHER INFORMATION

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JOHN S. Donagho, 1913-1914 (Acting) (Deceased)
   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, M.I.T.
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
WILLARD Wilson, 1957-1958 (Acting)
   B.A. 1929, LL.D. 1961, Occidental College; M.A. 1930, Columbia; Ph.D. 1939, Southern
   California
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   State; H.H.D. 1962, N. Carolina
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G. DONALD SHERMAN, B.S., M.S., PH.D., Associate Director, Hawaii Agricultural Experiment Station

DALE GOODELL, B.S., M.S., Associate Director, Cooperative Extension Service
SHOSUKE GOTO, B.S., M.S., PH.D., Assistant Dean, Tropical Agriculture
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DOAK C. COX, B.S., M.A., PH.D., Water Resources Research Center

EMERITI

ANDREWS, CARL B., Professor Emeritus of Engineering
B.S. 1908, M.S. 1909, C.E. 1917, Rose Polytechnic Institute; M.S. 1928, M.I.T.

BENNETT, J. GARDNER, Professor Emeritus of Engineering
B.S. 1912, Cornell College; B.S. in C.E. 1918, C.E. 1925, Wisconsin

BICE, CHARLES M., Senior Specialist Emeritus in Poultry Husbandry
B.S. 1927, Wisconsin

BILGER, LEONORA N. (Mrs. Earl M.), Senior Professor Emeritus of Chemistry
B.A. 1913, M.A. 1914, PH.D. 1916, LL.D. 1950, Cincinnati

BOATMAN, ELSIE M. (Mrs.), Professor Emeritus of Home Economics
B.S. 1924, M.S. 1931, Iowa State

BROWN, HUBERT E., Professor Emeritus of Health and Physical Education
B.P.E. 1920, M.P.E. 1927, Springfield College; PH.D. 1940, New York

CARR, ELIZABETH B. (Mrs.), Professor Emeritus of Speech
B.A. 1924, M.A. 1940, Oklahoma; PH.D., 1953, Louisiana State

CARTER, WALTER, Professor Emeritus of Entomology
B.S. 1923, Montana; M.S. 1924, PH.D. 1928, Minnesota

CHARLOT, JEAN, Senior Professor Emeritus of Art
D.F.A. 1946, Grinnell; LL.D. 1956, St. Mary’s College

ECKE, GUSTAV E. W., Professor Emeritus of Art
PH.D. 1922, Erlangen

EDMONDSON, CHARLES H., Professor Emeritus of Zoology
PH.B. 1903, M.S. 1904, PH.D. 1906, Iowa

ELLER, WILLARD E., Professor Emeritus of Physics
B.S. 1914, PH.D. 1928, California; M.S. 1925, Washington

EMORY, KENNETH P., Professor Emeritus of Anthropology
B.A. 1920, Dartmouth; M.A. 1923, Harvard; PH.D. 1946, Yale

EWING, CLAUDE H., Professor Emeritus of Education
PH.D. 1933, Chicago; M.A. 1936, Colorado State College; PH.D. 1948, Northwestern
GRUELLE, KATHERINE B. (Mrs. L. N.), Professor Emeritus of Home Economics
B.S. 1917, Ohio State; M.A. 1925, Columbia

HARLOE, BARTLEY M., Professor Emeritus of Engineering
B.S. 1917, U.S. Military Academy; C.E. 1922, Rensselaer

HINKLE, LOUIS A., Professor Emeritus of Agriculture
B.S. 1912, M.S. 1923, Wisconsin

HERRICK, COLIN J., Professor Emeritus of Psychology
B.A. 1924, Haverford College; M.A. 1934, Ph.D. 1939, Pennsylvania

HOLMES, WILFRED J., Dean Emeritus and Senior Professor Emeritus of Engineering
B.S. 1932, U.S. Naval Academy; M.S. 1929, Columbia

JONES, VIRGINIA A., Dean Emeritus and Professor Emeritus of Nursing
R.N. 1920, Reid Memorial Hospital School of Nursing; B.S. 1933, Indiana; M.Ed. 1944, Hawaii

KAHANANUI, DOROTHY (Mrs.), Associate Professor Emeritus of Music
B.S. 1931, New York; M.Ed. 1936, Hawaii

KORN, ALFONS L., Professor Emeritus of English
B.A. 1927, Oregon; B.A. 1930, Oxford; M.A. 1937, California (Berkeley)

LEEPRICK, KARL C., Professor Emeritus of Government
B.S. 1911, M.S. 1913, Ph.D. 1916, California

LIVESAY, THAYNE M., Dean Emeritus, College of Arts and Sciences
B.A. 1917, Pacific University; M.A. 1921, Ph.D. 1931, Washington

MILLER, CAREY D., Professor Emeritus of Nutrition
B.A. 1917, California; M.S. 1922, Columbia

MUELLER, BERTHA, Professor Emeritus of European Languages
B.A. 1926, Northwestern; M.A. 1929, Ph.D. 1935, Wisconsin

PECKEY, IRVING O., Professor Emeritus of Romance Languages
B.A. 1912, Boston

POOLE, CHARLES F., Professor Emeritus of Agriculture
B.S. 1920, M.S. 1926, Hawaii; Ph.D. 1930, California

PORTeus, STANLEY D., Professor Emeritus of Psychology
Sc.D. (Hon.) 1933, Hawaii

ST. JOHN, HAROLD, Professor Emeritus of Botany
B.A. 1914, M.A. 1915, Ph.D. 1917, Harvard

SAUNDERS, ALLAN F., Senior Professor Emeritus of Political Science
B.A. 1918, Amherst; M.A. 1920, Ph.D. 1927, Wisconsin

SINCLAIR, GREGG M., President Emeritus

Degrees listed under "Former Presidents"

SNYDER, LAURENCE H., President Emeritus and Senior Professor Emeritus of Genetics
Degrees listed under "Former Presidents"

STORMONT, JOHN, Specialist Emeritus, Cooperative Extension Service
B.S. 1928, Illinois; M.Ed. 1954, Cornell

STROVEN, CARL C., Senior Professor Emeritus of English and Librarian Emeritus
A.B. 1926, M.A. 1928, Stanford; Ph.D. 1939, Duke

TOWNEs, STANMORE B., Professor Emeritus of Mathematics
B.A. 1921, M.A. 1923, Oklahoma; Ph.D. 1930, Chicago

VOLLRATH, HARVEY M., Professor Emeritus of Animal Husbandry
B.S. 1929, Colorado State; M.S. 1948, Minnesota

WADSWORTH, HAROLD A., Dean Emeritus, College of Agriculture
B.S. 1916, California

WHITE, BRUCE E., Dean Emeritus and Senior Professor Emeritus of Education
B.A. 1923, Willamette; M.A. 1932, Ph.D. 1935, Washington

YOUNG, OTTO R., Professor Emeritus of Agronomy
B.S. 1924, M.S. 1929, Alberta; Ph.D. 1934, Minnesota
ACADEMIC CHAIRS


The Citizens’ Chair in English Literature, funded by the Hawaii State Legislature, IAN P. WATT* (Fall 1968); LEON EDEL* (Spring 1969).

The Captain James Cook Chair in Oceanography, funded by The Honolulu Advertiser, unoccupied in 1966-67.

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INSTRUCTION

ABBOTT, AGATIN T., Professor of Geology
B.A. 1939, Minnesota; PH.D. 1952, Washington

ABEL, MARJORIE G., Assistant Clinical Professor of Public Health
B.S. 1924, M.S. 1932, Hawaii

ABRAMSON, NORMAN, Professor of Electrical Engineering
A.B. 1953, Harvard; M.A. 1955, California (Los Angeles); PH.D. 1958, Stanford

ABRAMS, TOM E., Instructor in English
B.A. 1932, M.A. 1937, Colorado

ADAMS, CARL W., Assistant Professor of Meteorology
B.S. 1940, Naval Academy; M.S. 1951, Naval Postgraduate School

ADKINS, DOROTHY C., Professor of Education
B.S. 1931, PH.D. 1937, Ohio

ADLER, JACOB, Professor of Accounting and Finance
B.S. 1933, Chicago; M.S. 1956, PH.D. 1959, Columbia; C.P.A. 1950

AH CHAN, DORA, Instructor in Music
MUS. B. 1962, Oberlin; M.S. 1965, Juilliard School of Music

AH COOK, ALMON, Instructor in Military Science

AH Moo, EARL W., Associate Professor of Dental Hygiene
D.D.S. 1961, M.S. 1964, Marquette

AKAMINE, ERNEST K., Associate Professor of Plant Physiology
B.S. 1935, M.S. 1941, Hawaii

AKAMINE, RALPH N., Lecturer in Dental Hygiene

AKITA, GEORGE, Associate Professor of History and Asian Studies
B.A. 1951, Hawaii; M.A. 1953, PH.D. 1960, Harvard

ALEXANDER, AARON, Instructor in English
B.A. 1951, City College of New York, M.A. 1958, Columbia

ALEXANDER, GEORGE B., Acting Assistant Professor of English
B.A. 1959, M.A. 1960, New York

ALEXANDER, JAMES W., Instructor in Music
B.MUS. 1953, Rochester

ALEXANDER, JOHN, Lecturer in Public Health
B.A. 1934, North Carolina; M.S. 1936, L.L.B. 1941, Columbia

*Degrees listed under “Instruction.”
ALEXANDER, SUMITRA T. (Mrs. Aaron J.), Instructor in Thai
  B.A. 1960, Chulalongkorn; M.A. 1963, Hawaii

ALLEN, JAMES C., Associate Professor of Home Economics
  B.S. 1949, Wisconsin; M.S. 1954, Ph.D. 1960, Iowa State

ALLEN, JAMES L., Jr., Associate Professor of English (Hilo)
  B.A. 1953, M.A. 1954, Tulane; Ph.D. 1959, Florida

ALLISON, JOHN M., Director of Overseas Career Program
  B.A. 1927, L.L.D. 1959, Nebraska

ALLTON, DONALD W., Lecturer in Music
  B.M. 1936, M.M. 1938, Eastman School of Music (Rochester)

ALM, JULIE N. (Mrs. Richard S.), Assistant Professor of Education
  B.S. 1943, M.A. 1947, Minnesota

ALM, RICHARD S., Professor of Education
  B.S. 1942, M.A. 1948, Ph.D. 1954, Minnesota

ALSCHULER, LAWRENCE R., Acting Assistant Professor of Political Science
  B.A. 1963, Wesleyan; M.A. 1965, Northwestern

ALTER, JASON B., Instructor, English Language Institute
  B.A. 1952, Harvard College; M.A. 1956, Michigan

AMES, LAWRENCE L., Assistant Professor of Psychology

AMIOKA, SHIRO, Professor of Education
  B.Ed. 1949, M.Ed. 1952, Hawaii; Ph.D. 1959, Illinois

ANDERMANN, GEORGE, Assistant Professor of Chemistry
  B.S. 1949, California (Los Angeles); M.S. 1961, Ph.D. 1965, Southern California

ANDERSON, C. WEBSTER, Professor of Art
  B.A. 1933, California; M.A. 1953, California (Los Angeles)

ANDERSON, GEORGE L., Professor of English
  A.B. 1946, M.A. 1948, Ph.D. 1953, Pennsylvania

ANDERSON, HAMILTON H., Clinical Professor of Pharmacology
  A.B. 1926, M.S. 1930, M.D. 1930, California

ANDERSON, MARY L., Instructor in Education
  B.S. 1961, Brigham Young

ANDERSON, RONALD S., Professor of Education and Asian Studies
  B.A. 1929, M.A. 1946, Stanford; Ph.D. 1956, California

ANDO, RICHARD E., Lecturer in Professional Nursing
  M.D. 1948, Michigan Medical School

ANDREWS, MARY M., Associate Professor of Library Studies
  A.A. 1934, Chico; B.A. 1939, M.S. in L.S. 1952, California

ANSBERRY, MERLE, Professor of Speech Pathology and Audiology
  B.A. 1929, M.A. 1931, California; Ph.D. 1937, Wisconsin

ANTHONY, ALBERTA (Miss J.), Instructor in Hawaiian
  A.A. 1958, Boston; B.A. 1960, M.A. 1964, Hawaii

OKI, KITSUO, Associate Professor of Religion
  B.A. 1940, Drury; B.D. 1943, Chicago Theological Seminary

ARAGAI, MINORU, Associate Professor of Plant Pathology
  B.S. 1950, M.S. 1954, Ph.D. 1963, Hawaii

ARAI, SUEKO, Lecturer in Music
  Natori Diploma, 1949, Hanayagi School (Japan)

ARAKI, JAMES T., Professor of Japanese
  B.A. 1954, M.A. 1958, Ph.D. 1961, California (Berkeley)

ARAPOFF, NANCY (Mrs. Peter), Instructor, English Language Institute
  B.A. 1952, California (Santa Barbara); M.A. 1963, Hawaii

ARKOFF, ABE, Professor of Psychology
  B.A. 1946, M.A. 1948, Ph.D. 1951, Iowa
ARTOLA, GEORGE T., Associate Professor of Asian and Pacific Languages
B.A. 1941, Brooklyn; M.A. 1950, Ph.D. 1953, Johns Hopkins

ARTOLA, VIRGINIA, Lecturer in European Languages
M.A. 1941, Brooklyn

ASATO, JAMES K., Assistant Professor of Health and Physical Education
B.S. 1952, Hawaii; M.S. 1956, Illinois

ASATO, KATHERINE H., Assistant Professor of Social Work
B.A. 1955, M.S.S.A. 1960, Western Reserve

ASCHER, LEONARD W., Professor of Finance
B.A. 1927, Ph.D. 1934, California (Berkeley)

ASHTON, GEOFFREY C., Professor of Genetics
B.Sc. 1945, Ph.D. 1958, Liverpool

ASPINWALL, DOROTHY B. (Mrs. A. N.), Professor of European Languages
B.A. 1933, M.A. 1939, Alberta; Ph.D. 1948, Washington

ATEN, DONALD C., Assistant Professor of Education

AUSTIN, F. GLENN, Professor of Education
B.A. 1935, M.A. 1938, Kansas; Ph.D. 1949, Ohio State

AUYONG, MAJ. STEPHEN K. H., Assistant Professor of Military Science
B.B.A. 1959, Hawaii

AVERY, DON E., Associate Professor of Engineering
B.S. 1937, M.E. 1950, Washington

AYORA, JORGE R., Acting Assistant Professor of Spanish
B.A. 1960, M.A. 1964, Washington

AYRAULT, MARGARET W., Professor of Library Studies
A.B. 1933, Oberlin; B.S. in L.S. 1934, Drexel; M.S. in L.S. 1941, Columbia

BACIU, MIRA (Mrs. S.), Instructor in French
Faculty of Pharmacy 1943, Bucharest; Pharmaceutical Permit 1948, Berne

BACIU, STEFAN, Assistant Professor of Spanish
B.A. 1937, M.A. 1941, Law Faculty, Liceu Andrei Saguna

BACKUS, JOSEPH M., Associate Professor of English
B.A. 1949, Allegheny; M.S. 1954, Columbia; M.A. 1957, Ph.D. 1961, California

BADER, RICHARD G., Professor of Oceanography
B.S. 1943, Maine; M.S. 1950, Ph.D. 1952, Chicago

BAILEY, JOSEPH K., Professor of Management
B.A., B.S. 1934, Salem; M.B.A. 1948, Ph.D. 1955, Texas

BAKER, GLADYS E., Professor of Botany
B.A. 1930, M.S. 1932, Iowa; Ph.D. 1935, Washington

BAKER, HAROLD L., Lecturer in Agricultural Economics
B.S. 1939, Utah State; M.S. 1942, Ph.D. 1965, California (Berkeley)

BAKER, JOHN A., Instructor in English
B.A. 1958, Harvard; M.A. 1966, Southern California

BALDWIN, ROGER E., Assistant Professor of Science (Hilo)
A.A. 1949, Coalinga; B.S. 1951, M.S. 1953, Oregon State; Ph.D. 1964, Minnesota

BALL, HARRY V., Professor of Sociology
B.A. 1949, M.A. 1950, Washington; Ph.D. 1956, Minnesota

BALLIF, BONNIE L., Assistant Professor of Education
B.S. 1962, Ph.D. 1966, Brigham Young

BANNER, ALBERT H., Professor of Zoology
B.S. 1935, Ph.D. 1943, Washington; M.S. 1940, Hawaii

BARBER, GEORGE A., Associate Professor of Biochemistry
B.A. 1951, Rutgers; Ph.D. 1955, Columbia
BARMETTLE, EDMUND R., Associate Professor of Agricultural Economics
B. S. 1952, M. Ed. 1953, California (Davis); Ph. D. 1958, Ohio State

BARNET, EDWARD M., Professor of Marketing and Management
S. B. 1934, M. B. A. 1936, Harvard; Ph. D. 1954, Columbia

BARNES, CYNTHIA G., Associate Professor of Technical Nursing
B. S. 1956, M. S. 1961, California (Los Angeles)

BARNES, I. LYNUM, Associate Professor of Chemistry and Geochemistry
A. B. 1955, Indiana; Ph. D. 1963, Hawaii

BARNES, NELLE, Instructor in English
B. Ed. 1962, M. A. 1964, Hawaii

BARNET, EDWARD M., Professor of Marketing and Management
S. B. 1934, M. B. A. 1936, Harvard; Ph. D. 1954, Columbia

BARRINGER, HERBERT R., Associate Professor of Sociology

BARTOLOMEEW, DUANE P., Assistant Professor of Agronomy

BASLOW, MORRIS H., Associate Professor of Pharmacology

BASSETT, DAVID R., Associate Clinical Professor of Medicine and Associate Professor of Public Health
A. B. 1949, Harvard; M. D. 1953, Tufts

BAUMAN, SISTER HELEN MARY, Lecturer in Social Work
B. A. 1946, Nazareth College; M. S. W. 1952, Catholic University

BAUMER, J. P. ARVORD, Associate Professor of Public Health
B. A. 1953, Bowdoin; M. A. 1959, Madras; Ph. D. 1965, Pennsylvania

BEAMSLEY, JOHN W., Associate Professor of Entomology
B. S. 1950, California; M. S. 1952, Ph. D. 1963, Hawaii

BENTLEY, LUCIE F., Associate Professor of Speech and Drama and Theatre
B. A. 1928, Stanford; M. A. 1933, Cornell

BENEDICT, ALBERT A., Professor of Microbiology
A. B. 1948, M. A. 1950, Ph. D. 1952, California

BENJAMIN, ROBERT L., Lecturer in Speech
B. A. 1943, California; M. S. 1947, Ph. D. 1951, Wisconsin

BERGER, ANDREW J., Professor of Zoology
B. A. 1939, Oberlin; M. A. 1947, Ph. D. 1950, Michigan

BERGER, LESLIE R., Associate Professor of Microbiology
B. S. 1950, Cincinnati; M. S. 1953, Washington; Ph. D. 1957, California (Davis)
BERMOSK, LORETTA S., Associate Professor of Professional Nursing
B.S.N. 1949, New York; M.LITT. 1952, Pittsburgh

BERNATOWICZ, ALBERT J., Professor of General Science
B.A. 1948, Clark; M.A. 1950, PH.D. 1953, Michigan

BERNSTEIN, DAVID J., Acting Assistant Professor of History
B.A. 1962, Brandeis; M.A. 1963, Harvard

BESS, HENRY A., Senior Professor of Entomology
B.S. 1927, Alabama Polytechnic; M.S. 1931, Florida; PH.D. 1934, Ohio State

BESS, H. DAVID, Assistant Professor of Business Administration
B.S. 1961, U. S. Merchant Marine Academy; M.B.A. 1964, California (Los Angeles)

BEYERS, OTTO J., Professor of Education
B.A. 1933, Wayne; M.A. 1934, ED.D. 1936, Washington

BHAGAVAN, NANDIPURAM V., Assistant Professor of Anatomy and Assistant Biochemist
B.S. 1951, Mysore; M.S. 1955, Bombay; PH.D. 1960, California

BHUSHAN, VIDYA, Assistant Professor of Education
B.S. 1949, M.S. 1951, Meerut; M.Ed. 1958, Lucknow; Ed.D. 1964, Indiana

BIGGS, BRUCE G., Professor of Linguistics
B.A. 1952, M.A. 1955, New Zealand; PH.D. 1957, Indiana

BILKOV, CAROLYN B. (Mrs. Nicholas), Assistant Professor of Education
B.S. 1938, Temple; M.A. 1949, Columbia

BILSBORROW, ELEANOR J., Associate Professor of Speech
B.A. 1937, Colorado State College; M.A. 1942, Stanford; PH.D. 1957, Denver

BITNER, HAROLD M., Professor of Psychology
B.S. 1941, Pennsylvania State Teachers College (Shippensburg); M.A. 1945, Duke; PH.D. 1951, Ohio State

BLACK, IVA R. (Mrs.), Instructor in Speech (Hilo)
B.S. 1954, M.A. 1960, Northwestern

BLAISDELL, RICHARD K., Professor of Medicine
B.A. 1945, Redlands; M.D. 1947, Chicago

BLANCHARD, ROBERT J., Assistant Professor of Psychology
B.A. 1958, Boston; M.A. 1961, PH.D. 1962, Iowa

BLOOMBAUM, MILTON S., Associate Professor of Sociology
A.B. 1952, California; M.A. 1958, Southern California; PH.D. 1961, California

BOCSI, JOSEPH B., Assistant Professor of Spanish

BOE, RENÉ A., Lecturer in German
B.S. 1924, PH.D., Institut Supérieur de Commerce

BOGS, STEPHEN T., Associate Professor of Anthropology

BOLLINGER, JOHN, Instructor in Music
B.M. 1959, Oberlin; M.M. 1962, Yale

BONK, WILLIAM J., Assistant Professor of Anthropology (Hilo)
B.A. 1951, M.A. 1954, Hawaii

BONN, GEORGE S., Professor of Library Studies

BONNEY, LEWIS A., Lecturer in Educational Psychology
B.A. 1950, California (Berkeley); M.A. 1964, North Texas State

BONSACK, WALTER K., Associate Professor of Physics and Astronomy
B.S. 1954, Case Institute of Technology; PH.D. 1958, California Institute of Technology

BOUSLOG, CHARLES S., Professor of English
B.A. 1934, Indiana; M.A. 1948, PH.D. 1951, Harvard

BOWERS, NEAL M., Professor of Geography
B.S. 1938, Western Michigan College; M.S. 1939, PH.D. 1951, Michigan
BOYER, JERE, Assistant Professor of Agricultural Economics
B.A. 1955, M.S. 1957, Arizona

BOYER, WILLIAM H., Associate Professor of Education
B.A. 1948, Oregon; M.Ed. 1952, Colorado; Ed.D. 1956, Arizona State

BOYNE, THOMAS W., Lecturer in Marketing
B.A. 1947, Hawaii; M.S. 1949, Columbia

BOYS, ELLIS J., Assistant Professor of Technical Nursing
B.A. 1946, M.A. 1956, San Jose State; M.S. 1960, California (San Francisco)

BRAUN, FREDERICK G., Assistant Professor of Education

BRENEMAN, LUCILLE (Mrs. A. D.), Associate Professor of Speech
B.A. 1935, Baylor; M.A. 1949, Hawaii

BRENNAN, MICHAEL, Lecturer in Hotel Management and Tourism
B.S. 1962, New York Institute of Technology

BRETSCHNEIDER, CHARLES L., Professor of Ocean Engineering
B.S. 1947, Hillsdale College; M.S. 1950, California (Berkeley); Ph.D. 1959, Texas A. & M.

BREWBAKER, JAMES L., Professor of Horticulture
B.A. 1948, Colorado; Ph.D. 1952, Cornell

BRISTOL, MELVIN L., Assistant Professor of Botany

BROCK, VERNON E., Professor of Oceanography
A.B. 1938, M.A. 1944, Stanford

BRODD, DONNA R., Instructor in Professional Nursing
B.S.N. 1964, Nebraska; M.S. 1966, Colorado

BRODIE, DONALD Q., Assistant Professor of Sociology
B.A. 1962, M.A. 1965, Pittsburgh

BRODSKY, MAURICE L., Clinical Hospital Administrator
A.B. 1929, Pennsylvania; M.D. 1935, Temple

BROOKS, COY C., Professor of Animal Science
B.S. 1942, Arkansas; M.S. 1949, Ph.D. 1954, Missouri

BROWN, C. RAMSEY, Lecturer in Hotel Management and Tourism
B.S. 1957, Louisiana State

BROWN, DOROTHY S. (Mrs.), Assistant Professor of English

BROWN, FRANK B., Instructor in Education

BROWN, KATHARINA M., Instructor in German
B.A. 1959, St. Xavier; M.A. 1961, Loyola

BROWN, MYRLE L., Associate Professor of Public Health
B.S. 1945, Bennett College; M.S. 1948, Ph.D. 1957, Pennsylvania State

BROWN, ROBERT B., Lecturer in Marketing
A.B. 1927, M.A. 1928, Cornell

BROWN, STUART G., Professor of American Studies
B.A. 1934, Amherst; Ph.D. 1937, Princeton

BROWNELL, JOHN A., Professor of Education

BRUYERE, PAUL T., Associate Clinical Professor of Public Health
B.A. 1930, Princeton; M.D. 1934, Chicago; M.P.H. 1943, Yale

BUCHELE, ROBERT B., Professor of Management
A.B. 1938, Columbia; M.B.A. 1938, Harvard; Ph.D. 1951, Chicago
FACULTY AND STAFF

Buckman, Karen, Lecturer in Social Work
B.A. 1959, DePauw; M.A. 1961, Indiana

Buddenhagen, Ivan W., Professor of Plant Pathology
B.S. 1953, M.S. 1954, Ph.D. 1957, Oregon State College

Budy, Ann M., Associate Professor of Medicine
B.S. 1946, Ph.D. 1954, Chicago

Burbank, Nathan C., Jr., Professor of Public Health
B.A. 1938, M.S. 1940, Harvard; B.S.C.E. 1950, Oklahoma Institute of Technology;
Sc.D. 1955, M.I.T.

Burgess, Hugh, Instructor in Art
B.S. 1954, B.Arch. 1960, Idaho

Burgess, John C., Professor of Mechanical Engineering
Sc.B. 1944, Brown; M.S. 1948, Ph.D. 1955, Stanford

Burgess, Sara A. (Mrs.), Instructor in Speech

Burkett, George I., Instructor in European Languages
B.A. 1941, M.A. 1950, Oklahoma; Diploma 1948, Paris

Burns, Alfred, Assistant Professor of Classics

Burns, Robert H., Lecturer in Hotel Management and Tourism
B.A. 1958, Michigan State; A.S. 1950, New York State

Burton, Leon H., Lecturer in Music

Bury, Douglas C., Assistant Professor of Law
L.L.B. 1936, Alberta; Queen's Counsel (Hon.), Alberta, 1952

Bushnell, Kenneth W., Instructor in Art
B.A. 1956, California (Los Angeles); M.F.A. 1961, Hawaii

Bushnell, Oswald A., Professor of Microbiology
B.S. 1934, Hawaii; M.S. 1935, Ph.D. 1937, Wisconsin

Cahill, Robert S., Associate Professor of Political Science
B.A. 1954, Reed; M.A. 1961, Ph.D. 1962, Oregon

Campbell, Robert L., Assistant Professor of Education
B.S. 1946, Illinois Institute of Technology; M.Ed. 1951, Louisiana State

Canfield, Grant, Lecturer in Personnel and Industrial Relations
B.S. 1941, M.B.A. 1958, Southern California

Cannelora, Louis, Lecturer in Real Estate
L.L.B. 1938, California (Hastings)

Carlson, John Gregory, Assistant Professor of Psychology
B.A. 1963, Ph.D. 1967, Minnesota

Carb, Albert B., Jr., Associate Professor of Education
B.S. 1950, Iona College; M.A. 1951, Ed.D. 1958, Columbia

Carroll, Col. Bernardo G., Jr., Professor of Military Science

Cartwright, Carol Ann B. (Mrs. G. Phillip), Instructor in Education
B.Ed. 1962, Wisconsin State; M.Ed. 1965, Pittsburgh

Cartwright, G. Phillip, Assistant Professor of Education
B.S. 1960, M.S. 1962, Illinois; Ph.D. 1966, Pittsburgh

Casarett, Louis J., Associate Professor of Pharmacology
B.S. 1950, M.S. 1955, Ph.D. 1958, Rochester

Casellas, Elizabeth R., Assistant Professor of Library Studies
B.M. 1948, Chicago Music College; M.A. 1949, M.S. 1964, Columbia

Cassidy, Maureen, Lecturer in French
B.Ed. 1957, Hawaii

Cathcart, S/Sgt. Matthew E., Instructor in Air Science
CENCE, ROBERT J., Associate Professor of Physics  
A.B. 1952, Ph.D. 1959, California (Berkeley)

CHADWICK-CULLEN, CHARLENE J., Assistant Professor of Music  
B.M. 1955, Eastman School of Music; M.M. 1961, Rochester

CHAFFEE, MARGARET H., Lecturer in Psychology  
B.A. 1981, Washburn (Topeka)

CHAI, HI CHANG, Associate Professor of Engineering  
B.S. 1953, Texas; M.S. 1954, Ph.D. 1957, Ohio State

CHAMBERLAN, THEODORE K., Associate Professor of Oceanography  
B.S. 1952, New Mexico; M.S. 1953, Ph.D. 1960, California Scripps Institution of Oceanography

CHAN, CONWAY, Instructor in Civil Engineering  
B.S. 1961, M.S. 1962, California (Berkeley)

CHANDLER, DAVID B., Assistant Professor of Sociology  
B.A. 1960, M.A. 1964, McMaster

CHANG, CHUNG-YUAN, Professor of Philosophy  
B.A. 1934, National Central University; M.A. 1937, Michigan; Ph.D. 1943, Columbia

CHANG, JEN-HU, Associate Professor of Geography  
B.A. 1949, CheKiang; M.A. 1952, Ph.D. 1954, Clark

CHANG, JO MARIE, Instructor in French  
B.A. 1959, Auburn; M.A. 1962, Rice; Docteur es Lettres 1965, Montpellier

CHANG, PAULINE (Mrs. Sam), Instructor in Chinese  
B.S. 1940, National Tsing Hwa

CHANG, SEN-DOU, Associate Professor of Geography  
B.A. 1949, Chi-nan (Shanghai); M.A. 1955, Wisconsin; Ph.D. 1961, Washington

CHANG, THOMAS C., Associate Professor of Education  
B.A. 1947, Hawaii; M.A. 1950, Columbia; Ph.D. 1957, Ohio State

CHAR, DONALD F. B., Professor of Public Health  
M.D. 1950, Temple

CHAR, WALTER F., Professor of Psychiatry  
M.D. 1945, Temple

CHENG, CH'ENG-K'UN, Professor of Sociology  
B.A. 1932, Yenching; M.A. 1937, Ph.D. 1945, Washington

CHENG, CHUNG-YING, Assistant Professor of Philosophy  
B.A. 1956, National Taiwan; M.A. 1958, Washington; Ph.D. 1964, Harvard

CHENG, THOMAS C., Associate Professor of Zoology  
B.A. 1952, Wayne State; M.S. 1956, Ph.D. 1958, Virginia

CHENN, DIAN-WEN, Instructor in Chinese  
B.A. 1960, Taiwan Normal

CHING, MARY L. (Mrs. E.), Lecturer in Home Economics  
B.A. 1943, Hawaii; M.A. 1945, Ohio State

CHU, ARTHUR N., Professor of Engineering  

CHU, WAN-CHENG, Professor of Meteorology  
B.S. 1941, National Central; M.S. 1947, Ph.D. 1951, New York

CHOCK, ALVIN K., Lecturer in Botany  
A.A. 1949, Hannibal-LaGrange; B.A. 1951, M.S. 1953, Hawaii

CHOU, JAMES C. S., Associate Professor of Mechanical Engineering  
B.S. 1941, National Institute of Technology (China); M.S. 1949, Georgia Institute of Technology

CHOU, SHAO-CHIA, Associate Pharmacologist  
B.S. 1943, West China Union; M.S. 1950, Nebraska; Ph.D. 1958, Stanford

CHU, GEORGE W., Professor of Microbiology and Zoology  
B.A. 1928, Lingnan; M.S. 1931, Yenching; Sc.D. 1934, Johns Hopkins
CHU, EDWARD F., Associate Professor of Health and Physical Education
B.S. 1947, M.A. 1948, Ph.D. 1964, Iowa

CHUN, DAI HO, Professor of Education
B.A. 1930, M.A. 1937, Hawaii; Ph.D. 1947, Ohio State

CHUN, EDWIN Y., Associate Professor of Agriculture
B.S. 1933, Hawaii

CHUN, YAU FOOK, Lecturer in Education
B.Ed. 1962, Hawaii

CHUNG, CHIN S., Professor of Public Health
B.S. 1951, Oregon State; M.S. 1953, Ph.D. 1957, Wisconsin

CHUNG, N. H. PAUL, Assistant Professor of Business Economics and Statistics
B.A. 1952, Chungang; M.A. 1956, Ball State; Ph.D. 1963, Michigan State

CLAPSADDLE, GERALD, Instructor in Art
B.F.A. 1964, Drake; M.F.A. 1966, Indiana

CLARK, ELIZABETH, Associate Professor of Public Health
B.S. 1950, Northwestern; M.P.H. 1954, California (Berkeley)

CLARK, FERN, Instructor in Nursing
B.S. 1957, Hawaii

CLARK, FRANCIS E., Professor of Education
B.S. 1930, Northern State Teachers College; M.S. 1937, Ed.D 1948, Colorado

CLARK, RICHARD H., Assistant Professor of Mathematics
B.S. 1940, Yale; M.A. 1949, Michigan

CLINE, JAMES M., Professor of English
A.B. 1920, Union College; A.M. 1925, Harvard; Ph.D. 1927, Princeton

CLOPTON, ROBERT W., Senior Professor of Education
B.A. 1928, Maryville College; M.Ed. 1941, Hawaii; Ph.D. 1946, Northwestern

CLUTTER, ROBERT I., Assistant Professor of Oceanography
B.S. 1951, Washington; Ph.D. 1963, California (San Diego)

COBB, ESTEL H., Associate Professor of Animal Science
B.S. 1948, Oklahoma State; M.S. 1952, Ph.D. 1958, Iowa State

CODY, WILLIAM J. T., Lecturer in Professional Nursing
M.D. 1951, Tufts

COLE, ROBERT E., Instructor in Psychology

COLLIER, ROY W., Instructor, English Language Institute
B.S. 1950, Ohio State; M.A. 1958, Pacific

COLLINS, DWANE R., Professor of Education
B.A. 1930, State College (Iowa); M.S. 1938, Iowa State; Ed.D. 1941, Columbia

COLLINS, MYRTLE T. (Mrs. DWane), Instructor in Education
B.A. 1937, State College (Iowa); M.A. 1960, Colorado College

CONNOR, ANGIE, Professor of Public Health
B.S. 1933, Northwestern; M.D. 1931, Pa. Women's Medical College; M.P.H. 1952, California (Berkeley)

CONNOR, JOHN W., Assistant Professor of History
B.S. 1950, Creighton; M.A. 1962, Ph.D. 1966, Iowa

CONNOR, JOHN W., Instructor in English
B.A. 1960, Notre Dame; M.A. 1965, Indiana

CONNOR, ANGIE, Professor of Public Health
B.S. 1933, Northwestern; M.D. 1937, Pa. Women's Medical College; M.P.H. 1952, California (Berkeley)

CONNORS, JAMES J., Assistant Professor of History
B.A. 1958, M.A. 1960, Hawaii; Ph.D. 1967, Yale
CONTOIS, DAVID E., Associate Professor of Microbiology  
B.A. 1950, California (Los Angeles); M.S. 1952, Hawaii; Ph.D. 1958, California

COOLE, BRUCE J., Professor of Plant Physiology  
B.S. 1936, Washington State; M.S. 1939, Hawaii; Ph.D. 1947, California

COOK, EDWIN A., Assistant Professor of Anthropology  
B.A. 1959, Arizona; Ph.D. 1967, Yale

COOKSEY, VIRGINIA, Assistant Professor of Home Economics  
B.A. 1934, Iowa State College; M.A. 1946, Columbia

COOPER, GENE R., Lecturer in Art  
B.A. 1963, Hawaii

CORACCIOL, PETER A., Instructor in Music  
B.S. 1962, M.S. 1963, Juilliard School of Music

CORBA, NICHOLAS B., Associate Professor of Engineering Graphics  
B.S. 1940, California State College (Pennsylvania); M.ED. 1952, Pittsburgh

CORBIN, DONALD A., Professor of Accounting and Business Economics  
B.S. 1942, M.B.A. 1943, Ph.D. 1954, California (Berkeley); C.P.A. 1947

COWING, CEDRIC B., Associate Professor of History  
B.A. 1948, M.A. 1950, Stanford; Ph.D. 1956, Wisconsin

COX, DOAK C., Professor of Geology  
B.S. 1938, Hawaii; M.A. 1941, Ph.D. 1965, Harvard

COX, J. HALLEY, Professor of Art  
B.A. 1933, San Jose State; M.A. 1937, California

CRAWFORD, SHIRLEY C., Assistant Professor of Religion  
B.D. 1952, Scroamore; M.A.T. 1959, Indiana; Th.D. 1965, Pacific School of Religion

CREMER, PEGGY M. (Mrs.), Instructor in English (Hilo)  
B.A. 1963, M.A. 1964, California State

CROCKETT, RUTH M. (Mrs. W. R.), Instructor in Education  

CROOKER, ELIZABETH P. (Mrs. F. Deal), Instructor in Education  
B.A. 1931, Smith; M.A. 1933, Columbia

CROSSLEY, JOHN B., Professor of Education  
B.A. 1929, Pomona; M.A. 1940, Claremont; D.LITT. 1945, Howard; Ed.D. 1950, California (Los Angeles)

CROWELL, DAVID H., Professor of Psychology  
B.A. 1941, Drew; Ph.D. 1950, Iowa

CRYMES, RUTH H., Assistant Professor of English  
B.A. 1945, M.A. 1948, Oregon; Ph.D. 1965, Columbia

CULLEN, CALVIN, Lecturer in Music  
B.MUS. 1961, Eastman School of Music

CULLEY, WILLARD T., Lecturer in Music

CURRIE, EDWARD M., Assistant Professor of Accounting  
B.S.C. 1948, Iowa State; M.S. 1965, Ph.D. 1967, Minnesota

CURRIER, RUSSELL L., Instructor, English Language Institute  
A.B. 1955, Rochester

CURTIS, DELORES M., Assistant Professor of Education  

CUTTING, WINDSOR C., Professor of Pharmacology  
B.A. 1928, M.D. 1932, Stanford

DAEUER, CARL J., Assistant Professor of Education  
B.S. 1953, Pa. State Teachers (Kutztown); M.Ed. 1955, Temple

DAME, JACKLYN H., Instructor in Speech  
A.B. 1946, California; M.A. 1948, Stanford

DANGLER, EDGAR W., Instructor in General Science  
B.S. 1942, Maine; M.S. 1947, Minnesota; M.S. 1965, Hawaii
FACULTY AND STAFF

DANIEL, L. SCOTT, Professor of Engineering
B.S. 1945, Montana State

DANIELSEN, EDWIN F., Professor of Meteorology
B.S. 1951, M.S. 1954, PH.D. 1958, Washington

DARBYSHIRE, LESLIE, Professor of Finance
B.A. 1950, Bristol; D.B.A. 1957, Washington

DAUER, DOROTHEA W., Associate Professor of German
M.A. 1937, Paris; PH.D. 1953, Texas

DAV, RICHARD D., Clinical Hospital Administrator
B.B.A. 1952, Portland

DAVIDSON, JACK R., Professor of Agricultural Economics
B.S. 1953, Wyoming; M.S. 1956, Montana State; PH.D. 1960, California

DAVIS, FRANCES E., Associate Professor of Mathematics
B.S. 1936, Michigan State; M.A. 1941, Michigan

DAVIS, LARRY V. Assistant Professor of Zoology
B.S. 1959, M.S. 1960, Puget Sound; PH.D. 1965, California

DAVIS, MARILYN, Lecturer in French
B.S. 1954, Utah; M.A. 1962, Oregon

DAVIS, ORREL, Assistant Professor of Education
B.A. 1927, M.A. 1941, Northwestern

DAVIS, RUTH E., Instructor in Technical Nursing
B.S. 1951, M.S. 1955, Colorado

DAVIS, WILLIAM, Acting Assistant Professor of Anthropology
B.A. 1958, Fresno State

DAWS, A. GAVAN, Assistant Professor of History
B.A. 1955, Melbourne; M.A. 1960, PH.D. 1966, Hawaii

DAY, A. GROVE, Senior Professor of English
B.A. 1926, M.A. 1943, PH.D. 1944, Stanford

DEAN, EDWARD E., Clinical Instructor of Pharmacology
D.V.M. 1949, Colorado State; M.S. 1958, Rochester

DECRISTOFARO, ELEANOR S., Instructor in Professional Nursing
B.S. 1959, Hawaii; M.S. 1966, Boston

DE FANO, DONALD H., Instructor in English
B.A. 1963, State University of N.Y.; M.A. 1965, Ohio State

DEFEO, VINCENT J., Associate Professor of Anatomy
B.S. 1949, Juniata; M.S. 1951, Rutgers; PH.D. 1954, Ohio State

DEFRAIS, JOHN, Professor of Chinese
B.A. 1933, Yale; M.A. 1941, PH.D. 1948, Columbia

DELLI QUADRI, FRED, Professor of Social Work
B.A. 1938, Colorado; M.S.W. 1941, Nebraska

DE MELLO, EUNICE M. (Mrs. Wayne), Lecturer in Music
B.Ed. 1954, Hawaii; M.Mus. 1956, Northwestern

DE MELLO, WAYNE, Lecturer in Music
B.A. 1957, Northwestern

DENNEY, REUEL N., Professor of American Studies
B.A. 1932, Dartmouth

DE QUELJOE, DAVID H., Assistant Professor of Asian Languages
M.A. 1957, Ed.D. 1959, Columbia

DE SILVA, GALLAY L. R., Lecturer in Geography
B.A. 1950, London

DEUTSCH, ELIOT, Professor of Philosophy
B.S. 1952, Wisconsin; PH.D. 1960, Columbia

DEVOS, WINIFRED O., Assistant Professor of Social Work
B.A. 1945, M.A. 1947, Chicago
Dewey, Alice G., Associate Professor of Anthropology  
B.A. 1950, M.A. 1954, Ph.D. 1959, Radcliffe

Diamond, A. Leonard, Professor of Psychology  
B.A. 1947, Cincinnati; M.A. 1949, Ph.D. 1951, Columbia

Dismale, John M., Professor of Psychology  
B.A. 1948, Ph.D. 1951, Ohio State

Dixon, Paul W., Assistant Professor of Psychology (Hilo)  
B.A. 1960, Blackburn; M.A. 1963, Ph.D. 1966, Hawaii

Dobson, Peter N., Jr., Assistant Professor of Physics  
Ph.D. 1965, Maryland

Dole, Arthur A., Professor of Psychology  
B.A. 1946, Antioch; M.A. 1949, Ph.D. 1951, Ohio State

Doty, Guy H., Assistant Professor of Chemistry (Hilo)  
B.Sc. 1954, Oglethorpe; M.A. 1959, North Carolina; Ph.D. 1965, Hawaii

Dorset, Gerald H., Lecturer in Drama and Theatre  
A.B. 1945, Sofia State; M.A. 1947, Sorbonne

Doty, Maxwell S., Professor of Botany  
B.S. 1939, M.S. 1941, Oregon State; Ph.D. 1945, Stanford

Douvere, Sylvia E. (Mrs.), Instructor in French  
Brevets and Supérieur, 1942

Drenckhahn, Vivian V., Associate Professor of Public Health  
B.S. 1922, Minnesota; M.S. 1928, Cornell; M.P.H. 1933, M.I.T.

Drobac, Martin, Clinical Hospital Administrator  
A.B. 1956, LL.B. 1957, Stanford

Drobnjak, Marie Ann, Instructor in English  
B.A. 1963, College Misericordia; M.A. 1965, Loyola

Droste, George H., Assistant Professor of Library Studies  
Certificate 1955, Washington; Certificate 1958, Indiana

Droste, Howard M., Assistant Professor of Art (Hilo)  
B.A. 1951, M.F.A. 1953, Washington

Droste, Yone (Mrs. Howard M.), Instructor in English (Hilo)  
A.B. 1941, MacMurray; A.M. 1954, Boston

Duce, Robert A., Assistant Professor of Chemistry  
B.A. 1957, Baylor; Ph.D. 1964, M.I.T.

Dumont, Jean-Louis, Acting Assistant Professor of French  
B.A. 1960, M.A. 1963, Connecticut

Dumont, Normand E., Assistant Professor of Library Studies  
B.A. 1948, New Hampshire; M.S.L.S. 1955, State University of N.Y.

Duncan-Hall, Tyra L., Instructor in English  
B.A. 1961, M.A. 1964, Michigan

Dunlap, Marjorie S., Professor of Nursing  
A.B. 1939, Missouri; M.P.S. 1948, Colorado; Ed.D. 1959, Southern California

Dunn-Rankin, Peter, Assistant Professor of Education  

Dunworth, John, Lecturer in Education  
B.A. 1949, M.A. 1952, California (Berkeley); Ed.D. 1959, Southern California

Dutta, Ratna, Instructor in Sociology  
B.A. 1957, Calcutta; M.A. 1963, Pittsburgh

Dyer, Armel, Acting Assistant Professor of Speech  
B.S. 1933, M.A. 1938, Missouri

Dyekstra, Gerald, Professor of Speech  
B.A. 1948, M.A. 1948, Ph.D. 1955, Michigan

Ebert, Thomas A., Assistant Professor of Zoology  
ECKLOR, Eric H., Instructor in English
A.B. 1955, M.A. 1965, San Francisco State

EDEL, Leon, Citizens' Chair in English Literature (Spring 1969)
B.A. 1939, M.A. 1946, Cambridge

EDER, Margaret S. (Mrs.), Assistant Professor of Home Economics
B.S. 1924, Minnesota; M.S. 1956, Ohio State

EDWARDS, Carol A. (Mrs. R. H.), Instructor in Mathematics (Hilo)
B.A. 1960, California (Berkeley); M.A. 1962, Illinois

EKERN, Paul C., Jr., Associate Professor of Agronomy and Soil Science
B.A. 1942, Westminster College; Ph.D. 1950, Wisconsin

ELBERT, Samuel H., Professor of Pacific Languages and Linguistics
B.A. 1928, Grinnell; B.Litt. 1931, Columbia; Ph.D. 1950, Indiana

ELKIND, Leonard, Instructor in Psychology
B.S. 1962, Brooklyn

ELLINGSWORTH, Huber W., Professor of Speech
B.A. 1949, Pacific (Oregon); M.A. 1950, Washington State; Ph.D. 1955, Florida State

ELLIOTT, Donald F., Assistant Professor of Spanish
B.A. 1931, Monmouth; M.A. 1936, Florida

ELLIOTT, Gordon J., Instructor, English Language Institute
B.A. 1951, Washington

ERNST, Welden A., Assistant Professor of History

ERNST, Earle, Senior Professor of Drama and Theatre
B.A. 1933, Gettysburg; M.A. 1937, Ph.D. 1940, Cornell

ESTOQUE, Mariano A., Professor of Meteorology
B.S. 1947, Philippines; M.S. 1948, Ph.D. 1950, New York

ETHERINGTON, A. Bruce, Professor of Architecture
B. Arch. 1947, Cornell

EUCHER, Mark, Acting Assistant Professor of French
B.A. 1955, M.A. 1961, California (Berkeley)

EVANS, Franklin B., Professor of Marketing
A.A. 1941, B.A. 1943, M.B.A. 1954, Ph.D. 1959, Chicago

EVANS, John R., Professor of Engineering
B.S. 1941, M.S. 1947, Michigan State

EVERLY, Hubert V., Professor of Education
B.Ed. 1934, M.Ed. 1938, Hawaii; Ph.D. 1946, Ohio State

EVERSON, Marion T., Assistant Professor of Art
B.S. 1945, M.S. 1952, Wisconsin; M.F.A. 1959, Cranbook Academy of Art

FAN, Pow-Foong, Assistant Professor of Geosciences
B.S. 1955, Wheaton College; M.A. 1963, Ph.D. 1965, California

FANCHER, Joanna E., Assistant Professor of Professional Nursing
B.A. 1950, Houghton; M.N. 1953, Western Reserve; M.A. 1963, Columbia

FAND, Richard M., Professor of Mechanical Engineering
B.S. 1946, Rensselaer Polytechnic Institute; M.S. 1949, Columbia; Ph.D. 1959, Cornell

FARGO, George A., Assistant Professor of Education
B.A. 1949, M.A. 1959, California (Los Angeles); Ph.D. 1963, Claremont

FARGO, Jean (Mrs. C. A.), Assistant Professor of Home Economics
B.A. 1947, Missouri; M.S.W. 1950, California (Los Angeles)

FELDMAN, Stephen M., Assistant Professor of English
B.A. 1960, M.A. 1962, Ph.D. 1967, Yale

FELLMETH, Jane B., Instructor in English
B.A. 1939, B.A. 1941, Akron; M.A. 1943, Ohio State

FENTON, Frank L., Professor of English (Hilo)
A.B. 1923, M.A. 1925, Ph.D. 1941, Stanford
FERDON, SHELLEY LYNETTE, Instructor in Professional Nursing
B.S. 1960, Oregon; M.S. 1965, California (San Francisco)
FERGUSON, JOHN B., Professor of Management and Industrial Relations
B.A. 1933, M.B.A. 1935, Stanford; Ph.D. 1960, Cornell
FERGUSON, RONALD T., Assistant Professor of History
FINK, ELIZABETH EVELYN, Associate Professor of Professional Nursing
B.S.N. 1940, Western Reserve; M.A. 1947, Columbia; Ph.D. 1966, Catholic University
FISCHER, GUERIN A., Assistant Professor of Education
FISHER, RAYMOND, Professor of Social Work
A.B. 1934, M.Sc. 1939, Western Reserve
FITZGERALD, EDWARD T., Assistant Professor of Philosophy (Hilo)
A.B. 1955, San Francisco State; M.A. 1960, California (Berkeley)
FITZSIMMONS, LORRAINE F. (Mrs.), Assistant Professor of Education
B.A. 1929, M.A. 1931, Colorado State College of Education
FLETCHER, SALLY, Lecturer in Art
B.A. 1955, California (Los Angeles)
FLYNN, ELIZABETH A., Acting Assistant Professor of English
B.A. 1959, Mt. St. Vincent; M.A. 1960, Wisconsin
FOCHTMAN, JACQUELINE, Instructor in French
B.A. 1965, M.A. 1967, Hawaii
FOLSOME, CLAIR E., Associate Professor of Microbiology
B.A. 1956, M.A. 1959, Ph.D. 1960, Harvard
FONG, DAVID, Assistant Professor of English
FONG, HENRY H. C., Assistant Clinical Professor of Medicine
M.D. 1957, Oregon
FOX, JOEL S., Assistant Professor of Mechanical Engineering
B.S. 1949, M.S. 1961, Ph.D. 1966, Polytechnic Institute of Brooklyn
FOX, MORRIS G., Lecturer in Social Work
A.B. 1934, Redlands; M.A. 1940, Chicago
FOX, ROBERT L., Professor of Soil Science
B.S. 1948, M.A. 1950, Ph.D. 1954, Missouri
FRANK, HILMER A., Associate Professor of Food Science
B.A. 1949, Minnesota; M.S. 1952, Ph.D. 1954, Washington State
FREEMARK, JOHN, Instructor in English
B.A. 1965, Wyoming; M.A. 1967, Claremont
FREITAS, LEWIS P., Assistant Professor of Finance
FRIEDMAN, HARRY J., Professor of Political Science
B.Lit. 1948, Rutgers; M.S. 1949, Wisconsin; Ph.D. 1956, Pittsburgh
FRIEDSON, ANTHONY M., Assistant Professor of English
A.B. 1951, Simpson College; M.A. 1954, Ph.D. 1961, Iowa State
FRIEND, DOUGLAS J. C., Associate Professor of Botany
B.Sc. 1950, Ph.D. 1953, London
FRIERSON, JAMES W., Associate Professor of English
B.A. 1929, LL.B. 1933, Tulane; Ph.D. 1953, Stanford
FRODYMA, MICHAEL M., Associate Professor of Chemistry
B.S. 1942, Massachusetts; M.A. 1947, Columbia; M.S. 1949, Hawaii; Ph.D. 1952, George Washington
FROHLICH, GERHARD, Assistant Professor of German
Fryer, Donald W., Professor of Geography  
B.SC. 1941, M.SC. 1942, London School of Economics; PH.D. 1958, London

Fuchs, Roland J., Associate Professor of Geography  
B.A. 1954, Columbia; M.A. 1957, PH.D. 1959, Clark

Fujikawa, Asako (Mrs. James K.), Instructor in Japanese  
B.A. 1932, Hawaii; M.A. 1956, Columbia; M.A. 1960, Ryukoku

Fujimoto, Akira, Lecturer in Civil Engineering (Hilo)  
B.S. 1950, Hawaii

Fujimura, Thomas H., Professor of English  
B.A. 1942, California; M.A. 1943, Nebraska; PH.D. 1950, Columbia

Fujinaga, Jean T., Instructor in English  

Fujikawa, Norito, Assistant Professor of Japanese  
B.A. 1948, M.A. 1952, Hawaii

Fujita, Shibue Y. (Mrs. Ichiro), Assistant Professor of Education  

Fukuda, Mitsuno, Junior Researcher in Microbiology  
B.A. 1933, Hawaii

Fullmer, Daniel W., Professor of Education  
B.S.E. 1947, M.S.E. 1952, Western Illinois; PH.D. 1955, Denver

Fultz, Jane N. (Mrs. Paul D.), Assistant Professor of Education  

Furer, Gloria S. (Mrs. F. H.), Assistant Professor of Home Economics  
B.S. 1945, Michigan State; M.ED. 1964, Hawaii

Furniss, W. Todd, Professor of English  
B.A. 1942, M.A. 1948, PH.D. 1952, Yale

Furukawa, Fred M., Instructor in Health and Physical Education  
B.S. 1955, M.ED. 1964, Hawaii

Furumoto, Augustine K., Assistant Professor of Geology  
B.S. 1949, Dayton; M.S. 1955, Tokyo; PH.D. 1961, St. Louis

Furusawa, Eiichi, Associate Professor of Pharmacology  
M.D. 1954, D.MED.SC. 1959, Osaka

Futrell, Emily F., Assistant Instructor in Technical Nursing  
B.S. 1952, Baylor

Garcia, Raymond A., Instructor in Mathematics  
ed.B. 1958, M.A. 1951, Hawaii

Gasiorowski, Zygmunt, Associate Professor of History  
b.SC. 1945, London; M.A. 1947, PH.D. 1950, Berkeley

Gauggel, George W., Lecturer in Music  
a.B. 1933, Howard; B.MUS. 1938, M.MUS. 1941, Birmingham Conservatory

Gault, Neal L., Jr., Professor of Medicine  
b.A. 1950, Texas; M.B. 1950, M.D. 1951, Minnesota

George, Dorothy I., Professor of English  
b.A. 1936, Louisiana State Normal; M.A. 1937, PH.D. 1950, Louisiana State

Gibbons, Ian R., Associate Professor of Cytology  

Gibson, Lillian R., Assistant Professor of Health and Physical Education  
b.E. 1930, Wisconsin State Teachers College (La Crosse)

Gilbert, Helen, Lecturer in Art  
b.A. 1943, Mills

Gilbert, James C., Professor of Horticulture  
b.A. 1931, Pomona; M.A. 1933, Southern California; M.S. 1952, PH.D. 1959, Hawaii

Gilje, John W., Assistant Professor of Chemistry  
b.cheM. 1961, Minnesota; PH.D. 1965, Michigan
GILLESPIE, MARGARET C. (Mrs. Charles J.), Assistant Professor of Education

GILLET, DOROTHY K. (Mrs. Milton A.), Instructor in Music
B.S. 1940, Ohio State

GILLET, GEORGE W., Associate Professor of Botany
B.S. 1940, Iowa State College; M.F. 1949, Ph.D. 1954, California (Berkeley)

GILMARTIN, MALVERN, JR., Associate Professor of Oceanography
A.A. 1950, Chaffey; B.A. 1954, Pomona; M.A. 1958, Hawaii; Ph.D. 1960, British Columbia

GILSON, THOMAS Q., Professor of Management
B.A. 1938, Princeton; M.A. 1942, Columbia; Ph.D. 1954, M.I.T.

GINES, JOHN ROY, Instructor in English
B.A. 1965, M.A. 1966, Wyoming

Glick, CLARENCE E., Professor of Sociology
B.A. 1927, De Paul; M.A. 1928, Ph.D. 1938, Chicago

Glick, DORIS L. (Mrs. Clarence), Instructor in English
B.A. 1929, M.A. 1930, Ph.D. 1932, Iowa State

Glickman, DAVID, Lecturer in Professional Nursing
B.A. 1949, Wisconsin; LL.B. 1952, California (Hastings)

GLISSMEYER, GLORIA, Instructor in English
B.A. 1952, M.A. 1953, Utah

GLYNN, SAMUEL W., Lecturer in Dental Hygiene
D.D.S. 1925, California

GO, Mateo L. P., Professor of Engineering
B.C.E. 1942, Ph.D. 1946, Cornell; S.M.C.E. 1943, M.I.T.

Golding, MARSHALL N., Associate Professor of Political Science
B.A. 1955, Florida; Ph.D. 1964, North Carolina

GOO, GENEVINA B., Instructor in Nursing
B.S. 1953, St. Mary College

GOOCH, JOHN M., Assistant Clinical Professor of Public Health
D.V.M. 1944, Iowa State; M.P.H. 1964, California

GORDON, LAWRENCE, Assistant Clinical Professor of Anatomy and Surgery
A.B. 1951, M.D. 1955, Stanford

GORDON, MORTON J., Assistant Professor of Speech
B.S. 1949, M.A. 1951, Columbia; M.A. 1955, Iowa

GORDON, SARA, Acting Assistant Professor of Economics
B.A. 1957, California; M.A. 1962, Stanford

GOTT, WEYKE, Professor of Economics
A.A. 1933, Marin Jr. College; A.B. 1936, Ph.D. 1948, Stanford

GOTANDA, YUKIO, Lecturer in Social Work
B.A. 1950, Hawaii; M.S.W. 1952, Michigan; LL.B. 1956, Wisconsin

GOTO, GEORGE, Lecturer in Public Health
M.D. 1951, Washington

GOTO, SHOSUKE, Associate Professor of Plant Pathology
B.S. 1941, M.S. 1943, Alberta; Ph.D. 1953, Minnesota

GOTT, EUYEN, Professor of Electrical Engineering
B.S. 1938, Kwangsi; M.A. 1945, Stanford; D.Eng. 1959, Johns Hopkins

GOYA, RAMON AKIRA, Instructor in Health and Physical Education (Hilo)
B.A. 1963, Hawaii; M.A. 1965, San Jose State

GRACE, GEORGE W., Professor of Linguistics
L.L.C. 1948, Geneva; Ph.D. 1958, Columbia
GRACE, ROBERT A., Assistant Professor of Civil Engineering  

GRANBORG, BERTIL S. M., Associate Professor of Electrical Engineering  
CIVING, E.E. 1953, R. Inst. of Techn. (Stockholm); PH.D. 1961, Wisconsin

GRAY, FREDERIC, Instructor in French  
B.A. 1941, M.A. 1964, Hawaii

GRAY, JAMES M., Assistant Professor of English  
B.A. 1959, Carleton; M.A. 1981, Southern California

GRAYSON, HENRY W., Professor of Business Economics  
B.A. 1937, Saskatchewan; M.A. 1947, PH.D. 1950, Toronto

GREEN, DONALD F., Assistant Professor of Civil Engineering  
B.S. 1960, M.S. 1963, New Mexico State

GREEN, ROGER, Associate Professor of Anthropology  
B.A. 1954, B.SC. 1955, New Mexico; PH.D. 1964, Harvard

GREENBERG, MARVIN, Assistant Professor of Education  
B.S. 1957, New York; M.A. 1958, ED.D. 1962, Columbia

GREGORY, CHRISTOPHER, Professor of Mathematics  
B.S. 1938, M.S. 1939, PH.D. 1941, California Institute of Technology

GRIFFING, AUGUSTUS H., Assistant Professor of English  
B.A. 1929, Columbia; B.TH. 1934, Princeton; M.A. 1959, Hawaii

GRIFFITT, WILLIAM B., Assistant Professor of Psychology  
B.A. 1964, Kansas State; PH.D. 1967, Texas

GRISWOLD, ROBERT C., Assistant Professor of Mathematics  
B.S. 1960, M.S. 1963, PH.D. 1964, Rensselaer Polytechnic Institute

GROSS, YUKIE T. (MRS. BERTRAM), Associate Professor of Nursing  

GROSSMAN, JEROME, Professor of Public Health  
B.A. 1945, California (Berkeley); M.P.H. 1946, PH.D. 1954, California (Berkeley)

GROTH, ERIC E., Associate Professor of Mathematics  
PH.D. 1936, Leipzig

GROVES, GORDON W., Professor of Oceanography  
A.B. 1949, California (Los Angeles); M.S. 1951, PH.D. 1955, California (La Jolla)

GUNDERSEN, KAARE R., Associate Professor of Microbiology  
PH.D. 1962, Gothenburg (Sweden)

GUSTUSON, DONALD I., Associate Professor of Health and Physical Education  
B.A. 1934, Whittier; M.ED. 1950, Hawaii; ED.D. 1954, California (Los Angeles)

HAAS, MICHAEL, Assistant Professor of Political Science  
B.A. 1959, PH.D. 1963, Stanford; M.A. 1960, Yale

HAAS, VALERIE S., Instructor in Classics  
B.A. 1944, Hunter

HABER, MERYL H., Associate Professor of Pathology  
B.S. 1956, M.S. 1958, M.D. 1959, Northwestern

HACKLER, W. G., Associate Director of Overseas Career Program  
B.A. 1937, M.A. 1938, Northwestern

HADLEY, GEORGE F., Professor of Mathematics  

HADLICH, ROGER L., Associate Professor of Spanish  
B.A. 1951, Yale; M.A. 1957, Middlebury; PH.D. 1961, Michigan

HAHNSEN, FREDERICK P., JR., Assistant Professor of Education  
B.A. 1949, Gettysburg; M.ED. 1955, Western Maryland; PH.D. 1965, Colorado State

HALE, HELENE H., Lecturer in English (Hilo)  
B.S. 1938, M.A. 1940, Minnesota

HALEY, THOMAS J., Professor of Pharmacology  
B.S. 1938, M.S. 1942, Southern California; PH.D. 1945, Florida
HALL, JOHN B., Assistant Professor of Biochemistry  
A.B. 1957, Kansas; Ph.D. 1960, California

HALMOS, PAUL R., Professor of Mathematics  
B.S. 1934, M.S. 1935, Ph.D. 1938, Illinois

HALSTEAD, SCOTT B., Professor of Tropical Medicine  
B.A. 1951, Yale; M.D. 1955, Columbia

HAMA, HERBERT T., Instructor in Health and Physical Education (Hilo)  
B.Ed. 1957, Hawaii; M.S. 1959, Illinois

HAMAKER, GENE, Associate Professor of American Studies  
B.A. 1951, California (Berkeley); Ph.D. 1958, Nebraska

HAMILTON, RICHARD A., Professor of Horticulture  
B.S. 1937, N. Dakota Agricultural; M.S. 1940, Ohio State; Ph.D. 1953, Minnesota

HAMILTON, THOMAS H., Senior Professor of Political Science  

HAMMOND, DALE A., Instructor in Chemistry  
B.A. 1958, Brigham Young

HANDLEY, KATHARINE N. (Mrs.), Professor of Social Work  
B.A. 1923, Pomona; M.A.W.S. 1942, Southern California

HARAMOTO, FRANK H., Assistant Professor of Entomology  
B.S. 1949, M.S. 1953, Ph.D. 1964, Hawaii

HARDY, D. ELMO, Senior Professor of Entomology  
B.A. 1937, Brigham Young; Ph.D. 1941, Kansas

HARLING, JEAN, Lecturer in Music  
B.S. 1944, Wayne

HARMS, JOAN Y., Instructor in Speech  
B.Ed. 1963, Hawaii; M.A. 1984, Northwestern

HARMS, L. STANLEY, Associate Professor of Speech  
B.A. 1955, Florida; M.A. 1957, Ph.D. 1959, Ohio State

HARRIESTINEN, HOWARD P., Professor of Civil Engineering  
B.S. 1953, Kansas State; M.S. 1956, Ph.D. 1959, Iowa State

HARRIS, IRA W., Assistant Professor of Library Studies  
B.I.D. 1952, Pratt; M.L.S. 1957, Rutgers

HARRISON, ROBERT, Acting Assistant Professor of Anthropology  
B.A. 1958, Hofstra College

HARTLEY, RUTH, Professor of Home Economics  
A.B. 1930, Cornell; M.A. 1932, Ph.D. 1944, Columbia

HARTMANN, NELLIE M., Assistant Professor of Social Work  
B.A. 1931, M.A. 1933, Washington; M.A. 1949, Chicago

HARTMANN, RICHARD W., Assistant Professor of Horticulture  
B.A. 1956, Rutgers; M.S. 1957, Virginia Poly. Inst.; Ph.D. 1962, California (Los Angeles)

HASEGAWA, MASATO, Associate Clinical Professor of Pediatrics  
A.B. 1940, California; M.D. 1945, Wayne State.

HASEGAWA, NOBUKO, Instructor in Japanese  
B.A. 1956, Rikkyo

HASERWOOD, ROBERT W., Associate Professor of Engineering  
B.A. 1934, Stanford; M.S. 1936, Harvard

HASHMOTO, MITSUO, Assistant Professor of Japanese  
B.A. 1958, Ministry of Education; M.A. 1962, Hawaii

HATHAWAY, JOSEPH C., Clinical Instructor in Tropical Medicine  
B.S. 1923, M.S. 1924, M.B. 1925, M.D. 1926, Minnesota
FACULTY AND STAFF

HAYAKAWA, JOHN M., Assistant Professor of Public Health
B.S. 1951, California; M.P.H. 1954, California

HAYES, ELOISE D. (Mrs.), Associate Professor of Education
B.Ed. 1939, Minn. State Teachers College (St. Cloud); M.A. 1951, Ph.D. 1953, North Carolina

HAZAMA, DOROTHY O. (Mrs. Richard), Assistant Professor of Education
B.Ed. 1952, Hawaii; M.A. 1955, New York

HEE, STANLEY Y. H., Assistant Professor of Physics

HEIDLER, GEORGE H., Lecturer in Art (Hilo)

HEINBERG, PAUL J., Associate Professor of Speech
B.S. 1949, M.A. 1950, Columbia; Ph.D. 1956, Iowa State

HEINE, ELIZABETH M., Assistant Professor of English

HENDLER, GEORGE H., Lecturer in Art (Hilo)

HEUSER, GEORGE M., Associate Professor of Psychology
B.S. 1951, M.A. 1952, City College of N.Y.; Ph.D. 1961, Pennsylvania State

HERAND, FRANK A., Assistant Professor of Music
Ph.D. 1956, Zurich

HERMAN, LOUIS M., Associate Professor of Psychology
B.S.S. 1951, M.A. 1952, City College of N.Y.; Ph.D. 1961, Pennsylvania State

HERBER, ORPHEA E. (Mrs. R. B.), Assistant Professor of Home Economics
B.S. 1949, Northwestern State; M.S. 1954, Wisconsin

HERBER, RAYMOND B., Assistant Professor of Poultry Science
B.S. 1950, Northwestern State; M.S. 1955, Ph.D. 1960, Wisconsin

HERSHINOW, SHELDON J., Instructor in English
B.A. 1964, Oberlin; M.A. 1965, Chicago

HERVEY, WESLEY D., Assistant Professor of Speech
B.A. 1949, California; M.A. 1951, Hawaii

HERZBERG, MENDEL, Professor of Microbiology
B.S. 1948, M.A. 1950, Ph.D. 1953, California

HEYDE, CHARLES FRANK, Assistant Professor of Management
B.B.A. 1943, Texas; M.B.A. 1947, Maryland

HIATT, ROBERT W., Senior Professor of Zoology
B.A. 1936, San Jose State; Ph.D. 1941, California

HICKS, ROBERT Z., Instructor in Speech (Hilo)
B.S. 1959, Michigan State; M.A. 1962, Michigan

HIGA, HAROLD T., Assistant Professor of Education
B.M. 1949, M.M. 1950, Cincinnati

HIGA, ROYCE E., Assistant Clinical Professor of Public Health
B.S. 1950, George Williams College; M.P.H. 1952, Michigan

HILKER, DORIS M., Assistant Professor of Foods and Nutrition
B.S. 1949, Chicago; M.S. 1955, Loyola; Ph.D. 1958, Tulane

HINE, RICHARD B., Associate Professor of Plant Pathology
B.A. 1952, California (Los Angeles); Ph.D. 1958, California (Davis)

HIRAI, BERNICE K. (Mrs. Henry T.), Instructor in Japanese
B.Ed. 1946, M.Ed. 1961, Hawaii

HIRAI, YUICHIRO, Associate Professor of Genetics
M.S. 1952, Hokkaido; Dr. Sc. 1960, Osaka

HIRATA, LUCIE (Mrs. Edwin), Instructor in Chinese
B.A. 1962, Hawaii; M.A. 1964, Chicago
HEROKE, HOWARD K., Lecturer in Accounting  
B.A. 1951, Hawaii; M.A. 1947, Minnesota  

HIRSCHT, IRA D., Lecturer in Nursing  
B.S. 1927, Jamestown; M.A. 1929, M.D. 1933, M.P.H. 1942, Michigan  

HISANAGA, KAZUMA, Instructor in Health and Physical Education (Hilo)  
B.A. 1941, Pomona; 5th Yr. Cert. 1954, Hawaii  

HO, CHING-HWA, Instructor in Chinese  
B.A. 1963, National Chengchi; M.A. 1965, National Taiwan  

HOFFER, BATES L., Acting Assistant Professor of Japanese  
B.A. 1962, Texas  

HOFFMAN, DORIS J., Instructor in Speech  
B.S. 1959, Illinois State; M.A. 1964, Colorado  

HOGAN, PATRICIA ANN, Instructor in English  
B.A. 1964, M.A. 1966, New Mexico  

HOHL, HANS R., Associate Professor of Microbiology  
Diploma 1957, Ph.D. 1960, Zurich  

HOKAMA, YOSHTSUGI, Associate Professor of Pathology  
A.B. 1951, M.A. 1953, Ph.D. 1957, California (Los Angeles)  

HOLLINGSHEAD, VIRGINIA (Mrs. H. W.), Assistant Professor of English  
B.S. 1949, Pittsburgh; M.A. 1951, Hawaii; Ph.D. 1960, Washington  

HOLMES, JOHN R., Professor of Physics  
A.B. 1938, M.A. 1941, Ph.D. 1942, California (Berkeley)  

HOLTON, JAMES S., Associate Professor of Spanish  
B.A. 1948, San Diego State; M.A. 1951, Ph.D. 1956, California (Berkeley)  

HOLTZMANN, OLIVER V., Associate Professor of Plant Pathology  
B.S. 1950, M.S. 1952, Colorado State; Ph.D. 1955, Washington State  

HONG, AYLENE H. K., Instructor in Technical Nursing  
B.S. 1964, Hawaii; M.N. 1965, Washington  

HOOPER, PAUL F., Instructor in History  

HOPKINS, MARY E., Associate Professor of Personnel and Industrial Relations  
B.A. 1940, M.A. 1958, Pittsburgh; Ph.D. 1963, Western Reserve  

HORAN, CLAUDE F., Professor of Art  
B.A. 1942, San Jose State; M.A. 1946, Ohio State  

HORIMOTO, RUTH Y., Instructor in Professional Nursing  
B.S. 1959, Hawaii; M.S. 1962, St. John's  

HORMANN, BERNHARD L., Professor of Sociology  
B.A. 1927, M.A. 1931, Hawaii; Ph.D. 1949, Chicago  

HOSHOR, JOHN P., Professor of Speech  
B.A. 1938, M.A. 1940, Washington; Ph.D. 1947, Iowa  

HOSLETT, SCHUYLER, Professor of Management  
B.A. 1940, Park College; M.A. 1942, Ph.D. 1949, Ohio State; M.P.A. 1946, Harvard  

HSIAO, SIDNEY C., Professor of Zoology  
B.A. 1928, Shanghai; M.A. 1933, Yenching; Ph.D. 1938, Harvard  

HTUN, KWAW MOE, Assistant Professor of Mechanical Engineering  
B.S. 1957, Lehigh; M.S. 1958, Ph.D. 1965, Wisconsin  

HUMBLESTON, ELLIS W., Associate Professor of Entomology  
B.S. 1956, Texas Tech. College; M.S. 1958, Ph.D. 1960, Cornell  

HUGH, WILLIAMS L., Associate Professor of Animal Science  
B.s.a. 1949, British Columbia; M.S. 1951, Ph.D. 1955, Minnesota  

HUHM, HALLA (Mrs.), Lecturer in Music  
B.S. 1942, Jitsen Women's College  

HUMMEL, PAUL L., Assistant Professor of Civil Engineering  
B.S. 1957, Hawaii; M.S. 1960, Nebraska
Hung, Fred C., Associate Professor of Economics  
B.A. 1947, St. John's (China); Ph.D. 1955, Washington

Hunt, John A., Associate Professor of Genetics  
B.A. 1956, Ph.D. 1960, Cambridge

Hunter, Charles H., Professor of History  
B.A. 1927, M.A. 1928, Ph.D. 1935, Stanford

Huntsberry, William E., Associate Professor of English  
B.A. 1942, Michigan State Normal; M.A. 1949, Hawaii

Hurley, Robert, Assistant Professor of English (Hilo)  
B.A. 1950, Indiana; M.A. 1956, Ph.D. 1963, Columbia

Hurwitz, Harold M., Assistant Professor of English  

Hurwitz, Samuel J., Professor of History  
B.A. 1934, Brooklyn; M.A. 1940, Ph.D. 1946, Columbia

Hwang, Hu Hsien, Associate Professor of Electrical Engineering  
B.Sc. 1949, National Chiao-Tung University; M.Sc. 1956, Ph.D. 1959, Lehigh

Hylin, John W., Associate Professor of Agricultural Biochemistry  
B.S. 1956, Central Missouri State; M.S. 1961, Arizona State

Hylin, Suk R., Instructor in Mathematics and Physics (Hilo)  
B.S. 1956, Central Missouri State; M.S. 1961, Arizona State

Ike, Thomas H., Professor of Business Economics and Statistics  
B.A. 1940, Hawaii; M.A. 1942, Ph.D. 1950, Wisconsin

Ihara, Teruo, Associate Professor of Education  
B.S. 1940, Hawaii; M.A. 1949, Ph.D. 1959, Ohio State

Ihrig, Judson L., Associate Professor of Chemistry  
B.S. 1949, Haverford; M.A. 1951, Ph.D. 1952, Princeton

Ikeda, Hiroko, Associate Professor of Japanese and Anthropology  
B.A. 1936, Tokyo Joshi Daigaku; Ph.D. 1956, Indiana

Ikeda, Kyoshi, Associate Professor of Sociology  
B.A. 1950, M.A. 1955, Hawaii; Ph.D. 1959, Northwestern

In, Andrew W. S., Professor of Education  
B.Ed. 1941, Hawaii; M.A. 1949, Ph.D. 1951, New York

Inada, Kenneth K., Associate Professor of Philosophy  
B.A. 1949, Hawaii; M.A. 1951, Chicago; Ph.D. 1960, Tokyo

Ingils, Chester R., Associate Professor of Education  
B.A. 1947, Pomona; M.A. 1956, Claremont; Ed.D. 1958, Stanford

Inn, Agnes M. S., Associate Professor of Elementary Education  
B.Ed. 1940, Hawaii; M.A. 1952, New York; Ed.D. 1966, California (Berkeley)

Inskeep, Richard G., Professor of Chemistry  
B.A. 1944, Miami; M.S. 1947, Ph.D. 1949, Illinois

Insko, Chester A., Assistant Professor of Psychology  
A.B. 1957, Ph.D. 1963, California; M.A. 1958, Boston

Ishida, Jack T., Associate Professor of Agricultural Economics  
B.A. 1942, M.A. 1947, Hawaii; Ph.D. 1960, Purdue

Ishii, Mamoru, Associate Professor of Plant Pathology  
B.S. 1947, Hawaii; Ph.D. 1953, California

Ishimoto, Winifred H., Assistant Professor of Social Work  
B.A. 1950, M.S.W. 1952, Hawaii

Ito, Tsao, Lecturer in Law  
B.A. 1950, Hawaii; LL.B. 1953, Michigan

Ivey, Zane, Assistant Professor of Professional Nursing  
B.S. 1958, M.S. 1960, California (Los Angeles)

Iwanaga, Isaac I., Assistant Professor of Animal Sciences  
B.S. 1928, Hawaii
JACKSON, Ernest A., Associate Professor of European Languages
B.A. 1948, Boston; M.A. 1951, Yale; Ph.D. 1962, Michigan

JACKSON, Lowell D., Professor of Education

JACOBS, Laurence W., Assistant Professor of Marketing

JACOBSEN, Lyle E., Professor of Accounting
B.S. 1951, Dana College; M.A. 1955, Nebraska; Ph.D. 1958, Illinois; C.P.A. 1955

JAECKEL, Solomon P., Assistant Professor of Education

JAMBERN, Harold A., Professor of Social Work
B.A. 1935, Reed; M.A. 1939, Chicago

JEFFERIES, John Trevor, Professor of Physics
B.S. 1947, D.S. 1962, Western Australia; M.A. 1949, Cambridge

JEFFREYSES, James A., Acting Assistant Professor of Education

JEN, SHIEN-MIN, Instructor in Chinese
B.A. 1955, National Taiwan; M.A. 1965, New York

JENKINS, Esther C. (Mrs.), Associate Professor of Education
B.A. 1931, Alderson-Broaddus; M.A. 1947, Ph.D. 1962, Ohio State

JENKINS, Rose C. (Mrs. Lucius F.), Assistant in Education
R.N. 1933, Queen's Hospital School of Nursing

JENNER, Philip N., Instructor in Asian Studies
B.A. 1946, Washington

JENSEN, Jay R., Lecturer in Art
B.A. 1963, Hamline

JIZZER, Misha D., Visiting Professor of Political Science
M.A., Ph.D., Ljubljana

JHUNG, Maj. Bryson, Assistant Professor of Military Science
B.B.A. 1954, Hawaii

JIM, Robert T. S., Associate Clinical Professor of Medicine
B.S. 1944, M.D. 1948, Chicago

JOHNSON, Donald D., Professor of History
B.A. 1938, California (Los Angeles); M.A. 1941, Ph.D. 1946, Southern California

JOHNSON, Jacqueline E., Assistant Professor of Technical Nursing
B.S. 1949, Adelphi; M.S. 1962, St. John's

JOHNSON, Jeannette, Instructor, English Language Institute
B.A. 1961, M.A. 1966, Hawaii

JOHNSON, Ray W., Associate Professor of Education
B.A. 1927, College of Emporia; M.Ed. 1940, Ed.D. 1952, Southern California

JOHNSON, Rubellite (Mrs. Rockne), Instructor in Hawaiian
B.A. 1954, Hawaii

JOHNSON, Walter, Professor of History
B.A. 1937, Dartmouth; M.A. 1938, Ph.D. 1941, Chicago

JONAS, Maurice, Assistant Professor of French
Ph.D. 1963, Michigan

JORDAN, Jan M., Jr., Associate Professor of Civil Engineering
B.S. 1952, Witwatersrand (South Africa); M.S. 1953, Wisconsin; C.E. 1955, Sc.D. 1958, M.I.T.

JORDAN, Ralph E., Lecturer in Psychology
M.A. 1950, California

JUNG, Mary M., Instructor in Professional Nursing (on leave)
B.S. 1953, M.S. 1958, Rochester
Kahananui, Dorothy, Lecturer in Hawaiian
B.S. 1931, New York; M.Ed. 1936, Hawaii

Kainu, Lorraine M., Instructor in Health and Physical Education
B.S. 1951, M.Ed. 1965, Hawaii

Kamemoto, Fred I., Associate Professor of Zoology
A.B. 1950, M.S. 1951, George Washington; Ph.D. 1954, Purdue

Kamemoto, Haruyuki, Professor of Horticulture
B.S. 1944, M.S. 1947, Hawaii; Ph.D. 1950, Cornell

Kamezawa, Sanford Katsumi, Lecturer in Dental Hygiene
D.D.S. 1961, Maryland

Kamins, Robert M., Professor of Economics
B.A. 1940, M.A. 1948, Ph.D. 1950, Chicago

Kamins, Shirley R. (Mrs. R.), Instructor in English
B.A. 1960, M.A. 1965, Hawaii

Kanaana, Patricia, Lecturer in Spanish
B.A. 1963, Yankton College

Kane, Robert E., Associate Professor of Anatomy
B.S. 1953, M.I.T.; Ph.D. 1947, Johns Hopkins

Kanehiro, Yoshinori, Associate Professor of Soils
B.S. 1942, M.S. 1948, Ph.D. 1964, Hawaii

Kang, Hugh H. W., Assistant Professor of Asian Studies and History
B.A. 1956, Berea College; M.A. 1958, Chicago; Ph.D. 1964, Washington

Kariel, Henry S., Professor of Political Science
B.A. 1948, Washington; M.A. 1950, Stanford; Ph.D. 1954, California (Berkeley)

Kartsonis, Mary, Instructor in English (Hilo)
A.B. 1963, California (Berkeley); M.A. 1966, San Francisco State

Kau, Manuel C. W., Lecturer in Dental Hygiene
D.D.S. 1948, Northwestern; M.P.H. 1959, Michigan

Kaulilii, Lorde, Lecturer in Hawaiian
B.A. 1941, Hastings College

Kawasaki, Margaret, Lecturer in Education
Kay, E. Alison, Associate Professor of Science

Kearney, John P., Instructor in English
B.A. 1963, Notre Dame; M.A. 1965, Wisconsin

Kearney, Susan M., Instructor in English

Keeler, Joseph T., Associate Professor of Agricultural Economics
B.S. 1951, California; M.S. 1953, Illinois

Kefferd, Noel P., Professor of Botany

Keller, Larissa V. (Mrs. H. A.), Instructor in Russian
B.A. 1961, Hawaii; M.A. 1963, Middlebury

Kellet, Edmund I., Lecturer in Art
B.S. 1956, Hawaii

Kelley, Richard M., Assistant Clinical Professor of Pathology
A.B. 1955, Stanford; M.D. 1960, Harvard

Kennedy, Daniel A., Assistant Professor of Education
B.S. 1955, Murray State; M.A. 1960, Indiana State; Ed.D. 1965, Oregon

Kennedy, Virginia N., Instructor in English
B.A. 1935, San Diego State; M.S. 1938, Western Reserve

Kennerly, Carole Fay, Instructor in Speech
KENT, Lt. Col. John W., Associate Professor of Military Science
B.A. 1949, Oklahoma

KEPFEL, Ann M., Associate Professor of Education
M.S. 1945, La Crosse; M.S. 1954, Ph.D. 1960, Wisconsin

KERR, Marian, Associate Professor of Music
B.M. 1929, M.M. 1944, Oberlin

KIEFER, Edgar F., Associate Professor of Chemistry
B.S. 1957, Stanford; Ph.D. 1960, California Institute of Technology

KIM, Hazel T., Assistant Professor of Professional Nursing
B.S.N. Ed. 1950, Catholic University; M.Ed. 1962, Hawaii

KIM, Samuel, Lecturer in Art
B.F.A. 1959, Hawaii; M.F.A. 1964, Yale

KIM, Shinkyung, Assistant Professor of Business Economics & Statistics
B.A. 1957, Westmar; M.A. 1960, Wichita State; Ph.D. 1964, Wayne State

KINARIWALA, Bharat K., Professor of Electrical Engineering
B.S. 1950, Benares Hindu University; M.S. 1954, Ph.D. 1957, California (Berkeley)

KINCH, Donald M., Professor of Agricultural Engineering
B.S. 1938, Nebraska; M.S. 1940, Minnesota; Ph.D. 1953, Michigan State

KING, Arthur R., Jr., Professor of Education

KINGREY, Kenneth G., Professor of Art
B.Ed. 1940, M.A. 1942, California (Los Angeles)

KIRKPATRICK, Arthur L., Assistant Professor of Business Econ. and Foreign Trade

KIRTLLEY, Basil F., Associate Professor of English
B.A. 1949, M.A. 1950, Texas; Ph.D. 1955, Indiana

KLEMAS, Regina Marie, Instructor in English
B.A. 1962, Pennsylvania; M.A. 1966, Maryland

KLOPF, Donald W., Associate Professor of Speech

KNOWLTON, Edgar C., Professor of European Languages
B.A. 1941, M.A. 1942, Harvard; Ph.D. 1959, Stanford

KNOX, Robert M., Instructor in Art (Hilo)
B.A. 1963, California (Berkeley); M.A. 1965, San Francisco State

KOBAYASHI, Clifford K., Associate Clinical Professor of Pediatrics
M.D. 1944, Iowa

KOBAYASHI, Hideo, Instructor in Architecture
B.Arch. 1955, Washington

KOBAYASHI, Katsumi, Instructor in Japanese

KOBAYASHI, Victor N., Assistant Professor of Education

KOELHLER, Dorothy L., Instructor in Mathematics
B.A. 1940, Woman's College, North Carolina; M.S. 1958, Kentucky

KOELLING, Charlene L., Instructor in Home Economics
B.S. 1964, M.S. 1968, Nebraska

KOCA, Yoshi H. (Mrs. K. K.), Assistant Professor of Dental Hygiene
B.Ed. 1951, Hawaii; M.A. 1953, Columbia

KOKUBUN, Paul, Lecturer in Education

KON, Megumi, Lecturer in Civil Engineering (Hilo)
B.S. 1952, Hawaii

KONO, Elaine K., Lecturer in English (Hilo)
B.Ed. 1945, 5th Yr. Cert. 1946, Hawaii
Kornhauser, David H., Professor of Asian Studies
B.A. 1941, Bucknell; M.A. 1951, Ph.D. 1956, Michigan

Kosaki, Richard H., Professor of Political Science
B.A. 1949, Hawaii; M.A. 1952, Ph.D. 1956, Minnesota

Koshi, James H., Professor of Animal Science
B.S. 1948, Colorado State; Ph.D. 1955, Minnesota

Kozuma, Capt. Harry D., Assistant Professor of Aerospace Studies

Kraemer, Hazel V. (Mrs. Erich), Professor of Home Economics
A.B. 1934, M.A. 1938, Ph.D. 1945, California (Berkeley)

Krause, Ervin D., Assistant Professor of English
B.S. 1953, Iowa State; M.A. 1957, Nebraska

Krause, Loretta (Mrs. E. D.), Instructor in Speech
B.A. 1960, Minnesota; M.A. 1961, Nebraska

Krauss, Irving, Associate Professor of Sociology
B.A. 1950, Ph.D. 1961, California; M.A. 1955, Chicago

Krausse, Sylvia, Instructor in German
B.A. 1964, M.A. 1966, Hawaii

Krieger, David M., Lecturer in Education
B.A. 1963, Occidental College

Krivoi, Glade A. (Mrs. H. L.), Instructor in English (Hilo)
B.A. 1943, Utah

Krumme, Gunter, Assistant Professor of Geography

Krumme, Ursel S., Instructor in Technical Nursing

Kucera, Geoffrey Z., Acting Assistant Professor of Education
B.S. 1959, M.A. 1960, Florida; Ph.D. 1965, Michigan State

Kumabe, Kazuyo T., Assistant Professor of Social Work
A.B. 1943, Utah; M.S.W. 1960, Hawaii

Kunimoto, Elizabeth N., Instructor in Speech
B.A. 1951, Michigan; M.A. 1965, Hawaii

Kuo, Franklin F., Professor of Electrical Engineering

Kuroda, Yasumasa, Associate Professor of Political Science
B.A. 1956, M.A. 1959, Ph.D. 1962, Oregon

Kubokawa, Shozo, Instructor in Japanese
B.A. 1954, Waseda

Kuykendall, Velda Joyce, Instructor in Professional Nursing
B.S. 1965, California (Long Beach); M.S. 1966, California (Los Angeles)

Kwok, D. Wynn-Ye, Associate Professor of History
B.A. 1954, Brown; M.A. 1956, Ph.D. 1959, Yale

Kyselka, Will, Assistant Professor of Education
B.S. 1947, M.S. 1949, M.A. 1951, Michigan

Lamley, Harry J., Assistant Professor of History
B.A. 1953, Reed; M.A. 1960, Ph.D. 1964, Washington

Lamoureux, Charles H., Associate Professor of Botany
B.S. 1953, Rhode Island; M.S. 1955, Hawaii; Ph.D. 1961, California

Lampard, William D., Professor of Education

Landgraf, Libert K., Lecturer in Agriculture (Hilo)
B.S. 1960, Montana

Landsman, Jerome L., Associate Professor of Music
B.M. 1948, Eastman School of Music; M.M. 1949, D. Musical Arts 1965, Southern California
LANGFORD, STEPHEN A., Lecturer in Geology
B.A. 1963, Amherst

LANGHANS, EDWARD A., Associate Professor of Drama
B.A. 1948, M.A. 1949, Rochester; M.A. 1951, Hawai‘i; Ph.D. 1955, Yale

LARRABEE, SUMI, Instructor in Japanese
B.A. 1948, Tokyo Joshi Daigaku

LARSEN-BADSE, JORGEN, Associate Professor of Mechanical Engineering
M.S. 1958, Ph.D. 1961, Royal Danish Technical University

LARSON, ARNOLD E., Associate Professor of Agricultural Economics
B.S. 1949, M.S. 1951, Minnesota; Ph.D. 1960, Stanford

LARSON, HAROLD O., Associate Professor of Chemistry
B.S. 1943, Wisconsin: M.S. 1947, Purdue; Ph.D. 1950, Harvard

LARSON, RICHARD L., Associate Professor of English

LARSON, VALENTINE K. (MRS.), Assistant Professor of Speech
B.A. 1935, Fresno State; M.A. 1942, Southern California

LASKE, LT. COLONEL JOSEPH S., Professor of Aerospace Studies

LAST, WALTER A., Assistant Professor of Chemistry
B.A. 1938, Hawai‘i; J.D. 1941, Michigan; LL.M. 1951, Harvard

LAU, JOSEPH S. M., Acting Assistant Professor of Chinese
B.A. 1960, National Taiwan

LAU, KENNETH K., Professor of Business
B.A. 1938, Hawai‘i; J.D. 1941, Michigan; LL.M. 1951, Harvard

LAU, L. STEPHEN, Associate Professor of Civil Engineering
B.S. 1953, M.S. 1955, Ph.D. 1959, California

LAUGHLIN, MAY S., Instructor in Professional Nursing
B.S.N. 1953, Marquette; M.S. 1961, Colorado

LAURILA, SIMO L., Professor of Geodesy
B.S.C. 1946, M.S.C. 1948, Ph.D. 1953, Finland’s Institute of Technology

LAVOIE, RONALD L., Assistant Professor of Meteorology
B.A. 1954, New Hampshire; M.S. 1956, Florida State

LAVY, WILLIAM F., Assistant Professor of Spanish and Music (Hilo)
B.M. 1927, M.M. 1929, Arrilaga Musical College

LEAHY, WILLIAM J., Assistant Professor of Mathematics

LEBRA, WILLIAM P., Professor of Anthropology and Asian Studies
B.A. 1948, M.A. 1949, Minnesota; Ph.D. 1958, Harvard

LEDoux, LARRY V., Instructor in English
A.B. 1965, M.A. 1966, Sacramento State

LEE, CORRINE H. (MRS. GEORGE), Instructor in Dental Hygiene
B.Ed. 1950, Hawai‘i

LEE, DONG JAE, Instructor in Korean
B.A. 1958, Hankuk Univ. of Foreign Studies; M.A. 1963, Hawai‘i

LEE, OLIVER M., Assistant Professor of Political Science
B.A. 1951, Harvard; M.A. 1955, Ph.D. 1962, Chicago

LEE, PETER H., Associate Professor of Korean
B.A. 1951, College of St. Thomas; M.A. 1953, Yale; Ph.D. 1958, Munchen

LEE, RICHARD K. C., Professor of Public Health
M.D. 1933, Tulane; Dr.P.H. 1938, Yale

LEE, SAMUEL S. O., Associate Professor of Accounting
B.B.A. 1952, M.B.A. 1959, Hawai‘i; Ph.D. 1964, Columbia
LEE, SHAOTSU T., Assistant Clinical Professor of Surgery and Pharmacology
M.D. 1952, Taiwan Medical School

LEE, YOUNG-SOOK CHANG, Assistant Professor of Korean
M.A. 1951, Michigan

LEFFORGE, ORLAND S., Associate Professor of Speech
B.A. 1936, Manchester College; M.A. 1940, Ph.D. 1953, Wisconsin

LEFTON, NORMAN, Acting Assistant Professor of Economics
B.S. 1955, Illinois; A.M. 1963, Chicago

LEIB, AMOS P., Associate Professor of English
B.S. 1938, Harvard; M.A. 1947, Hawaii; Ph.D. 1963, Tulane

LEIB, EDNA LEE (Mrs. A. P.), Assistant Professor of Education
B.A. 1936, Meredith; M.A. 1940, Iowa

LENNEY, JAMES F., Associate Pharmacologist
A.B. 1939, Washington; Ph.D. 1947, M.I.T.

LENN, CHARLES E., Professor of Electrical Engineering
S.B. 1951, S.M. 1953, M.I.T.; Ph.D. 1957, Cornell

LEONG, YAU SING, Professor of Business Economics and Statistics
B.A. 1924, Hawaii; M.A. 1925, Ph.D. 1933, Columbia

LESTER, MARK PRO, Assistant Professor of English
B.A. 1956, Pomona; M.A. 1961, Ph.D. 1964, California (Berkeley)

LETON, DONALD A., Associate Professor of Education
B.S. 1947, Central State; M.A. 1949, Ph.D. 1955, Minnesota

LETON, JANE B., Instructor in Professional Nursing
B.S. 1945, Skidmore; M.S. 1962, California (Los Angeles)

LEVENBERG, KENNETH, Assistant Professor of Mathematics (Hilo)
B.S. 1940, City College of N.Y.; M.S. 1949, Wisconsin

LEVI, WERNER, Professor of Political Science
J.D. 1934, Fribourg (Switzerland); M.A. 1943, Ph.D. 1944, Minnesota

LEVINE, AARON, Lecturer in Political Science
B.S. 1941, California (Berkeley); M.A. 1951, Pennsylvania

LEVY, ALFRED J., Associate Professor of English
B.A. 1949, Clark; M.A. 1950, Ph.D. 1957, Wisconsin

LI, KWAN-MING, Assistant Professor of Pharmacology
B.Sc. 1944, Nanking; Ph.D. 1966, Hong Kong

LICHTON, IRA J., Associate Professor of Nutrition
Ph.D. 1949, Chicago; B.S. 1950, M.S. 1951, Ph.D. 1954, Illinois

LICHTY, LENNA G. (Mrs. Forrest), Instructor in English
B.S. in Ed. 1931, M.A. 1936, Southern California

LIER, JOHN, Assistant Professor of Geography (Hilo)
M.A. 1963, Clark

LIEU, VAN T., Instructor in Chemistry
B.S. 1961, California (Berkeley); M.S. 1964, Hawaii

LIM, HELEN K., Instructor in Mathematics
B.S. 1960, State University of N.Y.; M.F.A. 1962, Southern Illinois
LINTAULT, ROGER, Instructor in Art
B.S. 1960, N.Y. State University College (New Paltz); M.F.A. 1962, Southern Illinois
LITTLE, HAROLD F., Assistant Professor of Biology (Hilo)
B.A. 1954, Lycoming; M.S. 1956, Ph.D. 1959, Pennsylvania State
LO, CHING-TANG, Associate Professor of Chinese
B.A. 1952, M.A. 1956, National Univ. of Taiwan; D.LITT. 1961, Ministry of Education, Taiwan
LOH, PHILIP C. S., Associate Professor of Microbiology
B.S. 1950, Morningside; M.S. 1953, Iowa State; M.P.H. 1954, Ph.D. 1958, Michigan
LOOK, ROBERT K. T., Lecturer in Professional Nursing
D.D.S. 1955, Maryland
LOUIS, EDITH L. (Mrs. J. L.), Assistant Professor of Education
B.A. 1931, M.Ed. 1940, Hawaii
LOVE, LUCILE L., Assistant Professor of Professional Nursing
B.S., N.E. 1955, M.S.N. 1961, Catholic University
LOW, BENG POK, Instructor in Asian and Pacific Languages
B.A. 1960, Singapore; M.Ed. 1967, Hawaii
LOWE, HOWARD D., Professor of Accounting and Finance
B.S. 1945, M.S. 1948, Brigham Young; D.B.A. 1957, Indiana; C.P.A. 1949
LOWERS, JAMES K., Professor of English
B.A. 1935, M.A. 1937, Ph.D. 1950, California (Los Angeles)
LUBITZ, DONALD A., Assistant Professor of Education
B.S. 1957, M.S. 1962, Wisconsin
LUCAS, BRODER F., Lecturer in Economics
B.S. 1923, Cornell; M.S.A. 1930, Tennessee
LUM, CHEONG, Assistant Professor of Education
B.Ed. 1952, Hawaii; M.A. 1958, New York
LUM, JEAN L. J., Instructor in Professional Nursing (on leave)
B.S. 1960, Hawaii; M.S. 1961, California (San Francisco)
LUM, RICHARD S., Assistant Professor of Music
B.Ed. 1951, Hawaii; M.Mus.Ed. 1953, Northwestern
LUM, THOMAS C. H., Lecturer in Civil Engineering
B.S. 1951, Washington; M.S. 1959, Illinois
LUMALA, KATHARINE, Professor of Anthropology
B.A. 1931, M.A. 1933, Ph.D. 1936, California
LUTZKY, SEYMOUR E., Professor of American Studies
B.A., B.J. 1942, Missouri; M.A. 1948, Ph.D. 1951, Iowa State
LYND, FREDERICK T., Associate Clinical Professor of Pathology
B.S. 1948, Washington State; D.V.M. 1954, Oklahoma A. & M.; M.S. 1959, Texas A. & M.
MA, KUANG HENG, Instructor in Chinese
B.A. 1945, Yenching
MACBRIDE, ALISON K., Assistant Clinical Professor of Public Health
B.S. 1949, Columbia; M.P.H. 1948, Johns Hopkins
MACDONALD, GORDON A., Senior Professor of Geology and Geophysics
B.A. 1933, M.A. 1934, California (Los Angeles); Ph.D. 1938, California
MACGREGOR, BEATRIX B. (Mrs. Alex), Instructor in Education
B.S. 1945, M.S. 1952, Trenton State College
MACKAY, ELIZABETH, Assistant Professor of Home Economics
B.S. 1933, Purdue; M.A. 1935, Ph.D. 1937, Wisconsin
MACMILLAN, IAN T., Instructor in English
B.S. 1963, State University College (Oneonta, N.Y.); M.F.A. 1965, M.A. 1966, Iowa
MACQUEEN, EVELYN S. (Mrs. Theus D.), Assistant Professor of Drama and Theatre
Ph.D. 1956, Detroit; M.A. 1959, Wayne State; Ph.D. 1966, Michigan
MADER, ADOLF G., Assistant Professor of Mathematics
  M.S. 1961, Tubingen (Germany); Ph.D. 1964, New Mexico State

MAJOSE, ALVIN V., Lecturer in Dental Hygiene
  B.S. 1936, Rutgers; M.D. 1940, Pennsylvania

MALAKOFF, ALEXANDER, Assistant Geophysicist
  B.Sc. 1961, New Zealand; M.Sc. 1962, Wellington (New Zealand); Ph.D. 1965, Hawaii

MALARDE, LOUIS, Assistant Clinical Professor of Public Health
  M.D. 1960, Paris; M.P.H. 1965, National School of Public Health

MALTBY, JOSEPH, Assistant Professor of English
  B.A. 1952, M.A. 1954, Stanford; Ph.D. 1963, Wisconsin

MAMIYA, RICHARD T., Associate Professor of Surgery
  B.S. 1950, Hawaii; M.D. 1954, St. Louis

MAMMITZSCH, ULRICH H. R., Assistant Professor of History
  B.A. 1959, Germany; M.A. 1961, Southern Illinois

MANCHESTER, CURTIS A., JR., Professor of Geography
  B.A. 1935, M.A. 1938, Ph.D. 1946, Michigan

MAMETZKI, THOMAS F., Associate Professor of Anthropology
  B.A. 1951, Hawaii; Ph.D. 1957, Yale

MARGULIES, HERBERT F., Associate Professor of History
  B.A. 1950, Reed; M.A. 1951, Ph.D. 1955, Wisconsin

MARKEY, BEATRICE G. (Mrs. J. L.), Associate Professor of Political Science (Hilo)
  Ph.D. 1935, Chicago; M.S. 1952, D.P.A. 1956, Southern California

MARTIN, ROBERT M., Professor of Education
  B.S. 1937, Linfield College; M.A. 1946, Ph.D. 1949, Washington

MATSUI, ADELINE V. DE SOUZA, Associate Pharmacologist
  M.D. 1950, Faculdade de Medicina da Universidade de Minas Gerais, Belo Horizonte, M.G. (Brazil)
MATSUMOTO, HIROMU, Professor of Agricultural Biochemistry
B.S. 1944, M.S. 1945, Hawaii; Ph.D. 1955, Purdue

MATSUMOTO, Y. SCOTT, Associate Professor of Public Health
B.S. 1949, M.A. 1945, Ph.D. 1957, American

MATTHEWS, DONALD C., Professor of Zoology
B.A. 1931, Ph.D. 1935, Wisconsin

MAURER, WALTER H., Associate Professor of Sanskrit and History
B.A. 1943, Vermont; Ph.D. 1962, Pennsylvania

MCALISTER, DOROTHY (Mrs.), Lecturer in Library Studies

MCALLISTER, HOWARD C., Associate Professor of Physics
B.S. 1948, M.S. 1950, Wyoming; Ph.D. 1959, Colorado

MCARDLE, H. ROY, Instructor in Business Administration
B.S. 1941, Columbia; M.B.A. 1962, Hawaii

McCabe, Sumie F. (Mrs. T. J.), Assistant Professor of Speech
B.Ed. 1946, M.A. 1949, Hawaii

MCALLIN, PAUL F., Lecturer in Public Health
B.A. 1944, Denver; M.D. 1947, Colorado; M.P.H. 1963, California

McCarty, Harold E., Professor of Philosophy
B.A. 1937, M.A. 1942, Ph.D. 1947, California (Berkeley)

McCUTCHEON, ELIZABETH N., Assistant Professor of English

McCUTCHEON, JAMES M., Associate Professor of History and American Studies
B.A. 1954, Hobart; M.S. 1955, Ph.D. 1959, Wisconsin

McDonalD, RAY L., Assistant Professor of Chemistry
A.B. 1955, San Diego State; Ph.D. 1960, Oregon State

McEwen, Freeman L., Professor of Entomology
B.S. 1950, McGill; M.S. 1952, Ph.D. 1954, Wisconsin

McFadden, Samuel E., Jr., Associate Professor of Horticulture
B.S. 1943, Southwestern College; Ph.D. 1951, Virginia

McGaw, Maj. CHARLES D., Assistant Professor of Military Science
B.S. 1958, Murray State

McIntosh, Dean K., Assistant Professor of Education
B.S. 1959, Colorado; M.A. 1964, Ed.D. 1966, California (Los Angeles)

McIntosh, Thelma A. (Mrs. E. L.), Associate Professor of Education

McIntyre, Francis E., Professor of International Business Economics
A.B. 1931, Stanford; Ph.D. 1941, Chicago

McKaughan, Howard P., Professor of Linguistics
B.A. 1945, California (Los Angeles); M.Th. 1946, Dallas Theological Seminary; M.A. 1952, Ph.D. 1957, Cornell

McKay, Douglas, Acting Assistant Professor of Spanish
B.A. 1962, Utah; M.A. 1964, Oregon State

McKay, Harrison E., Assistant Professor of Psychology (Hilo)
B.A. 1955, Washington; M.S. 1958, Ph.D. 1961, Purdue

McKay, R. Neil, Associate Professor of Music
B.A. 1953, Western Ontario; M.A. 1955, Ph.D. 1956, Eastman School of Music

McKay, Robert H., Assistant Professor of Biochemistry
B.S. 1953, Washington; Ph.D. 1959, California (Berkeley)

McLarty, Joyce R. (Mrs. John), Instructor in Asian and Pacific Languages
B.A. 1984, Tufts; M.A. 1986, Hawaii

McLeod, RUSSELL, Instructor in Chinese
B.A. 1956, M.A. 1963, Hawaii
McMorrow, Bernard J., Associate Clinical Professor of Public Health
B.S. 1932, M.I.T.; M.S. 1947, Harvard
McNamara, Maj. Michael J., Assistant Professor of Military Science
B.A. 1958, Rutgers
McNeil, Don W., Assistant Professor of Library Studies
B.A. 1957, Buena Vista College; M.S. in L.S. 1959, Kentucky
McVay, Harue O. (Mrs. W. H., Jr.), Assistant Professor of Art
B.A. 1950, Hawaii; M.A. 1951, Ohio State
Meller, Norman, Professor of Political Science
LL.B. 1936, B.A. 1942, California (Berkeley); M.A. 1951, Ph.D. 1955, Chicago
Mendenhall, Betty J., Instructor in Education
B.Ed. 1964, Hawaii
Menikoff, Barry, Assistant Professor of English
B.A. 1960, Brooklyn; M.S. 1962, Ph.D. 1966, Wisconsin
Merritt, Fred C., Associate Professor of Social Work
B.A. 1941, Montana; M.S.W. 1949, Denver
Meyer, George A., Professor of Education
Mi, Ming-Pi, Assistant Professor of Genetics
B.S. 1954, National Taiwan; M.S. 1959, Ph.D. 1963, Wisconsin
Miccio, Joseph V., Professor of Management
Michalski, John, Assistant Professor of European Languages
B.A. 1953, Toledo; M.A. 1954, Northwestern
Middlebrook, Judith, Assistant Professor of English
B.A. 1957, Radcliffe; M.A. 1959, Ph.D. 1967, Yale; M.S. 1964, Columbia
Mikami, Kay Kazue, Lecturer in Music
Shihan, 1939, Miyagi Koto (Japan)
Mikasa, Henry Y., Assistant Professor of Civil Engineering
B.S. 1956, Hawaii; M.S. 1961, Southern California
Miklich, Donald R., Assistant Professor of Psychology
B.A. 1960, Colorado State; M.A. 1965, Ph.D. 1965, Colorado
Milham, Samuel, Jr., Associate Professor of Public Health
B.S. 1954, Union College; M.D. 1958, Albany Medical College; M.P.H. 1961, Johns Hopkins
Miller, David R., Instructor in English (Hilo)
A.B. 1964, M.A. 1966, San Francisco State
Miller, Helen N. (Mrs. R. L. R.), Lecturer in French
B.Ed. 1951, Hawaii; Diploma 1962, Paris
Miller, Hugh M., Exchange Professor of Music
B.A. 1930, Oregon; M.A. 1938, Ph.D. 1942, Harvard
Miller, James W., Assistant Professor of Education
B.Ed. 1953, Hawaii; M.Ed. 1957, Harvard
Miller, T/sct. Richard L., Instructor in Aerospace Studies
Minette, Henri P., Lecteur in Microbiology (Hilo)
B.S. 1939, Arizona; M.P.H. 1964, Dr.P.H. 1965, Tulane
Mikitani, Leatrice H. (Mrs. R. S.), Instructor in Japanese
B.Ed. 1945, M.Ed. 1961, Hawaii
Mitchell, Wallace C., Associate Professor of Entomology
B.S. 1942, M.S. 1949, Ph.D. 1955, Iowa State
Mitsuda, Tetsuichi, Associate Professor of Engineering
B.S. 1949, Rose Polytechnic Institute; M.S. 1952, Ph.D. 1956, Illinois
MIWA, RALPH M., Associate Professor of Political Science  
B.A. 1948, M.A. 1950, Hawaii; Ph.D. 1953, Johns Hopkins

MIYAMURA, HENRY, Lecturer in Music  
B.M. 1960, Eastman School of Music

MOEBLY, RALPH M., JR., Associate Professor of Geology  
B.A. 1950, Ph.D. 1956, Princeton

MOEY, BARBARA E., Assistant Professor of Psychology  
B.A. 1962, M.A. 1964, Wisconsin; Ph.D. 1967, Minnesota

MONTES, MATIAS, Assistant Professor of Spanish  
B.A. 1948, Havana Institute; Ph.D. 1952, Havana

MONTES, YARA, Instructor in Spanish  
Ph.D. 1952, Havana

MOOKINI, EDWIN H., Associate Professor of Mathematics  
B.S. 1947, M.S. 1948, Chicago; Ph.D. 1964, California (Los Angeles)

MOON, CARL A., Assistant Professor of English (Hilo)  
B.A. 1949, Ohio State; M.A. 1951, Minnesota

MOORE, ANneliese W. (Mis. P. R.), Instructor in European Languages  
B.A. 1958, Hawaii; M.A. 1959, California

MOORE, DUANE C., Assistant Professor of Soil Science  
B.S. 1953, M.S. 1955, Ph.D. 1960, Wisconsin

MOORE, NEIL E., Instructor in Education  
B.S. 1954, Dana; M.Ed. 1965, Hawaii

MOORE, RICHARD E., Assistant Professor of Chemistry  
B.S. 1957, San Francisco; M.S. 1959, Ph.D. 1962, California (Berkeley)

MOORE, ROBERT A., Lecturer in Geography  
B.A. 1963, Hawaii

MOORE, SHIRLEY J. (Mrs. Neil), Instructor in Education  
B.S. 1961, M.A. 1962, Missouri

MOORE, TERENCE O., Assistant Professor of Physiology  

MORIWAKI, TAKEO, Assistant Professor of Education  
B.A. 1951, M.A. 1952, Ph.D. 1962, Indiana State College

MORRIS, V. DIXON, Acting Assistant Professor of History  
B.A. 1958, Centenary College of Louisiana

MORTON, NEWTON E., Professor of Genetics  
B.A. 1951, Hawaii; M.S. 1952, Ph.D. 1955, Wisconsin

MOWER, HOWARD F., Associate Professor of Biochemistry  
B.S. 1951, Ph.D. 1955, California Institute of Technology

MOY, JAMES H., Assistant Professor of Food Science and Technology  
B.S. 1957, M.S. 1958, Wisconsin; Ph.D. 1965, Rutgers

MUELLER-DOMHOFS, DIETER, Assistant Professor of Botany  
Diplom Landwirt 1951, Stuttgart-Hohenheim; B.Sc.F. 1955, Ph.D. 1960, British Columbia

MUR, BARRY S., Associate Professor of Zoology  
B.A. 1956, M.A. 1958, Ph.D. 1961, Toronto

MUN, ORVILLE, Lecturer in Education  
B.A. 1951, M.A. 1952, Colorado State College

MUNCHMEYER, FREDERICK C., Assistant Professor of Engineering  
B.S. 1942, Coast Guard Academy; M.S. 1948, M.I.T.

MURPHY, GARTH L., Professor of Oceanography  
B.A. 1943, M.A. 1948, California (Berkeley); Ph.D. 1965, California (San Diego)

MURPHY, THOMAS D., Professor of History  
B.A. 1933, M.A. 1934, Wesleyan; Ph.D. 1939, Yale
Murray, Judith, Instructor in Art
B.F.A. 1962, M.F.A. 1964, Pratt Institute

Mytinger, Beverly, Lecturer in Professional Nursing
M.P.H. 1957, Michigan

Mytinger, Robert E., Associate Professor of Public Health
B.S. 1948, Dr.P.H. 1965, California (Los Angeles); M.P.H. 1950, California (Berkeley)

Nagley, Winfield E., Professor of Philosophy
B.A. 1940, Ph.D. 1947, Southern California; B.D. 1943, San Francisco Theological Seminary

Nagoshi, Jack T., Associate Professor of Social Work
B.A. 1951, M.S.W. 1953, Hawaii

Nagy, Albert M., Assistant Professor of Mathematics
A.B. 1936, M.A. 1938, Montclair State College

Nakamura, Charles K., Lecturer in Education
B.S., B.A. 1949, Denver; M.A. 1951, Columbia

Nakamura, Irene H., (Mrs. Takeshi), Assistant Professor of Education
B.Ed. 1943, Hawaii; M.Ed. 1963, Hawaii

Nakasone, Henry Y., Associate Professor of Horticulture
B.A. 1943, M.S. 1952, Ph.D. 1960, Hawaii

Namba, Ryoji, Associate Professor of Entomology
B.S. 1948, M.S. 1950, Michigan State; Ph.D. 1953, Minnesota

Naughton, John J., Professor of Chemistry
B.S. 1936, College of the City of N.Y.; M.S. 1940, Ph.D. 1942, New York

Neff, Charles B., Assistant Professor of Political Science
B.A. 1954, Pomona; M.A. 1959, Ph.D. 1961, Yale

Nelson, Frank C., Professor of English (Hilo)
A.B. 1930, Park College; M.A. 1931, Haverford; Ph.D. 1937, California (Berkeley)

Nelson, Judith Ann, Instructor in Art
B.F.A. 1958, Rhode Island School of Design; M.F.A. 1964, Hawaii

Nelson, Torleif, Professor of Education
B.S. 1942, M.S. 1947, Oregon; Ed.D 1952, Washington

Neooy, Prithwish, Professor of Art
B.A. 1940, Calcutta; M.A. 1948, Harvard

Newby, Idus A., Associate Professor of History
B.S. 1951, Georgia Southern College; M.A. 1957, South Carolina; Ph.D. 1962, California (Los Angeles)

Newhouse, William Jan, Acting Assistant Professor of General Science
B.S. 1949, Dartmouth; M.S. 1952, New Hampshire

Newton, Olive C. (Mrs. G. S.), Instructor in English
B.A. 1931, Adrian College; M.A. 1942, Ohio State

Niedzielski, Henri, Associate Professor of French

Nishida, Toshiyuki, Professor of Entomology
B.S. 1941, M.S. 1947, Hawaii; Ph.D. 1953, California

Nishiima, Satoru, Associate Clinical Professor of Obstetrics and Gynecology
A.B. 1934, Hawaii; M.D. 1938, Jefferson

Nishimura, Edwin T., Professor of Pathology
A.B. 1940, M.D. 1945, Wayne State

Niwas, Jitsuo, Lecturer in Civil Engineering (Hilo)
B.S. 1938, Carnegie Institute of Technology
NIYEKAWA, Agnes M., Assistant Professor of Education
B.A. 1945, Tokyo Joshi Daigaku; B.A. 1952, Hawaii; M.A. 1954, Bryn Mawr; Ph.D. 1960, New York

NOBUHARA, Walter S., Associate Professor of Dental Hygiene
D.D.S. 1958, Michigan

NODA, Daniel S., Associate Professor of Education
B.Ed. 1941, Hawaii; Ph.D. 1952, Ohio State

NODA, Kaoru, Associate Professor of Science (Hilo)
B.A. 1950, Grinnell; M.S. 1953, Ph.D. 1958, Iowa

NOGUCHI, Take, Instructor in Japanese
B.A. 1930, Tokyo Woman's Christian College

NORDYKE, Robert A., Associate Clinical Professor of Medicine
A.B. 1940, California (Berkeley); M.D. 1951, California (San Francisco)

NOREM, Jon G., Assistant Professor of Accounting
B.S.B.A. 1962, M.S. 1965, North Dakota; C.P.A. 1965

NORRIS, Ben, Professor of Art
B.A. 1931, Pomona

NORRIS, George B., Jr., Instructor in Military Science

NOSE, Katsushi, Assistant Professor of Physics

NOYES, Robert W., Professor of Anatomy
A.B. 1941, M.D. 1943, California (Berkeley)

NUGENT, Charles A., Jr., Professor of Medicine
M.D. 1951, Yale

NUNN, G. Raymond, Professor of History

NYMANN, James E., Assistant Professor of Mathematics
B.A. 1961, Iowa State College; M.S. 1963, Arizona

OAKES, William F., Professor of Psychology
B.A. 1951, M.A. 1952, Wichita; Ph.D. 1956, Minnesota

O'DRION, Ethel M., Associate Professor of Health and Physical Education
B.A. 1937, California; M.Ed. 1950, Hawaii; Ed.D. 1958, Oregon

ODA, June, Lecturer in Social Work
B.S. 1952, 5th Yr. Cert. 1953, Hawaii; M.S.S. 1960, Smith

OHARA, Tatsuo Z. S., Instructor in Japanese and Korean
B.A. 1950, Masan

Oishi, Hal H., Lecturer in Accounting and Finance
B.A. 1951, Hawaii; C.P.A. 1960

OKADA, Marjorie S., Instructor, English Language Institute

OKADA, Roy K., Instructor in English
B.A. 1963, 5th Yr. Cert. 1964, Hawaii; M.A. 1965, California (Los Angeles)

OKUTSU, Kenchiro, Instructor in Japanese
B.A. 1950, Tokyo University of Education

OLMO, Barbara M., Assistant Professor of Education

OLSON, Marian, Professor of Nursing
B.S. 1953, Nebraska; M.A. (Nurs.) 1961, M.A. (Psych.) 1962, Iowa; Ph.D. 1966, California (Los Angeles)

OMURO, Wayne S., Lecturer in Social Work
B.A. 1949, California (Los Angeles); M.S. 1952, Columbia

ONO, Dorothy S., Lecturer in Professional Nursing
B.S. 1952, Pittsburgh
ONO, HIROSHI, Assistant Professor of Psychology
  B.A. 1960, Dartmouth College; Ph.D. 1965, Stanford

ONOPA, ROBERT L., Instructor in English

ORRELL, FRANK Q., Professor of Physics
  B.S. 1950, Massachusetts; A.M. 1954, Ph.D. 1956, Harvard

ORTELT, JUDITH A., Assistant Professor of Professional Nursing
  B.S. 1952, Geneva College; M.N. 1955, Western Reserve; M.A. 1963, Columbia

ORTOLANI, BENITO, Associate Professor of Drama and Theatre
  License 1959, Hochschule Sankt Georgen (Frankfurt); Ph.D. 1961, Vienna

OSHIMA, HARRY T., Professor of Economics
  B.A. 1940, Hawaii; Ph.D. 1955, Columbia

OXFORD, WAYNE H., Instructor in Speech
  B.A. 1954, M.A. 1960, California (Los Angeles)

OZAKI, FLORA T. (Mrs. Tetsuo), Assistant Professor of Professional Nursing
  B.S. 1948, Hawaii; M.A. 1954, Columbia

OZAWA, THEODORE Y., Instructor in Education

PAGE-CALLIS, JACQUELINE R., Instructor in General Sciences
  B.A. 1959, Chicago; M.A. 1961, De Paul

PALAFOX, ANASTACIO L., Assistant Professor of Poultry Science
  B.S. 1940, M.S. 1941, Washington State

PALUMBO, NICHOLAS E., Associate Veterinarian
  B.S. 1952, D.V.M. 1959, Missouri

PANG, MORRIS S. Y., Assistant Professor of Education
  B.Ed. 1950, M.Ed. 1962, Hawaii

PANG, VIOLET F. (Mrs. Dick C.), Instructor in Education
  B.Ed. 1934, M.Ed. 1966, Hawaii

PANG-CHING, GLENN K., Assistant Professor of Audiology
  B.S. 1957, Los Angeles State; M.S. 1958, Purdue; Ph.D. 1966, Southern California

PANKWSKYJ, KOST ANDRIJ, Assistant Professor of Geology

PARK, CHAI BIN, Associate Professor of Public Health
  M.D. 1949, Seoul National; M.P.H. 1956, Dr.P.H. 1959, California (Berkeley)

PARK, CHANG-HAI, Assistant Professor of Korean
  B.A. 1939, M.A. 1954, Yonsei

PARKER, GARY J., Assistant Professor of Linguistics
  B.A. 1959, Harpur; Ph.D. 1964, Cornell

PASBY, BRIAN F., Assistant Professor of Oceanography
  B.S. 1959, Kings' College (London); M.S. 1960, University College (London)

PASLES, CHRISTOPHER, Instructor in English
  B.A. 1965, Virginia; M.A. 1966, Claremont

PATTEN, JUIERETA R., Instructor in Professional Nursing
  B.S. 1962, Loma Linda; M.S.N. 1966, California (Los Angeles)

PAUL, OUIDA F., Assistant Professor of Music

PAYNE, EDWARD, Lecturer in Professional Nursing
  M.D. 1934, Northwestern

PEARSON, RICHARD J., Assistant Professor of Anthropology
  B.A. 1960, Toronto

PENDLETON, EDWIN C., Professor of Business Economics and Industrial Relations
  B.S. 1932, M.S. 1934, Ph.D. 1950, California (Berkeley)

PETERS, GAIL F., Instructor in English
  B.A. 1962, M.A. 1964, Hawaii
PETERS, Michael W., Assistant Professor of Physics
B.S. 1959, California Institute of Technology; Ph.D. 1964, Wisconsin

PETERTSON, Marilyn L., Instructor in English
B.A. 1961, M.A. 1965, Trinity

PETERSON, Vincent Z., Professor of Physics
B.A. 1943, Pomona; Ph.D. 1950, California

PETERSON, W. Wesley, Professor of Electrical Engineering
A.B. 1948, B.S.E. 1949, M.S.E. 1950, Ph.D. 1954, Michigan

PFEIFFER, Ruth, Lecturer in Music
B.A. 1952, Silliman (Philippines); M.A. 1957, Union Theological Seminary (N.Y.)

PFEIFFER, William R., Assistant Professor of Music
B.Mus. 1932, Chicago Musical College; B.A. 1939, Hastings; M.A. 1965, Hawaii

PHAM, Thuy Thi, Instructor in Vietnamese
Licence en Droit, 1953, Hanoi

PHARAZYN, Philip P., Clinical Hospital Administrator
B.A. 1949, Reed; M.A. 1950, Oregon; M.P.H. 1955, California (Berkeley)

PHelps, Maureen B., Instructor in Speech
B.A. 1960, Long Island; M.A. 1964, Columbia

PHILIPP, Elizabeth M. (Mrs. Perry F.), Instructor in German
B.A. 1942, California

PHILIPP, Perry F., Professor of Agricultural Economics
B.S. 1940, Ph.D. 1951, California

Phipps, Katharine E. (Mrs.), Instructor in Speech
B.A. 1927, M.A. 1953, Washington State

PICKENS, Alex L., Associate Professor of Education

PIERSON, Kathleen W. (Mrs. R. J.), Assistant Professor of Insurance
B.A. 1934, California (Los Angeles); M.A. 1948, Hawaii

PETTE, Lawrence H., Professor of Biophysics
B.S. 1953, M.S. 1954, Northwestern; Ph.D. 1957, Stanford

PHANOAIA, Abraham, Lecturer in Geography
B.A. 1953, Hawaii

PILECKI, Gerald A., Associate Professor of English (Hilo)
B.A. 1949, M.A. 1951, Toronto; Ph.D. 1961, Cornell

PINKERTON, Ogden D., Associate Clinical Professor of Surgery
B.S. 1935, M.D. 1937, Indiana

Pirre, Peter N. D., Assistant Professor of Geography
B.A. 1953, M.A. 1954, Auckland; Ph.D. 1964, National (Australia)

PITTS, Forrest R., Professor of Geography
B.A. 1948, M.A. 1949, Ph.D. 1955, Michigan

PLAISTER, Theodore H., Assistant Professor, English Language Institute
B.S. 1950, California; M.A. 1960, Michigan

PLATOU, Ralph V., Professor of Pediatrics
B.S. 1932, B.M. 1935, M.D. 1936, M.S. (Fed.) 1941, Minnesota

PLUCKNETT, Donald L., Associate Professor of Agronomy
B.S. 1953, M.S. 1957, Nebraska; Ph.D. 1961, Hawaii

POEPOE, Abraham, Jr., Lecturer in Education
B.A. 1951, 5th Yr. Cert. 1952, Whitman; 5th Yr. Cert. 1958, Hawaii

POND, Donald Hubert, Acting Assistant Professor of Economics
B.A. 1958, Swarthmore

PONG, William, Associate Professor of Physics
B.S. 1951, M.S. 1952, Ph.D. 1954, Cincinnati

POOLE, Richard T., Assistant Professor of Horticulture
B.S. 1953, Principia; B.S. 1959, S. W. Louisiana; M.S.A. 1961, Ph.D. 1964, Florida
POPOFF, FREDERICK E., Assistant Clinical Professor of Physiology
B.A. 1950, Syracuse; M.D. 1956, Amsterdam

PORTER, M. ROSEAMONDE, Professor of Education
B.S. 1930, M.A. 1934, Ph.D. 1938, Ohio State

POTTENGER, FRANCIS M., Acting Assistant Professor of Education
B.S. 1951, Otterbein; M.Ed. 1957, Xavier; M.S. 1954, New Mexico

POTTER, ROBERT E., Associate Professor of Education

POYZER, MARVIN F., Associate Professor of Education
B.S. 1938, North Dakota; M.A. 1948, Colorado State College of Education; Ed.D. 1954, Bradley

PREBLE, DUANE, Assistant Professor of Art
B.A. 1959, California (Los Angeles); M.F.A. 1963, Hawaii

PRESSMAN, KENNETH S., Instructor in English

PUTMAN, EDISON W., Associate Professor of Plant Physiology
B.A. 1942, Ph.D. 1952, California (Berkeley)

RACKLEY, WALTRAUD, Lecturer in German

RAMAGE, COLIN S., Professor of Meteorology
B.S. 1940, Victoria University College (New Zealand); Sc.D. 1961, New Zealand

RANJANATHAN, S., Assistant Pharmacologist
B.Sc. 1954, M.A. 1957, Madras (India); Ph.D. 1963, Bangalore (India)

RANTALA, JOHN W., Assistant Professor of Education
B.S. 1951, Stout Institute; M.Ed. 1953, Illinois

RAPSON, RICHARD L., Assistant Professor of History
B.A. 1958, Amherst; Ph.D. 1966, Columbia

RAYNER, MARTIN D., Assistant Professor of Physiology and Pharmacology
B.A. 1958, Ph.D. 1962, Cambridge

RE, MARQUERITE, Instructor in English
B.A. 1964, M.A. 1965, Wisconsin

REDIN, MARY E., Assistant Professor of Education
B.A. 1939, National College of Education; M.A. 1943, Northwestern

REE, HELEN C., Instructor in Education
B.Ed. 1931, National College of Education; M.A. 1947, Columbia

REE, ROBERT M., Associate Professor of Education
B.A. 1956, Iowa; M.A. 1958, Michigan

REESE, ERNST S., Associate Professor of Zoology
B.A. 1953, Princeton; Ph.D. 1960, California (Los Angeles)

REEDE, IAN E., Associate Professor of Education
B.S. 1957, M.S. 1960, Ph.D. 1964, Utah

REIS, S/Sgt. JOHN E. H., Instructor in Air Science

REIT, ANN BRYANT, Assistant Professor of Professional Nursing
B.S. 1965, Mount Saint Mary’s College; M.N.S. 1966, California (San Francisco)

RESIC, JOHANNA, Assistant Micropaleontologist
B.S. 1954, M.S. 1966, Southern California; Dr. Rev. Nat. 1965, Kiel (Germany)

RISNICK, MICHAEL D., Assistant Professor of Philosophy

RIAN, NORMAN D., Professor of Music
B.A. 1935, St. Olaf College; M.A. 1939, Eastman School of Music; Ed.D. 1960, Columbia

RICHARDS, ZANETTA, Instructor in Hawaiian
B.Ed. 1954, Hawaii; M.A. 1958, Rochester

RICHIE, JEANNE, Assistant Professor of Public Health
B.S. 1945, California; M.A. 1952, Columbia; M.P.H. 1958, Harvard
RICHMAN, Eugene, Professor of Management

RICHSTAD, Jim A., Acting Assistant Professor of Journalism
B.A. 1954, Washington

RIDER, Richard L., Professor of Speech
B.A. 1937, Nebraska; M.F.A., Yale; Ph.D. 1958, Illinois

RIGGS, Fred W., Professor of Political Science
B.A. 1938, Illinois; M.A. 1941, Fletcher School; Ph.D. 1948, Columbia

RITTER, E. Gene, Associate Professor of Speech Pathology
A.B. 1950, William Jewell College; M.A. 1956, Ph.D. 1962, Missouri

ROBERTS, Harold S., Senior Professor of Business Economics and Industrial Relations
B.S.S. 1934, College of the City of N.Y.; M.A. 1938, Ph.D. 1944, Columbia

ROBERTS, John C., Clinical Instructor of Surgery and Pharmacology
B.S. 1950, M.D. 1953, Yale

ROBERTS, Norman F., Instructor, English Language Institute
B.A. 1960, M.A. 1963, Hawaii

ROBIN, Louis, Lecturer in Education
B.A. 1950, M.A. 1961, Fresno State

ROBINSON, Hester A., Professor of Art
B.A. 1931, Miami; M.A. 1939, Ohio State

ROELOFS, Thomas H., Assistant Professor of Electrical Engineering

ROFFE, Toshiro (Mrs. Morris), Instructor in Japanese
B.A. 1958, Rikkyo

ROGERS, Kenneth, Associate Professor of Mathematics
B.A. 1951, Trinity College, Cambridge; Ph.D. 1954, Cambridge

ROGERS, Terence A., Professor of Physiology
B.S. 1952, British Columbia; Ph.D. 1955, California

ROMANOWSKI, Roman R., Associate Professor of Horticulture
B.S. 1953, M.S. 1957, Wisconsin; Ph.D. 1961, Cornell

ROOSMAN, R. Slamet, Assistant Professor of Indonesian
Doctorandus in Indology 1956, Leyden

ROSEN, James M., Assistant Professor of Art
B.S. 1957, Wayne; M.F.A. 1958, Cranbrook Academy

ROSEN, Leon, Clinical Professor of Tropical Medicine
A.B. 1945, California (Berkeley); M.D. 1948, California (San Francisco); Dr.P.H. 1953, Johns Hopkins

ROSENBERG, Morton M., Senior Professor of Poultry Science
B.S. 1938, Rutgers; M.S. 1940, Texas A. & M.; Ph.D. 1948, Wisconsin

ROSS, Edward, Professor of Food Science
B.S. 1932, Pennsylvania State; Ph.D. 1937, California

ROSS, Ernest, Professor of Poultry Science
B.S. 1946, Arizona; M.S. 1952, Ph.D. 1955, Ohio State

ROSSBACHER, Peter G., Assistant Professor of Russian
Ph.D. 1959, University of Kiel

ROTAR, Peter P., Associate Professor of Agronomy
B.S. 1955, M.S. 1957, Washington State; Ph.D. 1960, Nebraska

ROTH, Alexander, Clinical Instructor in Pediatrics
A.B. 1942, Nebraska Wesleyan; M.A. 1948, M.D. 1950, Kansas

ROULEAU, Patricia A. (Mrs. Dallas), Lecturer in Education
B.S.N. 1947, Washington
RUMMEL, Rudolph, Associate Professor of Political Science
B.A. 1959, M.A. 1961, Hawaii; Ph.D. 1963, Northwestern

RUSSELL, Armand K., Associate Professor of Music
B.A. 1953, M.A. 1954, Washington; D.M.A. 1958, Eastman School of Music

RUSSELL, Maj. Billie W., Professor of Aerospace Studies
B.S. 1950, Oklahoma

RUSSELL, Lois R., Lecturer in Music

RYAN, Ione J. (Mrs. Edward), Assistant Professor of Education
B.Ed. 1948, Hawaii; M.P.H. 1949, Minnesota; Ed.D 1960, Stanford

RYANS, David C., Professor of Education
B.A. 1932, DePauw; A.M. 1933, Ph.D. 1937, Minnesota

SAAKE, Alvin C., Professor of Health and Physical Education

SCLAUSA, John P., Instructor in Music
B.Ed. 1953, Hawaii; M.M. 1957, Eastman School of Music

SADLER, James C., Associate Professor of Geosciences
B.S. 1941, Tennessee Polytechnic Institute; M.A. 1947, California (Los Angeles)

SAGAWA, Yoneo, Professor of Horticulture
B.A. 1950, M.A. 1952, Washington University; Ph.D. 1956, Connecticut

SAIGO, Yoshito, Lecturer in Japanese (Hilo)
B.A. 1931, Hawaii

SAIKI, Patsy S. (Mrs. Kiyoto), Assistant Professor of Education
B.Ed. 1954, M.Ed. 1959, Hawaii

Sakai, May H., Instructor in Nursing
B.S.N. 1953, Marquette; M.S. 1961, Colorado

Sakai, Robert K., Professor of History
B.A. 1941, California (Berkeley); M.A. 1949, Ph.D. 1953, Harvard

Sakamaki, Shunzo, Professor of History
B.A. 1927, M.A. 1928, Hawaii; Ph.D. 1939, Columbia

Sakamoto, Soichi, Assistant Professor of Health and Physical Education
B.Ed. 1948, Hawaii

Saksena, S. K., Professor of Philosophy
B.A. 1925, M.A. 1927, Allahabad; Ph.D. 1939, London

Sakumoto, Raymond E., Assistant Professor of Sociology
B.A. 1955, M.A. 1957, Hawaii; Ph.D. 1965, Northwestern

Sanborn, Donald A., Acting Assistant Professor of Education
B.A. 1957, Pomona; M.S. 1959, Indiana

Sanderson, Richard A., Associate Professor of Education
B.A. 1952, Cornell; M.A. 1958, Ph.D. 1961, Southern California

Sanderson, Sarah E. (Mrs. Richard), Assistant Professor of Speech
A.B. 1953, Fairmont State; M.A. 1955, Bowling Green State; Ph.D. 1965, Southern California

Sanford, Wallace G., Professor of Agronomy
B.A. 1947, Pomona; M.S. 1949, Maryland; Ph.D. 1952, California (Los Angeles)

Saraydar, Alma C., Assistant Professor of French
B.A. 1945, California (Los Angeles); M.A. 1953, Chicago; Certificate 1952, Paris; Ph.D. 1965, California (Berkeley)

Sasaki, Kyoei, Associate Professor of Business Analysis and Statistics
B.A. 1944, Tokyo; Ph.D. 1954, Columbia

Sato, Esther M. T., Assistant Professor of Education
B.A. 1938, William Jewell College; M.A. 1939, Columbia

Sato, Jessie J. (Mrs. Shigeji), Assistant Professor of Education
B.S. 1944, Hawaii; M.A. 1950, Columbia
SATO, Mamoru, Instructor in Art
  B.A. 1963, M.F.A. 1965, Colorado

SATO, Masahito, Instructor in Japanese

SATO, Yaeko, Instructor in Japanese
  B.A. 1953, Waseda

Savage, Nancy G., Instructor in Technical Nursing
  B.S. 1955, College of Mt. St. Joseph; M.S. 1961, Catholic University

Saville, Allison W., Associate Professor of History

Sax, Gilbert, Associate Professor of Education
  B.A. 1953, M.A. 1956, California (Los Angeles); Ph.D. 1958, Southern California

Schaafsma, Carol Ann (Mrs. Henry M.), Instructor in Education
  B.S.Ed. 1958, Indiana

Schaafsma, Henry M., Jr., Assistant Professor, English Language Institute
  B.A. 1958, Michigan; M.A. 1965, Leeds

Schaleger, Larry L., Assistant Professor of Chemistry
  B.A. 1957, Grinnell; Ph.D. 1961, Minnesota

Schauls, Carole C., Instructor in English
  B.S. 1964, St. Cloud State; M.A. 1966, Creighton

Scheweuer, Paul J., Professor of Chemistry
  B.S. 1943, Northeastern; M.A. 1947, Ph.D. 1950, Harvard

Schwace, George F., Clinical Professor of Public Health
  B.A. 1939, M.A. 1940, Stanford; M.D. 1951, Johns Hopkins

Schofield, Edward T., Professor of Library Studies

Schultz, Lucille M., Instructor in English
  A.B. 1964, Ursuline College; M.A. 1966, Detroit

Schutz, Albert J., Assistant Professor of Linguistics
  B.S. 1948, Purdue; Ph.D. 1962, Cornell

Schwitters, Sylvia, Lecturer in Home Economics
  B.S. 1964, Hawaii; M.S. 1965, Illinois

Scott, Frank S., Professor of Agricultural Economics
  B.S. 1943, Oregon State; M.A. 1947, Missouri; Ph.D. 1953, Illinois

Scott, Robert L., Assistant Professor of English
  B.S. 1950, Willamette; M.A. 1953, Hawaii

Scott, Roy A., Assistant Professor of Biophysics
  A.B. 1958, Ph.D. 1964, Cornell

Seglem, Glenn A., Instructor, English Language Institute
  B.A. 1958, Washington

Seichi, George M., Instructor in Health and Physical Education
  B.Ed. 1961, Hawaii; M.S. 1964, Indiana

Seifert, Friedrich, Assistant Professor of Religion
  Th.D. 1959, Pacific School of Religion

Seo, Hideo, Assistant Professor of Electrical Engineering
  B.S. 1954, M.S. 1956, M.I.T.

Seo, Kap-Kyung, Associate Professor of Business Economics and Statistics
  B.A. 1956, South Carolina; M.B.A. 1957, Xavier; Ph.D. 1960, Cincinnati

Seymour, Richard K., Professor of German
  B.A. 1951, M.A. 1952, Michigan; Ph.D. 1956, Pennsylvania

Shapiro, Michael J., Assistant Professor of Political Science
  B.A. 1962, Tufts; M.A. 1964, Hawaii; Ph.D. 1966, Northwestern
FACULTY AND STAFF

SHARMA, Jagdish P., Assistant Professor of History
B.A. 1955, Agra; B.A. 1959, School of Oriental & African Studies (London);
Ph.D. 1962, London

SHARP, Harold S., Associate Professor of Library Studies
B.S. 1954, M.A.L.S. 1957, Indiana

SHAW, Ralph R., Professor of Library Studies
B.A. 1928, Western Reserve; B.S. 1929, M.S. 1931, Columbia; Ph.D. 1950, Chicago

SHEN, Yao, Professor of English and Asian Studies
B.A. 1935, Yenching; M.A. 1938, Mills; Ed.D. 1944, Michigan

SHEPARD, R. Frederick, Lecturer in Public Health
A.B. 1948, Harvard; M.D. 1952, Tufts

SHERMAN, Benjamin A., Lecturer in Dental Hygiene
B.S. 1942, California; D.D.S. 1950, Southern California

SHERMAN, C. Donald, Senior Professor of Soil Science
B.S. 1933, M.S. 1937, Minnesota; Ph.D. 1940, Michigan State

SHERMAN, Martin, Professor of Entomology
B.S. 1941, M.S. 1943, Rutgers; Ph.D. 1948, Cornell

SHIBATA, Shoju, Associate Professor of Pharmacology
M.D. 1952, Nara Medical College; Ph.D. 1957, Kyoto

SHIMAMOTO, Yoshiho S., Instructor in Professional Nursing
B.S. 1958, Minnesota; M.P.H. 1966, Minnesota

SHIMAOKA, Helene R., Assistant in Research
B.B.A. 1954, Hawaii

SHIMIZU, Esther E., Instructor in Education
B.Ed. 1961, M.Ed. 1965, Hawaii

SHINE, Ian B., Clinical Instructor in Genetics

SHINODA, Minoru, Professor of History
B.A. 1937, Hawaii; Ph.D. 1957, Columbia

SHUBERT, Spec. Clarence L., Instructor in Military Science

SHUPE, John W., Professor of Civil Engineering
B.S. 1948, Kansas State; M.S. 1951, California; Ph.D. 1958, Purdue

SIA, Calvin C. J., Lecturer in Psychology and Associate Clinical Professor of Pediatrics
B.A. 1950, Dartmouth; M.D. 1955, Western Reserve

SIEGEL, Barbara Z., Assistant Professor of Microbiology
B.A. 1960, Chicago; M.A. 1963, Columbia; Ph.D. 1966, Yale

SIEGEL, Sanford M., Professor of Botany
M.S. 1950, Ph.D. 1953, Chicago

SIEGENTHALER, Carla, Lecturer in Geography
B.A. 1964, Western Reserve

SIMSON, George K., Assistant Professor of English
A.B. 1952, Whitman; M.A. 1957, Washington State; Ph.D. 1963, Minnesota

SINCLAIR, Marjorie P. (Mrs. Gregg M.), Assistant Professor of English
B.A. 1935, M.A. 1937, Mills

SINTON, William M., Professor of Physics and Astronomy
A.B. 1949, Ph.D. 1953, Johns Hopkins

SITTLER, Richard C., Associate Professor, English Language Institute
B.A. 1946, M.A. 1948, Ph.D. 1952, Iowa

Siu, James K. M., Instructor in Mathematics
B.A. 1953, M.A. 1956, Hawaii

SKINSNES, Olaf, Professor of Pathology
B.A. 1939, St. Olaf; M.S. 1946, M.D. 1947, Ph.D. 1947, Chicago

SLOAN, Norman R., Associate Professor of Public Health
SMABY, JOHN W., Assistant Professor of Philosophy  
B.S.L. 1954, M.A. 1964, Minnesota

SMITH, ALBERT C., Gerrit Parmile Wilder Chair in Botany  
B.A. 1926, Columbia College; Ph.D. 1933, Columbia

SMITH, BARBARA B., Professor of Music  
B.A. 1942, Pomona; M.M. 1943, Eastman School of Music

SMITH, ELSIE R. (Mrs. W. Wayne), Associate Professor of Professional Nursing  
B.S. 1940, M.S. 1942, Idaho

SMITH, EUGENIA (Mrs. John C.), Lecturer in Art  
B.A. 1953, George Washington; M.A. 1964, Wisconsin

SMITH, HARRY A., Lecturer in Law  
B.S. 1929, J.D. 1932, New York; M.A. 1962, Michigan State

SMITH, HUGH F., Instructor in General Engineering  
B.S. 1942, Texas

SMITH, JAMES R., Jr., Instructor in Education  
B.A. 1957, M.A. 1959, Wyoming

SMITH, JIMMIE B., Associate Clinical Professor of Genetics  
B.S. 1950, Oklahoma State; M.S. 1952, North Carolina State; Ph.D. 1959, Cornell

SMITH, ROY E., Instructor in Japanese  
B.A. 1951, Texas

SMUCK, EDWARD THOMAS, Associate Professor of History (Hilo)  
B.A. 1946, Chico; M.A. 1952, California (Berkeley)

SOHL, KATHRYN E., Instructor in English  
B.A. 1964, Oberlin; M.A. 1966, Chicago

SOLHEIM II, WILHELM G., Associate Professor of Anthropology  
B.A. 1947, Wyoming; M.A. 1949, California; Ph.D. 1959, Arizona

SOLLNER, WILLIAM J., Associate Professor of Education  
B.S. 1948, Northwestern; M.S. 1951, M.A. 1954, Kansas

SOLOMON, MARGARET C., Assistant Professor of English  
B.A. 1960, Hawaii; M.A. 1961, California (Berkeley); Ph.D. 1967, Claremont

SOONG, CHARLES B., Jr., Instructor, English Language Institute  
B.A. 1937, Yenching (China); M.A. 1947, Claremont

SPELLACY, EDMUND F., Professor of Political Science  
B.A. 1927, M.A. 1931, Stanford; Ph.D. 1935, Harvard

SPENCER, MARGARET I., Assistant Professor of Chinese  
B.A. 1952, Minnesota; M.A. 1961, Michigan

SPIELMANN, HEINZ, Associate Professor of Agricultural Economics  

SPRAGUE, CLARE, Clinical Instructor in Pathology  
B.M.S. 1951, M.D. 1955, Stanford

STANDAL, BLUEBELL R. (Mrs. S. W.), Assistant Professor of Foods and Nutrition  
B.S. 1942, Calcutta; M.S. 1948, Ph.D. 1952, California
STANLEY, Richard W., Associate Professor of Animal Science

STANLEY, William E., Lecturer in Environmental Health and Sanitary Engineering
B.S. 1912, Kansas State; M.S. 1916, Purdue

STAROSTA, Stanley, Acting Assistant Professor of Linguistics
B.A. 1961, Wisconsin

STASACK, Edward A., Assistant Professor of Art

STAUFFER, Robert B., Professor of Political Science
B.S. 1942, Pa. State Teachers College (West Chester); M.S. 1947, Oklahoma; Ph.D. 1954, Minnesota

STEGER, Byron, Clinical Hospital Administrator
B.S. 1931, M.D. 1933, Ohio State; Dr.P.H. 1950, Johns Hopkins

STEIGER, Walter R., Professor of Physics
B.S. 1948, M.I.T.; M.S. 1950, Hawaii; Ph.D. 1953, Cincinnati

STEIN, Burton, Professor of History
B.A. 1948, Illinois; M.A. 1953, Ph.D. 1958, Chicago

STELLMACHER, Herbert B., Assistant Professor of Marketing
B.A. 1935, Texas; M.B.A. 1952, Southern Methodist

STEMMERMANN, Grant N., Associate Clinical Professor of Pathology
M.D. 1943, McGill

STEMPEL, Daniel, Professor of English
A.B. 1941, College of the City of N.Y.; M.A. 1942, Ph.D. 1949, Harvard

STENGERT, Victor J., Assistant Professor of Physics
B.S. 1956, Newark; M.S. 1959, Ph.D. 1963, California (Los Angeles)

STERN, Paul H., Instructor in English
A.B. 1962, Brown; M.F.A. 1966, Iowa

STERNSTEIN, Larry, Assistant Professor of Geography
B.S. 1955, City College of N.Y.; M.A. 1958, Syracuse

STEVENS, Helen C. (Mrs.), Lecturer in Library Studies
A.B. 1942, West Texas; M.A. 1944, Colorado; B.S. in L.S. 1947, Columbia

STEVENS, Robert D., Professor of Library Studies
A.B. 1942, Syracuse; B.S. 1947, Columbia; M.A. 1954, Ph.D. 1965, American

Stewart, Donald L., Instructor in Philosophy
B.A. 1951, Temple; M.A. 1962, California (Berkeley)

STILLIANS, Bruce M., Assistant Professor of English
B.A. 1952, M.A. 1955, Ph.D. 1962, Iowa State

STOLL, Frances A., Professor of Dental Hygiene
B.S. 1944, M.A. 1945, Ph.D. 1949, Columbia

STOUTEMYER, David R., Instructor in General Engineering
B.S. 1963, California Institute of Technology; S.M. 1965, M.I.T.

STRAUSS, Frederick B., Assistant Professor of Mathematics
B.A. 1956, M.A. 1962, Ph.D. 1964, California (Los Angeles)

STREET, John M., Associate Professor of Geography
B.A. 1948, Ph.D. 1960, California (Berkeley)

STUBBLEFIELD, Esther M., Assistant Clinical Professor of Public Health
B.S. 1955, Hawaii

STUEBER, Ralph K., Associate Professor of Education
B.S. 1950, M.S. 1955, Ph.D. 1964, Wisconsin

STUIVER, Willem, Professor of Mechanical Engineering
Ir. 1951, Delft; Ph.D. 1960, Stanford

SUEHIRO, Richard Y., Assistant Professor of Public Health
B.A. 1949, Hawaii; M.A. 1951, Indiana; M.P.H. 1962, Michigan
SUINN, RICHARD M., Associate Professor of Psychology
B.A. 1955, Ohio State; M.A. 1957, Ph.D. 1959, Stanford

SUMMERSGILL, TRAVIS L., Professor of English
B.A. 1939, Bucknell; M.A. 1940, Ph.D. 1948, Harvard

SUTTON, GEORGE H., Professor of Geophysics
B.S. 1950, Muhlenberg; M.A. 1953, Ph.D. 1957, Columbia

SWANN, FLOYD T., Assistant Professor of Economics and Business (Hilo)
B.S. 1951, M.B.A. 1955, Miami

SWIFT, DAVID W., Instructor in Sociology
A.B. 1950, M.A. 1960, California

SWINDALE, DELLE S., Assistant Professor of Botany
B.A. 1950, Brooklyn College; M.S. 1952, Ph.D. 1954, Wisconsin

SWINDALE, LESLIE D., Professor of Soil Science
B.S. 1948, M.S. 1950, Victoria University College; Ph.D. 1955, Wisconsin

SWITZER, JOHN M. Assistant Clinical Professor
A.B. 1949, M.P.H. 1950, California (Berkeley)

TABB, DAVID, Acting Assistant Professor of Political Science
B.A. 1962, Antioch; M.A. 1963, Massachusetts

TABAHA, FRANK L., Assistant Clinical Professor of Pharmacology
B.S. 1940, M.D. 1943, Buffalo

TAKAHASHI, CHARLENE, Instructor in Home Economics
B.S. 1982, Westmar College (Iowa); M.S. 1966, Nebraska

TAKAHASHI, MAKOTO, Associate Professor of Agronomy
B.S. 1928, M.S. 1937, Hawaii

TAKAHASHI, YOSI, Instructor in Japanese
B.A. 1938, Tokyo Musical Academy; M.A. 1952, San Francisco Theology Seminary

TAKASE, AYAKO M., Assistant Professor of Social Work
B.A. 1934, Hawaii; M.S. 1941, Columbia

TAKEUCHI, KEIKO, Instructor in Japanese
B.A. 1957, Ochanomizu Women's University; M.A. 1965, San Francisco State College

TAMASHIRO, MINORU, Associate Professor of Entomology
B.S. 1951, M.S. 1954, Hawaii; Ph.D. 1960, California

TANIGUCHI, ELAINE M., Instructor in Education

TAOKA, GEORGE T., Assistant Professor of Civil Engineering
B.S. 1958, Oregon State; M.S. 1960, Ph.D. 1964, Illinois

TAYLOR, H. LELAND, Instructor in English
A.B. 1963, Pacific Christian; M.A. 1965, Kansas State College (Fort Hays)

TAYLOR, MARGARET G., Instructor in Library Studies

TAYLOR, PATRICIA L., Instructor in Medical Technology
B.S. 1958, Indiana

TEEVAN, T. FOSTER, Assistant Professor of English
B.A. 1936, Puget Sound; M.A. 1949, Ph.D. 1957, Washington

TEGTMEIER, DELORES H., Instructor in Technical Nursing
B.S. 1982, Nebraska; M.S. 1965, Washington

TERAZAKI, T. DAVID, Professor of Art
Equiv. to B.A. 1944, Equivalent to M.E. 1947, Tokyo

TESTER, ALBERT L., Senior Professor of Zoology
B.A. 1931, M.A. 1932, Ph.D. 1936, Toronto

THERN, KENNETH L., Acting Assistant Professor of Chinese
B.A. 1961, Wisconsin

THOMPSON, DONNIS H., Instructor in Health and Physical Education
B.S. 1955, M.S. 1959, George Williams College
THOMPSON, Laurence C., Professor of Linguistics
B.A. 1949, Middlebury; M.A. 1950, Ph.D. 1954, Yale

THOMPSON, Phyllis H., Assistant Professor of English
B.A. 1948, Connecticut College; M.A. 1949, Duke; Ph.D. 1958, Wisconsin

THOMPSON, William Y., Lecturer in Engineering (Hilo)
B.S. 1950, Hawaii

Tilton, Leah, Instructor in Professional Nursing
B.S. 1964, Hunter; M.A. 1967, New York

Tinker, Spencer W., Associate Researcher in Education
B.S. 1931, Washington; M.S. 1934, Hawaii

Tinniswood, William W., Professor of Engineering
B.S. 1938, California; M.S. 1948, Idaho

TokiYama, George H., Lecturer in Public Health
B.A. 1947, Hawaii; M.P.H. 1956, California

Tom, Albert Q. Y., Lecturer in Environmental Health and Sanitary Engineering
B.S. 1944, Hawaii; M.S. 1948, Sc.D. 1951, M.I.T.

Tom, Chow Loy, Assistant Professor of Education
B.Ed. 1941, Hawaii; B.S. 1945, M.S. 1953, Illinois

Tom, K. S., Lecturer in Professional Nursing and Associate Clinical Professor of Obstetrics and Gynecology
M.D. 1939, Loyola

Tominaga, Henry K., Assistant Professor of Health and Physical Education
B.S. 1953, Springfield; M.S. 1954, Pennsylvania State; Ed.D. 1964, Colorado

Topham, Helen A., Assistant Professor of English
B.A. 1935, Rutgers; M.A. 1950, M.F.A. 1956, Hawaii

Topping, Donald M., Assistant Professor of Linguistics
A.B. 1954, M.A. 1956, Kentucky; Ph.D. 1963, Michigan State

Townsend, James T., Assistant Professor of Psychology
B.A. 1961, Fresno State; Ph.D. 1966, Stanford

Townsend, L. Warren, Lecturer in Marketing
B.S. 1954, California Maritime Academy; B.F.T. 1958, American Institute for Foreign Trade

Townsley, Sidney J., Professor of Marine Zoology
B.A. 1948 California; M.S. 1950, Hawaii; Ph.D. 1954, Yale

Toyota, Winifred K. (Mrs. Ralph H.), Assistant Professor of Education
B.Ed. 1946, Hawaii; M.A. 1950, New York

Trapido, Joel, Professor of Drama and Theatre
B.A. 1935, Ph.D. 1942, Cornell; M.A. 1936, New York

Trefz, Shirley M., Assistant Professor of Nursing
B.S. 1946, M.Ed. 1948, Temple; Ph.D. 1958, Hawaii

Trine, Joe Arden, Assistant Professor of Accounting

Trubitt, Allen Roy, Assistant Professor of Music
B.M.Ed. 1953, M.M.Ed. 1954, Roosevelt; D.Music 1964, Indiana

Trudell, Dennis C., Instructor in English
A.B. 1960, Denison; M.A. 1964, M.F.A. 1966, Iowa

Trujillo, Eduardo E., Assistant Professor of Plant Pathology
B.S.A. 1956, M.S. 1957, Arkansas; Ph.D. 1962, California

Tsuruoka, Kazuko, Instructor in Japanese

Tsuzaki, Stanley M., Assistant Professor of Linguistics
Tuan, San Fu, Professor of Physics
B.A. 1954, M.A. 1958, Oxford (England); Ph.D. 1958, California (Berkeley)

Tull, Christine L. (Mrs.), Associate Professor of Home Economics
B.S. 1928, William and Mary; M.A. 1949, New York

Tung, Tze-Kuei, Associate Professor of Civil Engineering
B.S. 1946, M.I.T.; M.S. 1948, California (Berkeley); Ph.D. 1964, California (Los Angeles)

Turnbull, Murray, Professor of Art
B.F.A. 1941, Nebraska; M.A. 1949, Denver

Tuthill, Leonard D., Professor of Entomology
B.A. 1929, M.A. 1930, Kansas; Ph.D. 1941, Iowa State

Tyson, Katherine C., Assistant Professor of Social Work
B.A. 1938, Hawaii; M.S. 1946, Pittsburgh

Uchima, Floyd Y., Assistant Professor of Music
B.Ed. 1950, Hawaii; M.Mus.Ed. 1951, Northwestern

Uehara, Betty K., Assistant Professor of Education
B.Ed. 1947, Hawaii; M.A. 1958, New York

Uehara, Goro, Associate Professor of Soils
B.S. 1951, M.S. 1955, Hawaii; Ph.D. 1959, Michigan State

Uemura, Herbert S., Assistant Professor of Pathology
A.B. 1953, Washington; M.D. 1960, Nebraska

Umbel, Oma, Associate Professor of Home Economics
B.S. 1932, West Virginia; M.S. 1933, New York

Uehara, Yukuo, Professor of Japanese
B.A. 1931, M.A. 1936, Hawaii

Van DeGrift, Paul D., Assistant Professor of Health and Physical Education
D.O. 1939, College of Osteopathic Physicians and Surgeons; M.D. 1962, California College of Medicine

Van Hoften, Ellen, Lecturer in History
A.B. 1964, A.M. 1965, Stanford

Van Nieil, Robert, Professor of History
B.A. 1947, M.A. 1948, Ohio State; Ph.D. 1954, Cornell

Van Weel, Pieter B., Professor of Zoology
Ph.D. 1937, State University of Utrecht

Vasconcellos, Henry B., Associate Professor of Health and Physical Education
B.A. 1941, M.A. 1959, San Jose State

Vaught, Raymond, Professor of Music
B.A. 1938, M.A. 1940, Idaho; M.M. 1946, Eastman School of Music; Ph.D. 1959, Stanford

Vella, Dorothy B., Instructor in English
B.A. 1941, Western Reserve; M.A. 1942, Radcliffe

Vella, Walter F., Professor of History
B.A. 1947, M.A. 1950, Ph.D. 1954, California

Veleyukei, Maj. John A., Assistant Professor of Aerospace Studies

Viglielmo, Valdo H., Professor of Japanese

Vine, Richard W., Professor of Music
B.M. 1936, St. Olaf College; M.M. 1938, MacPhail College of Music

von Bekesy, Georg, Hawaiian Telephone Company Chair in Science
Ph.D. 1923, Budapest; M.D. (Hon.) 1955, Wilhem; M.D. (Hon.) 1959, Berne; D.Sc. (Hon.) 1965, Pennsylvania

Voulgaropoulos, Emmanuel, Associate Professor of Public Health
B.S. 1952, Tufts; M.D. 1957, Louvain; M.P.H. 1962, Johns Hopkins
Wakai, Warren T., Lecturer in Dental Hygiene  
B.S. 1943, Hawaii; M.A. 1948, Michigan; D.D.S. 1952, Maryland

Wallace, Gordon D., Assistant Clinical Professor of Pathology  
B.S. 1952, D.V.M. 1954, Colorado State; M.P.H. 1962, California

Wallace, Patricia F., Instructor, English Language Institute  
B.A. 1962, Redlands; M.A. 1966, Hawaii

Wallrabenstein, Paul P., Lecturer in Agricultural Economics  
Ph.D. 1941, Ohio State

Walsh, Paul A., Assistant Professor of Education  

Walsh, Winifred A., Professor of Social Work  
B.S. 1936, Nevada; M.A. 1943, Ph.D. 1965, Chicago

Wang, Chen, Instructor in Chinese  
B.A. 1937, National Normal; M.A. 1956, Washington

Wang, Jaw-Kai, Associate Professor of Agricultural Engineering  
B.S. 1953, National Taiwan; M.S. 1956, Ph.D. 1958, Michigan State

Wargo, Robert J. J., Acting Assistant Professor of Philosophy  
B.A. 1962, California (Los Angeles); M.A. 1963, Michigan

Warner, Robert M., Professor of Horticulture  
B.A. 1930, Ohio Wesleyan; M.S. 1937, Ph.D. 1940, Iowa State

Warner, Sylvia L., Instructor, English Language Institute  
B.A. 1961, Albion College; M.A. 1963, Michigan

Warren, Ann M., Instructor in English  
B.A. 1964, M.A. 1965, Tulane

Warsh, Louis P., Assistant Professor of History (Hilo)  
A.B. 1947, California (Santa Barbara); M.A. 1950, California (Berkeley)

Watanabe, Karen, Lecturer in Spanish  
B.A. 1965, Hawaii

Watanabe, Kenichi, Senior Professor of Physics  
B.S. 1936, Ph.D. 1940, California Institute of Technology

Watanabe-Dauer, Michael S., Professor of Physics  
B.S. 1933, Dr.Sc. 1940, Tokyo; Dr.Sc. 1935, Paris

Waters, William L., Instructor in Chemistry  
B.A. 1961, Kenyon College

Watson, Donald P., Professor of Horticulture  
B.S.A. 1934, Toronto; M.S. 1937, London; Ph.D. 1948, Cornell

Watson, John R., Associate Clinical Professor of Audiology  
M.D. 1949, London

Watson, Lorinda E., Assistant Professor of Speech  
B.A. 1934, Washington; M.A. 1958, Hawaii

Watt, Ian P., Citizen’s Chair in English Literature (Fall 1968)  
M.A. 1928, McGill; Dr.-Es-Letters 1932, Paris

Waugh, John L. T., Associate Professor of Chemistry  

Waxman, Sorrell H., Associate Clinical Professor of Genetics  
B.A. 1952, M.D. 1956, Toronto

Wayman, Oliver, Professor of Animal Science  
B.S. 1947, Utah State; Ph.D. 1951, Cornell

Weaver, Herbert B., Professor of Psychology  
B.A. 1933, M.A. 1934, Ph.D. 1942, Pennsylvania

Weaver, Paul F., Jr., Associate Professor of Electrical Engineering  
B.S.E.E. 1946, M.E.E. 1952, Ph.D. 1959, Cornell
WEDDELE, LAUREL E., Assistant Professor of Home Economics
B.S. 1939, Texas Tech. College; M.S. 1954, Texas

WEGNER, ELDON L., Assistant Professor of Sociology
B.A. 1963, Redlands; M.A. 1965, Wisconsin

WEINBERG, JERRY L., Assistant Professor of Astrophysics
B.A. 1958, St. Lawrence; Ph.D. 1963, Colorado

WEINSTEIN, MICHAEL G., Assistant Professor of Sociology
Ph.B. 1963, Wayne State; M.A. 1966, Harvard

WEISER, DARLENE R. G., Instructor in Professional Nursing
B.S.N. 1961, Pennsylvania; M.A. 1965, Iowa

WELD, EVELYN B. (Mrs.), Acting Assistant Professor of European Languages (Hilo)
B.A. 1940, Hofstra; M.A. 1941, New York

WELLIN, LAWRENCE T., Assistant Professor of English

WELLEN, TAeko I. (Mrs. George), Instructor in Japanese
B.A. 1950, Keio (Japan); M.S.J. 1954, Northwestern

WENKAM, NAO (Mrs. R.), Assistant Professor of Home Economics
B.S. 1948, M.S. 1950, Chicago

WESTON, DONNA M., Instructor in Technical Nursing
B.S. 1954, Utah; M.N. 1965, Washington

WHITE, JOHN A., Professor of History
B.A. 1933, California; M.A. 1940, Columbia; Ph.D. 1947, Stanford

WHITMAN, NANCY C. (Mrs. Dana), Associate Professor of Education

WIESEL, HEROLD J., Professor of Geography
B.A. 1935, California; M.A. 1947, Ph.D. 1949, Michigan

WILEMAN, RALPH E., Jr., Assistant Professor of Education

WILEY, BONNIE, Assistant Professor of English and Journalism

WILL, DRAKE W., Associate Clinical Professor of Pathology
B.S. 1948, Utah State; M.D. 1956, UCLA School of Medicine

WILL, RICHARD Y., Assistant Professor of Education
B.A. 1952, Minnesota; B.Ed. 1957, M.Ed. 1960, Hawaii

WILLIAMS, DOROTHY D., Instructor in Professional Nursing
B.S. 1955, New York; M.S.N. 1961, Catholic

WILLIAMS, JOHN A., Assistant Professor of Civil Engineering
B.S. 1952, M.S. 1954, Ph.D. 1965, California

WILLIAMS, ROBERT JAY, Instructor in English
B.A. 1959, Elmhurst; M.A. 1964, Chicago

WILSON, C. FEARS, Professor of Agricultural Economics
B.S. 1938, M.S. 1940, Kansas State; Ph.D. 1958, California

WILSON, JAMES C., Assistant Professor, English Language Institute

WILSON, WILLARD, Senior Professor of English
B.A. 1929, LL.D. (Hon.) 1961, Occidental; M.A. 1930, Columbia; Ph.D. 1939, Southern California

WINCHESTER, BETTY JO, Acting Assistant Professor of History
B.A. 1961, Baylor; M.A. 1964, Indiana

WINKLER, RALPH, Assistant Professor of Music
B.Mus. 1959, Eastman School of Music
Winnick, Theodore, Professor of Biochemistry
B.A. 1935, California (Los Angeles); Ph.D. 1939, California

Winnie, John A., Assistant Professor of Philosophy
B.A. 1962, New York State (Albany)

Winters, Lee E., Jr., Associate Professor of English
B.A. 1947, Michigan; M.A. 1952, Ph.D. 1956, California

Winters, Lily C. (Mrs. Lee E., Jr.), Associate Professor of Chinese
B.A. 1937, Yenching; M.A. 1950, Hawaii

Wise, John, Professor of Economics
B.S. 1952, Ph.D. 1955, London

Wisnosky, John, Instructor in Art

Wiswell, Ella L. (Mrs. Frederick J.), Associate Professor of European Languages
Diploma 1931, Paris; B.A. 1941, Hawaii

Wittermans, Tamme, Associate Professor of Sociology
Ph.D. 1955, London

Wittich, Walter A., Professor of Education
B.S. 1932, M.A. 1934, Ph.D. 1943, Wisconsin

Wivell, Charles, Acting Assistant Professor of Chinese
B.A. 1955, Pittsburgh

Wolff, Robert J., Associate Professor of Public Health
Ph.D. 1953, Michigan

Wolz, Carl, Assistant Professor of Drama and Theatre and Music
B.A. 1959, Chicago; M.A. 1965, Hawaii

Won, George Y., Assistant Professor of Sociology
B.A. 1955, M.A. 1957, Hawaii; Ph.D. 1962, Michigan State

Won, Yoon Ok, Instructor in Education
B.Ed. 1963, 5th Yr. Cert. 1964, Hawaii

Wong, Euton S. Y., Lecturer in Accounting

Wong, Helene H., Associate Professor of Speech
B.A. 1942, M.A. 1947, Stanford; Ph.D. 1955, Louisiana State

Wong, Kaupena, Lecturer in Music
B.A. 1951, Hawaii

Wong, Ruth E. M. (Mrs. A. K. Y.), Assistant Professor of Mathematics
B.Ed. 1948, Hawaii; M.S. 1960, Illinois

Wood, Richard E., Acting Assistant Professor of German

Woodard, William T., Acting Assistant Professor of Psychology
A.B. 1962, San Francisco State; Ph.D. 1966, Hawaii

Woollard, George P., Professor of Geophysics
B.S. 1932, M.S. 1934, Georgia Institute of Technology; A.M. 1935, Ph.D. 1937, Princeton

Workman, Everly J., Professor of Physics (Hilo)
B.S. 1924, D.Sc. 1955, Whitman; Ph.D. 1930, Virginia

Worth, Robert M., Professor of Public Health
B.A. 1950, California; M.D. 1954, California (San Francisco); M.F.H. 1958, Harvard; Ph.D. 1962, California (Berkeley)

Wrathall, Jay W., Assistant Professor of Chemistry
B.S. 1957, M.S. 1959, Brigham Young; Ph.D. 1962, Ohio State

Wulf, Louise M. (Mrs. P. S.), Instructor in Medical Technology
B.S. 1932, Wisconsin; M.S. 1966, Hawaii

Wytki, Klaus, Professor of Oceanography
Sc.D. 1950, Kiel
XIGOGIANIS, LOUIS P., Instructor, English Language Institute
B.A. 1953, Illinois; M.A. 1964, Hawaii

YAMADA, EDWARD H., Assistant Clinical Professor of Medicine
B.S. 1948, Wisconsin; M.D. 1962, Western Reserve

YAMADA, YUKIHIRO, Instructor in Japanese
B.A. 1960, Rikkyo; M.A. 1962, International Christian

YAMAMOTO, GEORGE K., Assistant Professor of Sociology
B.A. 1947, M.A. 1949, Hawaii

YAMAMOTO, HARRY, Associate Professor of Food Science
B.S. 1955, Hawaii; M.S. 1958, Illinois; Ph.D. 1962, California (Davis)

YAMAMURA, DOUGLAS S., Professor of Sociology
B.Ed. 1938, M.Ed. 1941, Hawaii; Ph.D. 1949, Washington

YAMASAKI, BEATRICE T., Associate Professor of Education
B.A. 1950, M.A. 1954, Hawaii; J.D. 1962, Bryn Mawr

YAMASHITA, PEARL N. (Mrs. P.T.), Assistant Professor of Education
B.Ed. 1942, Hawaii; M.A. 1948, Iowa State

YAMASHITA, RYUZO, Assistant Professor of Anatomy
B.S. 1952, Ph.D. 1960, Hokkaido

YANAGIMACHI, RYUZO, Assistant Professor of Agronomy
B.S. 1952, Ph.D. 1960, Hokkaido

YANAGISHI, ALVIN Y., Instructor in Sociology
B.A. 1960, M.A. 1964, Hawaii

YANG, SARAH L. (Mrs.), Assistant Professor of Education
B.A. 1931, Colorado State College of Education; M.Ed. 1952, Hawaii

YASUDA, KENICHIRO, Associate Professor of Japanese
B.A. 1945, Washington; D.Litt. 1956, Tokyo

YASUNOBU, KERRY T., Professor of Biochemistry
B.S. 1950, Ph.D. 1954, Washington

YEE, PHILLIP K. H., Lecturer in Civil Engineering
B.S. 1938, Hawaii

YEE, WARREN, Associate Professor of Horticulture
B.S. 1942, Hawaii; M.S. 1959, Purdue

YEH, YEONG-HER, Assistant Professor of Economics
B.A. 1955, Taiwan; M.A. 1959, Ph.D. 1965, Minnesota

YEH, ZUEI-ZONG, Assistant Professor of Mathematics
B.A. 1953, Minnesota; M.A. 1956, Ph.D. 1959, Princeton

YIM, BERNARD J. B., Associate Clinical Professor of Medicine
B.A. 1948, Hawaii; M.D. 1952, Rochester

YOKOYAMA, MITSUO, Associate Professor of Genetics
M.D. 1950, Jutendo Medical School; Ph.D. 1958, Tokyo Medical and Dental

YONAN, ALAN M., Instructor in Speech (Hilo)
B.S. 1957, M.A. 1958, Michigan State

YOSHIMOTO, MUNEO, Instructor in Japanese
B.A. 1962, Linfield College; M.A. 1967, Hawaii

YOSHIDA, CLYDE, Lecturer in Education

YOSHISHIGE, GEORGE S., Instructor in Education
B.A., Hawaii

YOUNG, FRANKLIN, Associate Professor of Nutrition

YOUNG, JOHN, Professor of Japanese
B.A. 1942, Tokyo; B.S. 1949, M.S. 1951, Georgetown; Ph.D. 1955, Johns Hopkins

YOUNG, REGINALD H.F., Assistant Professor of Public Health

YOUNG, OTTO R., Professor of Agronomy
B.S. 1924, M.S. 1929, Alberta; Ph.D. 1934, Minnesota
YUASA, Ernest T., Assistant Professor of Civil Engineering
B.S. 1957, Hawaii; M.S. 1960, Southern California

YUEN, Jack K., Associate Professor of Engineering
B.S. 1951, Hawaii; M.S. 1965, Colorado State

YUEN, Paul C., Professor of Electrical Engineering
B.S. 1952, Chicago; M.S. 1955, Ph.D. 1960, Illinois Institute of Technology

ZAKAS, Capt. Louis H., Assistant Professor of Military Science
B.S. 1960, Arizona State

ZANE, Vivian, Instructor in Technical Nursing
B.S. 1953, Dayton; M.A. 1961, Columbia

ZEITLIN, Harry, Associate Professor of Chemistry
B.A. 1937, Harvard; M.S. 1948, Ph.D. 1951, Hawaii

ZIRKER, Jack B., Professor of Physics and Astronomy
B.S. 1949, City College of N.Y.; Ph.D. 1956, Harvard

VISITING FACULTY

AYRES, Barbara, Visiting Associate Professor of Anthropology
B.A. 1947, Coe College; M.A. 1949, North Carolina; Ph.D. 1956, Radcliffe College

BAIRD, Robert E., Visiting Professor of Management (Feb. 1, 1966)
B.S. 1940, Wichita; M.B.A. 1941, Northwestern; Ph.D. 1957, Cornell

BRISSENDEN, Paul F., Visiting Colleague in Industrial Relations
A.B. 1908, Denver; A.M. 1912, California; Ph.D. 1917, Columbia

BRISTOL, Melvin L., Visiting Assistant Professor of Botany (Feb. 1, 1966)

BROTHEN, Paul R., Visiting Associate Professor of Travel Industry Management
B.S. 1947, M.S.M.E. 1953, Cornell

CHANG, Sen-Dou, Visiting Associate Professor of Geography (Feb. 1, 1966)
B.A. 1949, Chi-nan University (Shanghai); M.A. 1955, Wisconsin; Ph.D. 1961, Washington

DIWAN, Romesh K., Visiting Associate Professor of Economics
M.A. 1955, Delhi; Ph.D. 1965, Birmingham

DOTTST, Cecil K., Visiting Associate Professor of Education (Sept. 1, 1966)
A.B. 1928, Redlands; M.Ed. 1935, Hawaii; Ed.D. 1949, New York

DUBoI, George B., Visiting Professor of Mechanical Engineering
A.B. 1927, M.E. 1929, Cornell

DYKSTRA, Gerald, Visiting Professor of English (Feb. 1, 1966)
B.A., M.A. 1948, Ph.D. 1955, Michigan

FEUER, Lewis S., Visiting Professor of Philosophy (Feb. 1, 1966)
B.S. 1931, College of City of New York; A.M. 1932, Ph.D. 1935, Harvard

FREMGEN, James M., Visiting Professor of Accounting (Sept. 1, 1967)

GEE, Chuck Y., Visiting Associate Professor of Home Economics
M.S. 1958, Michigan State

GORDON, Adrian H., Visiting Associate Professor of Geosciences (Sept. 1, 1965)
B.S. 1935, M.S. 1936, California Institute of Technology

HURLEY, Beatrice J., Visiting Professor of Education (Sept. 1, 1966)
B.S. 1928, M.A. 1929, Columbia

JENNINGS, Jesse D., Visiting Professor of Anthropology
B.A. 1929, Montezuma College; Ph.D. 1943, Chicago

JONES, Richard H., Visiting Associate Professor of Mathematics

KAPLAN, Abraham, Visiting Professor of Philosophy
B.A. 1937, College of St. Thomas; Ph.D. 1942, California (Los Angeles)
KLEINFELD, ERWIN, Visiting Professor of Mathematics
B.S. 1948, City College; M.A. 1949, Pennsylvania State; Ph.D. 1951, Wisconsin

KUHN, DORIS Y., Visiting Associate Professor of Education (Feb. 1, 1967)
B.S. 1947, Drake; M.A. 1950, Ph.D. 1956, Northwestern

LANDIS, PAUL H., Visiting Professor of Sociology (Feb. 1, 1967)
A.B. 1928, Greenville College; A.M. 1927, Michigan; Ph.D. 1933, Minnesota

LAPIERE, RICHARD T., Visiting Professor of Sociology (Feb. 1, 1967)
A.B. 1928, M.A. 1927, Ph.D. 1930, Stanford

LEY, ROBERT L., Visiting Associate Professor of Public Health
M.D. 1947, New York

MANOHARAN, ARTHUR, Visiting Associate Professor of Public Health
M.B. and B.S. 1951, Madras; D.P.H. 1957, London; Dr.P.H. 1960, Columbia

MATLAW, MYRON, Visiting Professor of English and Drama (Sept. 1, 1967)
A.B. 1949, Hofstra College; M.A. 1950, Ph.D. 1953, Chicago

McCAULEY, ROBERT F., Visiting Professor of Public Health
B.S. 1939, New Mexico State College; M.S. 1949, Michigan State College; Sc.D. 1952, M.I.T.

MILLER, ALLEN D., Visiting Associate Professor of Education (Sept. 1, 1966)
B.S. 1945, M.S. 1948, Ph.D. 1953, Iowa

RICHARDSON, RICHARD J., Visiting Assistant Professor of Political Science
B.A. 1957, Harding College; M.A. 1961, Ph.D. 1966, Tulane

SANDLER, REUBEN, Visiting Associate Professor of Mathematics
A.B. 1957, Reed College; S.M. 1958, Ph.D. 1961, Chicago

SLATER, MICHAEL B., Visiting Assistant Professor of Mathematics
B.A. 1980, Oxford; Ph.D. 1985, Chicago

SMITH, CLIFFORD W., Visiting Assistant Professor of Botany (Feb. 1, 1966)
M.Sc. 1963, Ph.D. 1965, Manchester

STAATS, ARTHUR W., Visiting Professor of Education (Sept. 1, 1966)
A.B. 1949, M.A. 1953, Ph.D. 1956, California (Los Angeles)

SUVARNAKICH, KAMDHORN, Visiting Professor of Public Health
M.D. 1931, Chulalongkorn; M.P.H. 1950, Dr.P.H. 1951, Harvard

SVALASTOCA, KAARE, Visiting Professor of Sociology (Sept. 1, 1966)
Ph.D. 1950, Washington

THOM, BRUCE G., Visiting Assistant Professor of Geography (Feb. 1, 1967)
B.A. 1981, Sydney; Ph.D. 1986, Louisiana State

YOTOPoulos, PAN A., Visiting Associate Professor of Economics
B.A. 1956, Athens (Greece); M.A. 1957, Kansas; Ph.D. 1962, California (Los Angeles)

AFFILIATE GRADUATE FACULTY

APT, WALTER J., Ph.D., Nematologist, Pineapple Research Institute

BARTER, EDWIN N., Ph.D., Chief Assessment Officer, Peace Corps Training Center, Hilo, Hawaii

BARKLEY, RICHARD A., Ph.D., Chief, Oceanography Investigation, Bureau of Commercial Fisheries, U. S. Fish & Wildlife Service

BARROW, TERENCE, Ph.D., Anthropologist, Bishop Museum

BATESON, GREGORY, M.A., Associate Director of Research, Oceanic Institute, Makapuu

BERNSTEIN, LEO, M.D., Former Director, State Department of Health

CUSHING, ROBERT L., M.S., Director, Experiment Station, H&PA

DAVIS, CLIFTON J., B.S., Chief, Entomology Branch, State Department of Agriculture
Emory, Kenneth P., Ph.D., Anthropologist, Bishop Museum
Felton, George E., Ph.D., Technical Director, Dole Corporation
Force, Roland W., Ph.D., Director, Bishop Museum
Fujino, Kazuo, Ph.D., Chief of Subpopulations Program, Bureau of Commercial Fisheries, U. S. Fish & Wildlife Service
Gerdel, Karl, Ph.D., Research Economist, U.S. Department of Agriculture
Gressitt, J. Linsley, Ph.D., Entomologist, Bishop Museum
Gudeman, Howard E., Ph.D., Director, Psychological Services and Training, Hawaii State Hospital
Halperin, Sidney L., Ph.D., Clinical Psychologist, Tripler General Hospital
Heinicke, Ralph M., Ph.D., Director of Chemistry and Food Research, Dole Corporation
Heinz, Don J., Ph.D., Head, Department of Genetics and Pathology, Experiment Station, HSPA
Hilton, H. Wayne, Ph.D., Principal Chemist, Experiment Station, HSPA
Howard, Alan, Ph.D., Anthropologist, Bishop Museum
Isebe, Minoru, Ph.D., Head, Agronomy Department, Experiment Station, HSPA
Joyce, C. R., Ph.D., Medical Entomologist, State Department of Health
Keiser, Irving, B.S., Entomologist, Hawaii Fruit Fly Investigation, U.S. Department of Agriculture
Kerns, Kenneth R., M.S., Plant Breeder, Pineapple Research Institute
Kondo, Yoshio, Ph.D., Malacologist, Bishop Museum
Krauss, Beatrice, M.S., Plant Physiologist, Pineapple Research Institute
Loomis, Harold, Ph.D., Tsunami Research Group, Environmental Science Services Administration
Magnuson, John J., Ph.D., Chief, Behavior Program, Bureau of Commercial Fisheries, U. S. Fish & Wildlife Service
Marr, John, M.A., Hawaii Area Director, Bureau of Commercial Fisheries, U. S. Fish & Wildlife Service
McLaren, Kazue (Mrs.), M.P.H., Assistant Director, Public Health Nursing Branch, State Department of Health
Nickell, Louis G., Ph.D., Principal Physiologist and Biochemist, Experiment Station, HSPA
Paty, Jeanne E., M.P.H., Chief, Health Education Office, State Department of Health
Payne, John H., Ph.D., Principal Technologist, Experiment Station, HSPA
Quisenberry, Walter B., M.D., Director, State Department of Health
Randall, John E., Ph.D., Director, Oceanic Institute; Marine Zoologist, Bishop Museum
Reynolds, William N., M.S., Senior Project Engineer, Experiment Station, HSPA
Rosen, Leon, M.D., Head, Pacific Research Section, National Institute of Allergy and Infectious Diseases, U.S. Department of Health, Education and Welfare
Rothschild, Brian J., Ph.D., Chief, Skipjack Ecology Program, Bureau of Commercial Fisheries, U. S. Fish & Wildlife Service
Sakimura, Kanyo, Entomologist, Pineapple Research Institute
Seckel, Gunter R., M.S., Oceanographer, Bureau of Commercial Fisheries, U.S. Fish & Wildlife Service
Sinoto, Yoshito, Sc.D., Archaeologist, Bishop Museum
SMITH, JIMMIE B., PH.D., Head, Plant Breeding Section, Pineapple Research Institute

SPRAGUE, LUCIAN M., PH.D., Chief, Subpopulations Investigations, Bureau of Commercial Fisheries, U.S. Fish & Wildlife Service

STEINER, LOREN F., M.S., Research Entomologist and Investigations Leader, Hawaii Fruit Fly Investigations, U.S. Department of Agriculture

STEPHENSON, JOHN R., M.D., Physician, Department of Pediatrics, Straub Clinic

TAKATA, MICHIO, M.S., Director, Division of Fish & Game, State Department of Agriculture and Conservation

TOM, ALBERT Q. Y., PH.D., Vice-President, Sunn, Low, Tom & Hara, Inc., Consulting Engineers

WALLABEINSTEIN, PAUL P., PH.D., Agricultural Statistician in Charge, Statistical Reporting Service, U.S. Department of Agriculture

WILSON, NIXON A., PH.D., Acarologist, Bishop Museum

WISMER, CHESTER A., PH.D., Senior Pathologist, Experiment Station, HSPA

YEN, DOUGLAS E., M.AGR.SC., Ethnobotanist, Bishop Museum

YOKOYAMA, MITSUO, PH.D., Director of Research, Kuakini Research Foundation

YOSWMOTO, CARL M., PH.D., Specialist, Taxonomy of Hymenoptera, Bishop Museum

YOUNG, H. Y., M.A., Chemist, Pineapple Research Institute

COLLEGE OF ARTS & SCIENCES

Student Services Office

*BILSBORROW, ELEANOR J., Academic Adviser
*CHU, GEORGE W., Pre-Medical Adviser
*GILSON, THOMAS Q., Pre-Business Adviser
*GRIFFING, AUGUSTUS H., Academic Adviser
*HOPKINS, MARY, Pre-Business Adviser
*HOSBOR, JOHN P., Associate Dean
*KOEHLER, DOROTHY I., Academic Adviser

MERRITT, GRACE, Academic Adviser, Director of KOKUA

B.A. 1941, Montana; M.A. 1949, Denver

*MICHALSKI, JOHN, Academic Adviser

OMORI, RACHEL T., Academic Adviser

ED.B. 1944, 5th Yr. Cert. 1945, Hawaii

*ORTELT, Judith A., Pre-Nursing Adviser

TOYOTA, WINIFRED K., Academic Adviser


*TUTHILL, LEONARD D., Academic Adviser

*ZEITLIN, HARRY, Academic Adviser

COLLEGE OF GENERAL STUDIES

ABBOTT, WILLIAM L., Associate Specialist

B.A. 1948, M.A. 1951, Wisconsin

BONIFACE, GEORGE I., Program Coordinator

A.B. 1954, Citadel Military College of South Carolina

BROWN, HAROLD P., Assistant Specialist

B.S. 1934, Michigan; M.A. 1955, Stanford

CARPENTER, THOMAS F., Junior Specialist

B.A. 1957, Kansas State; M.A. 1960, Northwestern

CHANTINY, JOHN G., Specialist and Assistant Dean


*Degrees listed under "Instruction."
Claverie, Iva T., Assistant Specialist  
LL.B. 1940, Lincoln University  
Farrand, Langdon S., Assistant Specialist  
B.A. 1939, Reed College  
Fleece, Jeffrey A., Associate Specialist and Assistant Dean  
B.A. 1941, Central College (Missouri); M.A. 1942, Vanderbilt; Ph.D. 1952, Iowa  
Hardin, Herb H., Training Coordinator  
Johnson, Harriet L., Junior Specialist  
B.S. 1938, M.A. 1948, Ohio State  
*Klopp, Donald W., Associate Specialist  
*Lampard, William D., Acting Dean  
Lardin, Harry E., Program Coordinator  
B.S. 1934, West Point  
*Moriwaki, Takeshi, Assistant Specialist  
Pitz, Guy H., Junior Specialist  
A.B. 1960, Dartmouth; B.D. 1983, Church Divinity School of the Pacific  
Sakai, Hester H., Assistant Specialist  
B.B.A. 1953, M.B.A. 1954, Hawaii  
Siga, Benjamin C., Specialist  
B.A. 1927, Pittsburgh; LL.B. 1930, Harvard  
*Yonan, Alan M., Assistant Specialist  

Drama and Theatre  
Caldeira, Arthur B., Junior Researcher in Drama and Theatre  
B.A. 1951, Hawaii  
Miji, Takeo, Junior Specialist in Drama and Theatre  
B.A. 1955, Hawaii  

Hawaii Curriculum Center  
*Anderson, Mary, Instructor in Education  
*Bennett, Hannah Lou, Assistant Professor of Education  
*Bilous, Carolyn B. (Mrs. Nicholas), Assistant Professor of Education  
Brewerton, Lawrence H., Elementary Teacher  
A.A. 1956, Los Angeles City; B.A. 1958, California State; M.S. 1960, Southern California  
Brown, Alvin, Reproductions Operations Manager  
B.S. 1960, Pacific Union College  
*Brownell, John A., Associate Director  
Buckman, Pat (Mrs. Bruce F.), Elementary Teacher-Disseminator in Creative Dramatics  
B.Ed. 1960, Hawaii  
Burget, Anthony, Curriculum Planner  
B.A. 1960, Miami; M.A. 1964, Columbia  
Burton, Leon H., Cultural Resource Coordinator  
Carter, Marjorie (Mrs. Arthur B.), Chief, Graphic Arts Section  
Cartwright, Stephen, Video Tape Technician  
Chang, Vivian (Mrs. Thomas M. C.), Elementary Teacher  
B.A. 1947, Hawaii; M.A. 1950, Columbia  
Cherry, Ernest J., Assistant Director of Administration  
B.A. 1948, Colorado State  
*Collins, Myrtle T. (Mrs. D.Wane), Instructor in Education  

*Degrees listed under "Instruction."
CROCKETT, Ruth M. (Mrs. W. R.), Instructor in Education
CROOKER, Elizabeth P. (Mrs. F. Deal), Instructor in Education
Curtis, DeLores M., Assistant Professor of Education
Dyestra, Gerald, Chief Curriculum Consultant
B.A. 1948, M.A. 1948, Ph.D. 1955, Michigan
Enoki, Donald, Curriculum Planner
B.A. 1959, Hawaii; M.A. 1966, Columbia
Efferson, James, Chief Curriculum Planner
B.A. 1951, San Diego State; M.A. 1956, Long Beach State
Fujii, Paul, Instructor in Education
Fujita, Grace (Mrs. Kikuo), Administrative Assistant
B.A. 1945, Hawaii
Greenberg, Marvin, Assistant Professor of Education
Hazama, Dorothy O. (Mrs. Richard), Assistant Professor of Education
Higa, Harold, Assistant Professor of Education
Huddleston, Don, Media Specialist
Ikeda, Tokie, Teacher-Disseminator
B.Ed. 1962, Hawaii
Inouye, Kenji, Instructor
B.Ed. 1943, Hawaii; M.A. 1951, Columbia
Jeffryes, James, Acting Assistant Professor of Education
Jenkins, Rose C. (Mrs. Lucius F.), Assistant in Education
Kadina, Lorraine M., Instructor in Health and Physical Education
Kelly, Karen, (Mrs. Daniel), Instructor
B.A. 1962, Cincinnati
Kennedy, Daniel A., Assistant Professor of Education
Kerr, Frank, Chief Curriculum Planner
B.A., M.A. 1951, Stanford
Kiehm, Ruth (Mrs. Joseph T. H.), Teacher-Planner
B.A. 1950, Hawaii
King, Arthur R., Jr., Director
Kiyokawa, Hideko, Teacher-Investigator
B.A. 1949, Hawaii
Klyen, Joan, Curriculum Planner
B.A. 1957, California; M.A. 1965, Columbia
Koki, Stanley, Curriculum Planner
B.A. 1957, Hawaii
Koo, Gladys Y. (Mrs. James), Assistant Director
B.S. 1941, M.Ed. 1960, Hawaii
Krause, Loretta (Mrs. E. D.), Instructor in Education
Kyselka, Will, Assistant Professor of Education
Leib, Edna Lee (Mrs. A. P.), Assistant Professor of Education
Longo, Chris, Instructor of Drama
B.A. 1962, Queens College; M.F.A. 1986, Hawaii
Look, May (Mrs. Arthur), Teacher-Disseminator
B.Ed. 1943, Hawaii
Louis, Edith L. (Mrs. J. L.), Assistant Professor of Education
Lum, Cheong, Assistant Professor of Education
MacGregor, Beatrice B. (Mrs. Alex), Instructor in Education
Maney, Florence A. (Mrs. J. H.), Assistant Professor of English
Mendenhall, Betty J., Instructor in Education
Moore, Neil, Instructor in Education

*Degrees listed under “Instruction.”
FACULTY AND STAFF—HAWAII CURRICULUM CENTER

*NAKAMURA, IRENE H. (Mrs. Takeshi), Assistant Professor of Education
NOHARA, JAMES, Administrative Assistant
  B.A.D. 1953, Hawaii; M.A. 1956, Pennsylvania State
NUNES, SHIHO (Mrs. Bruno), Associate Director, Language Arts Project
  B.A. 1938, Hawaii
OKSENDAHL, WILMA, Curriculum Planner
  B.A. 1948, Montana State; M.A. 1958, Columbia
*OLMO, BARBARA, Assistant Professor of Education
OSMAN, ALICE, Curriculum Planner
  B.S. 1954, M.A. 1965, Columbia
*PANG, MORRIS S. Y., Assistant Professor of Education
*PANG, VIOLET F. (Mrs. Dick C.), Instructor in Education
PORT, ANTOINETTE (Mrs. Richard), Curriculum Planner
  B.A. 1961, Boston College
PORT, RICHARD, Curriculum Planner
  B.A. 1960, Boston College
*POTTENGER, FRANCIS, Acting Assistant Professor of Education
PRINS, JAN, Curriculum Planner
  B.S. 1960, Wayne State
*REED, HELEN C., Instructor in Education
*ROULEAU, PATRICIA (Mrs. Dallas), Lecturer in Education
*SAKII, PATSY S. (Mrs. Kiyoto), Assistant Professor of Education
*SANBORN, DONALD, Acting Assistant Professor of Education
SANFEI, ANNETTE (Mrs. Francis), Instructor
  B.S. 1963, Wisconsin
*SATO, ESTHER (Mrs. Yoshio), Assistant Professor of Education
*SATO, JESSIE (Mrs. Shigeji), Assistant Professor of Education
SAVARD, WILLIAM, Co-Director
  B.A. 1951, Massachusetts; M.A. 1954, Springfield College; Ed.D. 1960, Stanford
*SCHAAFSMA, CAROL (Mrs. Henry), Instructor in Education
*SHIMIZU, ESTHER E., Instructor in Education
SHIMOTSU, FRANCES (Mrs. Albert), Teacher-Disseminator
  B.Ed. 1954, M.Ed. 1966, Hawaii
*SMITH, JAMES RAY, Jr., Instructor in Education
*SOLLNER, WILLIAM, Assistant Professor of Education
SOUZA, BLASE (Mrs. Alfred P.), Research Librarian
  B.Ed. 1939, Hawaii; B.L.S. 1947, Pratt Institute
TAKAYESU, AMY H. (Mrs. Saburo), Instructor
  B.A. 1947, 5th Yr. Cert. 1948, Hawaii
*TANIGUCHI, ELAINE, Instructor in Education
TANOUYE, MARY (Mrs. Henry), Project Manager, Language Arts
  B.Ed. 1958, M.Ed. 1960, Hawaii
TOYAMA, DIANE (Mrs. Stanley), Instructor
  B.A. 1956, Hawaii
*WON, YOON OK, Instructor in Education
YAMAGUCHI, FAY, Curriculum Planner
  B.S. 1949, Hawaii; M.A. 1965, Indiana
YOSINO, JOYCE (Mrs. Riechel), Instructor
  B.Ed. 1963, Hawaii

*Degrees listed under “Instruction.”
Ahmad, S. Naseem, Jr., Library Specialist, Processing Department
B.S. 1960, Karachi; M.L.S. 1965, Pittsburgh

Anstruther, Peter R., Jr., Library Specialist, Technical Services
A.B. 1931, Princeton; M.S. 1965, Columbia

Bartko, Yvonne (Mrs.), Selecting and Searching Librarian
B.A. 1952, M.S. in L.S. 1953, Syracuse

Bell, Janet E., Head, Hawaiian & Pacific Collection
B.A. 1932, Hawaii; B.S. in L.S. 1933, Washington

Bon, George S., Assistant Dean; Library Specialist, Science & Technology

Chang, Diana M.D. (Mrs.), Jr., Library Specialist, Reference Branch
B.A. 1955, California (Berkeley); M.L.S. 1966, Hawaii

Ching, Clara C. (Mrs.), Assistant Librarian, Documents & Maps Collection
B.A. 1925, Hawaii; B.S.L.S. 1926, Simmons; M.A. 1927, Columbia

Chong, Eleanor, F. Y., Jr., Library Specialist, Head, Documents & Maps Collection
B.A. 1950, Hawaii; M.S.L.S. 1952, Illinois

Correa, Genevieve B., Selecting & Searching Librarian
B.A. 1940, Hawaii; B.S.L.S. 1946, North Carolina

Crozier, Virginia, Jr., Library Specialist, Reference Department
B.A. 1931, Pomona; B.S.L.S. 1932, Emory

Cutright, Clara H. (Mrs.), Jr., Library Specialist, Processing Department
A.B. 1936, Colorado State; B.S. in L.S. 1937, Denver

Dumont, Normand E., Administrative Officer

Fines, Betty J. (Mrs.), Jr., Library Specialist, Processing Department
A.B. 1981, Central State College; M.A. 1964, Western Michigan

Franklin, Alma I., Assistant Library Specialist, Cataloging Department
B.A. 1954, Hawaii; M.L.S. 1955, California

Garnett, Emily O., Jr., Library Specialist, Reference Department

Guerra, Linda (Mrs.), Jr., Library Specialist, Cataloging Branch

Haas, Joyce (Mrs.), Assistant Library Specialist, Processing Department

Halsted, Clarissa H. (Mrs.), Jr., Library Specialist, Reference Department
Ph.B. 1929, Chicago

Harris, Ira W., Associate Library Specialist

Imamoto, Jean R., Selecting & Searching Librarian
B.A. 1957, Hawaii; M.S.L.S. 1959, California (Los Angeles)

Kaihara, Yasuto, Hawaiian & Pacific Librarian
B.A. 1954, Hawaii; M.S. 1958, Illinois

Kittelston, David J., Assistant Library Specialist (Hilo)

Larsen, Elizabeth A. (Mrs.), Jr., Library Specialist, Undergraduate Library
B.A. 1932, Pomona; Cert. of Librarianship 1934, California (Berkeley)

Le Barron, Evelyn E. (Mrs.), Catalog Librarian
A.B. 1925, Emporia; B.S.L.S. 1930, Illinois; M.S. 1932, Kansas State Teachers College

Lin, Ivy H.J. (Mrs.), Jr., Library Specialist, Cataloging Branch
B.A. 1980, Tunghai; M.S. 1963, Texas Woman's University

Matsumori, Donald M., Jr., Library Specialist, Cataloging Department
B.B.A. 1955, Hawaii; M.S.L.S. 1960, California (Los Angeles)

*Degrees listed under "Instruction."
McALISTER, DOROTHY C. (Mrs.), Assistant Library Specialist, Head, Cataloging

McNEIL, DON W., Assistant Library Specialist, Head, Selecting & Searching
B.A. 1957, Buena Vista College; M.S. in L.S. 1959, Kentucky

MEDARIS, ELMA A. (Mrs.), Jr. Library Specialist, Head, Circulation Branch
B.A. 1931, Missouri; B.S.L.S. 1935, Illinois

MORRIS, NANCY JANE (Mrs.), Jr. Library Specialist, Cataloging Branch
B.A. 1954, George Washington; M.A. 1964, Denver

NELSON, PEARL C. (Mrs.), Jr. Library Specialist, Cataloging Branch
B.S. 1960, Louisiana State; M.S.L.S. 1966, Illinois

NOWAKI, IDA (Mrs. Ronald), Jr. Library Specialist (Hilo)

SAITO, SHIRO, Jr. Library Specialist, Reference Department
B.Ed. 1951, Hawaii; M.A. 1956, Minnesota

SCHORRIG, CHRISTA K. F. (Mrs.), Jr. Library Specialist, Cataloging Branch
B.A. 1944,洛helan (Germany); M.L.S. 1966, Hawaii

*SHARP, HAROLD S., Associate Library Specialist, Head, Reference Branch

*SHAW, RALPH R., Dean of Library Activities

SIPE, ROBERT D., Jr. Library Specialist, Head, Reprography Branch
Fred Archer’s School of Photography, 1947

SMITH, MARGARET H., Jr. Library Specialist, Reference Department
B.Ed. 1936, Hawaii; M.A. 1937, Columbia; B.L.S. 1938, Pratt Institute

*STEVENS, ROBERT D., Deputy Director of Libraries

SUDA, APRIL H. (Mrs.), Jr. Library Specialist, Processing Branch
A.A. 1958, Maunaolu Jr. College; B.A. 1962, Hawaii; M.L.S. 1966, Texas Woman’s University

*TAYLOR, MARGARET G. (Mrs.), Jr. Library Specialist, Selecting & Searching

VON BARFUSS, MICHAEL P., Jr. Library Specialist, Processing Branch
B.A. 1959, Hawaii; M.A. in L.S. 1964, Denver

YANAGIHARA, MARGARET S. (Mrs.), Librarian, Cataloging Department

YEE, WAI-CHEE (Mrs.), Catalog Librarian
B.A. 1938, Hawaii; B.S.L.S. 1939, Columbia

YOUNG, VERNA H.F., Catalog Librarian
B.A. 1972, Chaminade; M.L.S. 1963, California

ZACKS, GOLDFE, Jr. Library Specialist, Reference Department
B.S. 1947, Wisconsin; B.L.S. 1950, Oklahoma

ZALEWSKI, CAROLINE P., Jr. Library Specialist, Selecting & Searching
A.B. 1964, Michigan (Flint); A.M.L.S. 1964, Michigan (Ann Arbor)

OFFICE OF STUDENT PERSONNEL

BARNUM, ANGIE M., Head Resident, Frear Hall

BATESON, LOIS C. (Mrs. G.), Assistant Specialist in Student Personnel, CTC
B.A. 1949, Duke; M.S. 1955, Columbia

*BITNER, HAROLD M., Dean of Student Personnel

BURGOYNE, JAMES M., Director, Student Housing
B.S. 1948, M.B.A. 1949, Wisconsin

*CHA, DONALD F. B., Director, Student Health Service

*Degrees listed under “Instruction.”
CHAR, WALTER F., Specialist in Student Personnel, CTC (psychiatrist)
M.D. 1945, Temple

CHEUNG, JUNE L. J., Junior Specialist in Student Personnel
B.A. 1959, San Jose; M.A. 1960, Columbia

DENNY, JAMES M., Assistant Specialist in Student Personnel, CTC
A.B. 1951, Oberlin; Ph.D. 1958, Western Reserve

DOH, RUTH N., Junior Specialist in Student Personnel
B.A. 1949, Hawaii

DUNNE, WILLIS E., Junior Specialist in Student Personnel
B.A. 1959, Hawaii

FUJIKAWA, WALLACE A., Head Resident, Hale Manoa

FUJITA, GEORGE Y., Associate Specialist in Student Personnel, CTC
B.Ed. 1954, M.Ed. 1958, Hawaii; Ph.D. 1961, Minnesota

FUJITA, NOBUKO (Mrs. R. T.), Junior Specialist in Student Personnel (Hilo)
B.Ed. 1943, M.A. 1961, Michigan State

GILBERT, ARLENE E. (Mrs. Richard J.), Head Resident, Hale Kuahine

GILLILAND, JOHN M., Junior Specialist in Student Personnel, Financial Aids
B.S. 1962, Colorado; M.A. 1967, Hawaii

GOODlad, LAURENCE B., Head Resident, Johnson Hall
B.A. 1964, Hawaii

GOODRIDGE, ROBERT C., Director, Financial Aids
B.A. 1937, Dennison; M.Ed. 1950, Ed.D. 1953, Buffalo

HARADA, TAKESHI, Junior Specialist in Student Personnel, BSA
B.S. 1951, Hawaii; M.S. 1955, Illinois

IAMS, RUTH W. (Mrs. J. P.), Associate Specialist in Student Personnel, CTC
Ph.D. 1933, Chicago; M.A. 1952, Hawaii

KANESHIGE, EDWARD S., Assistant Specialist in Student Personnel, CTC

KANESHIRO, LORRAINE T., Assistant in Student Personnel, University Placement
B.A. 1960, M.A. 1966, Hawaii

KIM, HENRY H., Junior Specialist in Student Personnel, Student Housing
B.A. 1960, M.A. 1966, Hawaii

KOJIMA, ELLEN E., Assistant Specialist in Student Personnel
B.A. 1963, M.A. 1965, Hawaii

KOUMO, KAY A., Head Resident, Hale Kahawai
B.A. 1965, Hawaii

*McARDLE, H. ROY, Assistant Specialist in Student Personnel, University Placement
McPHerson, MARY LOU (Mrs.), Assistant Specialist in Student Personnel, Housing
B.S. 1933, Kansas State; M.A. 1955, Missouri

MICHEL, JOHN, Director, Counseling & Testing Center
B.A. 1950, Lehigh; M.A. 1951, Georgia; Ph.D. 1958, Texas

NAKAGAMI, MIYOKO, Junior Specialist in Student Personnel, ISO
B.Ed. 1938, Hawaii; M.A. 1954, Columbia

NAKAMURA, DOROTHY R., Junior Specialist in Student Personnel, Housing
B.Ed. 1956, Hawaii

PAULING, LINUS C., JR., Specialist in Student Personnel, CTC (psychiatrist)
M.D. 1952, Harvard

PRENTICE, YUROKO (Mrs. Lee), Director, Bureau of Student Activities
B.A. 1955, Hawaii

ROLLIN, STEPHEN A., Assistant in Student Personnel
B.A. 1962, Illinois

Sakamaki, Leiz, Specialist in Student Personnel, CTC (psychiatrist)
B.S. 1955, M.D. 1959, Michigan

*Degrees listed under "Instruction."
FACULTY AND STAFF—RESEARCH UNITS

SAKATA, CARL T., Assistant Specialist in Student Personnel
   B.A. 1951, Grinnell; M.A. 1961, George Washington
SHERMAN, RUTH (Mrs. Martin), Junior Specialist in Student Personnel, CTC
   B.A. 1942, Douglass College; M.A. 1964, Hawaii
TANIGUCHI, SHIRLEY T., Junior Specialist in Student Personnel
   B.A. 1949, Hawaii
TATSUGUCHI, EMMELINE S., Head Resident, Gateway
   B.A. 1963, Hawaii
USHIJIMA, MARGARET (Mrs. John), Junior Specialist in Student Personnel (Hilo)
   B.A. 1949, Illinois Wesleyan; M.S. 1952, Smith
WERY, KATHERINE H. (Mrs. C. H.), Junior Specialist in Student Personnel,
   Employment
   B.A. 1944, Westhampton
WHITE, EDWARD T., Director, Office of Admissions and Records
   B.A. 1936, M.A. 1939, Columbia
WONG, CAROLINA D. (Mrs. Ronald H. L.), University Physician
   M.D. 1941, Santo Thomas
WONG, LAWRENCE Y.W., University Physician
   B.S. 1951, M.S. 1953, M.D. 1958, Michigan
ZEIGLER, A. Lee, Foreign Student Adviser, International Student Office
   B.A. 1949, Stanford; M.S. 1950, New York

RESEARCH UNITS AND FACILITIES

Harold L. Lyon Arboretum

*BAKER, GLADYS E., Botanist
*BREWBAKER, JAMES L., Horticulturist
*Bristol, MELVIN L., Assistant Botanist
   CARLQUIST, SHERWIN, PH.D., Research Affiliate
   Professor of Botany, Claremont Graduate School, California
*CUTTING, WINDSOR C., Pharmacologist
*Gillett, george W., Director
*Kefford, noel P., Botanist
*LAMOUREUX, CHARLES H., Associate Botanist
*SAGAWA, YONEO, Horticulturist
*Scheuer, PAUL J., Chemist
*Smith, ALBERT C., Botanist
   STERN, WILLIAM L., PH.D., Research Affiliate
   Chairman, Dept. of Botany, Smithsonian Institution, Washington, D.C.
THORNE, ROBERT F., PH.D., Research Affiliate
   Professor of Botany, Claremont Graduate School, California
WAGNER, WARREN H., PH.D., Research Affiliate
   Professor of Botany and Director of Botanical Gardens, University of Michigan
*WATSON, DONALD P., Horticulturist

Economic Research Center

ALBRECHT, WILLIAM H., Junior Economist
   B.E.D. 1965, Hawaii
HARRIS, JANE, Junior Economist
   B.A. 1961, Iowa; Cert. in Business Administration 1962, Harvard

*Degrees listed under "Instruction."
SHANG, YUNG-CHENG, Junior Economist
B.A. 1958, Taiwan Provincial Chung-Hsing; M.S. 1962, Southern Illinois
*YOTOPoulos, PAN A., Acting Director

Education Research and Development Center

*ADKINS, DOROTHY C., Researcher
*BALLIF, BONNIE L., Assistant Researcher
*BHUSHAN, VIDYA, Assistant Researcher
*BROWNELL, JOHN A., Researcher
*CARTWRIGHT, G. PHILLIP, Assistant Researcher
*DUNN-RANKIN, PETER, Assistant Researcher
*FARGO, GEORGE A., Assistant Researcher Affiliate
HERMAN, HANNAH S., Junior Researcher
*KING, ARTHUR R., JR., Researcher
*LETON, DONALD A., Associate Researcher
NICOL, E. ANNE, Assistant in Research
*NIVEKAWA, AGNES M., Assistant Researcher
*REID, IAN, Associate Researcher
*RYANS, DAVID G., Director
SAVARD, WILLIAM, Research Affiliate
*STAATS, ARTHUR W., Visiting Researcher
STEINBERG, DANNY D., Assistant Researcher

Center for Engineering Research

*FAND, RICHARD M., Professor of Mechanical Engineering
*HARRENSTIEN, HOWARD P., Director
*JORDAAN, JAN M., Associate Professor of Civil Engineering
LEE, THEODORE, Associate Researcher, Look Laboratory
B.S. 1947, National Peiyang University; M.S. 1960, Iowa
*PETERTSON, W. WESLEY, Professor of Electrical Engineering
*YUEN, PAUL C., Associate Professor of Electrical Engineering

Hawaii Agricultural Experiment Station

*AKAMINE, ERNEST K., Associate Plant Physiologist
ALICATA, JOSEPH E., Parasitologist
B.A. 1927, Grand Island College; M.A. 1928, Northwestern; Ph.D. 1934,
George Washington
*ARAGAKI, MINORU, Associate Plant Pathologist
AWADA, MINORU, Assistant Plant Physiologist
B.S. 1938, M.S. 1949, Hawaii
*BARMETTLER, EDMUND R., Associate Agricultural Economist
*BARTHOLOMEW, DUANE P., Assistant Agronomist
*BREADSLAY, JOHN W., Assistant Entomologist
*BEATON, JOHN R., Associate Home Economist
*BESS, HENRY A., Senior Entomologist
*BREWBAKER, JAMES L., Horticulturist
*BROOKS, COY C., Animal Scientist
*BUDDENHAGEN, IVAN W., Plant Pathologist
CAVALETTO, CATHERINE C., Junior Food Technologist
B.S. 1959, California

*Degrees listed under "Instruction."
CHINN, James T., Junior Horticulturist  
B.S. 1957, Hawaii; M.S. 1962, California

CLEMENTS, Harry F., Senior Plant Physiologist  
B.S. 1924, M.S. 1925, Wisconsin; Ph.D. 1929, Chicago

COBB, Estel H., Associate Animal Scientist

COLLIER, William L., Assistant in Agricultural Economics  
B.A. 1962, Hawaii

COOL, Bruce J., Plant Physiologist

CROZIER, Joseph, Assistant Horticulturist  
B.S. 1956, Florida; M.S. 1960, Cornell

DAVIDSON, Jack R., Agricultural Economist

EBERN, Paul, Soil Scientist

鄂Cooa, Bruce J., Plant Physiologist

CROZIER, Joseph, Assistant Horticulturist  
B.S. 1956, Florida; M.S. 1960, Cornell

DAVIDSON, Jack R., Agricultural Economist

*EBERN, Paul, Soil Scientist

*FRANK, Hilmer A., Associate Food Technologist

FUKUNAGA, Edward T., Associate Horticulturist  
B.S. 1934, M.S. 1935, Hawaii

*GILBERT, James C., Associate Horticulturist

GOTO, Shosuke, Associate Plant Pathologist

GREEN, Richard E., Assistant Agronomist  
B.S. 1953, Colorado State; M.S. 1957, Nebraska; Ph.D. 1962, Iowa State

*HAMILTON, Richard A., Horticulturist

*HARAMOTO, Frank H., Assistant Entomologist

*HARDY, D. Elmo, Senior Entomologist

*HARTLEY, Ruth, Home Economist

*HARTMANN, Richard W., Assistant Horticulturist

*HERRICK, Raymond B., Assistant Poultry Scientist

HIGA, Stanley Y., Assistant in Entomology  
B.S. 1961, Hawaii

*HILKER, Doris M., Assistant Nutritionist

*HINE, Richard B., Associate Plant Pathologist

*HOLTZMANN, Oliver V., Associate Plant Pathologist

*HUNDESTON, Ellis W., Associate Entomologist

HUNTER, James, Assistant Plant Pathologist  
B.S. 1961, Keene State; Ph.D. 1964, New Hampshire

*HYLIN, John W., Assistant Biochemist

Ikawa, Haruyoshi, Assistant Soil Scientist  
B.S. 1951, M.S. 1956, Hawaii

*ISHII, Mamoru, Associate Plant Pathologist

ISHIZAKI, Stanley M., Junior Analyst  
B.S. 1959, M.S. 1963, Hawaii

ItO, Phillip J., Assistant Horticulturist (Hilo)  
B.S. 1958, Hawaii; Ph.D. 1963, Minnesota

*IWANAGA, Isaac I., Assistant Animal Scientist

IZUNO, Takumi, Assistant Horticulturist  
B.S. 1950, Hawaii; Ph.D. 1960, Minnesota

*KAMEMOTO, Haruyuki, Horticulturist

*KANEHIRO, Yoshinori, Assistant Soil Scientist

KAWANO, Yosihiko, Assistant Chemist  
B.S. 1943, Nihon University; M.S. 1957, Hawaii

*KEELER, Joseph T., Associate Agricultural Economist

*KINCH, Donald M., Agricultural Engineer

*LARSON, Arnold B., Associate Agricultural Economist

*Degrees listed under "Instruction."
LEE, YUK MING, Assistant in Agricultural Biochemistry
B.A. 1964, Hawaii

LICHTON, IRA J., Associate Nutritionist

LONG, CHARLES R., Junior Plant Physiologist
B.S. 1953, M.S. 1966, California

MATSUMOTO, HIROMU, Associate Biochemist

McConie, Cameron K., Associate Plant Pathologist
B.S. 1954, Natal (South Africa); M.S. 1957, Ph.D. 1959, California

Messer, Frederick G., Assistant in Animal Science
B.S. 1965, Northwest Missouri State College

MITCHELL, WALLACE C., Assistant Entomologist

MORITA, KIYOICHI, Junior Animal Scientist
B.S. 1953, Hawaii

MOY, JAMES H., Assistant Food Technologist

Nakasone, Henry Y., Associate Horticulturist

Nakata, Shigeru, Assistant Plant Physiologist
B.S. 1946, M.S. 1949, Hawaii

Namba, Ryoji, Associate Entomologist

Nishida, Toshiyuki, Entomologist

Ogata, James N., Junior Chemist
B.S. 1956, Hawaii

Palafoux, Anastacio L., Assistant Poultry Scientist

Parks, Robert, Assistant in Entomology

Peters, Charles W., Agricultural Economist
B.S. 1932, M.S. 1939, Oregon State

Philipp, Perry F., Agricultural Economist

Plucknett, Donald L., Assistant Agronomist
B.S. 1953, M.S. 1957, Nebraska; Ph.D. 1961, Hawaii

Poole, Richard T., Assistant Horticulturist

Putman, Edison W., Associate Plant Physiologist

Reimer, Diedrich, Associate Animal Scientist
B.S.A. 1950, Manitoba; M.S. 1955, Ph.D. 1959, Minnesota

Romanowski, Roman R., Associate Horticulturist

Ross, Edward, Food Technologist

Ross, Ernest, Associate Poultry Scientist

Rotar, Peter P., Associate Agronomist

Sagawa, Yoneo, Horticulturist

Sanford, Wallace C., Agronomist

Scott, Frank S., Agricultural Economist

Shellenberger, F. A., Junior Agricultural Engineer
B.S. 1964, Oklahoma State

Sherman, C. Donald, Associate Director and Senior Soil Scientist

Sherman, Martin, Entomologist

Sherrod, Lloyd B., Assistant Animal Scientist
B.S. 1958, South Dakota State; M.S. 1960, Arkansas; Ph.D. 1964, Oklahoma State

Shigeura, Gordon T., Associate Horticulturist
B.S. 1939, M.S. 1947, Hawaii

Silva, James A., Assistant Soil Scientist
B.S. 1951, M.S. 1959, Hawaii; Ph.D. 1964, Iowa State

Spielmann, Heinz, Associate Agricultural Economist

*Degrees listed under "Instruction."
*STANDAL, BLUEBELL R. (Mrs. S. W.), Assistant Nutritionist
*STANLEY, RICHARD W., Associate Animal Scientist
*SWINDALE, LESLIE D., Soil Scientist
*TAKAHASHI, MAKOTO, Assistant Agronomist
*TAMASHTO, MINORU, Associate Entomologist
TAMIMI, YUSUF, Assistant Agronomist
  B.S. 1957, Purdue; M.S. 1959, New Mexico State; Ph.D. 1964, Hawaii
TANAKA, JACK S., Junior Horticulturist
  B.S. 1951, M.S. 1960, Hawaii
*UDHARA, GORO, Associate Soil Scientist
URATA, UKIO, Assistant Soil Scientist
*WANG, JAW-KAI, Associate Agricultural Engineer
*WARNER, ROBERT M., Horticulturist
WATANABE, ROGER T., Junior Soil Scientist
  B.S. 1956, Hawaii
WATANABE, YOSHIO, Junior Plant Physiologist
  B.S. 1958, Hawaii
*WAYMAN, OLIVER, Animal Scientist
WENKAM, NAO (Mrs. R.), Junior Nutritionist
  B.S. 1948, M.S. 1950, Chicago
WHITNEY, ARTHUR S., Assistant Agronomist
  B.S. 1955, Ohio; M.S. 1958, Cornell
WILLIAMS, DAVID D. F., Assistant Horticulturist
  B.Sc. 1952, Reading University (England); Ph.D. 1981, Wisconsin
*WILSON, C. PEARIS, Director
Wu, I-PAL, Assistant Agricultural Engineer
  B.S.A.E. 1955, National Taiwan; M.S.A.E. 1960, Ph.D. 1963, Purdue
*YAMAMOTO, HARRY Y., Assistant Food Technologist
*YOUNG, FRANKLIN, Nutritionist

Hawaii Institute of Geophysics

*ADAMS, WILLIAM M., Seismologist
*ANDERMAN, GEORGE, Assistant Chemist
ANDERSON, JAMES L., Junior Astrophysicist
  B.S.E.E. 1961, Brigham Young
ARMSTRONG, DAVID L., Junior Astrophysicist
  B.Sc. 1962, Puget Sound
BARKLEY, RICHARD A., Ph.D., Research Affiliate
  Oceanographer, Honolulu Biological Laboratory, Bureau of Commercial Fisheries
*BARNES, IRA LYNUS, Assistant Chemist and Geophysicist
BARNES, WILBUR B., JR., Research Associate in Geophysics
BENNETT, EDWARD B., Assistant Oceanographer
  B.A. 1955, M.A. 1958, British Columbia
*BONSACK, WALTER K., Associate Physicist
BYRNE, JOSEPH F., Project Administrative Officer
  A.B. 1942, California (Berkeley)
CAMPBELL, JOHN F., Junior Geophysicist
  B.S. 1962, M.S. 1966, Hawaii
CHA, MILTON H., Junior Physicist
  B.S. 1963, M.S. 1965, Hawaii

*Degrees listed under "Instruction."
CHAMBERLAIN, Theodore K., Assistant Geological Oceanographer

DANIELSEN, Edwin F., Meteorologist

DAVIS, Dan, M.S., Research Affiliate

Geologist, U.S. Geological Survey

DECKER, Robert Wayne, D.Sc., Research Affiliate

Associate Professor, Dartmouth College, and Geophysicist, Hawaii Volcano Observatory

DEHLINGER, Peter, Ph.D., Research Affiliate

Geophysicist, Oregon State

DIETZ, Richard D., Assistant Astrophysicist

B.S. 1959, Caltech; Ph.D. 1965, Colorado

DUCE, Robert A., Assistant Meteorologist

ELLIS, Howard, B.S., Research Affiliate

Physicist in Charge, Mauna Loa Observatory, U.S. Weather Bureau

EPPLER, Robert A., B.S., Research Affiliate

Seismologist, U.S. Coast and Geodetic Survey

FAN, Pow-Foong, Assistant Geophysicist

Finn, Gerard D., Assistant Astrophysicist

B.S. 1960, Queensland (Australia)

FISHER, Richard R., Assistant Astrophysicist

B.A. 1961, Grinnell; Ph.D. 1965, Colorado

FISHER, Richard V., Ph.D., Research Affiliate

Associate Professor, California (Santa Barbara)

FULLERTON, Charles M., Assistant Geophysicist

B.S. 1954, Oklahoma; M.S. 1964, Ph.D. 1966, New Mexico Institute of Mining and Technology

FURUMOTO, Augustine S., Assistant Seismologist

GALLAGHER, Brent, Assistant Oceanographer

GOYA, Wallace S., Research Technician in Geophysics

B.A. 1955, Hawaii

GRAEFE, Volker, Assistant Geophysicist

Diplom vor examen 1959, Gottingen; Ph.D. 1964, Kiel

GROVES, Gordon W., Oceanographer

HARTMANN, William K., Assistant Astrophysicist


HARWOOD, James J., Junior Astrophysicist

A.B. 1958, Columbia College

HEELSEMAN, Henry I., Junior Physicist

B.S.E.E. 1928, Purdue

HOLSTEN, William G., Assistant Geophysicist

B.A. 1961, California (Santa Barbara)

HOUlTON, Edward C., Research Associate in Geophysics

ICHINOSE, William N., Junior Geophysicist

B.A. 1954, Hawaii

JEFFERIES, John T., Astrophysicist, and Director, Haleakala Observatory

JOHNSON, Rockne, Associate Geophysicist

B.S. 1952, Washington

KOWALSKI, Alexander, Research Associate in Astrophysics

LADD, Harry S., Ph.D., Research Affiliate

Principal Geologist, U.S. Geological Survey

LAUDON, Thomas S., Ph.D., Research Affiliate

Geologist, Wisconsin State University

*Degrees listed under "Instruction."
*Laurila, Simo H., Geodesist
Lavin, Delia M. (Mrs. Ralph), Junior Geophysicist
B.S. 1939, Wisconsin

*Lavoie, Ronald L., Assistant Meteorologist
Layfield, James D., Research Associate
B.S. 1964, Alfred (New York)

Lindell, Melvin B., Research Associate in Astrophysics
Longfield, Richard, Junior Geophysicist
Lum, Ben K., Research Associate in Astrophysics

*MacDonald, Gordon A., Senior Geologist and Geophysicist
Machesky, Lawrence F., Junior Geophysicist
B.S. 1953, Wisconsin

*Malahoff, Alexander, Assistant Geophysicist

*Manghani, Murli H., Assistant Geophysicist

Mann, G. Richard, Junior Astrophysicist
B.A. 1960, Colorado

Mann, Herbert Mack, Research Associate in Astrophysics
Mason, Ronald, M.Sc., Research Affiliate
Geophysicist, Imperial College, London, England

Matsunaga, Ichiro, Assistant to the Director in Fiscal Matters
B.S.A. 1951, Walton School of Commerce

McAfee, Ethel U. (Mrs. C.B.), Junior Geophysicist
B.S. 1939, Hawaii

McCabe, Marie K., Assistant Astrophysicist
B.S. 1945, New Zealand; M.S. 1955, London

McKnight, Dennis R., Junior Physicist
B.A. 1963, Lehigh

Meyer, Robert P., Ph.D., Research Affiliate
Geophysicist, University of Wisconsin

Miller, Gaylord R., Ph.D., Research Affiliate
Oceanographer, Environmental Science Services Administration

*Moberly, Ralph M., Jr., Associate Geologist
Monges-Caldera, Julio (Ing.), M.S., Research Affiliate
Geophysicist, Universidad Nacional de Mexico

*Naughton, John J., Chemist

Norris, Roger A., Junior Geophysicist
B.A. 1960, M.S. 1963, Hawaii

*Orrall, Frank Q., Astrophysicist

Ostenso, Ned, Ph.D., Research Affiliate
Assistant Professor of Geology, University of Wisconsin

Palmer, Robert Q., Research Affiliate
Chief, Hilo Harbor Model Branch, U.S. Army Engineer District, Honolulu

*Pankiwskyj, Kost A., Assistant Geologist

Pararas-Carayannis, George A., Junior Geophysicist
B.S. 1959, M.S. 1962, Roosevelt

*Pasby, Brian F., Assistant Oceanographer

Phelps, Thomas M., Research Associate in Astrophysics

Pilarski, Harry, Research Associate in Astrophysics

Powers, Howard A., Ph.D., Research Affiliate
Scientist in Charge, Hawaii Volcano Observatory

Puce, Saul, M.S., Research Affiliate
Regional Climatologist, U.S. Weather Bureau, Honolulu

*Degrees listed under “Instruction.”
PIYOR, TAYLOR A., A.B., Research Affiliate
Director, Sea Life Park, Honolulu

RAMAGE, COLIN S., Associate Director and Meteorologist
RAMAN, COIMBATORE R.V., Associate Researcher
B.Sc. 1942, Madras

RESIG, JOHANNA M., Assistant Micropaleontologist
RHODES, RICHARD R., Junior Geophysicist
B.F.A. 1958, Chicago

ROSE, JOHN C., Associate Geophysicist
RYAN, THEODORE V., M.S., Research Affiliate
Chief, Environmental Science Services Administration, Seattle Oceanographic Laboratory

SADLER, JAMES C., Associate Meteorologist
B.S. 1941, Tennessee Polytech.; M.A. 1947, California (Los Angeles)

SCHAFER, GERALD EDWARD, Research Associate in Geophysics

SINTON, WILLIAM M., Astrophysicist

Sloan, William A., Assistant Astrophysicist
A.B. 1961, Bowdoin College; M.S. 1964, Ph.D. 1966, Yale

SNODGRASS, FRANK E., M.S., Research Affiliate
Associate Research Engineer, Scripps Institution of Oceanography

SOKOLOWSKI, THOMAS J., Research Affiliate
Geophysicist, Environmental Science Services Administration, Coast and Geodetic Survey

SPRAGUE, LUCIAN, Ph.D., Research Affiliate
Deputy Area Director, U.S. Bureau of Commercial Fisheries

STEERS, HAROLD T., Ph.D., Research Affiliate
Consulting Geologist, East Palo Alto, California

STEIGER, WALTER R., Physicist

STRICKER, GEORGE H., Geophysicist

TAYLOR, HOWARD F., Research Associate in Geophysics
TAYLOR, RONALD C., Junior Meteorologist
B.A. 1959, California (Los Angeles)

THOMAS, CHARLES W., Assistant Director
B.S. 1925, Coast Guard Academy; A.M. 1953, Washington; M.S. 1959, Maryland
THOMPSON, NOEL J., Research Associate in Geophysics
B.S. 1951, Wisconsin

VITOUSEK, MARTIN J., Associate Geophysicist
B.S. 1949, Ph.D. 1955, Stanford

WEINBERG, JERRY L., Associate Astrophysicist
B.S. 1958, St. Lawrence; Ph.D. 1963, Colorado

WESTERFIELD, VICTOR E., Research Associate in Astrophysics

WOODCOCK, ALFRED H., Meteorologist
D.Sc. (Hon.) 1963, Long Island

WOODRUFF, GRIFFITH, Research Associate in Geophysics

WOOLLARD, GEORGE PRIOR, Director
WORKMAN, EVENLY J., Meteorologist
B.S. 1924, Whitman; Ph.D. 1930, Virginia; D.Sc. (Hon.) 1955, Whitman

*Degrees listed under "Instruction."
Worthley, Leighton E., Jr., Assistant Meteorologist
B.S. 1942, California (Los Angeles)

*Wyrtki, Klaus, Oceanographer

Young, Edith H. (Mrs. I. C.), Junior Geophysicist

Zirker, Jack B., Astrophysicist
B.S. 1949, City College of New York; Ph.D. 1958, Harvard

Hawaii Institute of Marine Biology

Baldwin, Wayne J., Marine Biologist
B.S. 1952, Humboldt State College

*Banner, Albert H., Zoologist

*Brock, Vernon E., Director

*Chamberlain, Theodore C., Associate Marine Biologist

*Clutter, Robert I., Assistant Marine Biologist

*Davis, Larry V., Assistant Marine Biologist

*Dott, Maxwell S., Botanist

Helfrich, Philip, Associate Director
B.S. 1951, Santa Clara; Ph.D. 1958, Hawaii

*Hsiao, Sidney C., Zoologist

*Kamemoto, Fred I., Associate Zoologist

*Kay, E. Alison, Associate Marine Biologist

Keene, Emile H., Research Associate
B.S. 1937, Washington

Maciolek, John A., Assistant Zoologist
B.S. 1950, Oregon State; M.A. 1953, California; Ph.D. 1961, Cornell

*Murphy, Garth I., Marine Biologist

Randall, John E., Marine Biologist
B.A. 1950, California (Los Angeles); Ph.D. 1955, Hawaii

*Reese, Ernst S., Associate Zoologist

Short, Sally M., Research Associate

Associateship of Institute of Science Technology 1964, University College, London; Puddington Technical College

Struhsaker, Jeanette W., Assistant Marine Biologist
B.A. 1958, Western Washington College; Ph.D. 1966, Hawaii

Takahashi, Wataru, Jr., Marine Chemist
B.A. 1957, Hawaii; M.A. 1959, Indiana

*Tester, Albert L., Senior Zoologist

*Townsley, Sidney J., Zoologist

Walters, Charles K., Junior Marine Biologist
M.S. 1966, Hawaii

Yasumoto, Takeshi, Assistant Marine Chemist
B.S. 1957, M.S. 1959, Ph.D. 1966, Tokyo

Industrial Relations Center

Brisenden, Paul F., Visiting Colleague in Industrial Relations
A.B. 1908, Denver; A.M. 1912, California; Ph.D. 1917, Columbia

*Ferguson, John B., Assistant Director

Najita, Joyce M. (Mrs. Kazutoshi), Junior Researcher

*Roberts, Harold S., Director

*Shimaoka, Helene R., Assistant in Research

*Degrees listed under "Instruction."
Laboratory of Sensory Sciences

BATKIN, STANLEY, M.D., Research Affiliate
   Neuro-surgeon, Kaiser Foundation Hospital, Honolulu

*DIAMOND, A. LEONARD, Director

*PETTE, LAWRENCE H., Biophysicist

*VON BEKESY, GEORG, Research Director

Land Study Bureau

AWAI, EUNICE L. (Mrs. Donald), Junior Specialist in Cartography
   PROF. CERT. 1951, B.F.A. 1952, Pratt Institute

*BAKER, HAROLD L., Director and Land Economist

CHENG, ARTHUR Y., Junior Specialist in Land Classification
   B.S. 1930, Hawaii

FUJIMURA, FAITH N. (Mrs. Thomas H.), Junior Specialist in Cartography
   B.A. 1950, Hawaii

HAUGHTON, FRED A., B.S., Research Affiliate
   State Conservationist, Soil Conservation Service

KUWAHARA, IWAO, Junior Specialist in Geography
   B.A. 1950, Hawaii

MURABAYASHI, EDWIN T., Junior Specialist in Land Classification
   B.S. 1956, Washington State

NELSON, ROBERT E., B.S., Research Affiliate
   Chief, Hawaii Research Center, Pacific Southwest Forest and Range Experiment Station, U.S. Forest Service

PETERSON, L. KENNETH, B.S., Research Affiliate
   Resident Engineer, U.S. Geological Survey, Honolulu

SAHARA, TAMOTSU, Specialist in Land Classification
   B.S. 1948, Hawaii

Pacific and Asian Linguistics Institute

HSU, ROBERT W., Junior Linguist
   B.A. 1957, Cambridge; M.S. 1960, Georgetown

*McKAUGHAN, HOWARD P., Director

O’GRADY, GEOFFREY N., Visiting Associate Linguist
   B.A. 1959, Sydney; PH.D. 1963, Indiana

PARKER, GARY J., Assistant Linguist
   PH.D. 1963, Indiana

PETERS, ANN MARIE, Assistant Linguist
   A.B. 1959, Bryn Mawr; M.A. 1961, PH.D. 1966, Wisconsin

Pacific Biomedical Research Center

BASSETT, DAVID R., M.D., Research Affiliate
   Assistant Chief of Medicine in Charge of Teaching, Queen’s Hospital, Honolulu

BEVENUE, ARTHUR, Chemist
   B.S. 1946, California

CHOU, SHAO-CHIA, Associate Pharmacologist
   B.S. 1943, West China Union; M.S. 1950, Nebraska; PH.D., 1958, Stanford

*CHUNG, CHIN SIK, Biostatistician

*Degrees listed under “Instruction.”
HAMAMOTO, SUSAN T., Junior Microbiologist  
B.A. 1961, Grinnell; M.S. 1963, Brown

HATHAWAY, JOSEPH C., M.D., Research Affiliate  
Medical Administrator, Hale Mohalu, Department of Health, Honolulu

*HOHL, HANS R., Associate Microbiologist

*KANE, ROBERT E., Assistant Director, Kewalo Marine Lab

*KLEMMER, HOWARD W., Microbiologist

LENNEY, JAMES F., Associate Pharmacologist  
A.B. 1939, St. Louis; Ph.D. 1946, M.I.T.

MATSUI, ADELINA D. S., Associate Pharmacologist  
B.A., 1944, Colegio Marcono, Brazil; M.D., 1950, Universidade de Minas Gerais, Brazil

*MOORE, TERENCE O., Assistant Professor of Physiology

PALUMBO, NICHOLAS, Associate Veterinarian  
B.S. 1952, D.V.M. 1959, Missouri

PECK, DONALD A., M.D., Research Affiliate  
Surgeon, Honolulu

RAMANATHAN, SUBRAMANYAM, Assistant Pharmacologist  
B.Sc. 1954, American College (Madurai); M.A. 1957, Presidency College (Madras); Ph.D. 1963, Indian Institute of Science (Bangalore)

*ROGERS, TERENCE A., Director

ROTH, ALEXANDER, M.D., Research Affiliate  
Chief Pediatrician, Kaiser Foundation Hospital, Honolulu

SETLIFF, JAMES A., Junior Researcher in Physiology  
B.A. 1948, Vanderbilt

SIEGMUND, HARRY M., Fiscal Officer  
B.A. 1957, Columbia College

TAKENAKA, YASUO, M.D., Ph.D., Research Affiliate  
Pathologist, Honolulu

*WOLFF, ROBERT J., Associate Psychologist

YODER, PAUL E., Assistant Pharmacologist  
A.B. 1946, Fresno State; M.A. 1947, Ph.D. 1961, California (Los Angeles)

School of Public Health

BETTS, WILLIAM A., Public Health Administrator  
B.S. 1961, Mississippi State; M.P.H. 1966, Minnesota

BERTELLOTTI, ERNEST E., Associate Specialist in Public Health  
B.S. 1952, M.P.H. 1954, California (Berkeley); M.S. 1964, San Jose State College

CHAI, ALICE, Assistant Sociologist  
B.A. 1955, Ohio Wesleyan; M.A. 1957, Ph.D. 1962, Ohio State

FURUNO, SETSU, Associate Psychologist  
B.Ed. 1941, Hawaii; M.S. 1949, Columbia; Ph.D. 1960, New York

HORI, DANIEL, Assistant in Public Health  
B.S. 1958, Hawaii

HIGUCHI, ASA, Assistant to the Dean, Business Affairs  
B.S. 1949, M.S.W. 1953, Hawaii

HORI, SETSUKO, Assistant in Public Health  
B.A. 1965, Hawaii

ISHIGO, HAROLD, Fiscal Aide  
B.B.A. 1965, Hawaii

KADA, JIMMY M., Public Health Administrator  
B.S. 1957, M.P.H. 1965, California (Los Angeles)

*Degrees listed under "Instruction."
LEE, DIANA K. L., Assistant in Public Health  
B.A. 1966, Hawaii

Mendelson, Judith, Assistant in Research  
B.A. 1963, Massachusetts

Mori, Isshiko S., Assistant in Research  
M.D. 1926, Tokyo Women’s Medical College

Myttinger, Beverly, Assistant Specialist in Public Health  
B.S. 1955, Boston; M.P.H. 1957, Michigan

Nagal, Fay Y., Junior Researcher  
B.S. 1961, Hawaii

Okubo, Sakiko, Junior Researcher  
B.Ed. 1933, M.Ed. 1941, Hawaii

Oshima, Frances K., Assistant in Public Health  
B.A. 1966, Hawaii

Pearson, Carol, Junior Psychologist  
B.A. 1964, Minnesota

Smith, Doris, Junior Nutritionist  
B.S. 1955, Cornell

Terauchi, Mildred M., Assistant to the Dean, Student Affairs  
B.A. 1960, Hawaii; M.P.A. 1961, Syracuse

Tilton, Floyd H., Public Health Specialist  
A.B. 1950, California (Los Angeles); M.D.C.W. 1954, McGill; M.P.H. 1963, California (Berkeley)

Yoshizaki, Helen, Assistant in Public Health  
B.S. 1965, Hawaii

Wiederholt, Ned B., Associate Specialist  
B.A. 1950, B.Arch. 1952, Minnesota; M.Arch. 1954, Harvard

Social Science Research Institute

*Akita, George, Associate Historian

*Barringer, Herbert R., Associate Sociologist

*Becker, Theodore L., Associate Political Scientist

*Bloombaum, Milton S., Associate Sociologist

Cauldell, William A., Ph.D., Research Affiliate  
Laboratory of Socio-Environmental Studies, National Institute of Mental Health

*Cheng, Chung-Ying, Associate Philosopher

Cook, Nancy Mae, Assistant in Research  
B.A. 1959, California (Los Angeles)

D'Arc, Christine L., Junior Researcher in History  
B.A. 1984, M.A. 1988, Hawaii

DeVos, George A., Ph.D., Research Affiliate  
Professor of Anthropology, California (Berkeley)

Freeman, Linton C., Ph.D., Research Affiliate  
Professor of Sociology and Computer Science, Pittsburgh

*Haas, Michael, Assistant Political Scientist

Ikeda, Kiyoshi, Ph.D., Research Affiliate  
Associate Professor of Sociology, Oberlin College

*Kuroda, Yasumasa, Associate Political Scientist

*Lebra, William P., Director

Loveless, Owen, Ph.D., Research Affiliate  
Associate Professor of Linguistics, Minnesota

*Degrees listed under “Instruction.”
MacDonald, W. Scott, Associate Psychologist  
B.A. 1956, Ph.D. 1960, California (Los Angeles)  
Marble, Duane F., Ph.D., Research Affiliate  
Professor of Geography, Northwestern  

*Maretki, Thomas W., Associate Anthropologist  
*Mason, Leonard E., Anthropologist  
Matsuda, Mitsugu, Assistant Historian  

*Oshima, Harry T., Economist  
Pace, Glenn D., Political Scientist  

*Pearson, Richard J., Assistant Anthropologist  
*Pitts, Forrest R., Geographer and Associate Director for Program Development  
*Resnick, Michael D., Assistant Philosopher  
*Riggs, Frederick W., Political Scientist  
*Rummel, Rudolph J., Assistant Political Scientist  

Sakai, Sady, Assistant in Research  
B.A. 1945, Minnesota  

*Solheim II, Wilhelm G., Associate Anthropologist  
*Stauffer, Robert B., Political Scientist  
Van Niel, Eloise S., Junior Researcher and Administrative Assistant to Director  
A.B. 1944, Wooster; B.S. in L.S. 1945, Western Reserve  

Wagatsuma, Hiroshi, Associate Psychologist  
Buncaikushi (M.A. equiv.) 1953, Tokyo; M.A. 1957, Michigan; Daigakun manki shuryo (Ph.D. equiv.) 1958, Tokyo  

Wall, Charles F., Research Associate in Data Processing  

*Won, George, Assistant Sociologist  
*Yamamura, Douglas S., Sociologist  
Young, Byoung Hye, Junior Historian  
B.A. 1956, Grove City College (Pennsylvania); M.L. 1958, Pittsburgh  

Water Resources Research Center  

*Baker, Harold L., Resource Economist  
*Burbank, Nathan C., Jr., Sanitary Engineer  
Cagauan, Bernardino G., Junior Soil Scientist  
B.S. 1960, Central Luzon Agricultural College; M.S. 1963, Hawaii  

*Chang, Jen-hu, Associate Climatologist  
*Cox, Doak C., Director  
*Davidson, Jack R., Agricultural Economist  
*Ekern, Paul C., Jr., Hydrologist  
*Gertel, Karl, Agricultural Economist  
Hogg, Howard, Research Affiliate  
B.S. 1959, M.S. 1960, Oregon State; Ph.D. 1966, Hawaii  

*La, Chester, Assistant Geologist  
B.A. 1953, San Jose State College; M.S. 1957, Stanford  

*Lau, L. Stephen, Associate Director  
Levine, Max, Research Affiliate  
B.S. 1912, M.I.T.; Ph.D. 1922, Iowa; Sc.D., Hawaii  

*Mink, John, Research Affiliate  
M.S. 1951, Chicago  

*Degrees listed under "Instruction."
Price, Saul, Research Affiliate  
M.S. 1954, New York

Rankine, Lloyd B., Junior Resource Economist  
B.S. 1963, North Carolina Agri. & Tech. College; M.S. 1965, Hawaii

Sharma, Munna L., Assistant Soil Physicist  

*Uehara, Goro, Associate Soil Scientist

*Wu, I-Pai, Assistant Hydraulic Engineer

*Young, Reginald, Assistant Sanitary Engineer

SERVICE UNITS

Communications Service Center

Goya, Wallace, Graphic Photographer  
B.A. 1955, Hawaii

Lauda, Donald, Associate Director, Audiovisual Services  
B.A.E. 1963, M.S.E. 1964, Ph.D. 1966, Iowa State

Lauda, Sheila, Media Services Assistant  
B.A. 1966, Hawaii

*Lubitz, Donald, Associate Director, Graphic Services

Medeiros, Lionel, Graphic Production Manager  
B.A. 1959, M.A. 1962, Hawaii

*Sanderson, Richard, Director

Cooperative Extension Service

Akana, David, County Extension Agent, South Oahu  
B.S. 1932, Hawaii; M.S. 1950, California

Allen, Levice (Mrs. Bob), Associate Specialist in Family Living  
B.S. 1931, Alabama; M.A. 1948, Columbia

Aoki, George M., Associate County Extension Agent  
B.S. 1950, Hawaii

Arakawa, Bernice, Assistant Extension Home Economist, West Oahu  
B.S. 1964, Hawaii

Au, Frances C., Assistant Extension Home Economist, South Oahu  
B.S. 1964, Hawaii

Blalock, John R., County Extension Agent, Molokai  
B.S. 1946, M.S. 1949, Massachusetts

*Boyer, Jere, Assistant Specialist in Agricultural Economics

Bradshaw, Blaine, Assistant Specialist in Extension (RAD)  
B.S. 1939, M.S. 1962, Wyoming

Chong, Wing You, Associate County Extension Agent, East Hawaii  
B.S. 1943, California

*Chun, Edwin Y., County Extension Agent, South Oahu

Doi, M. James, Associate County Extension Agent, Maui  
B.S. 1942, Hawaii

Donahue, Eugenia, Extension Home Economist, Kauai  
B.S. 1947, M.S. 1957, Kentucky

Donoho, Harry R., Associate Area Specialist in Livestock Management  
B.S. 1949, Kentucky; M.S. 1951, Ph.D. 1955, Ohio State

Doue, Stephen M., Assistant Specialist in Agricultural Economics  
B.A. 1947, M.A. 1959, Hawaii

*Degrees listed under "Instruction."
GARCIA, CLARENCE W., Assistant County Extension Agent, Kohala  
B.S. 1957, Hawaii

GASCON, HELEN S. (Mrs. J. E., Jr.) Associate Extension Home Economist, West Oahu  
B.S. 1953, M.S. 1960, Hawaii

GITLIN, HARRIS M., Assistant Specialist in Agricultural Engineering  
B.S. 1940, B.AGR. ENGR. 1941, Ohio State; M.S. 1962, Michigan State

GOODELL, DALE N., Associate Director  
B.S. 1942, Iowa State; M.S. 1952, Minnesota

GUTIERRES, JEAN (Mrs. Frank), Assistant Specialist in Extension  
B.S. 1950, M.A. 1957, Hawaii

HANSEN, HARRY L., County Extension Agent, Kauai  
B.S. 1942, Nevada

HARRELL, GERTRUDE P. (Mrs.), Specialist in Clothing  
B.S. 1927, Georgia State College for Women; M.A. 1949, Columbia

HENDRICKS, FLORENCE E., Assistant Extension Home Economist, East Oahu  
B.S. 1962, Kansas

HIGAKI, TADASHI, Associate County Extension Agent, Hilo  
B.A. 1958, M.S. 1961, Hawaii

HIROSHIGE, HERBERT M., Assistant Specialist in Agricultural Economics  
B.S. 1934, California; M.A. 1950, Hawaii

HONMA, HARUO, County Extension Chairman, Oahu  
B.S. 1940, Hawaii; M.Ed. 1950, Colorado State; M.S. 1959, Michigan State

HORI, TED, Assistant County Extension Agent, Honokaa  
B.S. 1955, Hawaii

HORIMOTO, HELENE H., Assistant Extension Home Economist, South Oahu  
B.S. 1963, Hawaii

*HUGH, WILLIAMS L., Associate State and Area Swine Specialist
HUNTER, MILLER T., County Extension Agent, Maui  
B.S. 1940, M.S. 1952, Missouri

IKEDA, WARREN, County Extension Agent, Hilo  
B.S. 1939, Hawaii

IKEHARA, DENNIS, Assistant County Extension Agent, Kauai  
B.S. 1961, Hawaii

*ISHIDA, JACK T., Associate Specialist in Agricultural Economics
ITO, MABEL I. (Mrs. George T.), Extension Home Economist, Maui  
B.S. 1941, Hawaii

IWANE, JOHN Y., County Extension Agent, Kona  
B.S. 1940, Hawaii

KITAGAWA, YUKIO, Associate County Extension Agent, West Oahu  
B.S. 1955, Hawaii

*KOSHI, JAMES H., Area Specialist in Dairy Science
KUBOYAMA, ELLEN, Assistant Extension Home Economist, Kamuela  
B.S. 1966, Hawaii

KUMABE, BUNKI, County Extension Agent, East Oahu  
B.S. 1942, Hawaii; M.S. 1953, Missouri

KUNIOWA, JAMES I., JR., Assistant County Extension Agent, Kamuela  
B.S. 1964, Hawaii

LAPLANTE, ALBERT A., Associate Specialist in Entomology  
B.S. 1944, Massachusetts; Ph.D. 1955, Cornell

LENK, SACHIKO, (Mrs. John), Extension Home Economist, Kona  
B.S. 1949, Hawaii; M.S. 1957, Pennsylvania State

*Degrees listed under “Instruction.”
LING, LOLITA, Assistant Extension Home Economist, Maui
B.S. 1965, Brigham Young

LYMAN, CLARENCE, Specialist in Pasture Management
B.S. 1937, M.S. 1941, Hawaii

MARUYAMA, CHARLES I., County Extension Agent, Maui
B.S. 1935, Hawaii; M.S. 1962, Washington State

MATSUMOTO, DAN K., Associate County Extension Agent, Hilo
B.S. 1951, Hawaii; M.S. 1961, Michigan State

MATSUMOTO, ELEANOR A., Associate Specialist in Home Economics
B.S. 1941, Hawaii; M.A. 1953, Columbia

MCCALL, WADE W., Associate Soil Management Specialist
B.S.A. 1942, M.A.E. 1947, Florida; Ph.D. 1953, Michigan State

MIHATA, KEICHI, County Extension Agent, East Oahu
B.A. 1935, M.S. 1964, Hawaii

MIYABARA, JEAN S., Assistant Extension Home Economist, Hilo
B.S. 1980, Mankato State College

Moser, Roy E., Specialist in Food Technology
B.S. 1947, M.S. 1949, Massachusetts

NAKAGAWA, YUKIO, Associate Specialist in Horticulture
B.S. 1940, Hawaii

NAKASATO, MASARU C., County Agent Supervisor
B.S. 1951, Hawaii; M.S. 1961, Oregon State

NOLAN, JAMES, Associate Area Specialist in Livestock
B.S. 1950, M.S. 1952, Wyoming

OHAMA, MASAKO, Assistant Extension Home Economist, Kauai
B.S. 1947, Hawaii

OKAGAWA, TOMOYUKI, Associate County Extension Agent, East Oahu
B.S. 1954, Hawaii

ORE, KATHRYN J., Associate Foods and Nutrition Specialist
B.S. 1945, California; M.S. 1949, Michigan State

OTA, ROBERT M., County Extension Agent, Hilo
B.S. 1950, Colorado State; M.S. 1959, Purdue

PENNER, RUTH T., Associate Extension Home Economist, South Oahu
B.S. 1943, Tennessee

REID, VERA Y., Assistant Specialist in Home Management and Home Furnishings
B.S. 1942, Auburn; M.S. 1959, Florida State

SAKUMA, MABEL, Assistant Extension Home Economist, Maui
B.S. 1956, Hawaii

SCHWARTZ, LILLIAN R. (Mrs.), Extension Home Economist, South Oahu
B.S. 1931, Hastings College; M.S. 1961, Michigan State

SHADDICK, PHYLLIS ANN, Assistant Extension Home Economist, East Oahu
B.S. 1958, Florida State

SHIGETA, DANIEL T., County Extension Agent, Kula, Maui
B.S. 1950, Hawaii; M.Ed. 1964, Colorado

SHIGETA, JAMES Y., Associate Specialist in Club Work
B.S. 1951, Maryland; M.S. 1958, Wisconsin

SHIGEURA, GORDON T., Associate Area Specialist in Extension
B.S. 1939, M.S. 1947, Hawaii

SHIMABUKURO, BETTY Z., Associate Extension Home Economist, Hilo
B.S. 1948, Hawaii; M.S. 1953, Michigan

SHIRAKAWA, TAKUMI, County Extension Agent, Naalehu
B.S. 1948, Hawaii; M.S. 1983, Michigan

SOLID, CAROL H., Assistant Extension Home Economist, South Oahu
B.S. 1962, Colorado State
FACULTY AND STAFF—ETV SERVICES

SPECEELS, ELIZABETH, Assistant State Club Leader
B.S. 1960, South Dakota; M.A. 1965, Hawaii

Takahashi, T. Francis, Associate County Extension Agent, Kauai

Takeuchi, Elsie F., Assistant Extension Home Economist, West Oahu
B.S. 1964, Iowa State

Takei, Shiro, Associate Specialist in Agricultural Economics
B.S. 1938, Hawaii; M.S. 1960, Michigan State

Takahashi, T. Francis, Associate County Extension Agent, Kauai

Takeguchi, Elsie F., Assistant Extension Home Economist, West Oahu
B.S. 1964, Iowa State

Takei, Shiro, Associate Specialist in Agricultural Economics
B.S. 1938, Hawaii; M.S. 1960, Michigan State

Takahashi, T. Francis, Associate County Extension Agent, Kauai

Takeguchi, Elsie F., Assistant Extension Home Economist, West Oahu
B.S. 1964, Iowa State

Takahashi, T. Francis, Associate County Extension Agent, Kauai

Takeguchi, Elsie F., Assistant Extension Home Economist, West Oahu
B.S. 1964, Iowa State

Voss, Roylyn Lee, Junior Specialist in Rural Civil Defense
B.S. 1961, Michigan State

Wada, Charlotte, Assistant Extension Home Economist
B.S. 1966, Hawaii

Watson, Donald P., Specialist in Horticulture

Wata, Charlotte, Assistant Extension Home Economist
B.S. 1966, Hawaii

°Watson, Donald P., Specialist in Horticulture

Wilson C. Pears, Director

Yamamoto, Tom, Assistant County Extension Agent, Hilo
B.S. 1957, M.A. 1964, Oregon State

Yamamoto, Tom, Assistant County Extension Agent, Hilo
B.S. 1957, M.A. 1964, Oregon State

Yee, Warren Y. J., Associate Specialist in Horticulture

Yonamine, Charles N., Associate County Extension Agent, West Oahu
B.S. 1951, California State Polytechnic College

Educational Television Broadcasting Services

Barnhill, Carol, Program Assistant
B.A. 1962, Oregon

Carter, Nicholas, Producer-Director
B.S. 1962, M.A. 1964, Florida

Cronin, Henry, Chief Engineer
B.S. 1963

Ebelen, Clarence, Program Manager
B.S. 1951, Wisconsin

Fujoka, Robert, Studio Engineer

Gallagher, David, Producer-Director
B.A. 1959, California

Hamilton, Charles, Graphics Supervisor
B.A. 1959, Florida

Hirata, Bob, Administrative Assistant
B.A. 1965, Hawaii

Itaki, Terry, Studio Engineer

James, John, Producer-Director
B.Ed., 1961, Ohio; M.Ed. 1966, Hawaii

Jones, Wendell, Producer-Director
B.S. 1962, Iowa

*Degrees listed under “Instruction.”
Far East Training Center (UH/AID)

Burns, David J., Language Coordinator
B.A. 1957, Wichita; M.A., Emporia State Teachers College

Chitakasem, Manas, Thai Linguist
B.S. 1981, Prasannmitr College of Education (Thailand); M.A. 1983, Michigan

*Clopton, Robert W., Senior Education Consultant
Kemble, Virginia O., Program Evaluator
B.A. 1943, Oklahoma State; M.A., Hawaii

Manning, Ivan L., Community Relations Consultant
B.A. 1939, Whitman College

Sandborn, Kenneth O., Coordinator of Evaluation
B.A. 1948, New Hampshire; Ph.D. 1955, Texas

Schlossstein, Steven B., Administrative Assistant
B.A. 1963, Austin College; M.A. 1967, Hawaii

Schumacher, Henry, Curriculum Adviser
B.S. 1963, Delaware Valley College; M.S. 1966, Hawaii

Speakman, E. Cummins, Director
B.A. 1947; M.A. 1948, Virginia; Ph.D. 1955, Yale

Watson, Richard L., Vietnamese Linguist
B.A. 1958, Prairie Bible Institute; M.A. 1966, Hartford Seminary Foundation

Wheeler, Richard S., Coordinator, Asia/America Program
B.A. 1950; M.A. 1954; Ph.D. 1957, California (Berkeley)

Office of Foreign Contracts

Brisby, Phyllis J., Instructor in Education
B.A. 1984, Omaha

*Daefker, Carl J., Assistant Professor of Education

*Ihara, Teruo, Director of Foreign Contracts, Associate Professor of Education
Lyon, Ralph E., Assistant Professor of Education
B.E. 1959, Colorado State

*Porter, M., Rosemonde, Professor of Education

Rantala, John W., Assistant Professor of Education
B.S. 1951, Stout Institute; M.Ed. 1953, Illinois

*Degrees listed under "Instruction."
TAMASHIRO, James S., Assistant Professor of Education
  B.A. 1931, Hawaii
TAURA, Juliette K., Assistant Professor of Education
UYEMATSU, Masao, Assistant Professor of Education
ZANE, Ah Chong, Assistant Professor of Education
  B.A. 1942, Santa Barbara State; M.Ed. 1947, Missouri

Office of International Programs
GRAHAM, Walter A., Assistant to Director
  B.A. 1959, Kentucky Wesleyan; M.A. 1965, Hawaii
KIRKENDALL, Guy R., Deputy Director
  B.A. 1953; M.A. 1954, Utah
OKAMOTO, Koozo, Institutional Administrative Officer
  B.B.A. 1952, Hawaii; L.L.B. 1959, Miami
STALKER, John N., Director
  B.A. 1943, Wooster; M.A. 1948; Ph.D. 1950, Wisconsin

Foreign Language Laboratories
FUKUDA, Annette C., Language Labs Coordinator
  B.A. 1966, Hawaii
THEUMA Jean R., Director, Foreign Language Laboratories
  Diploma 1961, Sorbonne; B.A. 1962, Hawaii; M.A. 1966, Middlebury College

Legislative Reference Bureau
DEWA, Roger, Assistant Researcher
  B.S. 1959, LL.B. 1962, Wisconsin
DOI, Herman S., Director and Researcher
  A.B. 1950, Hawaii; LL.B. 1954, Minnesota
JOESTING, Harriet, Junior Researcher
  A.B. 1948, Wellesley College
KOBAYASHI, Hanako, Assistant Research Librarian
  B.A. 1954, Hawaii; M.S. 1956, Simmons College
MARK, Charles, Assistant Researcher
  M.B.A. 1956, Chicago
MIYAGI, Annette Y., Assistant in Research
  B.A. 1964, Hawaii
PUTMAN, Patricia K., Assistant Researcher
  B.A. 1944, LL.B. 1956, California
STANLEY, Patrick, Assistant in Research
  B.A. 1961, San Francisco State
TAMURA, May, Junior Research Librarian
  B.A. 1955, Hawaii; M.S. 1956, Wisconsin

Peace Corps Training Center
ALEXANDER, Michael D., Field Assessment Officer
  B.S.C. 1964, M.A. 1966, Ohio State
BISUDDHANARAKSH, Noree, Acting Deputy Project Director/Language
  B.A. 1942, Chulalongkorn (Bangkok); M.A. 1960, Michigan
BRACHER, GEORGE, Coordinator of Medical and Health Program  
B.A. 1930; M.D. 1934, Oregon

FAUZY, BIN HALIM, Language Coordinator  
Language Institute, 1963-64, Kuala Lumpur

HARRIS, JIM, TEFL Instructor/Coordinator  
B.A. 1959; M.A. 1963, Washington

JAECKLE, WALTER R., Field Assessment Officer  
B.A. 1957; Ph.D. 1965, Nebraska

JOLIFF, JAMES LOWELL, Field Assessment Associate  
B.A. 1962; M.A. 1965, Ohio State

KIYOSAKI, RALPH, Director  
B.A. 1942, Hawaii

KIYOSAKI, MARJORIE, Nurse  
R.N. 1944, St. Francis Hospital

KRAMER, RAYMOND J., Project Director  
B.S. 1955, San Jose State College

LEGG, EARL, Associate Project Director  
B.S. 1964, Kansas State

MACDONALD, SCOTT, Field Assessment Officer  
B.A. 1956; Ph.D. 1960, California (Los Angeles)

MATAYOSHI, MARY Y., Administrative Assistant  
B.A. 1952, Grinnell

McINTIRE, WILLIAM N., Deputy Director  
B.A. 1957; M.A. 1961, Hawaii

NOJIRI, MAY, Nutritionist  
B.S. 1962, Iowa State

PETERSEN, RUTH, Librarian

POLITANO, ANITA, Contractor's Overseas Representative  
B.A. 1952, Barry College

ROY, JOSEPH A., Project Director  
B.S. 1957, Georgetown; M.A. 1963, Chicago; Ph.D. 1966, Georgetown

THANGATHURAI, T., Resource Specialist  
B.A. (Hon.) Diploma in Education, Singapore

TOMPKINS, JOHN, Project Director  
B.S. 1964, Cornell

WILLIAMS, MARY L., Assistant Project Director  
B.A. 1963, California (Berkeley)

WOODIN, THEODORE, Coordinator, Asia/America Program  
B.A. 1953, Colorado College; M.A. 1963, Hawaii

ZIMM, MAURICE, Audio Visual Coordinator

Statistical and Computing Center

ARASHIRO, DANIEL Y., Systems Programmer  
B.S. 1965, Hawaii

HIGASHI, ALBERT M., Systems Analyst Programmer  
B.S. 1963, Hawaii

HO, FRANCIS F. W., Systems Programmer  
M.S. 1963, Hawaii

LAM, DIANTHA L., Applications Programmer  
B.A. 1965, Vassar

PARARAS-CARAYANNIS, JEAN, Programs Librarian  
B.A. 1964, Hawaii

PETERSON, W. WESLEY, Acting Director  
Ph.D. 1954, Michigan
FACULTY AND STAFF—VICE-PRESIDENT'S OFFICES

SOONG, WILLIAM Y. JR., Programmer
   B.A. 1964, Hawaii
TSUCHIYAMA, FRANCES F., Supervisor, Machine Operations
   B.A. 1963, Hawaii
YEE, WALTER S., Assistant Director
   B.S. 1960, Hawaii

University of Hawaii Press

HOWE, JOHN S., Journals Manager
   A.B. 1961, Haverford College
ISAYAMA, PAMELA J., Editor
   A.B. 1962, Pembroke College (Brown)
SPARKS, ROBERT W., Director
   B.A. 1960, M.A. 1964, Hawaii
WAGEMAN, JAMES C., Production Manager
   A.B. 1958, Park College; M.A. 1964, Hawaii

OFFICE OF VICE-PRESIDENT FOR ACADEMIC AFFAIRS

*HIATT, ROBERT W., Vice-President for Academic Affairs
*KAMINS, ROBERT M., Dean for Academic Development
UNEMORI, GRACE, Assistant to Vice-President for Academic Affairs
   B.A. 1950, Hawaii

OFFICE OF VICE-PRESIDENT FOR BUSINESS AFFAIRS

*TAKASAKI, RICHARD S., Vice-President for Business Affairs
ARRE, GEMINIANO Q., Jr., Institutional Analyst (Auxiliary Services)
   B.B.A. 1956, Philippines; M.A. 1960, Hawaii
BLOEDE, V. CARL, Contracting Officer
   A.B. 1940, Dartmouth; LL.B. 1950, Baltimore
BRODIE, MYRTLE S., Personnel Officer
CAMPBELL, WILLIAM R., Jr., Director of Campus Development
   B. ARCH. 1954, North Carolina State
CURRY, HARRY, Jr., Manager, Transportation Services
FUJIKAWA, DANIEL Y., Manager, Communication Services
GILMORE, ALLEN J., Project Estimator-Coordinator
   B.S. 1944, U.S. Naval Academy; B.S. (ME) 1952, M.S. (ME) 1953, U.S. Naval Postgraduate School
GORDON, JOSEPH A., Manager, Parking and Faculty Housing
GOTO, MASAICHI, Manager, Bookstore
   B.A. 1940, Hawaii
HANSEN, JOHN L., Director, Plant Engineering & Safety
   B.S. 1942, U.S. Naval Academy
HORII, RALPH T., Jr., Institutional Analyst
   B.A. 1962, M.A. 1964, Hawaii
IHA, YOSHIMITSU D., Institutional Analyst (Budget)
   B.A. 1962, Wheaton College

*Degrees listed under "Instruction."
INOUYE, MINORU R., *Projects Coordinator*
  B.Arch. 1956, Michigan

JAMES, CHARLES S., *Director of Finance*
  B.A. 1947, California

KIRKPATRICK, NORA B., *Institutional Analyst (Economist)*
  B.A. 1938, Minnesota; M.A. 1941, Radcliffe College

KNOPF, PAUL H., *Project Planner*
  B.S. 1949, Michigan State; M.C.P. 1952, Michigan

KOEHNER, PHILIP W., *Manager, Physical Plant*
  B.A. 1942, Northwestern College

LOO, FREDERICK S. W., *Institutional Management Analyst*
  B.S. 1940, Hawaii; M.A. 1941, Colorado State

MACELESSEN, JOHANNES, *General Manager, University Bookstore*
  B.A. 1942, Luther College

MASHIMA, EDWARD K., *Institutional Analyst (Personnel)*
  B.A. 1952, Hawaii

MASUMOTO, HAROLD S., *Institutional Analyst (Budget)*
  B.A. 1960, Hawaii

MORIHARA, MOKIO, *Institutional Analyst (Auditor)*

MORIYASU, HENRY M., *Business Management Office*
  B.A. 1947, Hawaii

MURAOKA, WALTER K., *Projects Coordinator*
  B.S. 1955, Detroit

NAKASONE, CAROLE T., *Space Analyst*
  B.A. 1964, Hawaii

OHITA, KENNETH H., *Institutional Fiscal Analyst*
  B.A. 1942, Hawaii

PILLERT, FRANK D., *Projects Coordinator*
  B.Arch. 1959, Arkansas

SHIDA, DAVID, *Acting Director, Property Management Office*
  B.A. 1950, Baldwin-Wallace College

SMITH, ESTHER M., *Institutional Analyst (Personnel)*
  B.A. 1948, M.A. 1962, Hawaii

SNYDER, KEITH S., *Director of Auxiliary Services*
  B.A. 1942, Carleton College

SUMIDA, KENJI, *Institutional Analyst (Management)*
  B.B.A. 1953, Hawaii

TANABE, GEORGE K., *Comptroller—Research and Training Contracts*
  B.B.A. 1941, Armstrong

YAMADA, ALLEN H., *Institutional Analyst (Accounting System)*
  B.S.B.A. 1948, M.B.A. 1949, Denver

YAMAMOTO, JUDY A., *Assistant Space Analyst*
  B.B.A. 1966, Hawaii

TINKER, SPENCER W., *Director of Waikiki Aquarium*
  B.S. 1931, Washington; M.S. 1934, Hawaii

OFFICE OF UNIVERSITY PLANNING

*TURNBULL, MURRAY, Assistant to the President for Planning*

KOSAKI, MILDRED D., *Institutional Research Coordinator*
  B.Ed. 1945, M.Ed. 1949, Hawaii

NAKAMURA, IRENE T. O., *Institutional Research Analyst*
  B.Ed. 1948, FIFTH-YEAR CERT. 1949, Hawaii

*Degrees listed under "Instruction."
OFFICE OF RESEARCH ADMINISTRATION

*GORTER, WYTZE, Director of Research
*Rosenberg, Morton, Associate Dean
McMath, Carroll B., Jr., Assistant to Director of Research
B.S. 1932, Oregon State; M.S. 1936, New York

EAST-WEST CENTER

IAP—Institute of Advanced Projects, ISI—Institute for Student Interchange, ITI—Institute for Technical Interchange, CP—Central Programs

ALSDORF, Joelle S., Orientation Officer, ISI
B.A. 1964, Muskingum College; M.A. 1965, Columbia

Barber, Richard, Residence Services Manager, CP
B.S. 1965, Hawaii

Bennington, Jeannette, Evaluation & Alumni Liaison Officer, CP
B.S. 1957, Western Reserve & The Cleveland Institute of Art

Billings, Beatrice, Senior Program Officer, ITI
B.S. 1930, Cornell; M.A. 1935, Columbia

Burián, Frederick, Associate Program Officer, AID, ITI
B.A. 1963, Hawaii

Chen, Chi-Ping, Library Acquisitions Specialist, EWC Library, CP
M.A. 1959, National Chengchi University, Taiwan; M.L.S. 1964, Oklahoma

Cheng, Susie S., Library Cataloger, EWC Library, CP
B.A. 1961, Taiwan Normal; M.A. 1965, Indiana

Choic, Helen J., Program Coordinator, ISI
B.A. 1961, M.A. 1963, Hawaii

*Chun, Dai Ho, Associate Institute Director, ITI

Clay, Horace, Senior Program Officer, ITI
B.S. 1950, Hawaii; M.S. 1952, Massachusetts; Ph.D. 1958, Chicago

Faust, David, Student Activities Officer, ISI
B.S. 1958, Pennsylvania State

Faustino, Sally, Assistant Program Officer, ITI
B.S. 1952, Hawaii; M.P.H. 1962, Michigan

Ferguson, Kathryn, Asian Directory Coordinator, EWC Press, CP
B.A. 1937, Findlay College; M.A. 1959, Michigan State

Gilstrap, Sam P., Deputy Chancellor for Administration
B.S. 1930, Oklahoma State; LL.B. 1931, Cumberland

Goodfriend, Arthur, Special Assistant to the Chancellor
B.S. 1928, College of City of New York

Goto, Y. Baron, Vice-Chancellor, ITI
B.S. 1924, Hawaii; Sc.D. (Hon.) 1959, Oregon

Harris, Alice D., Library Cataloger, EWC Library, CP
B.A. 1951, Russell Sage College; M.S. 1956, Drexel Institute

Hata, Samuel T., Controller, Administration
B.A. 1956, Hawaii

Heavenridge, Janet H., Production Manager, EWC Press, CP
B.A. 1950, Michigan

Hirata, Lucie C., Library Cataloger, EWC Library, CP
B.A. 1961, Hawaii; M.A. 1964, Chicago

Hubbard, James, Associate Program Officer, ITI
B.A. 1950, B.S. 1960, Washington State

*Degrees listed under "Instruction."
JONES, Gardiner B., Jr., Public Information Officer, CP
B.A. 1947, Minnesota

JONES, Howard P., Chancellor
Litt.B. 1921, Columbia; LL.D. 1962, Fairleigh-Dickinson

KAI, Margaret, Community Relations Officer, CP
B.A. 1932, 5th Yr. Cert., M.A. 1933, Hawaii

KAMIDA, Alan, Head Cataloger, EWC Library, CP
B.A. 1954, Michigan State, M.L.T. 1959, Rutgers

KANEHELE, George, Director of Conferences and Seminars, CP
B.S. 1958, M.A. 1959, Brigham Young

KATEKARU, Ray T., Senior Program Officer, AID, ITI
B.S. 1940, Stout State College

KENNEDY, Mavis, Assistant Public Information Officer, CP
A.B. 1945, Michigan

KLEINJANS, Everett, Deputy Chancellor for Academic Affairs
A.B. 1943, Hope College; M.A. 1948, Ph.D. 1958, Michigan

KOKUBUN, Herbert, Administrative Management Officer, Administration
B.A. 1952, Hawaii

KONOSHIMA, Sumiye E., Assistant Program Officer, EWC Library, CP
A.B. 1949, Hope College; M.A. 1957, Teachers College, Columbia

KOZICKI, Richard J., Library Acquisitions Specialist, EWC Library, CP
B.A. 1951, Allegheny College; M.A. 1953, Yale; Ph.D. 1959, Pennsylvania

KWOK, Tak-Wa, Senior Program Officer, Research Translations, IAP
B.A. 1921, Washington; M.A. 1922, Harvard; Research Cert. 1923, Cantab

KYLE, John, Director, EWC Press, CP
B.A. 1951, M.A. 1953, Oklahoma

LAU, Florence, Program Coordinator, ISI
B.S. 1961, M.A. 1964, Hawaii

LENNOX, George, Associate Director, EWC Press, CP
B.Des. 1951, Michigan

MAKEY, Sumi Y., Field Study Officer, ISI
B.A. 1948, Hawaii; M.A. 1951, Columbia

MATSUI, Masato, Library Acquisitions Specialist (Coordinator Public Services, Oriental Collections), EWC Library, CP
B.A. 1953, Doshisha; M.S. 1958, Syracuse

MEREDITH, Gerald, Alumni Affairs Officer, CP
B.A. 1955, M.A. 1956, California

MEYERS, Paul F., Jr., Program Coordinator, ISI
B.A. 1958, George Washington

MORRIS, Aldyth V., Senior Editor, EWC Press, CP
B.A. 1921, Utah State

NAKAMURA, Rose, Program Coordinator, ISI
B.S. 1950, Hawaii

PATTSON, John D., Program Coordinator, ISI
B.A. 1965, Wisconsin State

PEARSON, Kazue M., Library Cataloger, EWC Library, CP
B.A. 1954, Doshisha; M.S. 1963, Simmons College

ROBERTS, Dorothy E., Field Study Research Specialist, ISI
B.A. 1930, California; M.A. 1938, Southern California; Ph.D. 1955, California (Berkeley)

SAUNDERS, Marion, Program Officer, ISI
A.B. 1935, New Mexico; M.A. 1942, Southern California; M.A. 1960, Hawaii
SEO, YUNG-DO, *Library Cataloger, EWC Library, CP
B.S. 1950, Ewha Women’s University, Korea

SHINKAWA, BETSEY Y., *Assistant Editor, Public Affairs Office, CP
B.S. 1953, Northwestern

SHU, AUSTIN C. W., *Library Cataloger, EWC Library, CP
B.L.S. 1941, Boone University (China); B.A. 1944, National Auhwei University (China)

SU, TU-JEN, *Library Cataloger, EWC Library, CP
B.A. 1951, M.A. 1956, Western States College

SUEHIRO, RICHARD, *Senior Program Officer, ITI
B.A. 1949, Hawaii; M.A. 1951, Indiana; M.P.H. 1962, Michigan

SUSSMAN, GERALD E., *Associate Program Officer, International Development Fellowships, IAP
B.S. 1959, LL.D. 1962, Georgetown; M.A. 1964, Johns Hopkins

TAN, LAN HIANG, *Library Acquisitions Specialists, EWC Library, CP
B.A. 1951, M.A. 1956, Indonesia; M.A. 1959, Columbia

THOMPSON, MEG, *Special Activities Officer, CP
B.S. 1939, Illinois; M.A. 1960, Southern California

WAGEMAN, LYNETTE M., *Library Cataloger, EWC Library, CP
B.A. 1959, Park College

WAKE, EDWARD M., *Associate Program Officer, AID, ITI
B.A. 1956, Hawaii; M.S.S.A. 1960 Western Reserve

WALKER, ALICE E., *Library Cataloger, EWC Library, CP
B.S. 1934, Simmons College

WANG, JAMES C. F., *Program Coordinator, ISI
B.A. 1950, Oberlin

WELDON, WILLIAM S., *Student Selection Officer, ISI
B.A. 1950, M.A. 1952, Michigan

WITTERMANS, ELIZABETH, *Senior Program Officer, Research Translations, IAP
M.A. 1954, London; Doctorandus 1959, Leyden; Ph.D. 1964, Leiden

WOOSTER, ROBERT, *Associate Field Study Officer, ISI
B.A. 1963, Hawaii

WRIGHT, JOYCE M., *Acting Director, EWC Library, CP
B.S. 1938, B.A.L.S. 1939, Washington

WRIGHT, NORMAN J., *Sales Manager, EWC Press, CP
B.A. 1939, Alabama; M.A. 1941, Hawaii

YORITA, PEGGY, *Associate Selection Officer, ISI
B.A. 1946, Hawaii; M.Ed. 1959, Boston

ZUMWINKLE, ROBERT, *Director, ISI
B.A. 1943, Ph.D. 1953, Minnesota

*Degrees listed under “Instruction.”
SUMMARY OF ENROLLMENT FOR 1966-67

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Summary of Enrollment (continued)

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<td><strong>Total University Degree and Diploma Candidates</strong></td>
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|                         |              |              |
| **Not Candidates for University Degrees and Diplomas** |              |              |
| Graduates              | 990          | 1,196        |
| Prof. Cert.            | 141          | 142          |
| Undergraduates         | 578          | 424          |
| Auditors               | 58           | 65           |
|                         | **1,767**    | **1,827**    |
| **Total, Honolulu Campus** | **14,772**   | **14,605**   |

|                         |              |              |
| **East-West Center Grantees on Study Tours** |              |              |
| Asians                  | 29           | 14           |
| Americans               | 44           | 32           |
|                         | **73**       | **46**       |
| **Total, Hilo Campus**  | 571          | 559          |
| College of General Studies | 3,129        | 3,635        |
|                         | **18,545**   | **18,845**   |

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<td>Manoa Campus</td>
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<td>Hilo Campus</td>
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<td><strong>Total</strong></td>
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