General Catalogue

1966-1967
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UNIVERSITY OF HAWAII BULLETIN

VOLUME XLV

May 1966

Number 4

The University of Hawaii Bulletin is published in November, February, March, and May at the University of Hawaii, Honolulu, Hawaii, U.S.A. Entered as second-class matter at the Post Office at Honolulu, Hawaii, November 14, 1921, under Act of Congress of August 24, 1912.
1966–67 CALENDAR

First Semester

September 6–17, Tuesday through Saturday..............................Academic advising, registration, orientation
September 19, Monday...............................................................Instruction begins
September 23, Friday.................................................................Last day of registration for credit
October 7, Friday.................................................................Last day of withdrawal from courses without grade penalty
November 8, Tuesday..............................................................General Election (holiday)
November 10, Thursday..............................................................Deficiency reports due
November 11, Friday...............................................................Veterans’ Day (holiday)
November 23, Wednesday......................................................Last day for removal of “Incompletes”
November 24–26, Thursday through Saturday........................Thanksgiving recess
December 2, Friday.................................................................Last day for withdrawal from courses
December 5–16, Monday through Friday.................................Early registration for second semester
December 17, Saturday..............................................................Last day before Christmas recess
January 3, Tuesday.................................................................Instruction resumes
January 14, Saturday..............................................................Last day of instruction, first semester
January 16, Monday.................................................................Final examinations begin
January 21, Saturday....................................................................First semester ends

Second Semester

February 2–4, Thursday through Saturday..............................Academic advising, registration
February 6, Monday.................................................................Instruction begins
February 10, Friday.................................................................Last day of registration for credit
February 22, Wednesday...........................................................Presidents’ Day (holiday)
February 24, Friday.................................................................Last day of withdrawal from courses without grade penalty
March 23, Thursday.................................................................Last day for removal of “Incompletes”
March 24, Friday......................................................................Good Friday (holiday)
March 25–April 1, Saturday through Saturday........................Easter recess
April 7, Friday........................................................................Deficiency reports due
April 28, Friday.................................................................Last day for withdrawal from courses
May 25, Thursday.................................................................Last day of instruction
May 26, Friday........................................................................Final examinations begin
May 30, Tuesday.................................................................Memorial Day (holiday)
June 2, Friday.........................................................................Second semester ends
June 11, Sunday.......................................................................Commencement

Summer Session

June 19, Monday......................................................................Registration for first term
July 28, Friday........................................................................First term ends
July 31, Monday......................................................................Registration for second term
September 8, Friday................................................................Second term ends

1967–68

September 5–16, Tuesday through Saturday.............................Academic advising, registration, orientation
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THE UNIVERSITY OF HAWAII is the principal institution of higher learning in the state of Hawaii. Its aim is to provide high-caliber instruction, research, and service to Hawaii, the nation, and the world community, especially the Pacific Basin.

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

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

Today, the University embraces seven colleges and a graduate division. The colleges are Arts and Sciences, Business Administration, Education, Engineering, General Studies, Health Sciences, and Tropical Agriculture. Graduate work in all departments is organized under the Graduate Division, which includes the School of Social Work. A Graduate School of Library Studies was established in 1964.

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 1965-66 included individuals from all 50 states and from 55 foreign countries.

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

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

The president of the University serves as executive officer of the board of regents and as such is responsible for educational leadership and is the administrative head of the University. His staff includes, among others, vice-presidents for academic affairs, 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 Seals. University of Hawaii colors are green and white. The rainbow, a frequent sight in Manoa Valley, is the popular campus symbol, and University teams traditionally are nicknamed "The Rainbows." The University seal contains a torch and book titled Ma Lama Lama (The Light of Knowledge) in the center of a circular map of the Pacific, surrounded by the state motto, Ua Mau Ke Ea o Ka Aina i Ka Pono (The Life of the Land Is Preserved in Righteousness).

Inquiries. Prospective students should address inquiries to the Of-
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 Center offers services to all University staff members interested in using existing audio-visual instructional materials or in creating new materials. Services include creation of maps, projectuals, electronic stencils, photography, slides, charts, models, mock-ups, filmstrips, motion picture film clips, and television materials; locating and scheduling for classroom use 16 mm films, tape recordings, filmstrips, kinescopes, slide sets, chart sets and equipment, and operators as necessary. Closed circuit classroom television facilities and programming services and an auditorium served by sequenced or manually operated multi-media equipment are available for instructional use. Inquiries should be directed to the Communications Center.

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

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

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

The main collection is organized in an open-stack arrangement for maximum ease of access. 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 407,000 bound volumes and about 1,033,000 unbound parts. Over 6,200 serial titles are received, and there are some 14,000 reels of microfilm, 172,000 microcards and microprints, and 38,000 maps.

Other libraries which University students may use include the East-West Center Library (which maintains a rapidly growing collection on Asia), the Library of Hawaii, the State Archives, and the libraries of the Hawaiian Historical Society, the Hawaiian Mission Children's Society, and of several cooperating institutions (see p. 13).

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

The Hawaii Institute of Marine Biology has branches on Coconut Island in Kaneohe Bay and at the Aquarium in Waikiki. It encourages research in the marine biological sciences, including fisheries, by provid-
ing 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 Human Relations Area Files is a research organization which collects, organizes, and distributes to 20 participating universities data on selected countries and tribal societies of the world. This material, housed in Sinclair Library, facilitates basic research and comparative studies in human behavior, social life, and culture.

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

The Laboratory of Sensory Sciences, organized in 1965, 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 questions 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 in the state capitol.
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 function, 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 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. It buttresses instruction in appropriate departments by rendering support to research scholars engaged in directing the work of advanced graduate students. A long-term study of social movements and culture change in Asia and the Pacific, conducted by the institute, provides an opportunity for faculty members to participate in field studies and related research in this area.

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

The Speech Communication Center provides instruction for those students who are discovered at entrance to need special attention to intelligibility and acceptability of utterance. The instruction provided in the center replaces that formerly given in remedial courses in speech: 101, 102, 105, 106. Students appearing to need special instruction may also be referred by their instructors at any time. Within the space available, the Speech Communication Center will also accept (on a fee basis) persons not enrolled in the University.

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

The University of Hawaii Press publishes scholarly books, particularly those dealing with Hawaii and the Pacific, and two quarterly journals, *Pacific Science* and *Philosophy East and West*.

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, organized 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, involving hydrology and hydraulic engineering, geology, geochemistry, microbiology, public health, climatology, and other related fields. The center promotes interdisciplinary programs in water resources research among various units of the University.

**International Training**

Through its Overseas 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.

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

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

University training projects overseas (in early 1966 underway in Pakistan and the U. S. Trust Territory of the Pacific) are under the general supervision of the Director of International Programs.

**Cooperating Institutions**

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

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

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

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

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

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

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

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

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

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

**Office of Student Personnel**

**STUDENT ACTIVITIES**

Student activities are recognized as an important part of a university education. The Bureau of Student Activities is responsible for developing and maintaining a well-balanced program, in which student participation and leadership are encouraged.
Students registered for 12 or more credits (see p. 33, Tuition and Fees) are eligible to participate and hold positions in the approximately 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).

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 Hawaii (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, and Pan-Pacific Festival.

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. Hemenway Union is affiliated with the National Association of College Unions.

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 $335 per semester.

*Hale Kahawai* has double accommodations for 140 students. Room and board fee is $335 per semester.

**Undergraduate Men**

*John A. Johnson Hall* has double accommodations for 192 men. Room and board fee is $335 per semester.

**Graduate Students**

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

Application-contracts must be accompanied by a $25 deposit before consideration for space reservation can be made. 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 a.m.—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 $1,950 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 clothing, laundry, transportation, and other personal items. Students from outside the state should add the cost of transportation to and from Hawaii and additional items for adjustment in a new community.

INTERNATIONAL STUDENT OFFICE

The International Student Office 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 be-
gining 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.

PART-TIME EMPLOYMENT

The Office of Student Employment maintains information on jobs in the community and on the campus to assist students who seek part-time employment to defray expenses. Applications for employment must be filed in person.

Keen competition for jobs as well as the problems of adjusting to University life make it difficult for freshmen to earn more than limited spending money. Students who plan to work their way through college are advised to have funds for all major expenses (tuition, books, room and board, and clothing) for the first year. This is particularly true for out-of-state students since it takes time to learn and adjust to a new community.

The University of Hawaii participates in the College Work-Study Program of the Higher Education Act. Students meeting eligibility requirements may be employed under this program.

UNIVERSITY PLACEMENT OFFICE

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

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

Early registration is encouraged during the final year of study.

COUNSELING AND TESTING CENTER

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

STUDENT HEALTH SERVICE

The health of the student is paramount, if he is to benefit optimally from the education process. The Student Health Service seeks to maintain and safeguard this health, both physical and mental, through periodic checkups as well as indoctrination with proper understanding of good habits of personal hygiene and need for community health practices.

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

The Service offers a limited medical care program for illnesses. The clinic provides out-patient physician and nursing care 7:45 a.m. until 4:30 p.m. Monday through Friday and 8:00 a.m. until 12:00 noon on Saturday. An infirmary is operated on a 24-hour basis with a registered nurse on duty and a physician on call 7 days a week during regular sessions of the University. Bed care for minor illness and injuries is provided.

Medical care beyond the scope of these medical services provided by the University Student Health Service is the financial responsibility of the student; supplemental insurance coverage to provide for these serious illnesses is essential. The ASUH Students' Accident and Sickness Medical Expense Plan is highly recommended.
Students (other than auditors) are classified as undergraduate and graduate.

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

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

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

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

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

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

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

Undergraduate students taking fewer than 12 semester hours in any semester are considered "part-time" students for the purpose of determining fees. Graduate students are considered "full-time" or "part-time" in accordance with the regulations of the Graduate 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 15 for the fall semester and by December 15 for the spring semester. Requests for application forms and questions about admission should be addressed to: 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 shop exercises. For an acceptable distribution of the units required of entering students, see the table below.

*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

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

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

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

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

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

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

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

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

Early Admission and Advanced Standing for Superior High School Students. Upon recommendation of their schools and satisfaction of certain University entrance requirements, high school juniors with superior preparation may be admitted to the University for the summer session between their junior and senior years in high school and may carry one or two University courses during their senior year. Students desiring to take advantage of this program should ask their high schools to recommend them for early admission 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 15 for the fall semester and December 15 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. By definition auditors are "listeners" and are not allowed to participate in class discussions or examinations.

Admission of Graduate Students. Graduates of accredited colleges
and universities who wish to undertake graduate study should apply to the dean of the Graduate 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 catalogue and in the time schedule available shortly before registration. However, certain courses in which students carry on individual work are marked “credit by
arrangement.” Such statements do not signify that the credits are to be determined at the end of the semester. The student registers for a definite number of credits and may earn no more than that number.

Late Registration. Registration for credit after the announced registration days is permitted only in exceptional cases and for valid reasons. The following rules govern such late registration: (1) during the first five days following the last official day of registration, written approval must be obtained from the dean concerned; (2) subsequent to the fifth day, students may register only as auditors and must have the written approval of the dean and the instructor concerned. Corresponding restrictions apply to summer session registration and are stated in the summer session catalogue.

These same rules apply to students who wish to register for courses in addition to those signed for during the official registration period. Auditors need not comply with these regulations, except that they cannot change to credit status after the above late registration periods.

Withdrawal from Courses or from the University. To withdraw from a course an undergraduate must have the written consent of the dean of his college on a form available at the dean’s office. Complete withdrawals must be applied for on a form available at the 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, a formal withdrawal is marked W on the student’s record. After the first three weeks a formal withdrawal is marked W-F if the work was failing; otherwise it is marked W (not failing). No withdrawals from individual courses are permitted during the last four weeks of instruction in a semester, but a dean may approve complete withdrawal for legitimate reasons. A student who ceases to attend a course without complying with the official procedure for withdrawing receives an F in the course. The effective date of withdrawal is the date recorded by the business office.

Transfers Within the University. A student may apply for transfer from one college to another during either semester. Application for transfer must be made on a form supplied by one of the deans concerned. The application must be approved by the deans of the two colleges and returned to the 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.

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

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

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

Students entering as undergraduates with advanced standing are not given grade points upon work done elsewhere; but on work done in the University of Hawaii such students must gain grade points in the same proportion to credit hours required for graduation as that demanded of other students.
Grade-point ratios are determined by dividing the total number of grade points by the total number of credits for which a student has been registered. Courses for which grades of W or I were recorded are not included in the computation of ratios. Grades of F or W-F are included until credit is subsequently obtained in the courses in which failures have been reported.

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

Requirements for Continued Registration

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

Further registration is denied to the following undergraduate students:

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

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

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

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

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

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

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

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, and in the latter case their transcripts will be notated “Denied further registration. See discipline file.”

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

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

**Undergraduate Degree Requirements**

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 Education, 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 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 College of Business Administration or to the College of Health Sciences.

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 a 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 a 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; Music 160.

**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 110-111, 160-161, 170, 172 and 174.
Botany 101; Genetics 321, 451; 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 will be 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 new 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. Failure in the examination will be entered on the permanent record, and can be removed only by credit earned in a resident course. Grades received in such examinations carry grade points. Graduate students may also obtain credit in this manner for certain undergraduate courses. A fee is charged for each examination. (See p. 34.)

Such credit is limited to courses required in the applicant's curriculum or to prerequisites for such courses. In each case the examination must be prepared 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.

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

**TUITION AND FEES***

Students (including auditors) registered for 12 or more credit hours in any semester pay $85.00 for tuition and $18.00 for general fee per semester. Students (including auditors) registered for fewer than 12 credit hours in regular day courses in any semester pay $9.00 per credit hour. Summer session students pay $16.00 per credit hour, and an activity fee of $2.50. Students registered in the College of General Studies pay fees as indicated in the bulletins of that college.

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

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

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

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

Special course fees are charged for applied music and English Language Institute courses. If the instructor feels it is justified, students may be charged for excessive breakage of equipment.

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 the general fee, or any part of it, refunded.

A fee of $2.00 is charged for each change in registration after the initial registration, unless such changes are due to reasons beyond the

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*NOTE: The tuition and fee schedule set forth here may be changed during 1966-67. Adequate notice of the new schedule will be given to students.*
control of the student. This fee does not apply to complete withdrawals from the University.

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

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

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

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

A fee of $9.00 per credit is charged for "Credit by Examination," payable at the time of application for the examination.

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

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

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

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

Prospective graduate students who need financial assistance should communicate with the dean of the Graduate Division.

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

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

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

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

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

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

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

Government Employees Mutual offers four $500 scholarships for entering freshmen.

Hawaii Veterans Memorial Fund provides scholarships for undergraduate students.

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

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

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

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

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

Scholarships Administered by Individuals and Private Organizations, with Assistance from the University Scholarship Committee. Alfred Apaka Memorial; 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 F. Smith Memorial; Keane Art; KeAnuenue Alumni Sorority; Leilehua Parent Teachers Association; Liberty Bank of Honolulu; Miles E. Cary Memorial; Nesta Obermer Music; 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; Wahia Lions Club; Wahia-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 awardees listed. Aiea Lions Club; Beta Sigma Phi Sorority; Betty Crocker; Brother David Paalii; Central Maui Hawaiian Civic Club; Chinese University Club; “Chu” Baldwin Memorial (sponsored by Puunene Community Association); Civic Associates; Duke Kahanamoku Foundation; Filipino Scholarship Foundation; First Trust Company of Hilo; General Henry Arnold Education Fund, U.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; ILWU, Naalehu Unit, Local 42; Independent Telephone Pioneer Association; Kailua Hawaiian Civic Club; Kailua High School; Kamakamahe School; Koko Head Lions Club; Lahainaluna P.T.A.; Leeward Oahu Lions Club; March of Dimes Health Careers; McKinley High School; National Honor Society; Pacific Fellowship (sponsored by the American Association of University Women); Peter H. Fukunaga Foundation; Rama Wahillnull Fund; Star Markets, Ltd.; Wahiawa Filipino Community Association; Wahiawa Hawaiian Civic Club; Waihuia Agriculture Co.; Waihalua 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.

Loan Funds

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

Alumni Fund—Molokai Chapter; Andrew J. Salz Fund; Carey D. Miller Fund; Chinese Students’ Alliance Fund; Commerce Club Fund; Edgar Wood Memorial Fund; Future Farmers of America, Uniwi Chapter Fund; George H. Lamy Fund; Grusciadla 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; National Defense Student Loan Program; 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; United Student Aid Loan Program; Wahiawa-Waialua Rotary Fund.

Prizes and Awards

General

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

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

Carl F. Knobloch Prize in Government, cash prize to the outstanding student in the field of political science.
Charles Eugene Banks Memorial Prize, cash prize awarded each year to the student whose manuscript is judged the best in a creative writing contest. This manuscript is placed in the Hawaiian and Pacific Collection of Sinclair Library.

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

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

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

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

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

Library Prize for Pacific Research, 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.

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 seniors in the field.

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

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

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

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

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

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

Engineering

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

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

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

Chi Epsilon Freshman Award, to an outstanding engineering freshman.

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

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

Home Economics and Agriculture

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

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 graduating student in dietetics and institutional management.

Home Economics Staff Award, to a freshman and a senior with highest grade 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.

Zero 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.

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 Delta Kappa (scholarship and leadership); Phi Eta Sigma (freshman men); Mortar Board Hui Pookela chapter (senior women); Alpha Lambda Delta (freshman women); Phi Lambda Theta Beta Zeta chapter (women in education); Delta Phi Alpha (German); Pi Delta Phi (French).

**SPECIAL INSTRUCTIONAL PROGRAMS AND COURSES**

**Honors Programs**

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

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

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

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

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

**Honors Courses**

*See p. 45 for a discussion of course descriptions.*

**IS 317-318 JUNIOR HONORS SEMINAR (1-1) Yr.**
Survey of research areas, specialized reading and preliminary experimentation, definition of a specific research problem.

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

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

**English Language Institute**

Courses at the University of Hawaii, as well as most textbooks and reference materials, are in English. English is also the language of the community. An effective, practical control of both spoken and written English is thus necessary for every student. The English Language Institute (ELI) provides training on appropriate levels for students whose native language is not English, so that they may acquire as rapidly as possible the ability to pursue regular University courses without undue language handicaps.

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

**English Language Institute (ELI) Courses**

*See p. 45 for a discussion of course descriptions.*

**Associate Professor SITTLER; Assistant Professors McCabe, Plaister, Schaafsma; Instructors Alter, Arapoff, Collier, Currier, Elliott, Nardin, Okada, Roberts, Seglem, Soong, Steinberg, Thiel, Xigogianis**

**50 ENGLISH AS A SECOND LANGUAGE (0) I, II**
Intensive practice in the fundamentals, oral and written. Meets 4 hours daily, Monday through Friday; additional hour of daily laboratory work required. For full-time ELI students. Pre: ELI consent. Course fee $70.00.

**60 INTERMEDIATE ENGLISH AS A SECOND LANGUAGE (0) I, II**
Practice in oral and written usage, designed to develop further fluency and accuracy. Meets 2 hours daily, Monday through Friday; additional laboratory work
required. For half-time ELI students. Pre: 50 or equivalent, and consent. Course fee $35.00.

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

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

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

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

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

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

**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 an interdepartmental offering, substituting in appropriate curricula for Business Management 600, Political Science 501, Social Welfare 656 or Educational Administration 685. While the course is taught primarily by one person, faculty members from each of these departments may 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.

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

394-395 SENIOR HONORS THESIS (2-2) Yr.

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

(For a brief description of the Honors Programs see p. 39.)

**Reserve Officers Training Course**

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

*Beginning September 1966 the Air Force will phase out the four-year program, retaining the two-year plus summer camp program. Freshmen will not be accepted, therefore, in Aerospace Studies; after the academic year 1966-67 only upper-division students will be accepted.
year program the student receives basic military training on the campus during his freshman and sophomore years. Individuals who have participated in training in the junior division ROTC or who have had military service of less than one year may be exempted from a portion of the two-year requirement. The two-year program provides this training at a six-week summer camp. Upon completion of either program the cadet may be accepted for advanced training leading to a commission as a second lieutenant in the U. S. Army or the U. S. Air Force. If accepted for the advanced training, the student must agree to accept a commission if it is offered. While in the advanced program he receives retainer pay specified below.

Military Science

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

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

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

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

Aerospace Studies

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

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

Under the two-year program the student receives general military training 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.

Military Training Courses

See p. 45 for a discussion of course descriptions.

Aerospace Studies (AS)

Professor MEADVILLE; Associate Professor RUSSELL; Assistant Professors Ho, SNOW; Instructors CATHCART, MILLER, NOLL, SMOKOSKA

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 101 & 152.

151 SECOND-YEAR AEROSPACE STUDIES (1) I
Leadership laboratory only for 1 hour per week.

152 SECOND-YEAR AEROSPACE STUDIES (2) II
Comparative study of world military forces and trends in the development and employment of military power. 2 class hours per week and 1 hour of leadership laboratory.

201–202 THIRD-YEAR AEROSPACE STUDIES (3–3) Yr.
Survey course about development of U.S. airpower and its concepts, doctrine, and employment; and about astronautics and space operations and the future development of aerospace power.
251-252 FOURTH-YEAR AEROSPACE STUDIES (3-3) Yr.
Study of professionalism, leadership, and management. Includes leadership theory, functions, and practices as they apply to the Air Force.

230 SUMMER TRAINING UNIT (2) SUMMER, FOUR-YEAR PROGRAM
Intensive four-week course at a military base. Applications of academic work. Air operations problems; military aircraft and equipment. Physical training. Pre: 201 or 202.

Military Science (MS)

Professor CARROLL; Associate Professor IHARA; Assistant Professors AUYONG, JHUNG, McGAW, McNAMARA; Instructors AH COOK, CORLEY, KIM, STANTON, YAGI

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.

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 catalogue.

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

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

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

Courses are listed alphabetically by department under each college. Consult the Table of Contents or the Index to locate a given department. Numbers lower than 100 indicate 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 catalogues.
The Hawaii Institute of Marine Biology conducts a variety of research activities in the marine biological sciences.

Hawaii Hall is the University's "Old Main." The colleges of Business Administration and General Studies are housed here.

Sinclair Library serves as a study center for graduates and undergraduates.
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. 20-24). However, candidates for admission are strongly advised, although not required, to offer a minimum of two years of college preparatory mathematics and two years of a foreign language.

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

1. Complete certain basic subjects specified by his degree program.
2. Fulfill the prescribed requirements of a major field of concentration.
3. Offer at least 60 semester hours of credit in other than introductory courses.
4. Acquire an aggregate of 130 semester hours of credit of which no more than 20 hours is acceptable in subjects not offered within the College.
5. Earn at least a 2.0 grade-point ratio (C average) for all registered credits, and in the major field.
6. Submit an application for graduation to the Office of Admissions and Records during the semester preceding the award of the degree.

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. Credit by examination can be obtained in any course offered in the College which is required in a student's curriculum; it carries a corresponding reduction in the 130 hours required for graduation.

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 predentistry, premedicine, and prepharmacy; for bachelor of arts degree programs in chemistry, geology, physics, and zoology; and for the bachelor of fine arts, bachelor of music, and bachelor of science degree programs; it should be indicated at the beginning of the first year.
Students seeking baccalaureate degrees in business administration, medical technology, or professional nursing must complete the entrance requirements of the particular program they wish to enter and transfer, ordinarily as juniors, to the College of Business Administration or to the College of Health Sciences. 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. 29-32) and certain specified courses. For additional information and details, see p. 149 concerning admission requirements for programs of the College of Business Administration, p. 217 for those of the School of Nursing, and p. 204 for Medical Technology.

**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, 103, 134, or 135; English 150-151, 152-153, or 154-155.

**Area Requirements**

I. *Humanities*: 12 semester hours from the following courses in at least two subjects other than the major, including at least 3 hours from each of the first two sub-groups.

1. Philosophy 100 or 150; Religion 150 or 151.
2. Art 101, 102, 171 or 181; Drama 140, 150, 151; Music 160.
3. 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; Journalism 239; 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 or 104, 250, 280, 304, 362; 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 120-121; Genetics 321 or 451; Geography 101; Geosciences 101-102; Microbiology 151; Oceanography 201; Physics 160-161 or 170 through 173; Zoology 101 or 115-116.
2. Botany 105, 201; General Science 530; Geography 410, 420; Geosciences 200; Mathematics 103, 134, 135-136; Physics 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 40 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:** 22 hours of architectural design, 8 hours of professional practice, 6 hours of history of architecture.

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

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

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

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

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

Drama and Theatre. Major requirement: 24 semester hours. Required courses: 150, 151, 200, and 6 hours in dramatic literature.

Economics. Major requirement: 27 semester hours. Required courses: 150-151, 240, 300, 302, 304. As a related course, Mathematics 200 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 nonintroductory 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 200 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.

German. Major requirement: 24 semester hours exclusive of courses below 200. Required courses: 203, 205-206, 301-302, 305, and three semesters of the 419-422 series. (203 and 305 may be waived for qualified persons, but must be replaced by equal credit in German courses.)


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

Japanese. Major requirement: 28 semester hours above the intermediate language level.
JOURNALISM. *Major requirement:* 44 semester hours. *Required courses:* 205, 206, 239, 315, 316, 385; in addition to the college area requirements, 6 credit hours in a third humanities department, 6 in a third social science, and 15 credits in a department of choice.

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


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

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

MUSIC. *Major requirement:* 36 semester hours. *Required courses:* 181-182, 183-184, 185-186, 187-188, 163-164, 465-466 and 6 hours in applied music, including 235-236. For emphasis upon theory, 8 hours selected in upper-division theory courses, as advised, and 470. For emphasis upon music literature, 461, 462, 463, 464.

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

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

POLITICAL SCIENCE. *Major requirement:* 27 semester hours. *Required courses:* 110 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 requirement:* 24 semester hours. *Required courses:* 200, 201, 220, and any two of the following three: 203, 205, and 226. The remaining courses must be selected from the 300-level or above.

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

RUSSIAN. *Major requirement:* 24 semester hours exclusive of 101-102, 151-152.
SOCIOLOGY. Major requirement: 24 semester hours. Required courses: 151 or 201, and one course from each of the following subdivisions: (1) 210-229, 410-439; (2) 240-269, 440-469; (3) 270-319, 470-519; (4) 320-359, 520-559; (5) 560-599.

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

SPEECH. Major requirement: 30 semester hours. Required courses: 145, 210, 220, 230, 250, 326, 370; 9 additional hours of upper division speech courses. For students wishing to emphasize speech pathology and audiology, Speech 221, 222, 223, 320, 322, 325, Psychology 250 and 280.

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

Bachelor of Fine Arts Degree Program

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

Bachelor of Music Degree Program

Basic Requirements

English 101-102 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 (Dance). 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 or Music 160.

B. Three courses, including at least one from each group.
1. Psychology 100, 104, 250, 280, 304, or 362; 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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<th>Courses</th>
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Non-music electives: For a concentration in composition, 12 semester hours; for a concentration in band or orchestral instruments, 11 semester hours; for a concentration in piano, 15 semester hours; for a concentration in voice, 15 semester hours. If students concentrating in voice must take formal courses to meet the language requirement, these courses must be taken within the 15 elective credits.

Bachelor of Science Degree Programs

Basic Requirements

English 101-102 or 105; Speech 145; History 151-152 or 251-252; Chemistry 103 and 108, or 107; Mathematics 135-136; Physics 170 through 173, or 160-161.

*Possible concentrations: C-composition, OBI-orchestral or band instruments, P-piano, V-voice.
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, 104, 250, 280, 304, or 362; 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 345; and Zoology 431-432 or Mathematics 201-202 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 are 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 501-502.

As related courses, German or Russian 153-154 are required.

Recommended electives are Mathematics 232, 421, 422, 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, 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 Life-Sciences Committee prepared to give specific aid to students preparing for schools of dentistry, medicine, osteopathy, 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.

**Medical Sciences**

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

**FIRST YEAR**

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**SECOND YEAR**

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<td>English 150, 152, or 154</td>
<td>3</td>
<td>English 151, 153, or 155</td>
<td>3</td>
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<tr>
<td>Chemistry 143</td>
<td>4</td>
<td>Chemistry 144</td>
<td>4</td>
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<td>History 151</td>
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<td>History 152</td>
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<tr>
<td>Mathematics 135</td>
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<td>Mathematics 136</td>
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**THIRD 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>Physics 160</td>
<td>4</td>
<td>Physics 161</td>
<td>4</td>
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<tr>
<td>Chemistry 331</td>
<td>4</td>
<td>Zoology 301</td>
<td>3</td>
</tr>
<tr>
<td>Zoology 206</td>
<td>3</td>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>
It is recommended that premedical students obtain the book entitled *Admission Requirements of American Medical Colleges* ($4.00; address: AAMC, Dept. 3B, 2530 Ridge Ave., Evanston, Illinois) for detailed information on individual medical schools and their admission policies.

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

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, 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. 45 for a discussion of course descriptions.*

**American Studies (Am St)**

*Professors Brown, Denney; Associate Professors Hamaker, Lutzky, Matson; Assistant Professors McCutcheon, Gurian*

485-486 **CONTEMPORARY AMERICAN CIVILIZATION (3-3)** Yr. **Staff**

Images of American civilization as held both in the U.S. and abroad.

490 **LEADERS AND MOVEMENTS IN AMERICAN THOUGHT (3)** I, II **Brown**

495 **THE BUSINESSMAN IN AMERICA (3)** II **Hamaker**

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: SOCIAIBILITY 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.

685-686 SEMINAR: NATURE OF AMERICAN SOCIETY (3-3) Yr. Hamaker, 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 Lutsky
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 Staff
Pre: graduate standing; consent of instructor.

700 METHODS IN AMERICAN STUDIES (3) I Hamaker
Training in bibliography and research methods in American studies.

750 SEMINAR IN THE INTERACTION OF ASIA AND AMERICA (3) I, II Hamaker
Effect of inter-cultural exchange of ideas, values, and techniques between peoples of Asia and the United States. Pre: consent of instructor.

800 THESIS RESEARCH Staff

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) Lutsky, Staff
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
Lutzky, Staff
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
Lutzky, Staff
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, Jay, Maretzki, Solheim; Assistant Professors Cook, Dewey, Pearson

150 INTRODUCTION TO ANTHROPOLOGY (3) I, II
Staff
Human evolution; prehistoric development of culture; recent and contemporary man, common features and principal variations in cultural behavior.

200 CULTURAL ANTHROPOLOGY (3) I
Staff
Nature of culture; basic concepts for analyzing cultural behavior; patterning, integration, and dynamics of culture; culture and the individual.

210 ARCHEOLOGY (3) II
Staff
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
Staff
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 senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in anthropology.

440 REGIONAL CULTURES OF ASIA (3) I, II
Jay

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.
ARTS IN CULTURAL PERSPECTIVE: FOLKLORE (3) I
Art as an aspect of culture; technique, form, style, and meaning, viewed cross-culturally. Complements Music 471 and Art 473 in which credit towards the major will be granted. Pre: 150 or 200.

ANTHROPOLOGICAL STATISTICS (3) II

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

ARCHEOLOGICAL TECHNIQUES (3–3) I, II
Archeological survey and excavation; week-end field trips, mapping, photography, recording. Laboratory analysis and evaluation of field data; preservation and restoration of artifacts. Preparation of materials for publication. Pre: 210 or equivalent, and a course in statistics, or consent of instructor.

ANTHROPOLOGICAL APPLICATIONS (3) I, II
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.

PROSEMINAR: GENERAL ANTHROPOLOGY (6–6) I, II
Intensive review of the principal fields of anthropology: biological, archeological, linguistic, social, and psychological. Open only to advanced degree candidates in anthropology. Pre: consent of instructor.

SOCIAL ORGANIZATION (3) I
Analytical study of organized group activity in societies of varied complexity. Theories of kinship and social structure. Pre: 650-651 or equivalent, or consent of instructor.

PSYCHOLOGICAL ANTHROPOLOGY (3) II
Study of personality in relation to sociocultural systems. Theories and techniques for analysis. Pre: 650-651 or equivalent, or consent of instructor.

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.

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.

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.

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

Professors Anderson, Cox, Horan, Kingrey, Norris, Robinson, Turnbull; Associate Professors Etherington, Kimura, Neoży, Tseng Yu-Ho; Assistant Professors Everson, McVay, Rosen, Stasack; Instructors Burgess, Bushnell, Lintault, Nelson, Preble, Sato

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

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

The University reserves the right to retain any student work which may be needed for exhibition or for the Art Department files.

Architecture (Arch)

116 ARCHITECTURAL GRAPHICS (2) I

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

136–137 ARCHITECTURAL DESIGN (2–2) Yr.

Burgess

Introduction to principles of line, form, color, texture, motion, and light. Basic architectural design problems in creation of form, structure, and space: introduction to elementary industrial designing. Pre: 116.

138–139 ARCHITECTURAL DESIGN (3–3) Yr.

Etherington

Design of simple buildings in relation to environment; discussion, field trips, sketch problems. Pre: 137.

171–172 HISTORY OF ARCHITECTURE (3–3) Yr.

Etherington

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

202–203 PHYSICAL SYSTEMS (3–3) Yr.

Staff

Comparative evaluation and design problems in physical systems of architecture. Pre: Math 135.

238–239 ARCHITECTURAL DESIGN (3–3) Yr.

Staff

Building programs developed by means of planning, function, group and site; methods of research and analysis; introduction to elements of landscape architecture. Pre: Arch 139.
316-317  PROFESSIONAL PRACTICE (3-3) Yr.  
          Properties of materials, working drawing, surveying, and contemporary drafting 

402-403  ADVANCED PHYSICAL SYSTEMS (4-4) Yr.  
          Applied problems of physical systems of architecture in wood, steel, and concrete. 
          Pre: 203.

416-417  PROFESSIONAL PRACTICE (3-3) Yr.  

420-421  ENVIRONMENTAL CONTROL (3-3) Yr.  
          Utilization of micro-climatology, insolation devices, artificial and natural light, 
          temperature and humidity regulating devices, and applied acoustic design, health, 

438-439  ARCHITECTURAL DESIGN (6-6) Yr.  
          Building complexes as architectural expressions, their environmental relationships 
          and functions. Pre: 239.

Art  (Art)

101  INTRODUCTION TO THE VISUAL ARTS (3) I, II  
      Nature of visual art and its expression in various forms. Lectures, demonstrations, 
      museum visits.

102  STUDIO IN VISUAL ARTS (3) II  
      Elementary problems in various media as introduction to basic creative problems 

103-104  ART FUNDAMENTALS (2-2) Yr.  
      Background material and studio practice to stimulate understanding of the arts. 
      Lectures, museum visits, studio work.

111-112  DRAWING (2-2) Yr.  
      Basic principles of drawing in variety of media. This course or its equivalent 
      is prerequisite to all advanced studio courses.

131-132  VISUAL DESIGN (2-2) Yr.  
      Elements and principles of visual organization. This course or its equivalent is 
      prerequisite to all advanced studio courses.

136  WEAVING (2) I, II  
      Creative processes of weaving. Warping and threading of simple hand looms and 
      multiple harness looms.

137  WEAVING (2) I, II  
      Experimentation with techniques and study of pattern drafting. Designing for 

141  CERAMICS (2) I, II  
      Methods and principles of creating pottery by hand.

142-143  CERAMICS (2) I, II  
      Introduction to wheel throwing and emphasis on the designing of utilitarian 
      wares. Pre: Art 141.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title (Units)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>151-152</td>
<td>SCULPTURE (2-2) Yr.</td>
<td>Study of qualities of form and structure in sculpture; methods of construction using variety of materials and techniques.</td>
</tr>
<tr>
<td>171</td>
<td>ASPECTS OF WESTERN ART (3) I, II</td>
<td>Historical relationship of the major styles in the visual arts of European, African, and post-Colonial American traditions.</td>
</tr>
<tr>
<td>181</td>
<td>ASPECTS OF ASIAN ART (3) I, II</td>
<td>Historical relationships of major visual art styles of Asian traditions, including the Pacific area and pre-Colonial Americas.</td>
</tr>
<tr>
<td>205-206</td>
<td>PHOTOGRAPHY (2-2) I, II</td>
<td>Camera as tool of expression and photography as basic art form. Students are required to have their own cameras. Pre: consent of instructor, 131-132.</td>
</tr>
<tr>
<td>215</td>
<td>INTRODUCTION TO PRINTMAKING (2) I, II</td>
<td>Introduction to studio practice in intaglio processes. Pre: 112, 132.</td>
</tr>
<tr>
<td>221-222</td>
<td>PAINTING (2-2) Yr.</td>
<td>Problems in the creation of visual forms. Pre: 112, 132, or equivalent.</td>
</tr>
<tr>
<td>235</td>
<td>TEXTILE DESIGN (2) I, II</td>
<td>Execution of individual problems in design on fabrics, utilizing such media as block print, stencil, silk screen. Pre: 132.</td>
</tr>
<tr>
<td>241-242</td>
<td>ADVANCED CERAMICS (2-2) Yr.</td>
<td>Wheel throwing, experimentation with form and decorative techniques; exploratory work in field of student's choice. Pre: 143.</td>
</tr>
<tr>
<td>251-252</td>
<td>SCULPTURE (2-2) Yr.</td>
<td>Developing concepts of personal form and form relationships; techniques of casting in bronze and aluminum emphasized. Pre: 152.</td>
</tr>
<tr>
<td>263-264</td>
<td>LETTER FORMS (2-2) Yr.</td>
<td>The letter as a visual element in design organization. Pre: 112, 132, or equivalent.</td>
</tr>
<tr>
<td>281</td>
<td>ART OF SOUTH ASIA (3) I</td>
<td>Development of visual arts of Southern Asia, the West Asian context, and the growth of Southeast Asian art.</td>
</tr>
<tr>
<td>311-312</td>
<td>FIGURE DRAWING (2-2) I, II</td>
<td>Basic principles of drawing the human figure, including study of anatomy and articulation. The figure as a foundation of knowledge, skill and for its imaginative use. Pre: 112.</td>
</tr>
<tr>
<td>315</td>
<td>PRINTMAKING (2) I, II</td>
<td>Advanced studio practice in standard and experimental intaglio processes. Pre: 112, 132, 311 or equivalent.</td>
</tr>
<tr>
<td>316</td>
<td>ILLUSTRATION (2) I</td>
<td>Problems of illustration with emphasis on individual experimentation. Various media for reproduction. Pre: 112, 132, or equivalent.</td>
</tr>
<tr>
<td>321-322</td>
<td>ADVANCED PAINTING (2-2) Yr.</td>
<td>Continuation of 221-222.</td>
</tr>
</tbody>
</table>
323-324 WATERCOLOR PAINTING (2-2) Yr.  

325 MATERIALS AND TECHNIQUES OF PAINTING (2) II  
Methods emphasizing physical properties and characteristics of materials. Pre: consent of chairman.

326-327 STUDIO: CHINESE PAINTING (2-2) Yr.  
Methods and principles of Chinese painting, landscape, figures, flowers, and other subjects; calligraphy. Pre: 181.

331 THREE-DIMENSIONAL DESIGN (2) I, II  
Development of concepts of visual organization in three dimensions. Pre: 112, 132.

335 TEXTILE DESIGN (2) I, II  
Originating ideas for fabrics. Printing and execution of individual or collaborative projects. Pre: 235.

336-337 ADVANCED WEAVING (2-2) Yr.  
Individual problems in weave construction and drafting; yarn and fiber characteristics as structural elements. Pre: 137.

343-344 CERAMIC GLAZE CALCULATIONS (2-2) Yr.  
Molecular formulae and use of raw materials in glaze testing; glaze experimentation, kiln firing, and care and operation of ceramic equipment. Pre: 242.

351-352 SCULPTURE (2-2) Yr.  
Individual projects; subjective approach to form and experimentation with ideas to achieve or express an individual statement. Pre: 252.

363-364 ADVANCED VISUAL DESIGN (2-2) Yr.  
Investigation into the processes of visualization; its expression and control. Pre: 112, 132.

372 ANCIENT ART (3) I  
Historical survey of visual arts of the Mediterranean Basin from pre-historic times to Christian era.

373 MEDIEVAL ART (3) II  
Historical survey of visual arts within the Christian sphere from the early Christian era to the Renaissance.

374 RENAISSANCE THROUGH ROCOCO (3) I  
Historical survey of visual arts of Europe during Renaissance, Mannerist, Baroque, and Rococo periods.

375 MODERN ART (3) II  
Historical survey of visual arts in the West from circa 1790 to contemporary times.

382 ART OF CHINA (3) II  
Development of visual arts in China from pre-historic times to present.

383 ART OF JAPAN AND KOREA (3) II  
Development of visual arts in Japan and Korea from pre-historic times to present.
390  SENIOR SEMINAR (2) II  
Reports with group discussion to integrate studio practice, art history, theory. Pre: consent of chairman.

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

451-452  ADVANCED SCULPTURE (2-2) Yr.  
Continuation of 351-352. Pre: 352.

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

473  PRIMITIVE ART (3) II  
Survey of the art styles and aesthetic characteristics of Paleolithic and Neolithic societies.

476  ITALIAN RENAISSANCE PAINTING AND SCULPTURE (3) I  
Development of painting and sculpture in Italy during period of Renaissance.

477  NORTHERN RENAISSANCE PAINTING AND SCULPTURE (3) II  
Development of painting and sculpture in the Netherlands, France, Germany and England during period of the Renaissance.

478  19th CENTURY PAINTING AND SCULPTURE (3) I  
Development of 19th-century European schools of painting and sculpture.

479  20th CENTURY PAINTING AND SCULPTURE (3) II  
Development of painting and sculpture in Europe and the Americas in the 20th century.

481  ART OF ISLAM (3) II  
Major developments in the arts and architecture of Islam.

487  ARTS OF THE PACIFIC (3) II  
Stylistic and aesthetic characteristics of Arts of Oceania, including Australia, Indonesia, Micronesia, and Polynesia.

565  VISUAL COMMUNICATION (2) II  
Experimental projects of visual design which communicate. Creation of new images and symbols. Pre: 264, 363 or equivalent.

576  ART OF THE UNITED STATES (3) II  
Major developments in visual arts of United States from colonial times to present.

585  CHINESE PAINTING (3) II  
Development of Chinese painting. Visits to Academy of Arts.

612  FIGURE DRAWING (2) I, II  
Advanced individual problems. Projects in figure composition. Pre: consent of chairman and instructor.

615-616  PRINTMAKING (2-2) Yr.  
Individual problems in intaglio, relief, and planographic processes. Pre: 315 or equivalent.
621–622 PAINTING (2–2) Yr. Norris
Individual problems in advanced painting. Pre: consent of chairman and instructor.

623 WATERCOLOR PAINTING (2) II Cox
Individual problems in advanced watercolor painting. Pre: consent of chairman and instructor.

625 MATERIALS AND TECHNIQUES OF PAINTING (2) II Norris
Advanced problems and experiments in the physical properties of painting materials. Pre: consent of chairman and instructor.

636–637 WEAVING (2–2) I, II Robinson
Individual problems in advanced weaving. Pre: consent of chairman and instructor.

641–642 CERAMICS (2–2) I, II Horan
Individual problems in advanced ceramics, using the potter's wheel and hand building techniques. Pre: consent of chairman and instructor.

643–644 CERAMIC GLAZES AND CLAY BODIES (2–2) I, II Horan
Individual problems in glazes, clay bodies and firing techniques. Pre: consent of chairman and instructor.

661–662 VISUAL DESIGN (2–2) Yr. Kingrey
Individual problems in advanced visual design. Pre: consent of chairman and instructor.

681 THE ART OF CENTRAL ASIA (3) I Neogy

683 APPLIED ARTS OF CHINA (3) I Staff
Ceramics, glyptic arts, metalwork, lacquer, textiles, architecture, furniture, interior design, landscaping. Visits to Academy of Arts.

684 CHINESE PAINTING OF MING AND EARLY CHING (3) I Staff
Historical account of Chinese painting from 15th century to 17th century.

685 CHINESE PAINTING FROM CHING TO THE PRESENT (3) II Staff
Historical account of Chinese painting from late 17th century on.

687 PROBLEMS IN PACIFIC ART (3) I Cox
Individual projects in the study of Pacific art forms. Pre: consent of instructor. (Alt. yrs.; not offered 1966-67.)

688 ARTS OF HAWAII (3) I Cox

689 SEMINAR IN ASIAN ART (2) I Staff
Survey of available literature and presentation of papers in fields of the student's choice. Pre: consent of chairman and instructor.

690 GENERAL SEMINAR (3) II Staff
Historical and critical thought in the visual arts. Taken concurrently with 661, 642, 636, or 621. Pre: consent of chairman and instructor.
COLLEGE OF ARTS AND SCIENCES—A & P LANGUAGES

699 DIRECTED WORK (arr.) I, II
   Staff
   (1) Drawing and printmaking, (2) painting, (3) weaving and textiles, (4) ceramics, (6) visual design, (8) Far Eastern. Course fee by arrangement.

700 STUDIO (arr.) I, II
   Staff
   (1) Drawing and printmaking, (2) painting, (3) weaving and textiles, (4) ceramics, (5) visual design, (6) sculpture, (7) photography. Maximum of 4 credits in any one semester, and of 16 credits total.

782 BUDDHIST AND HINDU ART (3) II
   Neogy
   Development of Buddhist and Hindu art in India and the diffusion of Indian art in Asia.

784 EARLY CHINESE ART (3) I
   Staff
   Developments in pottery, jade, bronze, and other arts to the end of Han. Visits to Academy of Arts.

786 JAPANESE PAINTING AND SCULPTURE (3) II
   Staff
   Development of Japanese painting and sculpture from prehistoric times to the present including printmaking.

789 MUSEUM STUDIES IN ASIAN ART (3) II
   Staff
   Detailed critical consideration of the Asian collections of the Academy of Arts. Pre: consent of instructor.

Asian and Pacific Languages

Professors ARAKI, DeFRANCIS, ELBERT, SHEN, UYEHARA, YOUNG; Associate Professors LEE, Lo, VIGLIELMO, WINTERS; Assistant Professors ALFONSO, ARTOLA, CHENG, DEQUELJOE, FUJIOKA, IKEDA, LAU, LEE, MAURER, PARK, ROOSMAN, WIVELL, YASUDA; Instructors ANTHONY, BAUMER, CHITAKASEM, FUJIKAWA, HASEGAWA, HASHIMOTO, HIRAI, Ho, JEN, KENG, KUROKAWA, LARRABEE, McLEOD, MIRIKITANI, OHARA, SPENCER, TAKAHASHI, TSURUOKA, WANG, WELLINGTON

General (AP)

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

161–162 DIRECTED INTERMEDIATE LANGUAGE STUDY (arr.) Yr.
   Staff
   Continuation of AP 101-102. Pre: consent of chairman.

690 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.
   Staff
   Comparative study of Chinese, Korean, and Japanese literature, to explore their interrelations, to trace the influence of one literature on another, to investigate main currents, periods, movements, topics, or themes. Pre: any of the following: Chinese 410 or 418, Japanese 418 or 432, Korean 492.
Chinese (Chin)

101–102 ELEMENTARY CHINESE (3–3) Yr.  
Development of four skills: 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  
Class meets 2 hours daily Monday through Friday with daily laboratory drill. In one semester the content of Chinese 101-102 will be covered.

161–162 INTERMEDIATE CHINESE (4–4) Yr.  
Continuation of Chinese 101-102. After completion, the student should have proficiency 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  
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.  
Course conducted entirely in Chinese. Lectures, reports, discussions. Pre: 162 or equivalent.

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

220 CHINESE COMPOSITION (2) I, II  
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 their reading skill. Pre: 162 or equivalent.

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

401–402 CHINESE LITERATURE IN ENGLISH (3–3) Yr.  
Historical survey of Chinese literature (verse and prose) in relation to Chinese culture. Pre: two semesters of literature in English department.

408 STRUCTURE OF CHINESE (3) I, II  
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. Cheng
Reading and discussion of modern literature: essays, short stories, plays. Pre: 210 or equivalent.

415–416 CHINESE GRAMMAR (3–3) Yr. Cheng

417–418 FOURTH-LEVEL CHINESE—CLASSICAL (3–3) Yr. Winters
Readings in advanced classical texts. Pre: 212 or equivalent.

428 ACCELERATED FOURTH-LEVEL CHINESE (6) II Ho
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 McLeod
Reference materials required for Chinese studies. Pre: 210 and 212 or equivalent.

611–612 CONTEMPORARY CHINESE LITERATURE (3–3) Yr. Lau
Representative works of leading modern novelists, poets, and dramatists since 1919. Pre: 210, 212 or equivalent.

613–614 CHINESE POETRY (3–3) Yr. Staff
Critical study of classical Chinese poetry in various forms. Pre: 212 or equivalent.

616 HISTORY OF CHINESE LITERARY CRITICISM (3) II Lo
Survey of Chinese literary criticism from Confucius to the 20th century. Pre: 212 or equivalent.

617 TRADITIONAL CHINESE FICTION (3) I Lo
Study of major novels of the Yuan, Ming, and Ch’ing periods. Pre: 210, 212 or equivalent.

618 TRADITIONAL CHINESE DRAMA (3) II Lo
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, evolutions and reforms of Chinese characters. Pre: 212, 232 or consent of instructor.

631 CHINESE PHONOLOGY (3) I Spencer
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 Cheng
Study of major Chinese dialects. Lectures in English. Pre: 408 or equivalent.

641 CONTRASTIVE ANALYSIS OF MANDARIN AND ENGLISH: PHONOLOGY (3) I Shen
Knowledge of 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 Shen
Knowledge of similarities and differences between English morphology and syntax and Mandarin morphology and syntax. Pre: 641.
643-644 METHODOLOGY IN TEACHING CHINESE AS SECOND LANGUAGE (3-3) Yr. Shen
Identification and analysis of problems in language learning and language teaching. Practice in preparing and presenting lessons with materials based on comparative linguistics analysis and using the audio-lingual approach. Teaching materials, teaching aids, and test construction. Pre: 408. (Offered 1966-67 only.)

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
Pre: graduate standing.

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

800 THESIS RESEARCH (arr.) I, II

Hawaiian (Haw)

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

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

211–212 HAWAIIAN TRANSLATION (3–3) Yr. Kahananui

413–414 HAWAIIAN TRADITIONAL POETRY (3–3) Yr. Kahananui
Translation of traditional poetry, including the Pele and Hiiaka cycle, and the Kumulipo creation chants. Pre: 152 or equivalent.

Hindi (Hindi)

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

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

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

Indonesian (Ind)

101–102 ELEMENTARY INDONESIAN (3–3) Yr. Roosman
Conversation with laboratory drill.

151–152 INTERMEDIATE INDONESIAN (3–3) Yr. Roosman
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 who already have Japanese background or some degree of Japanese proficiency may enter the course after passing the 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, the student should have proficiency 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 the content of 161-162 will be covered. Pre: 102 or equivalent.

201–202 ADVANCED JAPANESE—CONVERSATION (3–3) Yr.
Conducted entirely in Japanese. Lectures, reports, discussions. Pre: 162, 168 or equivalent.

211–212 THIRD-LEVEL JAPANESE (3–3) Yr.
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
Writing modern compositions following designated patterns, kanji, and themes. Pre: 162 or equivalent.

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

231–232 INTRODUCTION TO MODERN JAPANESE LITERATURE (3–3) Yr.
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.
Reading course for those who are not Japanese majors but who are interested in developing their skill in reading of textual materials pertinent to 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 literature (verse and prose). Comparative study of the literature of Japan and the West to be made when necessary. Pre: two semesters of literature in English department.

408 STRUCTURE OF JAPANESE (3) I, II Alfonso
Phonology, morphology, syntax of modern colloquial Japanese. Pre: 162 or equivalent.

415–416 JAPANESE GRAMMAR—COLLOQUIAL (3–3) Yr. Fujioka
Detailed analysis of problem areas of modern colloquial grammar. Pre: 212 or equivalent.

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

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

428 ACCELERATED FOURTH-LEVEL JAPANESE (6) II Tsuruoka
Study of modern spoken and written Japanese involving complex structures, expressions, patterns, and toyouko 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: 212 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. Viglielmo
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. Yasuda
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. | Fujioka
Study of change and growth of the Japanese language from ancient to modern periods. Pre: 408 or equivalent.

641–642 Contrastive Study of Japanese & English Structure (3–3) Yr. | Hashimoto
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. | Hashimoto
Identification and analysis of problems in language learning and language teaching. Practice in preparing and presenting lessons with materials based on comparative linguistic analysis and using the audiolingual approach. Teaching materials, teaching aids, and test construction. Pre: 408 or equivalent.

694 Japanese Bibliography (3) I, II | Ikeda

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 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 sessions. Daily laboratory work.

161–162 Intermediate Korean (4–4) Yr. | Y. S. Lee
Continuation of 101–102. After completion, the student should have proficiency 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. | Park
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 literature (verse and prose). Comparative study of the literature of Korea, China, Japan, and the West to be made when necessary. Pre: two semesters of literature in English department.

415–416 Korean Grammar (3–3) Yr. | Park
Linguistic description of modern Korean grammar. Pre: 162 or equivalent.

417–418 Fourth-Level Korean (3–3) Yr. | Park
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.
493 REFERENCE MATERIALS FOR KOREAN STUDIES (3) I  
Basic reference and bibliographic materials for Korean studies. Pre: 212 or equivalent.

499 ADVANCED STUDY AND SENIOR ESSAY (2) I, II  
Directed research in an area of Korean literature, linguistics, or dialects. Paper required. Pre: 212 or equivalent.

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

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

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

**Sanskrit (Sansk)**

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

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

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

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

**Tagalog (Tag)**

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

151–152 INTERMEDIATE TAGALOG (3–3) Yr.  
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.

**Asian Studies (Asian)**

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

301 CIVILIZATIONS OF THE EAST (3) I  
Physical environment and cultural traditions of East, Southeast, and South Asia, before major Western contact.
302 CIVILIZATIONS OF THE EAST (3) II  
Response of Asian culture to the West; movements of nationalism and modernization; Asia’s role today.

341 TECHNICS OF JAPANESE CIVILIZATION (3) II  
Consideration of man’s interaction with his environment, interplay of tradition and change, evolution of social patterns, and present economic organization. Pre: consent of instructor.

521 CIVILIZATIONS OF THE EAST: JAPAN, CHINA, AND KOREA (3) I  
Physical environment and cultural traditions of East Asia.

522 CIVILIZATIONS OF THE EAST: JAPAN, CHINA, AND KOREA (3) II  
Contemporary East Asia with emphasis on nationalism, economic development, and socio-cultural change.

523 CIVILIZATIONS OF THE EAST: SOUTHEAST ASIA (3) I  
Physical environment and cultural traditions of Southeast Asia.

524 CIVILIZATIONS OF THE EAST: SOUTHEAST ASIA (3) II  
Contemporary Southeast Asia with emphasis on nationalism, economic development, and socio-cultural change.

525 CIVILIZATIONS OF THE EAST: SOUTH ASIA (3) I  
Analysis of divisive and unifying factors in traditional Indian society, including race, religion, class, caste, language; and an interdisciplinary inquiry into economic development.

526 CIVILIZATIONS OF THE EAST: SOUTH ASIA (3) II  
Indian thought: great and little traditions; and emergent trends in South Asia.

699 DIRECTED RESEARCH (arr.) I, II  
Individual problems and research. Pre: consent of instructor.

798 SEMINAR IN ASIAN STUDIES (3) I, II  
(1) East Asia, (2) Southeast Asia, (3) South Asia. Pre: consent of instructor.

800 THESIS RESEARCH (arr.) I, II  

Botany (Bot)

Professors Baker, Cool, Doty, Kefford, A. Smith; Associate Professors Gillett, Lamoureux, Putman; Assistant Professor Mueller-Dombois

101 GENERAL BOTANY (4) I, II (2 L, 2 Lb)  
Basic principles of plant biology. This course and Zool 101 comprise an introduction to biology.

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

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

201 THE PLANT KINGDOM (4) II (2 L, 2 Lb)  
Staff  
Comparative studies of the structure and physiology of plants with reference to their distribution and classification. Pre: 101.
353  ECOLOGY I (3) I (2 L, 2 Lb)  
Mueller-Dombois  
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: 101.

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.

418  CYTOLOGY (3) I (2 L, 1 Lb)  
Baker  

420  PRIMITIVE ANGIOSPERMS AND PHYTOGEOGRAPHIC THEORY (3) I (2 L, 1 Lb)  
Smith  
Survey of evolutionary history of flowering plants and the significance of their geographic distribution. Pre: 101 and consent of instructor. Recommended: 201, 360, and 410.

430  MYCOLOGY (3) I (1 L, 2 Lb)  
Baker  
Morphology, physiology, and ecology of the fungi, and their identification. Pre: 101 or consent of instructor.

436  MEDICAL MYCOLOGY (3) II (1 L, 2 Lb)  
Baker  
Diagnostic morphology and cultural characteristics of fungi pathogenic to man. Pre: 430 or Micro 151.

450  NATURAL HISTORY OF THE HAWAIIAN ISLANDS (2) II (2 L-Lb)  
Staff  

454  ECOLOGY II (4) II (2 L, 2 Lb)  
Mueller-Dombois  
Community ecology (synecology), ecological land classification, and experimental ecology. Field trips to develop local examples. Pre: 101 or consent of instructor. Recommended: 360.

461  TAXONOMY OF VASCULAR PLANTS II (3) II (1 L, 2 Lb)  
Gillett  
Identification and classification of vascular plants. Field studies and herbarium methods. Pre: 360.

470  PRINCIPLES OF PLANT PHYSIOLOGY (4) II (3 L, 1 Lb)  
Staff  
Introduction to plant physiology. Pre: 101; Chem 104 or 106; Phys 160 or consent of instructor. Recommended: 410 and Chem 144.

480  PHYCOLOGY (3) II (1 L, 2 Lb)  
Staff  
Morphology, taxonomy, and ecology of algae. Identification of common algae. Pre: 101 or consent of instructor.

610  BOTANICAL SEMINAR (1) I, II  
Staff  
Study and discussion of significant topics and problems in botany.
612 ADVANCED BOTANICAL PROBLEMS (arr.) I, II
Investigation of any botanical problem; reading and laboratory work. May be repeated. Pre: consent of instructor.

615 MORPHOLOGY SEMINAR (2) II
Recent developments in morphology, anatomy, cytology. Pre: consent of instructor.

620 EVOLUTION (2) I
Discussion of principles of evolution with emphasis on plant evolution. Pre: consent of instructor. (Alt. yrs.; not offered 1966-67.)

631 MARINE PHYTOPLANKTON (3) I (2 L, 1 3-Hr Lb) Doty, Gilmartin
Identification, systematic morphology, ecology, distribution and abundance. Pre: graduate standing or permission of instructor. Identical with Ocean 631.

650 ENVIRONMENTAL PHYTOGEOGRAPHY (2) II Mueller-Dombois
Plant geography and general ecology with emphasis on tropical areas. Pre: 101 or consent of instructor. Recommended: 360.

651 DYNAMICS OF MARINE PRODUCTIVITY (3) II (2 3-Hr. L-Lb) Doty, Gilmartin
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.

662 ADVANCED TAXONOMY (3) I (2 L, 1 Lb) Gillett
Modern techniques in plant taxonomy with emphasis on methods utilizing cyto­genetics, anatomy, morphology, and physiology. Pre: consent of instructor. (Not offered 1966-67.)

665 NOMENCLATURE SEMINAR (2) II Staff

670-671 ADVANCED PHYSIOLOGY (3-3) Yr.
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: consent of instructor. (Alt. yrs.; not offered 1966-67.)

682 PHYCOLOGY—PHYTOPLANKTON (2) II (2 Lb) Doty
Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; not offered 1966-67.)

683 PHYCOLOGY—MYXOPHYTA AND PHAEOPHYTA (2) I (2 Lb) Doty
Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; offered 1966-67.)
684 PHYCOLOGY—RHODOPHYTA (2) II (2 Lb)  Doty
Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; offered 1966-67.)

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.

Chemistry (Chem)

Professors INSKEEP, NAUGHTON, SCHEUER; Associate Professors FRODYMIA, IHRIG, Larson, Waugh, ZEITLIN; Assistant Professors ANDERMANN, BARNES, DUCE, GILJE, KIEFER, MANN, McDONALD, SCHALEGGER, 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.

104 GENERAL CHEMISTRY (4) II (3 L, 1 Lb)  Staff
Fundamental laws, principles, and methods. Pre: 103. Terminal course for those students desiring only one year of college chemistry.

106 GENERAL CHEMISTRY—QUALITATIVE ANALYSIS (5) II (3 L, 2 Lb)  Staff

107 PRINCIPLES OF CHEMISTRY—QUALITATIVE ANALYSIS (5) I (3 L, 2 Lb)  Inskoep
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 the chemistry achievement examination.

141 ELEMENTS OF ORGANIC CHEMISTRY (4) II (3 L, 1 Lb)  Staff

143–144 ORGANIC CHEMISTRY (4–4) Yr. (3 L, 1 4-Hr. Lb)  Schaleger
Carbon compounds: classification, structure, reactions. Laboratory techniques. Pre: 106 or 107.

331 ELEMENTARY QUANTITATIVE ANALYSIS (4) I, II (2 L, 2 Lb)  Staff
Beginning gravimetric and volumetric analysis. Pre: 106 or 107.

394–395 SENIOR HONORS THESIS (2–2) Yr.  Staff
Research problem under individual faculty supervision. Required for graduation with honors in the departmental honors program.

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

432 INTERMEDIATE QUANTITATIVE ANALYSIS (4) II (2 L, 2 Lb)  Staff
Introductory instrumental analysis. Pre: 331, credit or registration in 452.

445 INTERMEDIATE ORGANIC CHEMISTRY (4) II (2 L, 2 Lb)  Larson
Modern synthetic methods. Pre: 144.
451-452 PHYSICAL CHEMISTRY (4-4) Yr. (3 L, 1 Lb)  
Pre: 106 or 107, Math 136, Phys 161 or 172-173.

522 INTERMEDIATE INORGANIC CHEMISTRY (3) II  
Classification, description, and fundamental theory. Pre: credit or registration in 452.

524 PREPARATIVE INORGANIC CHEMISTRY (3) II (1 L, 2 Lb)  
Preparation, properties, selected reactions of representative inorganic compounds. Pre: credit or registration in 522.

544 QUALITATIVE ORGANIC ANALYSIS (4) I (2 L, 2 Lb)  
Identification and characterization of organic compounds and mixtures. Pre: 144, 331, credit or registration in 452.

621 INTRODUCTORY QUANTUM CHEMISTRY (3) I  
Principles of quantum mechanics with applications to atoms and molecules. Pre: 452.

622 ADVANCED INORGANIC CHEMISTRY I (3) II  
Principles of modern inorganic chemistry. Pre: 621.

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) I  
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  
Review of basic principles of quantum mechanics with emphasis on matrix representation of operators important to molecular structure theory. Application of the formalism to the modern theories of the chemical bond. Pre: 621.

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

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

Drama and Theatre (Drama)

Senior Professor Ernst; Professor Trapido; Associate Professors Bentley, Langhans; Assistant Professors R. Mason, Soller; Instructor 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  
Representative plays from Miller's Death of a Salesman to Aeschylus' Agamemnon, studied as illustrative of changing forms in the theatre and dramatic literature.

150 DRAMATIC PRODUCTION (3) I  
Introduction to process of converting the play into the performance.

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

200 THEATRE PRACTICE (3) I, II  
Supervised work in one or two areas: stagecraft, lighting, costuming, make-up, business, publicity, acting (only after being cast). Term paper required. May be repeated.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>399</td>
<td>DIRECTED WORK (arr.) I, II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in drama and theatre.</td>
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<tr>
<td>405</td>
<td>PUPPETRY (3) I, II</td>
<td>Bentley</td>
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<tr>
<td></td>
<td>Survey of the history and scope of puppetry. Construction and presentation of puppets for adult and child audiences. May be repeated.</td>
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<tr>
<td>410</td>
<td>CREATIVE DRAMATICS (2) I, II</td>
<td>Bentley</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>415</td>
<td>PLAYWRITING (3) I</td>
<td>Langhans</td>
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<td></td>
<td>One-act plays; practice in writing in the dramatic form; possibility of production. May be repeated. Pre: 3.0 grade-point or better in English composition.</td>
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<tr>
<td>420</td>
<td>ACTING (3) I, II</td>
<td>Staff</td>
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<td></td>
<td>Individual exercises and group rehearsals. In addition to work in course, students must try out for major productions and must play at least one role in public performance. May be repeated.</td>
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<tr>
<td>425</td>
<td>DANCE TECHNIQUES (3) I, II</td>
<td>Wolz</td>
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<tr>
<td></td>
<td>Training in modern dance and stage movement to develop flexibility, control, rhythm, and expressiveness. May be repeated. Pre: consent of instructor.</td>
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<tr>
<td>426</td>
<td>DANCE WORKSHOP (1) II</td>
<td>Wolz</td>
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<tr>
<td></td>
<td>Preparation of standard and new works for performance. May be repeated. Pre: consent of instructor.</td>
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<tr>
<td>430</td>
<td>DIRECTION (3) I</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Readings, reports, discussion of the theory and practice of stage direction.</td>
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<tr>
<td>435</td>
<td>DESIGN IN THE THEATRE (3) I</td>
<td>Mason</td>
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<tr>
<td></td>
<td>Principles of design as related to scenery, costume, and lighting for the stage. Pre: consent of instructor.</td>
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<tr>
<td>440</td>
<td>ADVANCED STAGECRAFT AND STAGE LIGHTING (3) I</td>
<td>Soller</td>
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<tr>
<td></td>
<td>Principles applied, and techniques used, in contemporary staging and lighting.</td>
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<tr>
<td>445</td>
<td>COSTUME FOR THE STAGE (3) I</td>
<td>Mason</td>
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<tr>
<td></td>
<td>Survey of historical costume with special emphasis on the translation of historical styles into theatrical form.</td>
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<tr>
<td>540</td>
<td>ORIENTAL DRAMA AND THEATRE (3) I</td>
<td>Ernst</td>
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<td></td>
<td>Principal forms of Oriental drama and manner of production in the theatre. Pre: consent of instructor.</td>
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<tr>
<td>550</td>
<td>HISTORY OF THE THEATRE (3) II</td>
<td>Langhans</td>
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<tr>
<td></td>
<td>Survey of development of the theatre from the earliest times to the present.</td>
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<tr>
<td>620</td>
<td>ADVANCED ACTING TECHNIQUES (3) II</td>
<td>Bentley</td>
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<tr>
<td></td>
<td>Individual and group exercises in stage movement and line reading. Research and reports on styles of acting. May be repeated.</td>
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<tr>
<td>630</td>
<td>PROBLEMS IN DIRECTION (3) II</td>
<td>Langhans</td>
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<tr>
<td></td>
<td>Directorial analysis of three plays of different styles and periods; exercises; preparation of prompt books.</td>
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</tbody>
</table>
635 ADVANCED DESIGN (3) II
   Advanced study, analytical and creative, of the visual aspects of dramatic art. Pre: consent of instructor.

640 PROBLEMS IN STAGECRAFT AND STAGE LIGHTING (3) II
   Special topics in the staging and lighting of plays, and in the planning and use of various types of modern theatres. (Alt. yrs.; offered 1966-67.)

660 MODERN THEORIES OF STAGE PRESENTATION (3) I
   Theories of production from Antoine to Brecht. Reading, discussion, reports. (Alt. yrs.; not offered 1966-67.)

670 AESTHETICS OF THE THEATRE (3) I
   Consideration of the theatre as an art form. Reading, discussion, reports. (Alt. yrs.; offered 1966-67.)

700 ADVANCED THEATRE PRACTICE (3) I, II
   Special projects in one or two areas: stagecraft, lighting, costuming, make-up, business, publicity, acting (only after being cast). Term paper required. May be repeated.

710 SEMINAR IN THEATRE RESEARCH (3) I
   Bibliography and research methods; fundamentals of thesis and dissertation writing. Required of all graduate students.

720 SEMINAR IN DRAMA AND THEATRE (3) II
   Use of historical styles in the theatre. Pre: consent of instructor.

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

799 DIRECTED WORK (arr.) I, II
   Reading or research in theatre theory or history; reading and practice in particular areas of dramatic production. Pre: consent of instructor.

Economics (Econ)

Professors CORTER, IGE, KAMINS, OSHIMA, WISE; Associate Professor SATO; Assistant Professors GORDON, HOFFMAN, LEFTON, LIM, SARAYDAR, YEH; Lecturer MARK

Economics 150 and 151 arc prerequisite to all other courses.

150 PRINCIPLES OF ECONOMICS (3) I, II
   Analysis of functioning of economic systems with emphasis on forces determining levels and changes of national income and employment. Describes basic economic institutions, e.g., markets, money, banks, labor organizations, corporations.

151 PRINCIPLES OF ECONOMICS (3) I, II
   Analysis of how commodity and factor prices are determined. Discusses policies for efficient allocation of scarce resources. Required of all economics majors.

240 MONEY AND BANKING (3) I, II
   Study of relation of monetary system to price level, employment, and income. Considers nature and function of money and banking, role of money in international trade, monetary theories, inflation.

290 LABOR ECONOMICS (3) I
   Economic analysis applied to the labor market; wages, hours, conditions of work, unemployment, etc.
300 INTERMEDIATE ECONOMIC THEORY: PRICE THEORY (3) I, II
Price determination and resource allocation under competition, monopoly, oligopoly, monopolistic competition. Theories of demand, cost, partial, general equilibrium.

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

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

399 DIRECTED READING (arr.) I, II
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in economics, on recommendation by department chairman only.

410 ASIAN ECONOMIC DEVELOPMENT (3) I

416 ECONOMIC DEVELOPMENT OF EUROPE (3) I
Study of economic growth and changes in economic institutions of Europe since the Industrial Revolution. Pre: 150; 151 highly desirable.

417 ECONOMIC DEVELOPMENT OF U.S. (3) II
Emphasizes period since World War I, with growing importance to U.S. economy of international trade and finance. Consideration of changing patterns of investment, consumption and employment. Pre: 150; 151 highly desirable.

420 QUANTITATIVE METHODS IN ECONOMIC ANALYSIS (3) I
Designed to give students working knowledge of elements of algebra and calculus, and to apply such mathematics to solution of economic problems. Includes matrix algebra, elements of differential and integral calculus, differential equations and economic model building. Pre: college algebra and 150-151.

421 QUANTITATIVE METHODS IN ECONOMIC ANALYSIS (3) II
Includes theory and operations in statistical inference, introduction to econometrics. Covers probability and distribution theory, tests of hypotheses, small sample methods, analyses of variance and regression, correlation analysis, Gauss-Doolittle method, times series and index numbers. Pre: 420 or permission of instructor.

430 COMPARATIVE ECONOMIC SYSTEMS (3) I
Analysis of the structure, institutions, operation, performance, and growth of private enterprise, socialist, communist and mixed economies, with emphasis on the U.S., U.S.S.R. and underdeveloped economies.

450 PUBLIC FINANCE (3) I, II
Considers governmental expenditures, revenues and debt, both descriptively and theoretically. Fiscal policy is considered, as are budgeting and tax administration.

452 SUBNATIONAL FINANCE (3) I
Intensive study of fiscal institutions, operations and policy questions within state and local governments in U.S. Consideration of grant program and other links with central government. Pre: 450.

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

462 INTERNATIONAL ECONOMIC POLICY (3) II
Discussion of problem areas of contemporary interest, such as causes and effects of recent U.S. gold losses, drive for trade liberalization, impact of Common Market, etc. Pre: 460.

470 GOVERNMENT AND BUSINESS (3) I
Consideration of economic aspects and consequences of regulation by government of business activity, with emphasis on regulatory boards. Economic analysis related to policy issues.

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 the period after World War II. Consideration of changes in population, labor force, technology, investment, consumption, government. Pre: 410 or consent of instructor.

619 REGIONAL ECONOMICS (3) II
Application to problems of regional economics of input-output analysis, linear programming, econometric analysis. Problems include optimal location of economic functions, population and migration, regional income, regional cycle and multiplier analysis. Pre: 420-421, or consent of instructor.

620 MATHEMATICAL ECONOMICS (3) I
Application of mathematical methods to economic theory. Partial differentiation, integral calculus, series and expansion, vectors and matrices, determinants, systems of difference and differential equations, stability conditions, inter-industry
relations, programming of activities and allocation of resources, aggregation problem, elementary theory of games. Pre: 420-421, or consent of instructor.

624 ECONOMETRICS (3) II  
Mathematical models of economic behavior and use of advanced statistical methods for testing economic theories and estimating economic parameters. Includes general linear regression models, multivariate analysis, simultaneous equation models, least-square estimation, limited-information technique, identification, auto-correlation and time series analyses. Pre: 620, or consent of instructor.

626 NATIONAL ECONOMIC ACCOUNTS (3) I  

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.

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  
Staff  
Case studies, emphasizing research approaches and techniques. Theories of economic development applied to and checked against experience of certain Asian nations. Pre: 670 or consent of instructor.

800 THESIS RESEARCH (arr.) I, II  
Staff

English (Eng)

Senior Professors DAY, WILSON; Professors BOUSLOG, CLINE, FUJIMURA, GEORGE, LOWERS, SHEN, STEMPPEL, SUMMERSCILL; Associate Professors FRIERSON, HUNTSBERRY, KIRTLER, LEIB, WINTERS; Assistant Professors BACKUS, BROWN, CRYMES, FRANK, GRIFFING, GUINAN, HEINE, HOLLINGSHEAD, HURWITZ, KRAUSE, LAHR, LESTER, LEVY, MALBY, MANEY, McCUTCHEON, MENIKOFF, SCOTT, SIMSON, SINCLAIR, STILLIANS, TEEVAN, P. THOMPSON, TOPHAM, WELLIN, WILEY; Instructors ABRUMS, BHUMORE, BARNES, BARR, CASTLE, CLAUSEN, COSCROVE, DEFANO, ECKLER, ELLMETH, FUJIOAGA, GLICK, GLISSMEYER, HARMAN, HURD, JOHNSON, KAMINS, KENNEDY, L. EMMON, LICHTY, MANN, MARESCA, MUSSETTER, NESS, NEWTON, OKADA, PETERS, PETRIN, PRESSMAN, RYFFINS, SMITH, SUTLIFF, SUTTON, SWENSON, TAYLOR, J. THOMPSON, TUNBERG, VELLA, WARREN, WILLIAMS

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 the Freshman English Anticipatory Examination or on College Board Advanced Placement Examination in English.

150-151 MAJOR WORKS OF BRITISH AND AMERICAN LITERATURE (3-3) Yr.  
Staff  
150: Middle Ages to 1800; 151: 1800 to the present. This course or 152-153 or 154-155 is prerequisite to all advanced courses in English.

152-153 WORLD LITERATURE (3-3) Yr.  
Winters, Staff  
Major works of classical, Oriental, European, American literature. 152: classical times to the Renaissance. 153: 1600 to the present. May be substituted for 150-151.

154-155 TYPES OF LITERATURE (3-3) Yr.  
Huntsbury, Staff  

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>210</td>
<td>TECHNICAL EXPOSITION (3) I, II</td>
<td>Leib, Staff</td>
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<tr>
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<td>Analysis of selected scientific prose; principles and practice of presenting technical information. Open to juniors and seniors in scientific fields.</td>
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<td>See 150-151 for prerequisite to upper division courses.</td>
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<tr>
<td>212</td>
<td>LITERARY WRITING (3) I, II</td>
<td>Huntsberry, Krause</td>
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<tr>
<td></td>
<td>Writing and criticism of essays, designed to develop effective expression, with emphasis on lively and individual style. Pre: consent of instructor.</td>
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<td>215</td>
<td>ADVANCED EXPOSITORY WRITING (3) I, II</td>
<td>Simson, Staff</td>
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<td></td>
<td>Writing of essays from logical and rhetorical principles, especially modes of definition, assertion, and proof. Emphasis on clarity, coherence, and style.</td>
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<tr>
<td>220</td>
<td>STRUCTURE OF AMERICAN ENGLISH (3) I, II</td>
<td>George, Staff</td>
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<tr>
<td></td>
<td>Introduction to the phonology, morphology, and syntax of present-day American English.</td>
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<td>231</td>
<td>INTRODUCTION TO POETRY (3) I, II</td>
<td>P. Thompson, Staff</td>
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<tr>
<td></td>
<td>Written and oral analysis of the imagery, sound, language, and form and structure of poems, leading to increased awareness of the nature of poetry.</td>
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<td>235</td>
<td>BACKGROUNDS OF WORLD LITERATURE (3) I, II</td>
<td>Kirtley</td>
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<tr>
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<td>Most important sources of European literary themes and allusions, including the King James Bible and Western European myth and legend.</td>
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<tr>
<td>309-310</td>
<td>JUNIOR HONORS PROGRAM IN ENGLISH (3–3) Yr.</td>
<td>Bouslog, Winters</td>
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<tr>
<td>329</td>
<td>SENIOR HONORS PROGRAM IN ENGLISH (3) I</td>
<td>Staff</td>
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<tr>
<td>336</td>
<td>INTRODUCTION TO LITERARY PROBLEMS (3) I, II</td>
<td>Fujimura, Hurwitz, Stillians</td>
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<td>Critical evaluation of the genres of literature, of various modes of analysis, and of problems involved in literary perception.</td>
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<tr>
<td>397-398</td>
<td>SENIOR HONORS TUTORIAL (6-6) Yr.</td>
<td>Staff</td>
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<tr>
<td>411</td>
<td>POETRY WRITING (3) II</td>
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<td>Pre: 231, consent of instructor.</td>
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<tr>
<td>413</td>
<td>FORM AND THEORY IN WRITING FICTION (3) I, II</td>
<td>Huntsberry, Krause</td>
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<tr>
<td></td>
<td>Study of techniques of prose fiction from the standpoint of the writer.</td>
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<tr>
<td>414</td>
<td>NARRATIVE WRITING (3) I, II</td>
<td>Huntsberry, Krause</td>
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<tr>
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<td>Instruction and practice in writing the short story. Pre: 413 or equivalent.</td>
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<tr>
<td>415</td>
<td>ADVANCED NARRATIVE WRITING (3) I</td>
<td>Huntsberry, Krause</td>
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<td></td>
<td>Developing skill in story telling (either short story or novel). Pre: 414 or the equivalent.</td>
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<td>425</td>
<td>MODERN ENGLISH GRAMMAR (3) I, II</td>
<td>Crymes, Lester, Shen</td>
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<td></td>
<td>Survey of prestructural, structural, and generative-transformational descriptions of modern English grammar.</td>
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</table>
440 ENGLISH DRAMA TO 1642 (3) II
Origins of English drama; medieval drama and theatre; contemporaries and successors of Shakespeare.

443-444 MODERN DRAMATIC LITERATURE (3–3) Yr.

447 THE ENGLISH NOVEL TO 1832 (3) I
Historical and critical study of development of English prose fiction during 18th and early 19th centuries with emphasis on rise of the realistic novel.

448 THE ENGLISH NOVEL, 1832–1900 (3) II
Historical and critical study of development of the English novel from Charles Dickens to Thomas Hardy.

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

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

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

457-458 SHAKESPEARE (3-3)
457: Shakespeare's plays from the beginning to Hamlet. 458: from Hamlet through the last plays.

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

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

466 MILTON (3) I
Selected poetry and prose.

470 EARLY 18th-CENTURY ENGLISH LITERATURE (3) I
Poetry, prose (exclusive of the novel), and drama from 1700 to 1740, with emphasis on the works of Pope and Swift.

471 LATE 18th-CENTURY ENGLISH LITERATURE (3) II
Poetry, prose (exclusive of the novel,) and drama from 1740 to 1780, with emphasis on the works of Johnson and his circle.

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

485 VICTORIAN LITERATURE (3) I
Poetry and prose from 1832 to 1870, exclusive of the novel.

486 VICTORIAN LITERATURE (3) II
Poetry and prose from 1870 to 1914, exclusive of the novel.

490 20th-CENTURY BRITISH NOVEL (3) I

571–572 AMERICAN LITERATURE (3–3)
571: from the beginnings to the Civil War. 572: from the Civil War to the present.
573 AMERICAN LITERATURE AND CULTURAL HISTORY (3) II  
Studies in the relations of American literature to American culture. Pre: 571 or the equivalent. May be repeated for credit.

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

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

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

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.

625 HISTORY OF THE ENGLISH LANGUAGE (3) II  
Lester, Wellein

Growth and development of the English language; sources, forms, mutations, and standards of usage.

630 SEMINAR IN RESEARCH METHODS (3) I, II  
Bouslog, Fujimura

Kinds of research, problems of bibliography, fundamentals of thesis writing. Required of all candidates for the M.A. degree in English.

635 SEMINAR IN COMPARATIVE LITERATURE (3) II  
Staff

Introduction to comparative literature; relationship of English to other European literatures; sources and influences. Pre: consent of instructor.

636 HISTORY OF LITERARY CRITICISM (3) I  
Stempel

Chief theories of literary criticism, with readings (in English) from Plato to the present.

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 1966-67.)

657 SEMINAR IN SHAKESPEARE (3) II  
Staff

Intensive study of Shakespeare. Pre: consent of instructor. (Alt. yrs.; offered 1966-67.)

660 MAJOR AUTHORS (3) I  
Staff

Study of one or more authors, English or American.

675 LITERARY GENRES AND PROBLEMS (3) II  
Staff

Study of one area of English or American literature.

685 SEMINAR IN ENGLISH LITERATURE (3) I, II  
Staff

Study of authors or a period. Pre: consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II  
Staff

Individual reading or research. Pre: consent of instructor.

780 SEMINAR IN AMERICAN LITERATURE (3) I, II  
Staff

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**

603 TEACHING ENGLISH COMPOSITION AND TEXTBOOK WRITING (3) II  
Survey of methods, procedures, and theory of teaching English composition and introduction to specialized skills of planning and writing textbooks for the teaching of English as a second language. For TIP only.

622 TEACHING ENGLISH AS A SECOND LANGUAGE (3) II  
Identification and analysis of problems in language learning and language teaching. Practice in preparing and presenting lessons in pronunciation, grammar, and vocabulary with materials based on comparative linguistic analysis and using the oral approach. Survey of materials and teaching aids. For MATESL students.

623 TEACHING ENGLISH AS A SECOND LANGUAGE AND LANGUAGE TEST CONSTRUCTION (3) II  
Introduction to planning and writing textbooks for teaching of English as a second language. Similar to 622, but for students in TIP only.

723 TEXTBOOK AND TEST CONSTRUCTION (3) II  
Introduction to specialized skills of planning and writing language textbooks and constructing language test for specific native language backgrounds. For MATESL students. Pre: 622.

**Journalism (Journ)**

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

205 NEWS WRITING (3) I  

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

207 EDITORS WORKSHOP (2) I, II  
Restricted to and required of executives of student publications. Pre: 206.

239 MASS COMMUNICATIONS (3) I  
History of popular literature; mass media in modern society; principles of mass communications.

250 TYPOGRAPHY (3) I  
Basic printing procedures and design; history of typography; decoration and illustration.

315 INVESTIGATIVE REPORTING (2) I, II  
Preparing specialized material for mass media, with emphasis on the problems of objectivity, analysis, and interpretation. Pre: consent of instructor. May be repeated for credit.

316 EDITING AND PUBLISHING (3) II  
Illustration and typographical design; printing processes; newspaper and magazine management; editorial responsibility; laws of libel and copyright. Pre: 206.
385 DIRECTED WORK (3) I, II  
Scott, Wiley  
Internship in media operations under professional and faculty supervision. Pre: consent of instructor.

European Languages

Professors Aspinwall, Knowlton, Mueller; Associate Professors Hadlich, Holton, Jackson, Wiswell; Assistant Professors S. Baciu, Burns, Elliott, Jonas, Michalski, M. Montes, Moore, Rossbacher, Saraydar, Schorrig; Instructors M. Baciu, Brown, Burkett, Douyere, Haas, Keller, Y. Montes, Philipp, Sydow, Theuma

General (El)

630 SEMINAR IN RESEARCH METHODS (2) I  
Staff  
(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 (3–3) Yr.  
Staff  
Conversation, laboratory drill, grammar, reading.

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

205 PHONETICS AND PRONUNCIATION PRACTICE (2) II  
Staff  
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)  
Staff  
Systematic oral and written practice. Laboratory drill. Pre: 152 or equivalent.

360 FRENCH CIVILIZATION (3) I  
Staff  
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  
Staff  
Rapid reading in translation; lectures, discussion, and reports. Pre: two semesters of literature courses in the English department. (Alternates with Rus 402; not offered 1966-67.) Not creditable toward the major.

403–404 SURVEY OF FRENCH LITERATURE (3–3)  
Staff  
Survey of French literature covering major authors and movements. Pre: 212 with which either 403 or 404 may be taken concurrently.

406 STRUCTURE OF FRENCH (3) II  
Staff  
Study of structure of contemporary French as analyzed by descriptive linguists. Pre: 151 or equivalent.

411 MASTERPIECES OF 17th-CENTURY LITERATURE (3) I  
Staff  
Pre: 403 or 404.

413 MASTERPIECES OF 18th-CENTURY LITERATURE (3) II  
Staff  
Pre: 403 or 404.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>415-416</td>
<td>MASTERPIECES OF 19th-CENTURY LITERATURE (2–2)</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>Pre: 403 or 404.</td>
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<tr>
<td>417-418</td>
<td>MASTERPIECES OF 20th-CENTURY LITERATURE (2–2)</td>
<td></td>
<td>Staff</td>
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<td></td>
<td>Pre: 403 or 404.</td>
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<tr>
<td>601</td>
<td>SEMINAR IN CONTEMPORARY FRENCH LITERATURE (3) II</td>
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<td>Staff</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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<td>602</td>
<td>FRENCH POETRY (3) II</td>
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<td>Staff</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>
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<td>Staff</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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<td>610</td>
<td>STYLISTICS (2) I</td>
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<td>Staff</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>
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<td>Staff</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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<td>671</td>
<td>HISTORY OF THE LANGUAGE (2) I</td>
<td></td>
<td>Staff</td>
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<td></td>
<td>Historical and cultural history of development of the French language from classical Latin roots to the present. Examples drawn from readings in pre-medieval literature. Pre: Latin 101 or equivalent, and consent of instructor.</td>
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<td>672</td>
<td>MEDIEVAL LITERATURE (2) II</td>
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<td>Staff</td>
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<td></td>
<td>Beginnings of French literature through the 15th century. Emphasis on theatre, prose, satire, and didactic literature.</td>
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<td>680</td>
<td>THE NOVEL IN FRANCE (3) I</td>
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<td>Staff</td>
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<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 590.)</td>
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<td>685</td>
<td>SEMINAR IN FRENCH LITERATURE (3) I or II</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>Study of authors or a period. Pre: consent of chairman of graduate field.</td>
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<td>690</td>
<td>THE THEATRE IN FRANCE (3) I</td>
<td></td>
<td>Staff</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. (Alternates with 680; offered 1966-67.)</td>
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<tr>
<td>699</td>
<td>DIRECTED RESEARCH (arr.) I, II</td>
<td></td>
<td>Staff</td>
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<td></td>
<td>Pre: consent of chairman.</td>
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<tr>
<td>800</td>
<td>THESIS RESEARCH (6)</td>
<td></td>
<td>Staff</td>
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**German (Ger)**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>101-102</td>
<td>ELEMENTARY GERMAN (3–3) Yr.</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>Conversation, laboratory drill, grammar, reading.</td>
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<tr>
<td>151-152</td>
<td>INTERMEDIATE GERMAN (3–3) Yr.</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>Reading, conversation, laboratory drill, composition. Pre: 102 or equivalent.</td>
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</tbody>
</table>
154 INTERMEDIATE: SCIENCE GERMAN (3) II  
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.

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 or 154; Pre: for 206: 205.

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.

405 STRUCTURE OF THE GERMAN LANGUAGE (2) II  
Analysis of modern high German; class and laboratory exercises. Pre: 205 or equivalent.

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.

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.

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.

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.

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

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

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

652 SEMINAR: DRAMA, GYRFILIUS 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.

653 SEMINAR: LYRIC POETRY (3) I  
Interpretation and comparative study of representative German poems from Thirty Years War up to our times.

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.

656 FAUST II (3) II
Symbolic "greater world" or higher plane of human aspiration. Pre: 655.

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.

158 ADVANCED COMPOSITION (3) II
Close study of structure of the language with an opportunity for the student to write prose compositions in Greek. Pre: 152.

301 NEW TESTAMENT (3) I

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
Major writers of Greece in translation. Pre: two semesters of literature courses in the English department. Not open to Greek majors.

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

421 HOMER (3) II
Selections from the Iliad and Odyssey. Pre: 152 (Alt. yrs.)

432 DRAMA (3) II
Selected readings in Greek dramatists. Pre: 152. (Alt. yrs.)

490 SEMINAR (3) I, II
Offered according to demand. (1) Historians—selections from Herodotus, Thucydides. (2) Lyric Poetry—Pindar, Alcaeus, Anacreon, etc. (3) Drama—study of selected entire dramatic works. (4) Pre-Socratics—study of the development of early Greek philosophy. (5) Aristotle—selections from philosophic treatises and the Poetics.

Italian (Ital)

101-102 ELEMENTARY ITALIAN (3-3) Yr.
Reading, conversation, laboratory drill, grammar. (Not offered 1966-67.)

151-152 INTERMEDIATE ITALIAN (3-3) Yr.
Reading, conversation, laboratory drill, grammar, compositions. Pre: 102. (Not offered 1966-67.)
Latin (Latin)

101-102 Elementary Latin (3-3) Yr.
Vocabulary and grammar, with reading of simple Latin.

151-152 Intermediate Latin (3-3) Yr.
Review of grammar, reading of selections from prose and poetry. Pre: 102 or the equivalent.

301 Advanced Composition (3) I

401 Historians (3) I
Reading of Livy, Sallust, Tacitus and other Roman historians. (Alt. yrs.; not offered 1966-67.)

402 Roman Civilization (3) II
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
Major writers of Rome in translation. Pre: two semesters of literature courses in the English department. Not creditable toward the major.

410 Lyric Poets (3) I
Selections from the foremost Latin lyricists, Horace, Catullus, Propertius, Tibullus. Pre: 152. (Alternates with 401; offered 1966-67.)

421 Satire (3) II
Selections from Horace, Juvenal, Martial. Pre: 152. (Alternates with 422; offered 1966-67.)

422 Drama (3) II
Reading of Plautus and Terence. Pre: 152. (Alternates with 421; not offered 1966-67.)

490 Seminar (3) I, II
Offered according to demand. (1) Roman poetry. (2) Roman Philosophy—selections from Cicero, Seneca, etc. (3) Patristic literature—selections from the early Christian writers: Tertullian, Lactantius, Ambrose, Augustine, Jerome. (4) Roman Prose—selections from Petronius, Pliny, Suetonius, etc.

Portuguese (Port)

101-102 Elementary Portuguese (3-3) Yr.
Reading, conversation, laboratory drill, grammar.

151-152 Intermediate Portuguese (3-3) Yr.
Reading, conversation, writing, laboratory drill. Pre: 102 or the equivalent.

Russian (Rus)

101-102 Elementary Russian (3-3) Yr.
Conversation, lab drill, reading, writing, grammar.

151-152 Intermediate Russian (3-3) Yr.
Reading, conversation, laboratory drill, grammar and composition. Pre: 102 or equivalent.
153-154 INTERMEDIATE: SCIENTIFIC RUSSIAN (3-3) Yr.  
Rossbacher  
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. Recommended to students completing a 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 reinforced with laboratory drill. Pre: 152 or equivalent.

205-206 COMPOSITION AND STRUCTURE (3-3) Yr.  
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.  
Keller  
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, and Tolstoi. Russian majors taking this course will be required to fulfill additional reading and written assignments in Russian. Pre: consent of instructor. (All yrs; offered 1966-67.)

403 CONTEMPORARY LITERATURE IN TRANSLATION (3) II  
Staff  
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. (Alt yrs; not offered 1966-67.) Pre: consent of instructor.

404 LITERATURE OF THE 18th CENTURY (3) II  
Staff  
Representative reading and discussion of the more important writers before Pushkin. Pre: 206 or consent of instructor. (Alternates with 420; not offered 1966-67.)

411-412 LITERATURE OF THE 19th CENTURY (3-3) Yr.  
Staff  
Reading and discussion of representative writers beginning with Pushkin. Pre: 206 or consent of instructor. (Alternates with 413-414; not offered 1966-67.)

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; offered 1966-67.)

415 RUSSIAN POETRY (2) I  
Keller  
Reading and discussion of classical and contemporary Russian poets. Pre: 206 or consent of instructor. (Alternates with 417; offered 1966-67.)

417 RUSSIAN DRAMA (2) I  
Staff  
Representative plays of the 18th, 19th, and 20th centuries. Pre: 206 or consent of instructor. (Alternates with 415; not offered 1966-67.)

418 ADVANCED COMPOSITION AND STYLISTICS (3) I  
Rossbacher  
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.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>420</td>
<td>HISTORY OF RUSSIAN LANGUAGE AND EARLY RUSSIAN LITERATURE (2) II</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Study of the development of the Russian language. Representative readings in</td>
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<tr>
<td></td>
<td>Russian literature through the 17th century. Pre: 206 or consent of instructor.</td>
<td>(Alternates with 404; offered 1966-67.)</td>
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<tr>
<td>493</td>
<td>SEMINAR IN RUSSIAN LITERATURE (3-3) Yr.</td>
<td>Rossbacher, Wiswell</td>
</tr>
<tr>
<td></td>
<td>Important literary movements and writers. Pre: consent of instructor.</td>
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<tr>
<td>699</td>
<td>DIRECTED READING (arr.) I, II</td>
<td>Wiswell</td>
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<td>Pre: consent of instructor.</td>
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**Spanish (Span)**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>101-102</td>
<td>ELEMENTARY SPANISH (3-3) Yr.</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Beginning course, primarily emphasizing oral practice. Laboratory drill.</td>
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<tr>
<td>151-152</td>
<td>INTERMEDIATE SPANISH (3-3) Yr.</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Continuation of oral practice, with increasing emphasis on reading and written</td>
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<td></td>
<td>composition. Laboratory drill. Pre: 102 or the equivalent.</td>
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<tr>
<td>203-204</td>
<td>ADVANCED GRAMMAR AND COMPOSITION (3-3) Yr.</td>
<td>Staff</td>
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<tr>
<td></td>
<td>More detailed study of problem areas of Spanish grammar. Cultivation of</td>
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<td>accuracy and elegance in written expression.</td>
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<tr>
<td>230</td>
<td>PHONETICS AND PRONUNCIATION PRACTICE (2) I, II</td>
<td>Hadlich, Holton</td>
</tr>
<tr>
<td></td>
<td>Analysis of Spanish phonological system, in contrast with English. Practice</td>
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<td>designed to perfect the student’s own pronunciation; laboratory drill.</td>
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<tr>
<td>260-261</td>
<td>SPANISH AND SPANISH-AMERICAN CIVILIZATION (3-3)</td>
<td>Baciu</td>
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<tr>
<td></td>
<td>Survey of the culture and institutions of modern Spain and Spanish America,</td>
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<td>with some attention to their historical backgrounds. Pre: 152 or the equivalent.</td>
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<tr>
<td>360-361</td>
<td>PENINSULAR LITERATURE (3-3)</td>
<td>Montes</td>
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<tr>
<td></td>
<td>Survey of Spanish Peninsular literature covering major authors and movements.</td>
<td>(Alt. yrs.; not offered 1966-67.)</td>
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<tr>
<td>370-371</td>
<td>SPANISH-AMERICAN LITERATURE (3-3)</td>
<td>Montes</td>
</tr>
<tr>
<td></td>
<td>Survey of Spanish-American literature covering major authors and movements.</td>
<td>(Alt. yrs.; offered 1966-67.)</td>
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<tr>
<td>400-401</td>
<td>ADVANCED ORAL PRACTICE (3-3) Yr.</td>
<td>Holton</td>
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<td>Systematic practice designed to continue on an advanced level the student’s</td>
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<td>control of spoken Spanish. Attention to further development of a vocabulary</td>
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<td>which will permit accurate and mature expression on a variety of topics.</td>
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<td>Laboratory drill.</td>
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<td>431</td>
<td>THE STRUCTURE OF SPANISH (3) I</td>
<td>Hadlich</td>
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<tr>
<td></td>
<td>Phonological, morphological, and syntactic structure of contemporary Spanish,</td>
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<td>as analyzed by descriptive linguists. Pre: Ling 202 or the equivalent and Span</td>
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<td>152, or consent of instructor. (Alt. yrs.; offered 1966-67.)</td>
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<td>440</td>
<td>HISTORY OF THE SPANISH LANGUAGE (3) II</td>
<td>Knowlton</td>
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<td></td>
<td>Pre: Spanish 152 or the equivalent; one semester of college Latin or the</td>
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<td></td>
<td>equivalent. Pre: 431 or consent of instructor.</td>
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<td>449</td>
<td>SPANISH DIALECTOLOGY (3) II</td>
<td>Hadlich</td>
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<td></td>
<td>Study of the principal regional and social variants from cultured standard</td>
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<td>Castilian to be encountered in the language of the Iberian Peninsula, America,</td>
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<td>and the Philippines. Pre: 431 or consent of instructor.</td>
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460-461 MODERN AND CONTEMPORARY SPANISH LITERATURE (3-3) Monte
Reading and discussion of modern and 20th century peninsular authors. Studies of recent trends. (Alt. yrs.; offered 1966-67.)

460-461 SPANISH-AMERICAN NOVEL (3-3) Bauiu
Reading and discussion of important Spanish-American prose writers. (Alt. yrs.; not offered 1966-67.)

490 HISPANO-PHILIPPINE LITERATURE (2) Knowlton
Study of the important writers in Spanish from the Philippine Islands. (Alt. yrs.; offered 1966-67.)

628-629 STYLISTICS AND ADVANCED COMPOSITION (3-3) Monte
Study and analysis of representative prose selections which exhibit variations in style such as colloquial, informal, formal expository, poetic, epistolary and the like. Practice in written composition in the various styles analyzed. (Alt. yrs.; not offered 1966-67.)

659 SEMINAR IN SPANISH LINGUISTICS (3) II
Study of a problem or problems in Spanish linguistics. Pre: consent of instructor. (May be repeated.)

661 CERVANTES (2) I
The works of Cervantes. (Alt. yrs.; not offered 1966-67.)

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.; offered 1966-67.)

670 SPANISH LITERATURE OF THE GOLDEN AGE (3) II Montes
Representative readings in poetry, drama, and prose of 16th and 17th centuries. (Alt. yrs.; offered 1966-67.)

675 MODERNISMO (2) II Bauiu
Study of the works of the important poets of the Modernist movement in Spanish America. (Alt. yrs.; not offered 1966-67.)

698 SEMINAR IN HISPANIC LITERATURE (3) I
Study of a period, author, genre or region. Pre: consent of instructor. (May be repeated.)

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

800 THESIS RESEARCH

General Science (Sci)

Professor Bernatowicz; Associate Professor Kay; Instructors Dangler, Page-Callis

120-121 INTRODUCTION TO SCIENCE (4-4) Yr. Bernatowicz
Characteristics of science and interactions of society with science, illustrated by topics from physical and biological science. The sequence starts in the fall semester.

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  
Man's changing ideas concerning the universe reflected against the historical setting. Pre: one year of natural science.

620 NATURAL SCIENCE AS A HUMAN ACTIVITY (1) I, II  
Seminar. The scientist; productivity in science; comparisons of several fields; anatomy of science; science and society.

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

**Geography (Geog)**

Professors Bowers, Fryer, Manchester, Pitts; Associate Professors Chang, J. H., Fuchs, Street; Assistant Professor Pirie; Acting Assistant Professor Clarkson; Lecturer Phianaia; Visiting Associate Professor Chang, S.D.; Visiting Assistant Professor Beed

A 100 level course, or consent of the instructor, is prerequisite to all courses numbered over 401.

**INTRODUCTORY COURSES**

101 ELEMENTS OF PHYSICAL GEOGRAPHY (3) I, II (2 L, 1 Lb)  
Survey of man's natural environment; distribution and interrelationships of climates, vegetation, soils, and landforms. Laboratory problems in map interpretation.

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

151 ECONOMIC GEOGRAPHY (3) I, II  
Man's use of the earth. World patterns of natural resources, population, economic activity, and development. Elements of location theory; problems of resource management.

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

521 GEOGRAPHY OF EUROPE (3) II  
European geography as a background to present problems.
526 GEOGRAPHY OF THE SOVIET UNION (3) II Fuchs
   The land and its people. Regional differences in physical environment, resources, economic development. Elements of strength and weakness.

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) II Staff
   Regional differences in land and life. Appraisal of agricultural and industrial development in terms of physical and human resources.

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 Clarkson, Fryer
   Analysis of the peoples and natural resources of mainland and island Southeast Asia.

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

571 GEOGRAPHY OF THE PACIFIC ISLANDS (3) I Pirie
   Polynesia (except Hawaii); Micronesia, and Melanesia. Geographic aspects of contemporary social, political, and economic problems.

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

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

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

SYSTEMATIC PHYSICAL GEOGRAPHY

410 PHYSICAL GEOGRAPHY (3) I Street

420 INTRODUCTION TO CLIMATOLOGY (3) I Chang, J. H.

421 ADVANCED CLIMATOLOGY (3) II Chang, J.H.
   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  Street
Analysis of physical environment and resource potential of the tropics; problems of human use and occupancy.

630  SEMINAR IN CLIMATOLOGY (3) II  Chang, J.H.
Methods of determining energy budget and water balance and their applications in agriculture, hydrology, and climatic classifications. Theory of climatic changes. Bibliography of climatological literature. Pre: 420 or equivalent.

SYSTEMATIC CULTURAL GEOGRAPHY

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

450  URBAN GEOGRAPHY (3) II  Beed, Fuchs
Distribution, functions, form, and internal structure of the modern city. Relations with tributary areas. Problems of growth, land use, and transportation.

455  ECONOMIC GEOGRAPHY AND LOCATION THEORY (3) I  Krumme
Location theory as applied to agricultural, manufacturing, and tertiary activities and to urban systems. Pre: 151, Econ 150-151, adequate math background.

470  POPULATION GEOGRAPHY (3) II  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, Wiens
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.

TECHNIQUES AND METHODOLOGY

235  MAP AND AIRPHOTO INTERPRETATION (2) I (1 L, 1 Lb)  Staff
Map projections, topographic map reading, interpretation of physical and cultural features from maps and airphotos. Pre: 101.

430  CARTOGRAPHY (3) II (2 L, Lb)  Staff
Study and laboratory practice in presenting geographic, statistical and other data on maps and charts for reproduction.

440  QUANTITATIVE METHODS IN GEOGRAPHY (3) I  Beed
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
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
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in geography.

601 HISTORY OF GEOGRAPHIC THOUGHT (3) I, II
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
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
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
Study and discussion of significant topics and problems. May be repeated.

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

750 RESEARCH SEMINAR (3) I, II
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, Belshe, Chiu, Cox, Ramage, Woollard; Associate Professors Gordon, Moberly, Rose, Sadler; Assistant Professors C. Adams, Fan, Furumoto, Lavoie, Malahoff, Manchnani, Palmer, Pankiwskyj, Strange, Taylor, Wagner; Lecturer Thomas

101-102 INTRODUCTION TO GEO SCIENCES (4-4) Yr. (3 L, 1 Lb)
Integrated survey ranging from the center of the earth to the limits of the solar system, emphasizing unifying physical principles.

GEOLOGY

200 GEOLOGY OF THE HAWAIIAN ISLANDS (4) II (3 L, 1 Lb)
Survey of Hawaiian volcanism, rock types, engineering materials, ground water; field trips.
205-206 FIELD METHODS (2-2) Yr. (8 hrs. Saturdays in field) Abbott, Rose
Methods used in geological and geophysical investigations in the field. Pre: 405, or concurrent registration.

401 MINERALOGY (3) I (2 L, 1 Lb) Pankiwskyj
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: 401.

405 STRUCTURAL GEOLOGY AND TECTONOPHYSICS (4) I (3 L, 1 Lb) Malahoff

406 WORK OF WATER (4) II (3 L, 1 Lb) Palmer
Dynamics of stream, wave, and current erosion, transportation, and deposition, and the resulting rocks, forms, and structures. Pre: Phys 173.

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

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

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

420 MARINE GEOLOGY (3) I Staff
Survey of marine geologic processes and forms. Field work involving marine geologic equipment and techniques.

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

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

426 PETROGRAPHY (3) II (1 L, 2 Lb) Pankiwskyj
Microscopic and related laboratory studies of rocks. Pre: 424.

430 GEOLOGY OF ASIA (2) I Fan
Stratigraphy, structure, and history of the major geologic provinces of Asia. Pre: 402, 405, 410, or consent of instructor.

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

602 SEMINAR IN IGNEOUS PETROLOGY (2) I Macdonald
Theories of origin of igneous rocks. Pre: 426. (Alt. yrs.; offered 1966-67.)

603 PHASE PETROLOGY (3) I Pankiwskyj
Genesis of the rock-forming minerals through the interpretation of phase diagrams. Pre: 425 or consent of instructor. (Alt. yrs.; offered 1966-67.)
604 SEMINAR IN METAMORPHIC GEOLOGY (2) II
Examination of the composition and structures of metamorphic rocks and modern theories of metamorphism. Pre: 426, 603. (Alt. yrs.; offered 1966-67.)

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.

606 SEMINAR IN ORE DEPOSITS (2) II
Consideration of the physical and chemical processes and structural controls in the formation of metalliferous ore deposits. Pre: 402, 405. (Alt. yrs.; offered 1966-67.)

607 SEMINAR IN GEOMORPHOLOGY (2) II
Consideration of special problems and geologic processes in the development of land forms. Pre: 416. (Alt. yrs.; not offered 1966-67.)

614 ADVANCED FIELD STUDY (arr.) I, II Staff
Advanced field methods in geological sciences.

617-618 SEMINAR IN GEOTECTONICS (3-3) Yr. Staff
Evolution of the continents and ocean basins, based on tectonics, stratigraphy, sedimentation, petrology. Pre: consent of instructor.

619-620 SEDIMENTOLOGY AND STRATIGRAPHY (3-3) I, II (2 L-Lb) Moberly, Fraze
Lectures and seminars on physical, chemical, biological, and temporal controls of sedimentation. Sedimentary petrology and stratigraphic analysis. Pre: consent of instructor. (Alt. yrs.; not offered 1966-67.)

621 MICROPALENTOLOGY (3) I (1 L, 2 Lb) Thomas
Morphology, identification, and stratigraphic significance of microfossils. Pre: 411 or consent of instructor.

624 TOPICS IN GEOCHEMISTRY (3) I, II (2 L, 1 Lb) Pankiwskyj, Manghmani
Discussion and laboratory work in analytical methods. (a) X-ray analysis and X-ray crystallography. I. Pre: 402. (b) Mineral equilibria at high and low temperatures and pressures. II. Pre: 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. 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 135. (Alt. yrs.; offered 1966-67.)

542 THEORETICAL METEOROLOGY I (4) I (3 L, 1 Lb) Gordon
Atmospheric statics; optical, acoustical, and electrical phenomena; condensation and precipitation; radiation and heat balance; thermodynamics; kinematics. Pre: Phys 175; 310, concurrently, or consent of instructor.
543 THEORETICAL METEOROLOGY II (4) II (3 L, 1 Lb)  
Basic concepts of fluid motion applied to the atmosphere. Equations of motion; special cases of balanced motion; principles of numerical weather prediction. Pre: 542.

545 TROPICAL METEOROLOGY (3) II  
History; tropical clouds and hydrometeors; easterly waves and typhoons; monsoons; local and diurnal effects. Pre: 542. (Alt. yrs.; offered 1966-67.)

550 METEOROLOGICAL ANALYSIS LABORATORY (3) II  
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 543. (Alt. yrs.; offered 1966-67.)

551 TROPICAL ANALYSIS LABORATORY (2) II  
Techniques of portraying and analyzing atmospheric structure and weather systems in tropical and equatorial regions; modern methods of forecasting tropical systems. Pre: credit or registration in 543 (Alt. yrs.; offered 1966-67.)

560 SATELLITE METEOROLOGY (3) II (2 L, 1 Lb)  
Interpretation and use of data from weather satellites.

565 ADVANCED TROPICAL METEOROLOGY (5) I (2 L, 3 Lb)  
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  
Equations of motion for turbulent flow; turbulent diffusion; atmospheric boundary layer processes. Pre: 543.

743 CLOUD PHYSICS (3) I  
Physical processes attending formation and subsequent history of clouds and cloud particles. (Not offered 1966-67.)

744 PHYSICAL METEOROLOGY (3) II  
Advanced treatment of radiation, atmospheric optics, acoustics, electricity, and visibility; radar meteorology. Pre: 542.

745 NUMERICAL ANALYSIS AND PREDICTION (5) II (1 L, 4 Lb)  
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  
Frequency distributions of atmospheric variables, probability; correlation and regressions; time series analysis; statistical forecasting. Pre: Math 231.

750 ADVANCED THEORETICAL METEOROLOGY I (3) I  
Basic equations of meteorology in vector form and in various coordinate systems; circulation and vorticity theorems; classical hydrodynamics. Pre: 543 or equivalent; knowledge of ordinary and partial differential equations.

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

752 SPECIAL TOPICS IN METEOROLOGY (2) II  
Concentrated studies on selected atmospheric problems. Pre: 751 or consent of instructor.
753 ADVANCED TOPICS IN SYNOPTIC METEOROLOGY (3) I  
Studies of the structure and development of weather systems.

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

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

SOLID EARTH GEOPHYSICS

451 SEISMOLOGY (3) I  
Furumoto
Elastic properties of rocks, and behavior of earthquake waves; earthquake recording instruments; reading of seismograms. Pre: Phys 170. (Alt. yrs.; not offered 1966-67.)

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

461 GRAVITY AND GEODESY (3) II  
Rose

462 GEOMAGNETISM, GEOELECTRICITY, AND THE THERMAL STATE OF THE EARTH (3) I  
Belshe
Classical field theories for these earth properties, their determination, and their interpretation. Pre: 460 or 465 or 405, Math 231, Phys 174. (Not offered, 1966-67.)

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. Pre: 405.

465-466 GEOPHYSICAL EXPLORATION (3-3) Yr.  
Malahoff, W. Adams

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.; not offered 1966-67.)

656 SEISMIC PROPAGATION PHENOMENA (3) I  
W. Adams, Furumoto
Propagation of energy through solid media having interfaces with considerations of the effects of heterogeneity and anisotropy. Pre: consent of instructor. (Alt. yrs.; not offered 1966-67.)

657 ANALYSIS AND SYNTHESIS OF SEISMOGRAMS (3) I  
W. Adams, Furumoto
Development of theoretical seismograms for comparison with observed seismograms utilizing analytical and numerical techniques. Pre: consent of instructor. (Alt. yrs.; offered 1966-67.)

658 SEISMOMETRY AND SEISMOLOGICAL MODEL STUDY (3) II  
W. Adams, Furumoto
Theoretical and practical investigations of seismological instrumentation and the application of seismological model studies to the interpretation of field observations,
particularly for environments likely to involve nonlinear phenomena. Pre: consent of instructor. (Alt. yrs.; offered 1966-67.)

660 SEMINAR IN SOLID EARTH GEOPHYSICS (arr.) II  
(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. May be repeated for credit. Pre: consent of instructor.

661 MARINE GEOPHYSICS (3) II (2 L, 1 3-hr Lb)  
Belshe  
Geophysical studies of ocean basins (primarily Pacific) by gravity, heat flow, magnetic and seismic methods. Pre: Ocean 622 or Geosc 465 or 420 or 405. (Alt. years, offered 1966-67.)

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 (2) II  
Groves  
Representation of observation by numbers, numerical filtering, power spectra, automatic data processing. Pre: Math 431 or consent of instructor. (Alt. yrs.; not offered 1966-67.)

671–672 ADVANCED TOPICS IN GEOMAGNETISM (3–3) Yr.  
Belshe  
Main field of the earth, external field, hydromagnetism, magnetism of the earth's crust, paleomagnetism. Pre: 462, consent of instructor. (Alt. yrs.; not offered 1966-67.)

675 TOPICS IN SOLID STATE PHYSICS FOR GEOSCIENCES (3) I  
Belshe  
Semiconductors, ferrites, thermal properties, lattice defects, many particle systems. Pre: Phys 685, consent of instructor. May be repeated. (Offered 1966-67.)

681 PHYSICAL GEODESY I (3) I  
Strange  

682 PHYSICAL GEODESY II (3) II  
Strange  
Problems connected with carrying out practical computations in physical geodesy. Accuracy of available gravity data. Methods of approximating gravity in unsurveyed areas. Numerical methods of computing geoid undulations and deflections of the vertical. Pre: 681, or consent of instructor.

683 SATELLITE GEODESY (4) I  
Strange  
Methods of utilization of artificial earth satellites for geodetic purposes. Use of orbital perturbations for determination of gravitational field. Use of satellites in geometric geodesy. Pre: 681, Phys 610, Math 601-602, or consent of instructor. (Offered 1966-67.)

699 DIRECTED RESEARCH (arr.) I, II  
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.
History (Hist)

Professors Hunter, D. Johnson, W. Johnson, Murphy, Nunn, Sakai, Sakamaki, Stalker, Van Niel, Vella, J. White; Associate Professors Akita, Cowing, Kwok, Margulies, Maurer, Newby, Saville, Shinoda; Assistant Professors Connors, Daws, Ernest, Kang, Lamley, J. McCutcheon, Rapson, Sharma

151-152 WORLD CIVILIZATION (3-3) Yr. Daws, Connors, Staff
Development of civilization from the ancient Orient and classical Greece and Rome to the present; emphasis on Western civilizations. Prerequisite for advanced courses. (Freshmen and sophomores only.)

161-162 WORLD CULTURES IN PERSPECTIVE (3-3) Yr. Staff
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, Newby
Interpretive survey of United States history from the earliest settlements to the present.

251-252 FOUNDATIONS OF WORLD CIVILIZATIONS (3-3) Yr. Staff
Evolution of Eastern and Western civilizations from ancient times to the present, emphasis on Western civilizations. Prerequisite for advanced courses. (Alternative for 151-152; juniors and seniors only.)

341-342 HISTORY OF THE FAR EAST (3-3) Yr. Sakai
Survey of the political, social, and economic history of the Far East as a unit.

377 ECONOMIC HISTORY OF THE UNITED STATES (3) I Cowing
Emphasis on the role of techniques, agricultural developments, the entrepreneur and the rise of the labor movement. Econ 150-151 recommended as preparation.

379 REPRESENTATIVE AMERICANS (3) II Margulies
Series of biographical sketches of leading characters in American history from the Revolution to the present.

394-395 SENIOR HONORS THESIS (3-3) Yr. Staff
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
Critical analysis and evaluation of sources and methods of historical writing. Prerequisite for 397. Required for majors.

397 SENIOR TUTORIAL IN HISTORY (3) I, II Staff
Research in a field of special interest. Required for majors. Pre: 396.

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 European community. (Not offered 1966-67.)
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  
Staff  
Thought and culture of Europe in the age of expansion.

425 EUROPE IN THE 19th CENTURY (3) I  
Staff  
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  
Staff  
Problems of contemporary Europe and their historical background.

431–432 HISTORY OF ENGLAND (3–3) Yr.  
Murphy  
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 1966-67.)

439 AUSTRALIA AND NEW ZEALAND (3) I or II  
Murphy  
Major historical developments from colonization to independent nationhood; present problems and policies. (Alt. yrs.; not offered 1966-67.)

441–442 EAST CENTRAL EUROPE (3–3) Yr.  
Saville  
General history of Poland, the Danubian region, and the Balkans from the Middle Ages to the present. (Alt. yrs.; not offered 1966-67.)

443–444 HISTORY OF GERMANY (3–3) Yr.  
Saville  
Major political, social, economic, and intellectual trends in the evolution of Germany. (Alt. yrs.; not offered 1966-67.)

445–446 HISTORY OF FRANCE (3–3) Yr.  
Staff  
Major political, social, economic, and intellectual trends in the evolution of France.

451–452 HISTORY OF RUSSIA (3–3) Yr.  
White  
Survey of the 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 the end of the Middle Ages to the 20th century.

461 COLONIAL AMERICA to 1790 (3) I  
Cowing  
Transit of European culture to North America, independence, the Constitution.

462 THE YOUNG REPUBLIC; U.S. HISTORY 1789–1877 (3) II  
Newby  
Emergence of nationalism and sectionalism; from the Federalist Era to the Civil War and Reconstruction.

463 THE AGE OF INDUSTRY; U.S. HISTORY 1877–1920 (3) I  
Margulies  
Response to industrialism and the emergence of the United States as a 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 the Constitution from colonial times to the present. (Alt. yrs.; not offered 1966-67.)

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 the development of the economic, cultural, and political trends of the nation.

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 a factor in the shaping of social, economic, political and cultural life in the United States.

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.; offered 1966-67.)

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.; offered 1966-67.)

529-530 HISTORY OF SOUTHEAST ASIA (3-3) Yr. Van Niel, Volla
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. Staff
Course of Chinese civilization from the earliest times.

541-542 HISTORY OF JAPAN (3-3) Yr. Akita
Historical survey of Japanese culture, government, economics, institutions.

543-544 PRE-MODERN JAPAN c.552-1868 (3-3) Yr. Shinoda
Political, economic, and social developments. Emphasis on recent interpretations by Japanese scholars. (Alt. yrs.; not offered 1966-67.)

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 the 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.; not offered 1966-67.)

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.; not offered 1966-67.)

575 THE UNITED STATES IN THE PACIFIC (3) II  D. Johnson
Growth of economic and political interests and policies in the Pacific area. Interchangeable credit: Asian, Pacific, or American.

577 HISTORY OF THE HAWAIIAN ISLANDS (3) II  Hunter
General course with some detail. Emphasis on the period of the monarchy. Interchangeable credit: Asian, Pacific, or American.

611 SEMINAR IN EUROPEAN HISTORY (3) I, II  Staff

618 BRITISH EMPIRE AND COMMONWEALTH (3) II  Murphy
British Empire in modern times. (Alt. yrs.; offered 1966-67.)

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 the 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. (Not offered 1966-67.)

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 the history of American thought and culture.

641 SEMINAR IN AMERICAN DIPLOMATIC HISTORY (3) II  D. Johnson
Selected problems in the development of the 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  Van Niel
Studies in the histories of the peoples and states of Malaysia, Indonesia, Philippines.

659-660 CHINESE INTELLECTUAL HISTORY (3-3) Yr.  Kwok, Lamley
Intensive study in selected phases of the history of Chinese thought and institutions. Pre: 531-532 or equivalent with consent of instructor. Knowledge of Chinese preferred but not required.

661 SEMINAR IN CHINESE HISTORY (3) I, II  Kwok, Lamley
Problems and reading in the political, social, and cultural history of China.

663 SEMINAR IN INDIAN HISTORY (3) I, II  Sharma
Selected problems and reading in history of India, and the influence of Indian culture in southern Asia. Individual reports.

665 SEMINAR IN JAPANESE HISTORY (3) I, II  Akita, Sakai
Main fields of Japanese historical research; principal sources of bibliographical information; selected problems in modern Japanese history.
666 SEMINAR IN POLITICAL HISTORY OF MODERN JAPAN (3) II
   Bibliography, controversies and schools of thought among major Japanese political historians, selected topics and research papers. Reading knowledge of Japanese required.

667–668 JAPANESE INTELLECTUAL HISTORY (3–3) Yr.
   Intensive study in selected phases of the history of Japanese thought and institutions. Pre: 541-542 or consent of instructor. Knowledge of Japanese preferred. (Not offered 1966-67.)

669–670 SEMINAR ON PRE-MODERN JAPAN c.850–1800 (3–3) Yr.
   Bibliography, research tools and special problems. Recent controversies among Japanese scholars. Reading knowledge of Japanese required. (Offered 1966-67.)

671–672 SEMINAR IN RUSSIAN HISTORY (3–3) Yr.

675 SEMINAR IN PACIFIC HISTORY (3) II
   Selected topics and research papers in the history of Oceania, with special emphasis on the British colonies.

676–677 SEMINAR IN MODERN JAPAN (3–3) Yr.
   Bibliography, research tools and special problems. Recent controversies among Japanese scholars. Reading knowledge of Japanese required. (Offered 1966-67.)

699 DIRECTED RESEARCH (arr.) I, II
   Individual research topics in special fields.

711 SEMINAR IN HISTORICAL METHOD (3) I
   Training in the evaluation of sources and the preparation of theses.

712 SEMINAR IN HISTORIOGRAPHY (3) II
   The history of history and historians.

713 RESEARCH MATERIALS AND METHODS IN ASIAN HISTORY (3) I
   Training in bibliography and research methods in Asian history. Discussions and special problems.

714–715 CHINESE HISTORICAL LITERATURE (3–3) Yr.

731 ADVANCED PROBLEMS AND READING IN AMERICAN HISTORY (3) II
   Interpretations and literature of important problems of American history.

741–742 CHINA FROM CLASSICAL ANTIQUITY TO 750 (3–3) Yr.
   Detailed inquiry into the foundations and elaborations of the Chinese Tradition. Pre: 531-532 or equivalent with consent of instructor. Open to seniors with consent of instructor. (Alt. yrs.; not offered 1966-67.)

Linguistics (Ling)

Professors Elbert, Grace, McKaughan; Associate Professor Bender; Assistant Professors Schutz, Topping, Tsuzaki; Visiting Professors Householder, Martin

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.

620 INTRODUCTION TO LINGUISTIC ANALYSIS (3) I
   Intensive introduction to modern techniques of linguistic analysis.
621 PHONEMICS (3) II  
Survey of phonological theory with concentration on the principles of phonemic analysis and practice in problem solving. Pre: 620 or consent of instructor.

622 MORPHOLOGY AND SYNTAX (3) II  
McKaughan, Topping  
Principles of morphological and syntactic analysis. Pre: 620.

630 FIELD METHODS (3) I  
Schutz  
Work with native speakers of lesser-known languages to develop methods and techniques for collection and analysis of linguistic data. Pre: 620 and consent of instructor.

645 INTRODUCTION TO COMPARATIVE METHOD (3) II  
Grace  
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 and consent of instructor.

650–651 ADVANCED LINGUISTIC ANALYSIS (3–3) Yr.  
McKaughan  
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  
Staff  
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  
Bender  
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  
Staff  
Reporting and discussion of current research in linguistics. Pre: consent of instructor. May be repeated.

760 PROBLEMS IN COMPARISON AND PRE-HISTORY (3) I  
Grace  
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  
Grace  
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-relationships between culture and language. Pre: consent of instructor.

800 THESIS RESEARCH (arr.)  
Staff  
Mathematics (Math)

Professors Gregory, Halmos, Hasse; Associate Professors Davis, Mookini, Rogers; Assistant Professors Clark, Leahy, Loomis, Mader, Nagy, Nymann, Strauss, Wong, Yeh; Instructors Bennet, Garcia, Koehler, Lim, Siu; Lecturer Martin

100 SURVEY OF MATHEMATICS (3) I, II  
Koehler  
To acquaint the nonspecialist with the position of mathematics in modern culture.
102  PLANE TRIGONOMETRY (3) I, II  Nagy  
Pre: two years of high school algebra, one year of plane geometry.

103  COLLEGE ALGEBRA (3) I, II  Davis  
Pre: facility in trigonometry or concurrent registration in 102.

111  INTRODUCTION TO MATHEMATICS (3) I, II  Staff  
Study of the structure and concepts of arithmetics. (Primarily for education majors.)

112  ALGEBRA (3) I, II  Staff  
Deductive treatment of elementary and intermediate algebra, emphasizing the concepts of function, identity, and equation. Pre: 111 or equivalent. (Primarily for education majors.)

113  TRIGONOMETRY AND ANALYTIC GEOMETRY (3) I, II  Staff  
Periodicity, trigonometric functions, elementary identities; analytic geometry of the line, circle and parabola. Pre: 112 or equivalent. (Primarily for education majors.)

114  CALCULUS (3) I, II  Staff  
Intuitive introduction to the derivative, the definite integral, and their applications. Pre: 113 or equivalent. (Primarily for education majors.)

135  CALCULUS I (4) I, II  Staff  
Basic concepts and techniques, derivatives, conics, and integrals. Pre: 103 or two years of high school algebra and trigonometry.

136  CALCULUS II (4) I, II  Staff  
Exponential, logarithmic, trigonometric, and hyperbolic functions; techniques of integration, vectors; three-dimensional space; multiple integration. Pre: 135 or equivalent.

200  ELEMENTARY METHODS OF ANALYSIS (5) I, II  Staff  
Solution of algebraic equations, differential and integral calculus of simple functions, matrix algebra, vector spaces. Pre: one year of high school algebra. (Primarily for economics majors.)

201  FINITE MATHEMATICS (3) I  Staff  
Symbolic logic of statements and sets, partitions, permutations, combinations, and elementary probability. Pre: 114.

202  SURVEY OF GEOMETRY AND MATHEMATICAL PHILOSOPHY (3) I, II  Staff  

231  APPLIED ADVANCED CALCULUS I (3) I, II  Staff  

232  ORDINARY DIFFERENTIAL EQUATIONS (3) I, II  Siu  

301 \INTRODUCTION TO NUMERICAL ANALYSIS (3) I  Loomis  
Introduction to numerical methods for the solution of algebraic equations and systems of algebraic equations, interpolation, and numerical integration. Pre: 311 or equivalent.

311  LINEAR ALGEBRA (3) I, II  Leahey  
351 FOUNDATIONS OF EUCLIDEAN GEOMETRY (3) I
Wong
Axiomatic Euclidean geometry including solid geometry. Pre: 136 or consent of department.

352 NON-EUCLIDEAN GEOMETRIES (3) II
Wong
Study of spherical, hyperbolic, parabolic, and finite geometries. Pre: 351 or consent of department.

399 DIRECTED READING (arr.) I, II
Staff
Individual reading in advanced mathematics. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point in mathematics.

402 PARTIAL DIFFERENTIAL EQUATIONS (3) I, II
Gregory

403-404 METHODS IN HIGHER ANALYSIS (3-3) Yr.
Staff

412 ABSTRACT ALGEBRA (3) I, II
Mader
Study of groups, rings, and fields. Pre: 311.

420 INTRODUCTION TO THE THEORY OF NUMBERS (3) I
Rogers
Congruences, quadratic residue, arithmetic functions, distribution of primes. Pre: 311 or consent of department.

431-432 ADVANCED CALCULUS (3-3) Yr.
Nymann
Limits and continuity, functions of several variables, multiple integrals, infinite series, calculus of variations. Pre: 232, 311.

441 NUMERICAL ANALYSIS (3) II
Mookini
Convergence criteria, error analyses of basic numerical methods. Pre: 301, 431.

442 VECTOR ANALYSIS (3) II
Gregory

444 THEORY OF FUNCTIONS OF A COMPLEX VARIABLE (3) II
Mookini
Residue theory; contour integration; other topics of analysis. Pre: 232.

471 PROBABILITY (3) I
Martin

472 STATISTICAL INFERENCE (3) II
Martin
Sampling and parameter estimation, tests of hypotheses, correlation, regression, analysis of variance, sequential analysis, rank order statistics. Pre: 471.

501-502 THEORY OF SETS AND METRIC SPACES (3-3) Yr.
Loomis

601-602 APPLIED MATHEMATICS (3-3) Yr.
Gregory

611-612 MODERN ALGEBRA (3-3) Yr.
Rogers
621–622  TOPOLOGY (3–3) Yr.  Strauss  
Homeomorphisms, complexes, homology and cohomology groups, manifolds.  Pre: 432.

631–632  THEORY OF FUNCTIONS OF A REAL VARIABLE (3–3) Yr.  Yeh  
Point sets, function limits, differentiation, Riemann integral, convergence, Lebesgue and Stieltjes integral.  Pre: 432.

644–645  ANALYTIC FUNCTION THEORY (3–3) Yr.  Leahey  
Infinite series, Cauchy theory, conformal mapping, analytic continuation, application to special functions.  Pre: 432, 444.

650  SEMINAR (1) I, II  Staff  
Pre: consent of department chairman.

699  DIRECTED RESEARCH (arr.) I, II  Staff  
Pre: graduate standing in mathematics; consent of department chairman.

Microbiology (Micro)

Professors Benedict, Bushnell, Chu; Associate Professors Berger, Contois, Folsome, Gundersen, Hohl, Loh

151 is prerequisite to all more advanced courses.

130  MICROBES AND MAN (2) I, II  Chu  
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)  Contois, Folsome  
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)  Benedict  
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  
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)  Berger  
Isolation, classification, and physiology of selected groups of bacteria. Pre: Chem 141 or 144.

531  MICROBIAL PHYSIOLOGY (3) I (2 L, 2 Lb)  Berger  
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.

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) Folsome
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) Bushnell
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; Assistant Professors Chadwick-Cullen, Herand, Landsman, Lum, O. F. Paul, Pfeiffer, Trubitt; Instructors Ah Chan, Coraggio, Gillett, Mundy, Uchima, Wolz. Lecturers Allton, Arai, Burton, Culley, W. Demello, Harling, Mikami, Miyamura, L. Russell, Valentin, K. Wong

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  Pfeiffer
   Basic principles of voice production and elementary music skills in classes of twenty.

112  GROUP VOICE INSTRUCTION (1) I, II  Pfeiffer
   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.
   Continuation of 113-114.

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 1966-67.)

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.  Landsman
   Basic skills and teaching methods for stringed instruments. For students preparing to teach instrumental music.

153  WOODWIND METHODS (2) I  Uchima
   Similar to 151-152.

154  BRASS METHODS (2) II  Lum
   Similar to 151-152.

155  PERCUSSION METHODS (2) I  L. Russell
   Similar to 151-152, plus marching band techniques.

160  INTRODUCTION TO MUSIC LITERATURE (3) I, II  Staff
   Styles and forms of Western music. From the listener's point of view. Lab section required.

163-164  MUSIC REPERTOIRE (1-1) Yr.  Staff
   Major works from the Renaissance to the present. Guided listening with discussions of texture and form. To be taken concurrently with 183-184. Pre: 182 or consent of instructor.

181-182  ELEMENTARY THEORY (2-2) Yr.  Trubitt
   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.  McKay
   Detailed theoretical study of music written since the 17th century, including writing, analysis, and keyboard application. To be taken concurrently with 187-188 and 163-164. Pre: 182.

185-186  AURAL TRAINING (1) Yr.  Staff
   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. To be 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 is prerequisite to 252.

253  MUSIC, ELEMENTARY CURRICULUM (3) I, II  
Organization and direction of music in childhood experience. Materials and procedures. For elementary majors whose 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  
Methods and materials for class and private instruction in piano. Pre: 182 or consent of instructor. (Not offered 1966-67.)

269  PIANO LITERATURE (2) I  
Survey of styles and forms of music for the piano and its forerunners. Pre: 138 (piano) or consent of instructor.

281  ORCHESTRATION (2) I  
Arranging and composing for band, orchestra, and chamber groups. Pre: 152, 182, or consent of instructor.

394–395  SENIOR HONORS THESIS (4) Yr.  

400  UNIVERSITY CONCERT CHOIR (1) I, II  
Performance 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  
Vocal 11, opera workshop; 12, University singers; 21, keyboard; 31, string; 41 woodwind; 51, brass; 52, stage band; 71, Asian and Pacific. May be repeated for credit. Pre: audition or consent of instructor.

405  UNIVERSITY ORCHESTRA (1) I, II  
Performance of orchestra literature. May be repeated for credit. Pre: audition or consent of instructor.

409  UNIVERSITY CONCERT BAND (1) I, II  
Performance of major band literature including works by contemporary composers. Pre: audition or consent of instructor. May be repeated for credit.

450  MUSIC FOR ELEMENTARY TEACHERS (3) I, II  
Continuation of 150 with emphasis upon sight singing, melodic and rhythmic dictation, and basic harmony. Pre: 150 or equivalent. Not open to music majors.

451  ADVANCED STRING METHODS (2) I  
Advanced playing, teaching technique, and materials of string instruments. Pre: 152.
452 ADVANCED WOODWIND METHODS (2) I  
_Model_ Uchima  
Advanced playing, teaching technique, and materials of woodwind instruments.  
Pre: 153.

453 ADVANCED BRASS METHODS (2) II  
_Model_ Lum  
Advanced playing, teaching technique, and materials of brass instruments.  
Pre: 154.

455 ADVANCED PERCUSSION METHODS (2) I  
_Model_ L. Russell  
Advanced playing, teaching technique, and materials of percussion instruments.  
Pre: 155.

_Credit in 160 or 181 or consent of instructor, is necessary for 461, 462, 463, 464, 465, 466, 470, 471._

461 MUSIC OF THE BAROQUE PERIOD (2) I  
_Model_ Vaught  
Music literature 1580-1750, especially Bach and Handel. Oratorio, opera, and instrumental. (Not offered 1966-67.)

462 MUSIC OF THE CLASSIC PERIOD (2) II  
_Model_ Vaught  
Haydn, Mozart, and Beethoven. Opera, choral, and instrumental music. (Not offered 1966-67.)

463 MUSIC OF THE ROMANTIC PERIOD (2) I  
_Model_ Vaught  
Emergence of the romantic style of the 19th century. Major composers.

464 CONTEMPORARY MUSIC (2) II  
_Model_ Vaught  
From Debussy to the present. Schoenberg, Bartok, Hindemith, Stravinsky, and contemporary American composers.

465–466 HISTORY OF WESTERN MUSIC (3–3) Yr.  
_Model_ Vaught  
Development of music from its origins to the present. Nationalities, schools, and composers.

470 ART MUSIC OF ASIA (2) I  
_Model_ Smith  
Aesthetic composition and performance practice as exemplified in representative major works.

471 MUSIC OF NON-LITERATE PEOPLES (3) I  
_Model_ Smith  
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  
_Model_ McKay  
Arranging and composing for band, orchestra, and choral groups. Pre: 281.

483–484 COUNTERPOINT (2–2) I, II  
_Model_ A. Russell  
Sixteenth and 18th century contrapuntal techniques and their implications for contemporary styles. Pre: 184.

485–486 FORM AND ANALYSIS (2–2) Yr.  
_Model_ Staff  
Principles of structural designs and technique of analysis. Pre: 184. (Not offered 1966-67.)

487–488 COMPOSITION (2–2) I, II  
_Model_ McKay  
Creative writing beginning with smaller forms. Pre: 184 or consent of instructor.

489–490 ADVANCED COMPOSITION (2–2) I, II  
_Model_ A. Russell  
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.

600 SEMINAR (3) I, II  
Selected problems in (1) composition, (2) ethnomusicology, (3) musicology, (4) performance repertory, (5) music education. Pre: consent of instructor. May be repeated.

650 PROBLEMS IN MUSIC EDUCATION (2) II  
Study of choral, instrumental, and general music at elementary and secondary school levels. Research, reports, and conferences. Pre: teaching experience.

651 FOUNDATIONS IN MUSIC EDUCATION (2) I  
Discovery and organization of broad problems in music education. Relating basic concepts of music in the elementary and secondary schools to the total curriculum. Pre: teaching experience.

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: 466 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 reason-

able 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 ........................................ $20.00
- Music 122, 123 .................................... $10.00

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.

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, GROVES, MURPHY, WYRTKI; Associate Professor GILMARTIN; Assistant Professors CHAMBERLAIN, CLUTTER, 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 the use of oceanographic equipment and techniques at sea aboard ship and in the near-shore zone.

620 PHYSICAL OCEANOGRAPHY (3) I
Wyrtki
Introduction to physics of the oceans; physical properties; heat budgets; energy transformation; interaction with boundaries; dynamic equilibrium; waves, currents and tides; water masses and circulation patterns of the seas. Pre: Math 114 or 143 or consent of instructor.

621 BIOLOGICAL OCEANOGRAPHY (3) II
Brock
Marine organisms, factors governing productivity; distribution, ecology, environmental influences; marine resources, their availability and utilization. Desirable preparation: 620.

622 GEOLOGICAL OCEANOGRAPHY (3) II
Chamberlain
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
Palby
Study of the chemical processes in marine waters including composition of sea water, nutrients, extraction of materials, carbon dioxide systems. Desirable preparation: 620.

625 SEA AND LABORATORY TECHNIQUES (2) II (2 3-hr Lb)
Chamberlain
Marine instrumentation, sampling and analytical procedures.

631 MARINE PHYTOPLANKTON (3) I (2 L, 1 3-hr Lb)
Gilmartin

632 LITTORAL GEOLOGICAL PROCESSES (3) I (2 3-hr L-Lb)
Chamberlain
Geological processes and forms peculiar to the near-shore marine environment. Pre: 620, 622.

633 CHEMICAL OCEANOGRAPHY LABORATORY METHODS (2) I
Pasby
Standard chemical methods of analysis. Pre: Chem 331 or consent of instructor.

640 ADVANCED PHYSICAL OCEANOGRAPHY (3) II
Wyrtki
Dynamics of ocean currents; equations of motion and continuity; ocean circulation; heat budgets. Pre: 620, Math 402.

641 MARINE ZOOPLANKTON (3) II (2 L, 1 3-hr Lb)
Staff

642 RECENT MARINE SEDIMENTS (3) II (2 3-hr Lb)
Staff
643 MARINE GEOCHEMISTRY (3) II  

651 DYNAMICS OF MARINE PRODUCTIVITY (3) II (2 3-hr L-Lb)  
Primary productivity, its variation and methods of assessment; conversion of energy in food chains, ecosystems; factors affecting productivity. Pre: 621.

653 CHEMICAL PROCESSES IN THE SEA (3) I  
Detailed study of selected topics in chemical oceanography; industrial utilization of sea water and chemical products obtained from marine plants and animals; water freshening; industrial corrosion problems; chemical aspects of photosynthesis and fertility of the sea; chemistry of estuarine waters. Pre: 623.

660 OCEAN WAVE THEORY (3) I  
Generation and propagation of waves at sea; tsunami, tides, internal waves; observation and recording of ocean waves; wave spectra and forecasting. Pre: either 640, Math 432, or consent of instructor.

672 OCEAN BASINS (3) II  
Origin, structure, and geomorphology of the ocean basins. Pre: 622.

680 ENGINEERING ASPECTS OF OCEANOGRAPHY (3) II  
Wave force theory and application to floating and fixed structures; estuarine and coastal modifications as related to seismic sea waves, breaking waves, tsunamis, seiches; tides; wave forecasting in coastal waters. Pre: 660, Math 601.

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

701 FISHERIES OCEANOGRAPHY (3) II  
Influence of environmental factors on fluctuations—availability and abundance of fish populations, with particular reference to pelagic species; forecasting of success of commercial fishing. Pre: 621.

705 OCEANOGRAPHY OF THE EQUATORIAL REGION (3) II  
Inter-disciplinary aspects: water types and masses; population variability as related to biological, chemical, geological, and physical processes; air-sea interaction and weather. Pre: 620, 621, 622, 623.

735 SEMINAR IN OCEANOGRAPHY (2) I, II  
Staff

799 SEMINAR (1) I, II  
Student presentations based on literature reviews and research. Pre: approval of graduate advisor.

800 THESIS RESEARCH (arr.) I, II  
Staff

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 prac-
tical aspects of the interaction of American and Asian cultures. Consideration of overseas career services, such as the 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)

Senior Professor Moore; Professors McCarthy, Nagley, Sakseña; Associate Professor Inada; Assistant Professors Cheng, Hayes, Resnik, Walther

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, II
Major philosophies and typical theories of the nature of the good life.

150 HISTORY OF PHILOSOPHY (3) I
Western philosophy from the era of great Greek thinkers to the Renaissance.

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

350 ETHICS (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.

400 CONTEMPORARY PHILOSOPHY (3) I
Survey of recent developments in Western philosophy.

410 AMERICAN PHILOSOPHY (3) I
Major trends in the development of American philosophy in relation to socio-

420 PROBLEMS OF PHILOSOPHY (3) II
Persistent specific problems of philosophy, primarily those concerning nature, man, God.

421 TYPES OF PHILOSOPHY (3) I
Systematic analysis of recurrent types of philosophy (Materialism, Idealism, Scepticism, etc.) with particular reference to 20th-century developments.

431 SYMBOLIC LOGIC (3) I
Quantification theory. Pre: 200 or permission of instructor.
432 **SYMBOLIC LOGIC (3) II**  
Rosnik  

433 **PHILOSOPHY OF MATHEMATICS (3) II**  
Rosnik  
Philosophical problems concerning mathematics—mathematical truths, axioms and proof. Emphasis on contemporary research on foundations of mathematics. Pre: 432 or 12 credits in mathematics.

434 **PHILOSOPHY OF LANGUAGE (3) II**  
Cheng  
Concepts of meaning, truth, existence, reference, predication, and quantification; analysis of analyticity and modalities, with applications to philosophy, science, and art.

435 **BRITISH EMPIRICISM (3) II**  
Staff  
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.

436 **CONTINENTAL RATIONALISM (3) I**  
Staff  
Epistemological, metaphysical, and ethical problems in Continental Rationalism. Particular attention to Descartes and Spinoza.

437 **KANT (3) I**  
Walther  
Analysis of the fundamental ideas and works including his methodological, metaphysical, epistemological, ethical, and aesthetic theory.

438 **HEGEL (3) II**  
Walther  
Close analysis of the Phenomenology of Mind and an introduction to the Logic. Pre: some acquaintance with German helpful.

439 **PHENOMENOLOGY (3) II**  
Walther  
Founding of phenomenology by Edmund Husserl and the continuing development of this movement in continental philosophy including the historical interaction with existentialism.

440 **POLITICAL PHILOSOPHY (3) II**  
Staff  
Combined systematic and historical approach to major problems of Western political philosophy. Special attention given to European political theory.

442 **METAPHYSICS (3) II**  
Walther  
Analysis of basic metaphysical concepts such as being, reality, existence, order, change.

475 **PLATO (3) II**  
Haynes  
Analysis of theory of ideas, theory of knowledge, ethical and political ideas, and his view of the arts through examination of the Dialogues.

476 **ARISTOTLE (3) II**  
Haynes  
Analysis of fundamental ideas and works including his methodological, metaphysical, ethical, political, logical, and aesthetic theory.

480 **MEDIEVAL PHILOSOPHY (3) I**  
McCarthy  
Metaphysical, epistemological, ethical problems of medieval philosophy, with particular reference to Augustine, Anselm, Thomas Aquinas, Duns Scotus, and William of Ockham.

500 **PHILOSOPHY OF ART (3) I**  
McCarthy  
Study of art from the points of view of creation, appreciation, criticism. Particular attention to painting, sculpture, music, poetry.
COLLEGE OF ARTS AND SCIENCES—PHILOSOPHY

505 PHILOSOPHY OF RELIGION (3) II  
Western religious philosophy: Thomism, Mysticism, Reformationism, Rationalism, Agnosticism, Romanticism, Humanism, Existentialism.

510 PHILOSOPHY IN LITERATURE (3) II  
Literary expression of philosophical ideas. Consideration of such writers as Beckett, Camus, Hemingway, Kafka, Rilke, Sartre, T. S. Eliot.

515 PHILOSOPHY OF HISTORY (3) II  
Occidental and Oriental conceptions of the meaning of historical processes. Particular attention to Augustine, Hegel, Marx-Engels.

520 EXISTENTIAL PHILOSOPHY (3) II  
Survey of the main themes of European existential philosophy. Particular attention to Kierkegaard and Heidegger.

550 THEORY OF SCIENCE (3) I  
Systematic study of methods and procedures of reliable knowledge in the formal, natural, and social sciences.

555 FOUNDATIONS OF SCIENCE (3) II  
Philosophical foundations and implications of modern physical science. Particular reference to Copernicus, Galileo, Newton, Einstein.

EASTERN

445 PHILOSOPHICAL FOUNDATIONS OF INDIAN CULTURE (3) I  
Distinctive characteristics of the people of India; intellectual habits and emotions as expressed in art, literature, philosophy, politics, religion.

450 INDIAN PHILOSOPHY (3) I  
Philosophical systems and movements: the Vedas, Upanishads, Six systems of Hinduism, Charvaka, Jainism, Buddhism.

451 CONTEMPORARY INDIAN PHILOSOPHY (3) II  
Analysis of recent philosophical movements and tendencies and their significance in present-day India.

453 INDIAN SOCIAL PHILOSOPHY (3) II  
Basic codes of Indian moral and social philosophy (Dharma-sastras) and their historical developments and their practical significance.

454 INDIAN LOGIC (3) I  
Study of the outlines of India’s logical concepts and their development.

460 BUDDHIST PHILOSOPHY (3) I  
Survey of basic schools and tenets of Buddhist philosophy.

461 THERAVADA BUDDHIST PHILOSOPHY (3) II  
Analysis of early Buddhist conceptions of the nature of man. Pre: 460; consent of instructor.

462 MAHAYANA BUDDHIST PHILOSOPHY (3) II  
Basic principles and major schools. Emphasis upon Indian, Chinese, and later Japanese developments. Pre: 460; consent of instructor.

464 ZEN PHILOSOPHY (3) I  
Origin and development of Zen; influence on Oriental cultural traditions and contemporary scene. Pre: 460; consent of instructor. (Not offered 1966-67.)
470 CHINESE PHILOSOPHY (3) I
Cheng
Historical survey of the important philosophical schools and tendencies in China, ancient and modern.

471 CONFUCIANISM (3) I
Cheng
Doctrinal, ethical, social, and institutional problems from Confucius to the present. Pre: 470; consent of instructor.

472 NEO-CONFUCIANISM (3) II
Cheng
Examination of logic, theory of knowledge, metaphysics, and ethics of major Chinese Neo-Confucian philosophers in the period from 11th century to 16th century. (Not offered 1966-67.)

473 TAOISM (3) II
Cheng
Study and analysis of the philosophical ideas of Laotze, Chuangtze, and later Neo-Taoists.

COMPARATIVE

465 PHILOSOPHY, EAST AND WEST (3) I
Moore
Basic systems and methods of Eastern and Western philosophy, with special attention to similarities and contrasts.

FOR GRADUATES

All seminars may be repeated. Pre: graduate standing; consent of instructor.

601 SEMINAR IN GREEK PHILOSOPHY (3) I
Haynes

610 SEMINAR IN MODERN PHILOSOPHY (3) I, II
Staff

620 SEMINAR IN CONTEMPORARY PHILOSOPHY (3) I, II
Staff

650 SEMINAR IN INDIAN PHILOSOPHY (3) I, II
Sakseha

660 SEMINAR IN BUDDHIST PHILOSOPHY (3) I, II
Inada

670 SEMINAR IN CHINESE PHILOSOPHY (3) II
Cheng

690 SEMINAR IN COMPARATIVE PHILOSOPHY (3) II
Moore

699 DIRECTED RESEARCH (arr.) I, II
(1) Greek philosophy, (2) modern classical philosophy, (3) contemporary Western philosophy, (4) Indian philosophy, (5) Buddhist philosophy, (6) Chinese philosophy, (7) East-West philosophy. Available to advanced graduate students; may be repeated; consent of instructor and chairman required.

Physics (Phys) and Astronomy (Astr)

Senior Professor K. Watanabe; professors Holmes, Jefferies, Miyake, Orrall, Peterson, Sinton, Steiger, M. S. Watanabe, Zirker; Associate Professor Bonsack, Centce, Kudar, McAllister, Pong; Assistant Professors Dobson, Hee, Nose, Stenger

Mathematics 231 and Physics 160-161 or 170-173 are prerequisites to all courses numbered 300 or above.

110–111 ASTRONOMY (4-3) Yr. (3 l, 1 Lb first semester)
Steiger
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
Miyake
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 103.

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
Staff
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)
Staff
Experiments in statics, dynamics, properties of matter, periodic motion, sound. Pre: credit or registration in 170.

172 GENERAL PHYSICS (3) I, II
Staff
Fundamental laws of electricity and magnetism and their applications. Pre: 170, 171; credit or registration in Math 231.

173 GENERAL PHYSICS LABORATORY (1) I, II (1 3-hr. Lb)
Staff
Experiments in heat, electricity, and magnetism. Pre: credit or registration in 172.

174 GENERAL PHYSICS (4) I, II
Staff
Heat, light, and modern physics. Pre: 172, 173, or 161; credit or registration in Math 231.

175 GENERAL PHYSICS LABORATORY (1) I (1 3-hr. Lb)
Hoo
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 (3) I
Kudar
Particle dynamics, rigid body, statics, rigid body dynamics, planetary motion.

311 THEORETICAL MECHANICS II (2) II
Bonsack
Rigid body mechanics (cont.), fields, fluid dynamics, wave motion, the Lagrangian and Hamiltonian methods. Pre: 310.

350 ELECTRICITY AND MAGNETISM (3) I, II
Watanabe
Experimental laws, field theory, and mathematical application to special problems. Pre: credit or registration in Math 232.

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.

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  
Invariants, Hamilton-Jacobi equation, Huygen's principle, small oscillations, mechanics of elastic media. Pre: 610.

620 PHYSICS OF UPPER ATMOSPHERE (3) II  
Basic parameters, experimental methods, absorption and recombination processes, intrusion of extra-terrestrial particles and fields. Pre: 310, 350, or consent of instructor. (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 atmospheres, interpretation of stellar spectra, stellar interiors and evolution, pulsation and variability. Open to seniors with consent of instructor.

626 MODERN ASTROPHYSICS II (3) I
Continuation of 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 interests 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.

670 QUANTUM MECHANICS I (3) I
Physical basis and formulation, solution of Schroedinger's equation, angular momentum, scattering problems, atomic structure. Pre: 481; Math 402.

671 QUANTUM MECHANICS II (3) II
Matrix formulation, spin, approximation methods, relativistic wave equation, quantization of field. Pre: 670.
677 NUCLEAR PHYSICS I (3) I
  Properties and structure of nuclei, reactions, and nuclear models. Pre: 481, 670.

678 NUCLEAR PHYSICS II (3) 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

690 SEMINAR (1) I, II
  Discussions and reports on physical theory and recent development. Pre: graduate standing or consent of the chairman.

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

700 SEMINAR ON ELEMENTARY PARTICLE PHYSICS (1) I, II
  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
  Quantization of the electromagnetic field; formal and phenomenological meson theories, with applications to elementary particle physics; general relativity. Pre: 611, 651, 671.

800 THESIS RESEARCH (arr.) I, II
  Staff

Political Science (PolSc)

Professors Levi, Meller, Schubert, Spellacy, Stauffer; Associate Professors Friedman, Goldstein, Kariel, Miwa; Assistant Professors Becker, Cahill, Haas, Lee, Neff; Instructor Richter

110 is a prerequisite for all other courses, except when waived by the department.

110 INTRODUCTION TO POLITICAL SCIENCE (3) I, II
  Becker, Kariel
  Introduction to political problems, systems, ideologies, and processes.

210–211 AMERICAN GOVERNMENT CORE (3–3) I, II
  Staff
  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
  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.
320–321 INTERNATIONAL RELATIONS CORE (3–3) I, II
Haas, Lee, Levi, Neff
Integrated introduction to international relations and organization. (320 prerequisite for 321.)

325 TOPICS IN INTERNATIONAL RELATIONS (3)
Haas, Lee, Levi, Neff
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)
Cahill, Goldstein
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
Kuroda, Stauffer
Integrated introduction to comparative political institutions and patterns. (340 prerequisite for 341.)

345 TOPICS IN COMPARATIVE GOVERNMENT AND POLITICS (3)
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
Topics may include problems of policy and techniques of implementation, as pre-announced.

360–361 COURTS AND POLITICS CORE (3–3) I, II
Becker, Schubert
Integrated introduction to interrelationship between judicial process and political system. (360 prerequisite for 361.)

365 TOPICS IN COURTS AND POLITICS (3)
Becker, Schubert
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
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  
Staff
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
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  
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
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, Schubert
At least one section a year surveying the literature on interaction of judiciaries and political systems.

670 POLITICS (3)  
Cahill, Goldstein
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
Pre-announced topics; at least one section a year.

720* SEMINAR: AMERICAN GOVERNMENT (3)  
Staff
Pre-announced topics; at least one section a year.

730* SEMINAR: INTERNATIONAL RELATIONS (3) I, II  
Haas, Lee, Levi, Neff
Pre-announced problems of both international organization and politics; at least one section a semester.

740* SEMINAR: COMPARATIVE GOVERNMENT AND POLITICS (3) I, II  
Kuroda, Stauffer
Pre-announced topics; at least one section a semester.

750* SEMINAR: PUBLIC ADMINISTRATION (3) I, II  
Friedman, Meller
Administrative theory, comparative and development administration, and functional aspects, as pre-announced; at least one section a semester.
COLLEGE OF ARTS AND SCIENCES—PSYCHOLOGY

760* SEMINAR: JUDICIAL SYSTEMS (3) Becker, Schubert
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, Herrick, Oakes, Weaver; Associate Professor Dole; Assistant Professors Blanchard, Miklich, Reed, Townsend, W. R. Wilson

100 SURVEY OF PSYCHOLOGY (3) I, II Staff
Principles of human behavior. Individual differences, motivation, emotion, perception, learning, etc. Not open to those who have had 200; intended for non-majors.

180 PSYCHOLOGY OF ADJUSTMENT (3) I, II Staff

200 INTRODUCTION TO THE SCIENCE OF PSYCHOLOGY (3) I, II Staff
General study of behavior through application of the scientific method.

201 INTRODUCTORY LABORATORY IN PSYCHOLOGY (2) I, II Staff
Laboratory to accompany 200.

203 LEARNING AND MOTIVATION (3) II Staff
Major conditions influencing learning and forgetting; the role of practice, reward, motivation, drive and emotion; theoretical interpretations of learning and motivation. Pre: 200, 201.

205 SENSORY PROCESSES (3) II Staff
Psychophysics; vision, audition, taste; smell. Pre: 200, 201.

220 STATISTICAL TECHNIQUES (3) I, II Staff
Frequency distributions; graphic methods, central tendency; variability; correlation; reliability; tests of significance. Pre: two years of high school algebra or equivalent. Pre: 200, 201.

226 INDIVIDUAL DIFFERENCES AND MEASUREMENT (3) I, II Staff
Individual differences in personality, aptitude, intelligence; construction, validation, and administration of tests; interpretation of scores. Pre: 200, 201.

310 PHYSIOLOGICAL PSYCHOLOGY (3) I Staff
Psychological basis of vision, audition, motivation, emotion, and learning. Pre: 200, 201.

312 ANIMAL PSYCHOLOGY (3) I Staff
Animal studies in learning, perception, motivation, physiological mechanisms. Pre: 200, 201.

330 EXPERIMENTAL PSYCHOLOGY (3) II Staff
Original experiments with emphasis upon laboratory techniques. Control of variables, apparatus design, and statistics in research. Pre: 200, 201, 220.
350 DEVELOPMENTAL PSYCHOLOGY (3) I, II
Staff
Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels. Pre: 100 or 200.

360 PSYCHOLOGY OF PERSONALITY (3) II
Staff
Theory and methods in study of behavioral organization and continuity; case study. Pre: 100 or 200.

362 SOCIAL PSYCHOLOGY (3) I
Staff
Interpersonal relations; social attitudes; group dynamics; intergroup relations; class and cultural influences. Pre: 200, 201.

380 ABNORMAL PSYCHOLOGY (3) II
Staff
Nature and causes of psychoneuroses and psychoses; abnormalities of intelligence; psychotherapy. Pre: 100 or 200.

410 HISTORY OF PSYCHOLOGY (3) II
Staff
Background of modern psychology. Origin and development of contemporary points of view. Pre: 200, 201.

413 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.

516 INDUSTRIAL PSYCHOLOGY (3) I
Staff
Job motivation, satisfaction, morale, leadership. Job analysis, selection, training, safety, fatigue, efficiency, human engineering. Consumer research. Pre: 100 or 200 and 201.

550 THE EXCEPTIONAL CHILD (3) II (odd numbered years)
Staff

551 SOCIAL DEVELOPMENT OF CHILDREN (3) II (even numbered years)
Staff

582 PSYCHOLOGICAL TESTING (3) I
Staff
Rational of test construction and validation, and administration. Pre: 200, 201, 226.

600 SEMINAR (3) I, II
Staff
(1) General, (2) history and theory, (3) statistics and measurements, (4) experimental, (5) physiological, (6) personality, (7) social, (8) developmental, (9) applied-industrial, (10) clinical, (11) counseling, (12) learning. May be repeated.

614 THEORY I (3) I
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
Advanced statistical techniques, including analysis of variance. Pre: 620.

626 QUANTITATIVE METHODS III (3) I
Scaling theory, test theory, factor analysis. Pre: 620, 226 or consent of instructor.

630 EXPERIMENTAL PSYCHOLOGY I (3) I
Advanced techniques and research procedures, with central focus on problems of learning, problem solving, etc.

631 EXPERIMENTAL PSYCHOLOGY II (3) II
Advanced techniques and research procedures, with central focus on problems of perception, motivation, or other basic topics.

650 DEVELOPMENTAL PSYCHOLOGY I (3) I
Theoretical movements and research in child and adolescent psychology.

651 DEVELOPMENTAL PSYCHOLOGY II (3) I
Theoretical movements and research in the psychology of maturity and old age.

660 PERSONALITY (3) II
Theory and research in personality, with emphasis upon primary sources, such as Freud, Jung, Adler, Rogers, Murray, Lewin, Murphy. Pre: 360 or equivalent.

662 SOCIAL PSYCHOLOGY (3) II
Methods and objective verification of hypotheses; interpersonal relations, group structure and process, social conflict, propaganda, etc.

670 APPLIED SOCIAL PSYCHOLOGY (3) II
Survey of basic problems in the use of social psychological principles and techniques in the fields of human relations, business and industry, and communication.

678 PSYCHOLOGY OF OCCUPATIONS (3) II
Vocational development, determinants of career choice, personality correlates, job requirements and human disabilities, vocational guidance.

682 PSYCHOLOGICAL APPRAISAL (A) (3) I
Introduction to clinical study of the individual. Appraisal theory and practice. Emphasis on individual intelligence tests. Pre: 226; consent of instructor.

683 PSYCHOLOGICAL APPRAISAL (B) (3) II
Advanced clinical study of individual. Emphasis on projective and other personality measures. Pre: 682; consent of instructor.

684 PSYCHOLOGICAL APPRAISAL (C) (3) I, II
Field experience in appraisal. Pre: 682; consent of instructor. May be repeated.

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

730 RESEARCH IN EXPERIMENTAL PSYCHOLOGY (1-3) I, II
Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

750 RESEARCH IN DEVELOPMENTAL PSYCHOLOGY (1-3) I, II
Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

760 RESEARCH IN PERSONALITY (1-3) I, II
Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>762</td>
<td>Research in Social Psychology (1-3) I, II</td>
<td>Staff</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>779</td>
<td>Psychology of Rehabilitation (3) II</td>
<td>Staff</td>
<td>Research and theory. Psychological problems associated with disability. Counseling techniques in planning rehabilitation. Case studies. Pre: consent of instructor.</td>
</tr>
<tr>
<td>780</td>
<td>Research in Counseling Psychology (1-3) I, II</td>
<td>Staff</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>782</td>
<td>Psychological Counseling (A) (3) I</td>
<td>Staff</td>
<td>Theory and technique in psychological counseling. Pre: 226; consent of instructor.</td>
</tr>
<tr>
<td>783</td>
<td>Psychological Counseling (B) (3) II</td>
<td>Staff</td>
<td>Supervised experience in psychological counseling. Pre: 782; consent of instructor.</td>
</tr>
<tr>
<td>784</td>
<td>Psychological Counseling (C) (3) I, II</td>
<td>Staff</td>
<td>Intensive supervised experience with variety of cases and in variety of settings. Pre: 783; consent of instructor. May be repeated.</td>
</tr>
<tr>
<td>150</td>
<td>Introduction to Study of Religion (3) I, II</td>
<td>Aoki, Crawford</td>
<td>Introduction to world's living religions—Hinduism, Buddhism, Shinto, Confucianism, Taoism, Judaism, Christianity, Islam.</td>
</tr>
<tr>
<td>151</td>
<td>Religion and the Meaning of Existence (3) I, II</td>
<td>Aoki, Seifert, Crawford</td>
<td>Introduction to basic ideas and issues of contemporary religious thought as they are related to the question, “What is the meaning of existence?”</td>
</tr>
<tr>
<td>309</td>
<td>The Life and Teachings of Jesus (3) II</td>
<td>Seifert</td>
<td>Critical study of the life and teachings of Jesus. Interpretation of meaning of Jesus Christ for Christian faith. (Not offered 1966-67.)</td>
</tr>
<tr>
<td>310</td>
<td>The Prophets and Sages of the Old Testament (3) I</td>
<td>Seifert</td>
<td>Prophetic and wisdom literature of Old Testament. (Not offered 1966-67.)</td>
</tr>
<tr>
<td>321</td>
<td>Great Personalities in Christianity (3) II</td>
<td>Crawford</td>
<td>Examination of lives and thought of some outstanding representatives. (Not offered 1966-67.)</td>
</tr>
<tr>
<td>340</td>
<td>Western Religious Thought to 1492 (3) I</td>
<td>Crawford</td>
<td>Ideas of major religious thinkers and movements in Western world to 1492; evaluation of Roman Catholicism.</td>
</tr>
<tr>
<td>341</td>
<td>Western Religious Thought from 1500 (3) II</td>
<td>Crawford</td>
<td>Period of Protestant Reformation to present, with evaluation of Protestant movement.</td>
</tr>
</tbody>
</table>
351 EXISTENTIAL INTERPRETATION OF BIBLICAL FAITH (3) II  Seifert
Interpretation of Biblical faith on basis of critical theological thought and existen­
tial analysis with reference to the visual arts and literature. (Not offered 1966-67.)

361 THE NATURE AND DESTINY OF MAN (3) II  Crawford
Religious views of human nature in their bearing on man's activities in politics,
education, law, economics, and literature.

371 CHRISTIAN THOUGHT IN CONTEMPORARY ASIA (3) I  Seifert
Study of Asian contributions in field of Christian theology, with special emphasis
on Indian and Japanese Christian thinkers.

382-383 THE HISTORY OF LIVING RELIGIONS (3-3) Yr.  Aoki
382: Basic beliefs and practices of Hinduism, Confucianism, Taoism, Buddhism,
Shintoism. 383: Judaism, Roman Catholicism, Protestantism, their history, beliefs,
contributions. Semesters are independent.

386 CHRISTIAN ETHICS (3) I  Crawford
Study of historical and contemporary types of Christian ethics.

651 SELECTED PROBLEMS OF THEOLOGY (3) II  Seifert
Pre: graduate standing, consent of instructor.

Social Sciences (SocSc)

Professors Denney, Kamins, Weaver; Associate Professors Cowing, Matson;
Instructor Springel

300-301 MAN IN SOCIETY (3-3) Yr.  Matson
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,
Yang; Associate Professors Bloombau, Bartos, Wittermans; Assistant Professors
Krauss, Sakamoto, Won, Yamamoto

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  Staff
Basic social relationships, norms, social structures, and processes affecting social
change. Not open to juniors or seniors.

201 PRINCIPLES OF SOCIOLOGY (3) I, II  Staff
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  Yamamura
Basic concepts, principles, and techniques. Factors affecting distribution of popu-
lation, 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
   Race relations in world perspective; typical situations; conflict and accommoda-
   tion; caste; race prejudice; miscegenation; effects upon personality.

264 SOCIAL INSTITUTIONS (3) II
   Culture as a conceptual tool. Origin, structure, function, and growth of institu-
   tions. Interrelation and integration.

270 SOCIAL CONTROL (3) I, II
   Analysis of the processes by which individuals become amenable to social and
   mass definitions of conduct and behavior.

300 SOCIAL DISORGANIZATION (3) II
   Factors in community, institution, and group disorganization; behavioral devian-
   cy and social pathology. An integrated approach to social problems.

306 CRIMINOLOGY (3) I, II
   Crimes and criminals; causative theories of criminality; institutional problems of
   apprehension, prosecution, incarceration, correction and rehabilitation.

324 PERSONALITY AND CULTURE (3) I, II
   Origin and development of personality as the subjective aspect of culture; func-
   tion of communication; human nature and the mores; personal life organization.

344 SOCIAL CHANGE (3) I, II
   Structural-functional organization. Impact of technology on institutions, value
   orientation, power structures, systems of roles, and stratification.

394 HONORS THESIS
   Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in
   sociology.

399 DIRECTED READING (err.) I, II
   Sociological principles as applied to the modern city. Structure, growth, social
   and personal life organization.
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  
Won

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  
Bartos
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, Yang
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, Bloombaum
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.

572  ADVANCED SOCIAL STATISTICS (3) II  
Yamamura, Bloombaum
Treatment of sociological data, sampling procedures, test of hypotheses, analysis of variance, correction and regression, scale analysis. Pre: 570 or equivalent.

580  SOCIOLOGICAL THEORY (3) II  
Bartos, Sakumoto
History of sociology as reflected in writings ranging from early Greek thought to modern authors such as Durkheim, Pareto, Simmel, Parsons, Merton.

602  GRADUATE SEMINAR (3) I, II  
Staff

628  SEMINAR IN RACE RELATIONS (3) I  
Glick
Major theoretical developments and research problems in the field of race relations. Pre: consent of instructor.

652  SEMINAR IN SOCIAL CHANGE IN DEVELOPING AREAS (3) I  
Wittermans
Principles, processes, and problems of social change in non-Western societies undergoing industrialization and modernization. Pre: consent of instructor.

654  SEMINAR IN COMMUNITY DEVELOPMENT (3) II  
Lind
Analysis and evaluation of prevailing theories of community development in typical regions of folk or peasant culture undergoing industrialization and urbanization. Pre: consent of instructor.

656  CULTURE AND COMMUNICATION (3) I  
Staff
Theories of communication; interaction between oral traditions, the press and audio-visual mass media in cultural context. Pre: consent of instructor.
660 SEMINAR IN METHODS OF RESEARCH (3) I
Bloombaum
Fundamentals of research and thesis preparation; application to specific problems. Pre: consent of instructor.

680 SEMINAR IN SOCIOLOGICAL THEORY (3) II
Bartos
Survey of contemporary sociological theory; principles of theory construction, analysis, and criticism. Pre: consent of instructor.

682 MATHEMATICAL MODELS IN BEHAVIORAL SCIENCE (3) I, II
Bartos
Existing mathematical models: learning, kinship structure, dominance processes, social structure, voting behavior. Needed elementary mathematical techniques reviewed. Pre: consent of instructor.

699 DIRECTED RESEARCH (arr.) I, II
Pre: graduate standing; consent of instructor.

800 THESIS RESEARCH (arr.) I, II
Staff

Speech (Sp)

Professors Aly, Ansberry, Carr, Hosior; Associate Professors Billsborrow, Breneman, Heinberg, Klopp, Lefforge, Linn, Newcomer, Ritter, Wong; Assistant Professors Burget, Dyer, Gordon, Hervey, Larson, Pang-Ching, Sanderson, Utting; Instructors Burgess, Dame, Domenico, Hall, Hoffman, Kennerly, Krause, Kunimoto, Oxford, Phelps, Watson, Yuhas

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 suasive 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
Heinberg
Improvement of skills in voice emphasizing control of projection, clarity, and flexibility.

230 READING ALOUD (3) I, II
Linn, Breneman
Principles of interpretative reading. Practice in textual analysis and in transmitting the intellectual and aesthetic content of literature.

270 BROADCASTING (3) I
Staff
Analysis and survey of radio and television as communications media and as industries.
<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>250</td>
<td>PUBLIC SPEAKING (3) I, II</td>
<td>Staff</td>
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<tr>
<td>271</td>
<td>RADIO PRODUCTION (3) II</td>
<td>Staff</td>
<td></td>
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<tr>
<td></td>
<td>Programs and analysis of techniques. Announcing and use of equipment, basic control; performance. Pre: 270 or consent of instructor.</td>
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<tr>
<td>272</td>
<td>BROADCASTING ORGANIZATIONS IN OPERATION (2) I</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Structure and operation of radio and TV stations, networks, agencies, special interest groups; influences which shape the broadcast product.</td>
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<td>285</td>
<td>PUBLIC DISCUSSION AND DEBATE (1) I, II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>335</td>
<td>STORYTELLING (2) I, II</td>
<td>Breneman</td>
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<td></td>
<td>The oral story as a device for entertainment and education. Oral tradition; analysis of story types; techniques of preparation and presentation; performance.</td>
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<tr>
<td>350</td>
<td>PERSUASION (3) I</td>
<td>Staff</td>
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<td></td>
<td>Factors influencing audience attitudes, beliefs, actions; logical, psychological, and semantic approaches to preparation and analysis of persuasive discourse.</td>
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<tr>
<td>365</td>
<td>SPEECH FOR THE CLASSROOM TEACHER (3) I, II</td>
<td>Staff</td>
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<td></td>
<td>Pedagogy for the classroom teacher. Integration of speech improvement in the curriculum; speech problems of Hawaii. Pre: (for elementary sections) 110.</td>
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<td>369</td>
<td>TECHNIQUES OF SPEECH IMPROVEMENT (3) I</td>
<td>Wong</td>
<td></td>
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<td></td>
<td>Principles of diagnosis; methods of teaching speech improvement; emphasis upon Island speech patterns. Pre: 110, 210, or consent of instructor.</td>
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<tr>
<td>370</td>
<td>RADIO-TELEVISION SPEECH (3) I, II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>399</td>
<td>DIRECTED READING (arr.) I, II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>430</td>
<td>ADVANCED INTERPRETATIVE READING (3) I</td>
<td>Linn</td>
<td></td>
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<td></td>
<td>Problems in selected literary forms; structural analysis; reports and recitals. Pre: 230; Eng 151 or equivalent.</td>
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<td>440</td>
<td>SEMANTICS (3) I, II</td>
<td>Bilsborrow</td>
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<td>Understanding language; verbal meaning and implication; the roles of perception and assumption (inference and judgment) in human relationships.</td>
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<td>470</td>
<td>BROADCASTING AND THE PUBLIC (3) I, II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Relationship and interaction between the broadcasting agent, government regulatory agencies, and the public. Development of bases for critical evaluation of educational, cultural, and economic significance and impact of broadcasting.</td>
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<tr>
<td>475</td>
<td>TELEVISION PROGRAM PLANNING AND PRODUCTION (3) II</td>
<td>Staff</td>
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<td></td>
<td>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.</td>
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144 GENERAL CATALOGUE 1966-67

480 GROUP LEADERSHIP AND DISCUSSION (3) I, II
Klopf
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
Klopf
Evidence and forms of reasoning; analysis and synthesis of argument; fallacies and refutation; structuring arguments for clarity and force.

550 SPEECH COMPOSITION (3) II
Klopf
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
Staff
(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, Burge
Problems in advanced phonetics and phonemics; contrastive analyses at the phonological level.

615 PHONETICS AND PHONEMICS OF AMERICAN ENGLISH (3) I, II
Phelps, Burge
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, Burge
Use of contrastive analysts 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
Linn
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 the 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 the colonial period to the present. Pre: 450 or consent of instructor.

653 CLASSICAL RHETORICAL THEORY (3) II
Staff
Significant movements in the 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 BROADCAST PROGRAM CRITICISM AND SOCIAL EFFECTS (3) II
Staff
Advanced study in the history, theory, and development of programming; critical analysis of social effects; research literature and original research projects.
690  SEMINAR IN RESEARCH METHODS (3) I  Staff
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.

Zoology (Zool)

Senior Professors Hiatt, Tester; Professors Banner, Berger, Chu, Frings, Gosline, Hsiao, Matthews, Tuthill, Van Weel; Associate Professors Cheng, Kamemoto, Townsley; Assistant Professors Davis, Muir, Reese

101 is prerequisite to all advanced courses with the exception of 111 and 115.

101  GENERAL ZOOLOGY (4) I, II (2 L, 2 Lb)  Cheng, Staff
Zoological principles; studies of structure, development, relationships, and distribution of animals.

111  PRINCIPLES OF HUMAN BIOLOGY (3) I  Matthews
Biological principles relating to man; man’s place in nature; structure and function of the organ systems. Not open to students who have had 101.

115-116  ELEMENTARY HUMAN ANATOMY AND PHYSIOLOGY (4-4) Yr. (3 L, 1 Lb)  Trefz, Staff
General survey of gross anatomy and physiology. Not open to students who have had 345.

161  GENERAL ENTOMOLOGY (4) I, II (2 L, 2 Lb)  Tuthill
Structure, habits, biology, and classification of insects; insects characteristic of Hawaii.

205  INVERTEBRATE ZOOLOGY (3) I, II (2 L, Lb)  Banner
Classification, general ecology, functional anatomy, and life history of invertebrates. Laboratory includes field work.

206  VERTEBRATE ZOOLOGY (3) I, II (2 L, Lb)  Hsiao
Classification, evolution, functional anatomy, and development of the vertebrates.

301  COMPARATIVE EMBRYOLOGY (3) I (2 L, Lb)  Hsiao
Descriptive and experimental embryology of selected vertebrates and invertebrates. Pre: 205 or 206.

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; development 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.

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

401 INTRODUCTION TO ECOLOGY (2) I
Subject of ecology is introduced as physical and physiological ecology, population and community ecology, in relation to the ecosystem.

410 PARASITOLOGY (3) II (2 L, 2 Lb)
Parasitology with reference to man and domestic animals; classification, comparative morphology, life history, control.

416 HISTOLOGY (3) I (2 L, 2 Lb)
Studies of tissues, principles of histology, and microscopic anatomy of a limited number of vertebrate animals. Pre: 301.

425 MICROTECHNIQUE (3) I, II (2 L-Lb)
Fixing, staining, mounting of tissues, entire animals and organs.

431 BIOMETRY (3) I (2 L-Lb)
Elementary statistical methods; confidence interval, chi-square, t-test, normal distributions, regression, correlation. Pre: Math 103; desirable: Math 140.

432 ADVANCED BIOMETRY (3) II (2 L-Lb)
Analysis of variance and covariance, curvilinear regression, multiple correlation, design of experiments. Pre: 431; desirable: Math 141.

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 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. Pre: 10 credit hours in zoology.

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: 205 or 410; desirable: Chem 143-144.

525–526 GENERAL ICHTHYOLOGY (3–3) Yr.
602 PREPARATION OF SCIENTIFIC MANUSCRIPTS (1) I, II Frings, Tuthill
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 Gosline
Animal distributions; physiographic, climatic, and historic factors. Desirable preparation: 401; Geol 151. (Alt. yrs.; offered 1966-67.)

605 COMPARATIVE ENDOCRINOLOGY (4) I (3 L, 2 Lb) Kamemoto
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 COMPARATIVE ANIMAL BEHAVIOR (3) I (2 L, 2 Lb) Reese
Orientation of animals and the ethological approach to the study of behavior stressed. Physiological basis of behavior and learning theory discussed. Pre: 345; 205 or 525 or consent of instructor.

607 PHYSIOLOGICAL BASES OF ANIMAL BEHAVIOR (3) II (2 L, Lb) Frings
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.; not offered 1966-67.)

615-616 ADVANCED INVERTEBRATE ZOOLOGY (3-3) Yr. (2 L, 2 Lb) Townsley
Comparative morphology, development, taxonomy, and phylogeny of invertebrate animals. Identification and classification of reef and shore fauna. Desirable preparation: 205 or equivalent.

620 MARINE ECOLOGY (3) II (2 L, 2 Lb) Reese
Ecology of marine animals discussed in the context of concepts introduced in 401, which is a prerequisite. 205 or 525 advisable.

621 PHYSIOLOGICAL ECOLOGY (3) I (2 L-Lb) van Weel
Physiological adaptations to environmental, physical, and biotic features. Pre: 345, 616; desirable: 401 or 620, 646. (Alt. yrs.; not offered 1966-67.)

622 ISOTOPIC 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 103; desirable: Math 136.
645 ADVANCED GENERAL PHYSIOLOGY (3) I (2 L-Lb) van Woel

646 COMPARATIVE INVERTEBRATE PHYSIOLOGY (3) II (2 L-Lb) van Woel
   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.

732 FISHERIES MANAGEMENT (3) II Muir
College of Business Administration

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 program, upper-division, 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 department 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

After June 1, 1966, students will be 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, will be 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 requirements

English composition .................................................. 6
Speech ................................................................. 3
Literature .................................................................. 6
Mathematics or logic .................................................. 3
World civilization ...................................................... 6
Humanities elective ..................................................... 3
Social sciences electives .......................................... 6
Natural sciences electives ......................................... 7 or 8 40–41

Business requirements

Economics 150 ............................................................. 3
Accounting 100-101 .................................................... 6
BAS 110 .................................................................. 3 12

52–53

Majors in Travel Industry Management, in addition to the general and business requirements, will have to complete the following: TIM 101, TIM 200-201; Geography 102, and Home Economics 120.

In order to qualify for the degree a student must:
1. Meet all requirements prior to admission to the College;
2. complete one of the ten curricula of the College;
3. complete the University curricular requirements (see pp. 29-32);
4. earn an aggregate of a 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 and 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.

Group III. A major of 15 credit hours (18 for Accounting). 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.

*Applies to students entering the College after June 1, 1966.
†Travel Industry Management is an exception, see requirements listed under majors.
**Majors**

**ACCOUNTING.** Required: Acc 200-201, Acc 300, 315, 325, 330.

**FINANCE.** Required: Acc 320, 325, Fin 305, 310. Elective: one of BAS 315, Econ 450, 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):** Freshman and sophomore students will enroll in the College of Arts and Sciences for this pre-business major. Students aiming for the TIM major should have completed, in addition to other requirements of the freshmen and sophomore years, the following courses (20 out of the total credit hours required for transfer) : Acc 100-101, Econ 150, BAS 110, TIM 101, Geog 102, Home Ec 120, and TIM 200-201 (the latter after consulting with the director of TIM). After acceptance into the College of Business Administration, TIM Program, the following courses are required: TIM 301, TIM 320 and/or 321, TIM 330, TIM 350, Home Ec 234 and/or 235, BEc 350 and/or 351, BAS 300-301, BEc 303, Mkt 300, Fin 300, PIR 350, Law 300, BEc 340-341, and Mgt 350. In addition, each student must complete, if required, any University core requirements and approved upper-division electives, 6 credit hours of the latter must be outside of business.

Students who know that they intend to major in TIM in the College of Business Administration should establish early relationship as freshmen or sophomores with the office of the director of TIM in order to

*Any substitutions in major requirements must have the written approval of the department chairman on recommendation of the student's adviser.*
receive counsel on placement in their Internship program, a requirement which is best met in the summers of the first two years.

**BUSINESS ADMINISTRATION COURSES**

Senior Professor Roberts; Professors Adler, Ascher, Bailey, Barnet, Buchele, Corbin, Darbyshire, Evans, Ferguson, Gilson, Grayson, Hoslett, Lau, Leong, Miccio, Pendleton, Richman, R. Taussig, Whitehill; Associate Professors Brot-en, Hopkins, Pratt, Sasaki, Starlight, Watson, Zuwaylif; Assistant Professors Bell, Bury, Chung, Congdon, Freitas, Heye, Kim, Kirkpatrick, Lee, Moseley, Pierson, Seo, Stellmacher, B. Taussig, Trine; Instructor Najita; Lecturers Bren-nan, Burns, Cannelora, Mcardle, McKenna, Oishi, Wong

All graduate courses are listed at the end of this section (see p. 157). For description of courses check with office of Dean, College of Business Administration.

**Accounting (Acc)**

100-101 ELEMENTARY ACCOUNTING (3-3) Yr. Staff

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. Staff


300 ADVANCED ACCOUNTING (3) R. Taussig, Staff

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 Lee

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 Corbin


325 INCOME TAX PROBLEMS (3) I Adler, B. Taussig

Federal income tax laws and related accounting problems; individual, partnership and corporation returns. Pre: 201 or 320.

330 AUDITING (3) II Corbin


435 GOVERNMENTAL ACCOUNTING (3) II Oishi

Account classification, budgetary procedure, fund accounting, revenues, operating costs. Pre: 201.
Business Analysis and Statistics (BAS)

110 APPLIED MATHEMATICS (3) I, II  Chung, Najita
Application of mathematical operations to problems in business and economics: linear equations; progressions; theory of sets and functions; elementary matrix notation; differential and integral calculus (including partial differentiation, maxima and minima, and Lagrange multiplier techniques). Pre: Math 103 or 134.

200 CAREER PLACEMENT (1) I, II  McArdle
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.  Staff
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  Congdon
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  Ferguson
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) II  Sasaki
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 103 or 134.

396 METHODS OF SCIENTIFIC RESEARCH APPLIED TO BUSINESS AND ECONOMIC PROBLEMS (3) I, II  Seo
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.

Business Economics (BEC)

Economics 150 is prerequisite to all other courses.

303 MONEY, CREDIT AND THE CAPITAL MARKET (3) I, II  Chung, Kirkpatrick, Seo
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  Kim
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  Grayson, Seo
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 103 or 134, BAS 110.
341 MANAGERIAL ECONOMICS II (3) I, II
Grayson, See
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.

350 ECONOMICS OF TRANSPORTATION (3) I
Heye
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
Heye
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.

360 FOREIGN TRADE AND AMERICAN INDUSTRY (3) I
Kirkpatrick
Introduction to world trade, its development and current status; a study of the principles of foreign trade, including international commercial problems and policies, tariff policies, and exchange controls that affect exporting and importing industries.

361 FOREIGN TRADE POLICY AND FINANCE (3) II
Kim, Kirkpatrick
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
Staff
Economic nature and history of public utilities, critical discussion of their control by governments.

375 BUSINESS ENTERPRISE AND PUBLIC POLICIES (3) I, II
Moseley
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.

Finance (Fin)

300 BUSINESS FINANCE (3) I, II
Ascher, R. Taussig
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) II
Ascher
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) II
Ascher
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.

Insurance (Ins)

300 PRINCIPLES OF INSURANCE (3) I
Piorson
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.

Law (Law)

300 PRINCIPLES OF BUSINESS LAW (3) I, II  
Bury  
American system of jurisprudence, elements of torts, criminal law, property, trusts and estates, law of contracts and agency.

310 INTERMEDIATE BUSINESS LAW (3) II  
Bury  
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.

Management (Mgt)

300 PRINCIPLES OF MANAGEMENT (3) I, II  
Bailey, Moseley, Richman, Watson  
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  
Richman

321 OPERATIONS MANAGEMENT II (3) I, II  
Pre: 320.

340 HUMAN FACTORS IN MANAGEMENT (3) I, II  
Whitehill

350 BUSINESS POLICY (3) I, II  
Buchele, Darbyshire, Moseley  
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.

Marketing (Mkt)

300 PRINCIPLES OF MARKETING (3) I, II  
Brown, Stellmacher

310 DISTRIBUTION COST ANALYSIS (3) I, II  
Jacobs

315 MARKETING MANAGEMENT (3) I, II  
Evans

330 ADVERTISING MANAGEMENT (3) I, II  
Jacobs  
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.

Personnel and Industrial Relations (PIR)

350 PERSONNEL AND LABOR RELATIONS (3) I, II
Gilson, Watson, Whitehill

351 PERSONNEL SELECTION AND TRAINING (3) I, II
Hopkins

352 PERSONNEL COMPENSATION (3) I, II
Hopkins

361 LABOR PROBLEMS AND TRADE UNIONISM (3) I, II
Pendleton

362 COLLECTIVE BARGAINING AND DISPUTE SETTLEMENT (3) I, II
Roberts

Real Estate (RE)

300 REAL ESTATE FUNDAMENTALS (3) I
Bell
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
Cannelora
Application of property law to the real estate business. Pre: 300.

320 REAL ESTATE FINANCE AND INVESTMENT (3) I
Bell
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
Bell
Economic, social, legal, and physical factors influencing property values; emphasis on local residential market. Pre: 300.

340 LAND ECONOMICS (3) I
Bell
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
Bell
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: 340.

600 SEMINAR IN REAL ESTATE (3) II
Pre: 300.

Travel Industry Management (TIM)
(HOTEL, RESTAURANT, AND TOURISM ADMINISTRATION)

101 INTRODUCTION TO TRAVEL INDUSTRY MANAGEMENT (3) I, II
Barnet
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. Barnet
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 Burns
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 McKenna
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 Broten
Procedures, problems, policies, and planning involved in hotel management.

Graduate Courses in Business Administration

As this catalogue went to press, the College completed a basic reorganization of its program leading to a Master of Business Administration. For descriptions of the following courses or other information concerning the graduate program, address the office of the Dean of the College of Business Administration, University of Hawaii, Honolulu, Hawaii 96822.

Required Courses in Master of Business Administration Program

BUS 605 BEHAVIORAL SCIENCE FOR BUSINESS (3)
BUS 610 ECONOMIC ANALYSIS FOR BUSINESS (3)
BUS 615 QUANTITATIVE METHODS FOR BUSINESS (3)
BUS 620 ACCOUNTING (3)
BUS 625 ADMINISTRATION (3)
BUS 630 FINANCE (3)
Pre: Bus 620.
BUS 635 MARKETING (3)
BUS 640 PERSONNEL AND INDUSTRIAL RELATIONS (3)
BUS 645 BUSINESS POLICY (3)
Pre: all Foundation and Core courses.
Elective Courses in the MBA Program

Accounting

Acc 660 INTERMEDIATE AND ADVANCED ACCOUNTING (3)
Acc 661 COST AND MANAGERIAL ACCOUNTING (3)
Acc 662 AUDITING AND TAX PLANNING (3)
    Pre: Acc 660 and 661 or equivalent.
Acc 665 ACCOUNTING HISTORY AND THEORY (3)
Acc 670 CONTEMPORARY ACCOUNTING THEORY (3)
    Pre: Acc 665.
Acc 675 SEMINAR IN ADVANCED ACCOUNTING (3)

Business Analysis and Statistics

BAS 680 STATISTICAL DECISION THEORY (3)
BAS 681 OPERATIONS RESEARCH (3)
BAS 682 QUANTITATIVE METHODS OF BUSINESS AND ECONOMIC FORECASTING (3)

Business Economics

BEC 691 MANAGERIAL ECONOMICS (3)
BEC 692 CURRENT ECONOMIC PROBLEMS (3)
BEC 693 CAPITAL MARKETS AND INTERNATIONAL FINANCE (3)

Finance

Fin 700 PROBLEMS IN BUSINESS FINANCE (3)
Fin 701 INVESTMENT ANALYSIS AND MANAGEMENT (3)
Fin 702 THE FINANCIAL SYSTEM (3)

Insurance

Ins 710 THEORY AND PRACTICE OF INSURANCE (3)
Ins 711 RISK MANAGEMENT (3)

Law

Law 770 LEGAL ENVIRONMENT OF BUSINESS (3)

Management

Mgt 720 ORGANIZATION THEORY AND PRACTICE (3)
Mgt 721 COMPARATIVE MANAGEMENT (3)
Mgt 722 PRODUCTION AND OPERATIONS MANAGEMENT (3)

Marketing

Mkt 730 MASS MARKETING MANAGEMENT (3)
Mkt 731 MARKETING COMMUNICATION AND PROMOTIONAL STRATEGY (3)
Mkt 732 MARKETING RESEARCH METHODOLOGY (3)

Personnel and Industrial Relations

PIR 740 MANAGEMENT STAFFING AND DEVELOPMENT (3)
PIR 741 PROBLEMS IN ORGANIZATIONAL HEALTH (3)
PIR 742 PROBLEMS AND PRACTICES OF LABOR DISPUTE SETTLEMENT (3)

Real Estate

RE 750 REAL ESTATE (3)
RE 751 ADVANCED REAL ESTATE: LAND DEVELOPMENT (3)

Travel Industry Management

TIM 760 ADVANCED TRAVEL INDUSTRY MANAGEMENT (3)
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. Standard preparation for teaching positions in the public schools of Hawaii requires four years of undergraduate and one year of graduate work. The four-year programs lead to the bachelor of education degree, and the year of graduate work to the five-year diploma. Both the degree and the diploma indicate the level—elementary or secondary—of the complete curriculum consisting of 160 credits.

The bachelor of science degree is awarded after the completion of the recreation curriculum consisting of 130 credits.

Admission and Degree Requirements

In addition to University admission requirements (pp. 20-24), applicants must meet certain standards of college aptitude, scholarship, health, personality, and oral English. The National Teacher Examinations are required for graduation for all students enrolled in the College of Education. These examinations must be taken in the second semester of the senior year. Admission to the fifth-year program leading to a five-year diploma requires a grade of C or better in student teaching, and professional preparation equivalent to that represented by the bachelor of education degree.

Admission requirements for the recreation curriculum are the same as those for the University.

To be eligible for the bachelor’s degree, a student must:

1. Have an aggregate of at least 130 semester hours of credit;
2. have a 2.0 grade-point ratio for all registered credits, and 2.5 in the major field (see “Undergraduate Degree Requirements”);
3. have met all University degree requirements (pp. 29-32);
4. have met course requirements for one of the curricula.
Five-Year Diploma Requirements

To be eligible for the five-year diploma a student must:
1. Have the bachelor of education degree or its equivalent, including:
   a) student teaching of a quality necessary to meet at least a C standard;
   b) course background in general and professional education, comparable to the specific requirements of one of the curricula offered by the College;
   c) completion of an academic major of at least 36 credits for secondary teachers and 24 for elementary teachers;
   d) completion of the 60 credit liberal arts requirement;
2. have satisfactorily met the course requirements of the fifth-year curriculum.

Classified Professional Certificate Requirements

The professional certificate for public school teaching in Hawaii is granted by the state Department of Education. The general requirement for this certificate is five years of college work, including student teaching and other professional courses. In addition, the candidate must have met the specific course and curriculum requirements for the grade of certificate sought, elementary or secondary.

Requirements for admission to the program are: (1) bachelor's degree from an accredited institution; (2) candidates with degrees granted more than 10 years prior to application for admission to CPC program will be required to fulfill deficiencies or take refresher courses in their respective teaching fields as deemed necessary by admissions personnel of College of Education; (3) proficiency in oral and written communication; (4) recommendations from former employers and/or college advisers; (5) transcripts of college records, including standardized test scores; (6) meeting standards of academic success as required at the specific curriculum levels, including a teaching field at the secondary level with a grade-point ratio of at least 2.5; (7) interview with College of Education admission personnel; (8) submission of written application by (a) April 15 for the following summer session, (b) July 15 for the fall semester, and (c) November 15 for the second semester. All applications must be accompanied by transcript of previous college work.

Requirements for the professional certificate can be met as follows:
1. By fulfilling requirements for the five-year diploma; or
2. by earning 30 semester hours of credit after receiving the bachelor of education degree or its equivalent. Six of these must be in graduate education courses; or
3. by fulfilling requirements for the special programs for graduates holding degrees other than bachelor of education; specific course requirements are selected from the following:

a) Elementary level—child psychology, principles of elementary education, teaching of language arts, arithmetic, social studies, science, tests and measurements, educational psychology, speech, art, children's literature, music, and physical education.

b) Secondary level—adolescent or developmental psychology, principles of secondary education, a methods course in the teaching field, educational psychology, and tests and measurements.

c) In addition, at both levels, student teaching and 6 graduate credits in education.

Curricula

The curricula in elementary and secondary education in general are identical for the first two years and are designed to provide a broad liberal arts background. In addition, a beginning should be made in the build-up of the academic major.

During the third year the professional sequence necessary for public school service is begun. Students preparing for secondary school teaching are required to develop a major of not less than 36 credits. Students in the elementary curriculum are required to choose an academic field of concentration which usually will require approximately 24 credits. Guides for suggested course sequences are available in the office of Student Services or the department of curriculum and instruction.

The fourth-year program consists of one semester devoted to part-time student teaching, while the other provides necessary professional courses, and a continuation of the academic major build-up. One-half of the students engage in practice teaching the first semester and take courses the second semester, while the other half reverses the order. The criteria for initial placement in student teaching are as follows: (1) evidence of competency in spoken and written English; (2) evidence of personality adjustment suitable for contact with children and youth; (3) cumulative grade-point average of at least 2.2; (4) cumulative average of at least 2.2 in professional courses in Education; (5) at the secondary level a grade-point average of at least 2.5 in the teaching field or fields; (6) at the secondary level at least two-thirds of the teaching field major completed for those student-teaching in either semester of their senior year. Those student-teaching in the fifth year should have their teaching field major substantially completed.

The program of the fifth year is practically identical for both curricula, and is devoted to completion of the professional sequence, the academic major requirements. Credit for internship is no longer offered.
Liberal Arts

AREA REQUIREMENTS..............60 CREDITS

A. Communications ....................................................... 9 credits
   English 101-102 or 105; Speech 145

B. Mathematics .............................................................. 6 credits
   Mathematics 100, 111, or selected college level courses, or Philosophy 200

C. World Civilizations .................................................... 6 credits
   History 151-152 or 161-162 or 251-252

D. Humanities ................................................................. 12 credits
   Two semester courses from Group I and one each from Group II
   and III
   Group I: English 150-151, 152-153, 154-155, Drama 140
   Group II: Philosophy 100, 150, Religion 150, 151
   Group III: Art 101, Music 160

E. Natural Sciences ....................................................... 15-16 credits
   Science 120-121, plus one sequence from Group I or II
   Group I: Chemistry 101-102, 103-104, Geosciences 101-102,
   Physics 160-161, 170-174, 110 and Geography 101,
   Geography 101 and Oceanography 201, Physics 110
   and Oceanography 201
   Group II: Botany 101 and Genetics 451, Botany 101 and Microbiol-
   ogy 151, Botany 101 and Zoology 101, Zoology 101 and Microbiology 151,
   Zoology 101 and Genetics 321, Zoology 151 and Genetics 451, Zoology 115-116

F. Social Sciences .......................................................... 9 credits
   Three semester courses, at least one from each group
   Group I: Psychology 100 or 200, 180, 304, 350, 362, Sociology
   151, 201, 324, Anthropology 150, 200, Social Science
   300-301
   Group II: Economics 150, 151, Political Science 110, Geo-
   graphy 102, 151

G. Physical Education ................................................... 3 credits
   HPE 101 to 162, 190
   At least one credit in a selected activity course

ACADEMIC MAJOR REQUIREMENTS..............60 CREDITS

Secondary School Teachers:
   36 credits in major field as advised, and
   24 credits in minor field as advised, or
   24 credits in courses related to major field
Elementary School Teachers:
24 credits in major field as advised, and
36 credits in the distributive major, or in courses related to the
major field as advised

PROFESSIONAL SEQUENCE REQUIREMENTS.............. 20-27 CREDITS

Secondary School Teachers ........................................ 20 credits
including social foundations, psychological foundations, curriculum foundations, a methods course in the teaching field major,
and student teaching

Elementary School Teachers ....................................... 27 credits
including social foundations, psychological foundations, curriculum foundations, methods courses in the major curriculum areas
taught by elementary school teachers and student teaching

ELECTIVES.............. 13-20 CREDITS

Secondary School Teachers ........................................ 20 credits
as advised to strengthen their competence in either subject matter
or professional sequence, usually following student teaching

Elementary School Teachers ........................................ 13 credits

Teaching Field Requirements—Secondary Education

Agriculture: 46 credits in agricultural subjects plus 26 credits in
science subjects, and Ed CI 333. Art: 36 credits in art, 12 hours in art
history including Art 171-181, 24 hours studio courses including Art 111-
112; Ed CI 336. Biological science: 42 credits including basic laboratory
courses in physical sciences and in botany, microbiology, zoology; Ed CI
333. Commercial: 36 credits in business, economics, shorthand, type-
writing, bookkeeping; Ed CI 348. English: 42 credits in composition,
linguistics, English and American literature; Ed CI 330. General science:
42 credits including basic laboratory courses in chemistry, physics, bot-
any, zoology, earth science; Ed CI 333. Health and physical education:
36 credits with a minimum of 12 in health and 16 in physical education;
Ed CI 238. Home economics: 45 credits in home economics; Home Eco-
nomics 270. Industrial arts: 36 credits in hand and machine woodworking,
metalwork, electricity, crafts, general shop; Ed CI 346. Languages:
36 credits in advanced courses; Ed CI 335. Mathematics: 36 credits at
university level; Philosophy 200; Ed CI 334. Music: 43 credits, including
applied music and organizations; Ed CI 337. Physical science: 42 credits,
including basic laboratory courses in biological sciences and in chemistry,
geology, physics; Ed CI 333. Social studies: (junior high school level)
42 credits including 6 in U.S. history, 6 in world history, a course each in
government, economics, geography, sociology, and anthropology, a
course in Hawaiian history, Hawaiian government, or Hawaiian culture;
Ed CI 332. **Social studies** (senior high school level) 48 credits including 6 in U.S. history, 6 in world history, 6 in government, 6 in economics, 6 in geography, and 6 in sociology and a course in anthropology, a course in Hawaiian history, Hawaiian government, or Hawaiian culture; Ed CI 332. **Speech:** 36 credits in speech; Ed CI 339.

**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 chairman of the department of health and physical education.

**Vocational Home Economics Education**

Prospective vocational home economics teachers obtain their undergraduate preparation in the College of Tropical Agriculture. Basic professional education courses and student teaching are required. Selective standards, including those in English, used in the College of Education 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 certification to teach mentally retarded children upon completion of a two-year program. Courses taken for certification may be counted toward a master's degree in educational psychology with emphasis in special education. Interested students should confer with the instructors in special education in the department of educational psychology.
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.

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. 45 for a discussion of course descriptions.

Curriculum and Instruction (Ed CI)

Professors R. ALM, IN. MARTIN, MEYER, NELSON, PORTER; Associate Professors BRENNEMAN, CARR, EZER, HAYES, IHARA, JENKINS, PICKENS, POTZER; Assistant Professors J. ALM, CAMPBELL, DUNN-RANKIN, FULTZ, GILLESPIE, INN, MOORE, MORIWAKI, PAUL, REDDIN, WHITMAN; Instructor WEAVER
225 CHILDREN’S LITERATURE (2) I, II
Acquaintance with a wide range of children’s books; criteria for judging literature on the basis of needs and interests.

235 LITERATURE FOR ADOLESCENTS (2) I
Literature for the secondary school level; helping students appreciate the significance and meaning of literature; materials suitable for varying levels of ability and interests.

Note: Pre: EF 320 has been changed to CI 341.

237 MATHEMATICS IN THE JUNIOR HIGH SCHOOL (2) I
Arithmetic beyond fundamental processes; “general mathematics” courses; arithmetic in other courses. Pre: EF 320.

238 PHYSICAL EDUCATION, SECONDARY (2) I, II
Methods and materials in conduct of the physical activities program; techniques in leadership; selection of activities and program evaluation. Pre: EF 320.

240 LANGUAGE ARTS, ELEMENTARY (3) I, II
Modern approach to the teaching of language arts—reading, oral and written expression. Pre: EF 320.

242 SOCIAL STUDIES, ELEMENTARY (2) I, II
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: EF 320.

243 SCIENCE, ELEMENTARY (2) I, II
Science education in the elementary school; developing concepts and understandings. Pre: EF 320.

244 MATHEMATICS, ELEMENTARY (3) I, II
Purposes, procedures, scope, and organization in developing underlying concepts of elementary mathematics; analysis of new elementary mathematics programs; techniques, relative merits, and roles of inductive and deductive approaches to new ideas. Pre: EF 320, Math 111 or 100.

246 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: EF 320, Art 101.

329 (EE 330) CURRICULUM DEVELOPMENT IN CREATIVE EXPRESSION (3) I
Development of communication skills through creative dramatics, rhythmic movement, and the related arts. Pre: EF 320.

330 LANGUAGE ARTS, SECONDARY (3) I, II
Teaching of speaking, reading, writing, and listening in the secondary school; literature, grammar, usage, spelling. Pre: EF 320.

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.

332 SOCIAL STUDIES, SECONDARY (3) I, II
Scope and organization of social studies in the secondary school; development of social knowledge and understanding. Pre: EF 320.
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: EF 320.

334 MATHEMATICS, SECONDARY (3) I, II
Purposes and procedures; development of basic mathematics concepts. Pre: EF 320; Math 421.

335 FOREIGN LANGUAGES, SECONDARY (3) I, II
Techniques and materials; aims, motivation, tests; infusion of cultures; use of instructional aids. Pre: EF 320.

336 ART, SECONDARY (3) I, II
Purposes and procedures; the arts in relation to all school subjects. Pre: EF 320; Art 103-104.

337 (SE 337-338) SCHOOL MUSIC, SECONDARY (3) I, II
Objectives, materials, and procedures of general, instrumental, and choral music in the secondary school. Pre: EF 320.

339 SPEECH AND DRAMATICS, SECONDARY (3) I, II
Techniques for teaching types of speech and play analysis and direction, production and management problems. Pre: EF 320.

341 (EE 220, 221, 224, SE 230) FOUNDATIONS IN CURRICULUM AND INSTRUCTION (3) I, II
Basic concepts of curriculum; organization of the schools and role of the teacher. (1) Preschool education, (2) elementary education, (3) secondary education. Pre: Psy 250.

346 METHODS OF INSTRUCTION, INDUSTRIAL EDUCATION (3) I
Techniques of individual and group instruction in laboratory and related classes; evaluation of various methods. Pre: EF 320.

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: EF 320.

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: EF 320; BE 273; Acc 100-101.

380 CURRICULUM AND INSTRUCTION (10) II
Basic concepts of curriculum, methodology, role of the teacher, and function of the elementary school in a democratic society. To be taken concurrently with student teaching. Pre: Psy 250.

390 STUDENT TEACHING (8) I, II
Supervised experience in the public schools. Follows public school calendar. (1) Elementary education, (2) secondary education. Pre: EF 320, appropriate methods course, and consent of instructor.

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  

620 TEACHING READING IN THE ELEMENTARY SCHOOL (2) I, II  
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  
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  
Theoretical foundations of curriculum development; curriculum research; critical examination of current practices in curriculum development for the elementary school. Pre: EF 320 or equivalent; teaching experience.

623 THE ELEMENTARY SCIENCE CURRICULUM (3) I  
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 (2) 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 (2) II  
Principles of and problems in teaching art in the elementary school; curriculum development and current approaches in art education; laboratory experiences in art media. Pre: 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: 339; Drama 410, or consent of instructor.

634 EXTRACLASS ACTIVITIES IN SECONDARY SCHOOLS (2) I  
Planning and supervising student government, dramatics, athletics, school journalism, and other activities.

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  
Martin, Meyer
Principles and techniques of curriculum improvement at secondary school level. Pre: teaching experience.

637 Art in Secondary Education (3) I  
Pickens
Principles of and problems in teaching art in the secondary school; current approaches in teaching art. Pre: CI 336 and consent of instructor.

640 Seminar in Teaching Fields (3) I, II  
Staff
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  
Staff
Study of current issues and problems in kindergarten and early elementary education with emphasis on program planning for curriculum improvement. Pre: EF 320 or equivalent, and teaching experience.

672 Teaching Aids on Asia (2) II  
Staff
Methods and materials in teaching about Asian nations, including the screening and suggested use of appropriate films and slides on each country, and sampling of music and the visual arts. Pre: consent of instructor.

679 Supervision of Student Teaching (2) I, II  
Staff
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  
Staff
Pre: consent of instructor and department chairman.

722 Seminar in Elementary Curriculum Foundations (3) II  
Jenkins, Porter
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, sheetmetal, tempering, machining.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>107</td>
<td>Basic Drafting and Design for Industrial Education (3) I</td>
<td>Staff</td>
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</tr>
<tr>
<td>108</td>
<td>Drafting and Design for Industrial Education (3) II</td>
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<td>201</td>
<td>Electricity (3) I</td>
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<td>202</td>
<td>Electricity (3) II</td>
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<td>206</td>
<td>Power Mechanics (3) I</td>
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<td>300</td>
<td>Industrial Crafts—Jewelry and Lapidary Processes (2) I</td>
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<td>301</td>
<td>Industrial Crafts—Leather (2) II</td>
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<td>302</td>
<td>Industrial Crafts—Plastics and Wood Sculpture (3) II</td>
<td>Staff</td>
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<tr>
<td>303</td>
<td>Advanced Wood Fabrication and Technology (3) I</td>
<td>Staff</td>
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<tr>
<td>304</td>
<td>Advanced Metal Fabrication and Technology (3) II</td>
<td>Staff</td>
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<tr>
<td>307</td>
<td>Advanced Drafting and Design (3) II</td>
<td>Staff</td>
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<tr>
<td>309</td>
<td>The Graphic Arts (3) II</td>
<td>Staff</td>
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<tr>
<td>348</td>
<td>Industrial Arts for Elementary Teachers (2) II</td>
<td>Staff</td>
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<tr>
<td>401</td>
<td>Problems in Industrial Education (arr.) I</td>
<td>Staff</td>
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</tbody>
</table>

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.

Continuation of 107. Machine and assembly drafting; auxiliary views and sectioning, architectural and technical illustration.

Series and parallel circuits, magnetism, electromagnetism, measuring instruments, generator and motor principles.

Circuits, coils, motors, generators, transformers; inductance; conduit wiring; radio.

Basic power units: internal combustion engines. Experience with hand tools in repair of two- and four-cycle engines.

Design, processes and materials of jewelry making; lapidary processes and materials for polishing semi-precious gemstones; black coral polishing and mounting.

Design and fabrication of leather products. Materials and processes taught through creative projects and problems.

Design and fabrication of plastic projects; materials and processes of metal enameling; other industrial crafts native to Hawaii.

Nomenclature, setup, and operation of power equipment. Design, patterns, jigs, templates; production procedures.

Organization, layout, equipment, management, uses of instructional material. Selected projects in benchmetal, forging, heat-treating, machine shop, oxyacetylene welding, cutting.

Drafting and design principles in fabrication of industrial products; problems of wood, metal, other materials; architectural drafting. Application to instruction.

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.

Hand and simple machine tool instruction taught through selected elementary education projects and units.

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; Associate Professors JOHNSON, MARKS

600 THEORY OF ADMINISTRATION (3) I, II
Critical review of key current and classic writings in theory and practice of administration, development of a comprehensive, integrated understandings of the nature of administration. Pre: consent of instructor. (Same as Interdisciplinary Studies 600, p. 41.)

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 PUBLIC SCHOOL ORGANIZATION (2) I, II
Function of the teacher in school administration; state organization of public education; Hawaii school law and State Department of Education regulations. Pre: teaching experience; may include student teaching.

685 EDUCATIONAL ADMINISTRATION: THEORY AND PRINCIPLES (3) I, II
Theory and principles of administration and development of administrative programs. Pre: 680, teaching experience, or consent of instructor.

689 THE SCHOOL PLANT (3) I
Problems and techniques in school plant planning, operation, and maintenance; working with other agencies and with classified personnel. Pre: 685 or consent of instructor.

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

768 RESEARCH SEMINAR IN EDUCATIONAL ADMINISTRATION (3) I, II
Basic concepts of research in Educational Administration. Study and discussion of significant topics and problems. Required of Plan B Ed.M. candidates. Pre: consent of instructor.

770 SEMINAR IN SUPERVISION OF INSTRUCTION (3) II
Application of methods and tools of supervision; faculty meetings; classroom observation; conferences; evaluation. Pre: teaching experience and consent of instructor. May be repeated.

780 SEMINAR IN EDUCATIONAL ADMINISTRATION (3) I, II
Analysis of selected problems in school administration. (1) Elementary; (2) intermediate; (3) secondary; (4) adult; (5) technical and vocational; (6) community college; (7) higher education. Pre: 670, 680, 685, or consent of instructor. May be repeated.
782 LEGAL ASPECTS OF SCHOOL ADMINISTRATION (3) I
Functions, relationships, and responsibilities of school districts and school personnel with interpretations of legal status as shown by statutes and court decisions. Pre: 680, 685, 780, or consent of instructor.

784 FINANCIAL ASPECTS OF SCHOOL ADMINISTRATION (3) II
School revenues, apportionments, budgetary procedures, costs, and business management. Pre: 680, 685, 780, or consent of instructor.

785 SEMINAR AND INTERNSHIP IN ADMINISTRATIVE LEADERSHIP (arr.) I, II
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 CE)

Professor Wittich; Associate Professor Reed; Assistant Professors Kucera, Sander son, Wileman; Instructors Lubitz, Yoshishige

514, its equivalent, or consent of department chairman is a prerequisite to all other courses.

514 AUDIO-VISUAL MEDIA (3) I, II
Sanderson, Wittich
Communication theory, the characteristics of A-V media: 16 mm sound motion picture films, automated learning programs, television, projected and opaque materials (maps and models). Emphasis on utilization.

634 TELEVISION IN EDUCATION (3) I, II
Kucera, Reed
Development and utilization of television in education including fundamentals of television production and teaching on television with emphasis on utilization of television in the school.

644 EDUCATIONAL TELEVISION (3) II
Kucera, Reed
Research and study of educational development and utilization of instructional television with emphasis on ETV and the systems approach to multi-media instruction in specific learning situations.

704 SEMINAR IN AUDIO-VISUAL EDUCATION (3) I
Wittich, Staff
Review of general and current audio-visual research. Applications of same to problems in improvement of instruction.

705 PRODUCTION OF AUDIO-VISUAL MATERIALS (3) I, II
Lubitz, Wileman
Preparation of two and three dimensional materials, projectuals, slides, filmstrips, simple motion pictures, and audio recordings. Utilization of multi-media materials.

714 ORGANIZATION OF NEW MEDIA PROGRAMS (3) II
Wittich, Staff
Current principles and practices in organization and administration of programs utilizing new learning media: audio-visual, automated learning, educational television, facilities for such purposes.

Due to the fact that the creation of this department was not accomplished in time for the preparation of this current catalogue, information about additional course offerings in the field of educational communications should be directed to the chairman of the department of educational communications.
Educational Foundations (Ed EF)

Senior Professor Clopton; Professors Anderson, Austin; Associate Professors Amioka, Boyer, Keppel, Potter; Assistant Professor Stueber

Qualified graduate students in other colleges may enroll in courses in this department with consent of instructor.

320 (520) FOUNDATIONS OF AMERICAN EDUCATION (3) I, II  
Contemporary educational theory and practice as related to major historical, philosophical, and social factors in American culture.

360 FUNDAMENTAL IDEAS IN EDUCATION (2) I  
Examination of basic ideas influencing modern education; sociological, psychological, and philosophical considerations; for juniors in the Honors Program.

394-395 SENIOR HONORS THESIS (2-2) Yr.  
For seniors in the Honors Program.

409 CULTURALLY AND ECONOMICALLY DISADVANTAGED PUPIL (3) II  
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.)

570 ANTHROPOLOGY AND EDUCATION (3) II  
Education as a means of transmitting culture. Socialization in non-literate societies; universal aspects of the process. Cross-cultural education. (Offered as Anth 550 (3 credits).)

650 HISTORICAL FOUNDATIONS OF WESTERN EDUCATION (3) I, II  
History of European thought and practice as a basis for the study of modern school problems.

651 HISTORY OF AMERICAN EDUCATION (3) II  
Introduction to the history of American educational thought from the 17th century to the present.

660 PHILOSOPHY OF EDUCATION (3) I, II  
Philosophical considerations essential to a philosophy of education. Pre: student teaching.

670 COMPARATIVE EDUCATION: EUROPE AND AMERICA (3)  
Comparison of ways in which contemporary Western societies undertake to meet their educational problems. (Not offered 1966-67.)

671 COMPARATIVE EDUCATION: ASIA (3) I  
Study of the educational institutions, practices, and problems in the countries of Asia.

672 EDUCATION AND THE WORLD COMMUNITY (3) I  
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)  
Church, state, and school relationships in the U.S., Canada, Latin America, and Europe. Pre: 660. (Not offered 1966-67.)
683 SOCIAL FOUNDATIONS OF EDUCATION (3) I
Boyer, Keppel, Potter
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. (Not offered 1966-67.)

685 EDUCATION IN AMERICA (3) I
Austin, Potter
Comprehensive overview of the American educational scene from nursery school to graduate and professional schools, public and private; problems of support, organization, curriculum, methods, teacher preparation. Open to Asian students only.

699 DIRECTED RESEARCH (arr.) I, II
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
Amioka, Austin, Keppel, Stueber
Intensive 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
Staff
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
Boyer
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
Staff
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
Staff
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)**

Professors Adkins, R. Alm, Beyers, Clark, Collins, Ryan; Associate Professors Chang, Leoton, McIntosh; Assistant Professors Fargo, Fuchigami, Gordon, Haehnlen, Kennedy, NiyeKawa

309 and 372 or their equivalents are prerequisites for all graduate courses in Educational Psychology.

309 TESTS AND MEASUREMENTS (3) I, II
Adkins
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 EDUCATIONAL PSYCHOLOGY (3) I, II
Major factors of learning and mental health as they apply to the educative process. Pre: Psy 250.

374 GENERAL EDUCATIONAL PSYCHOLOGY (5) I, II
Similar to 372 but with laboratory and observations. Not open to those who have had 372.

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 the 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
Study of curriculum and materials used in the education of mentally retarded children. Pre: 405.

407 EDUCATION OF THE MENTALLY RETARDED (3) II
Review of teaching methods used with the mentally retarded at various school levels. Emphasis on teaching educable mentally retarded children. Observation of mentally retarded children required. Pre: 405, 406.

408 THE EMOTIONALLY DISTURBED CHILD (3) I
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
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.)

415 CLINICAL ASSESSMENT OF EXCEPTIONAL CHILDREN (3) I
Diagnostic instruments used in clinical appraisal of exceptional children. Theoretical considerations will buttress field appraisal experience. Pre: 309, 404.

450 PRACTICUM EXPERIENCE WITH THE MENTALLY RETARDED (9) II
Observation and supervised student teaching with mentally retarded children at two school levels: elementary and secondary. Includes a two-hour seminar each week. Pre: 405, 406, 407.
451 PRACTICUM FOR TEACHERS OF EMOTIONALLY DISTURBED CHILDREN (9) II Fargo
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 Collins
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 Clark
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 Clark
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 Clark
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.

609 TESTS AND INVENTORIES IN GUIDANCE (3) II Loten

614 EDUCATION OF GIFTED CHILDREN (3) II Chang

616 SEMINAR IN EDUCATION OF MENTALLY RETARDED (3) II Fuchigami
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 Adkins
Statistical inference including the applications of parametric and non-parametric methods to educational problems. Pre: descriptive statistics.

672 ADVANCED EDUCATIONAL PSYCHOLOGY: LEARNING (3) I, II Gordon
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 Niwakawa
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  
Pre: consent of instructor and department chairman.

701 SEMINAR IN GUIDANCE (3) I, II  
Current issues and problems. (1) General, (2) testing, (3) counseling, (4) vocational, (5) elementary school, (6) administration, (7) group procedures. Pre: 8 credits in guidance courses.

702 GROUP GUIDANCE (3) II  

703 GUIDANCE PRACTICUM (3) I, II  
Supervised experience in guidance activities in schools. Guidance majors only. Pre: consent of instructor.

708 EDUCATIONAL RESEARCH METHODS (3) I, II  
Research techniques and thesis development. Pre: proficiency in statistics; 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: 609, 629 and consent of instructor.

729 SCALING QUALITATIVE DATA (3) II  
Theory and construction of major types of scales with examples from education, psychology, and sociology. Pre: descriptive statistics or consent of instructor.

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: 708.

Health and Physical Education (HPE)

Professor SAAKE; Associate Professors CHUI, GUSTUSON, O'BRIEN, VASCONCELLOS; Assistant Professors BEAMER, CURTIS, GIBSON, SAKAMOTO, TOMINAGA, VAN DEGRIFT; Instructors ASATO, BRUHN, FURUKAWA, KAINA, MURCHISON, SCHWITTERS, SEICHI, THOMPSON

(Numbers in parentheses refer to former numbers of these courses.)

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 (106) 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 (101) SWIMMING: BEGINNING (1) I, II  
Adjusting to water, immersing in water, floating, sculling; correct arm stroke, leg kick, breathing techniques and their coordination.
104 (111) SWIMMING: INTERMEDIATE (1) I, II  
Emphasis on perfecting and integrating basic strokes with added emphasis on swimming for distance and speed.

105 (112) SWIMMING: ADVANCED (1) II  
Correct techniques used in competitive swimming, racing starts, correct turning techniques, long distance swimming.

107 (102) TENNIS: BEGINNING (1) I, II  
Schwitters, Staff  
Rules, etiquette, grip, forehand and backhand strokes, serving, volleying, and singles and doubles play.

108 (113) TENNIS: ADVANCED (1) II  
Schwitters  
Emphasis on improving the serve, forehand and backhand strokes, volleying, chop shot, competitive strategy, problems in rules.

110 (102) GOLF: BEGINNING (1) I, II  
Vasconcellos, Staff  
Rules, etiquette, grip, stance, drive, normal iron shots, approach shots, putting.

111 (127–128) GOLF: ADVANCED (1) II  
Asato  
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 (102) BOWLING (1) I, II  
Gibson, Murchison  
Rules, etiquette, arm swing, approach, execution, scoring, spare pickups. Class participation at bowling alley requires additional bowling fees.

120 (102) BADMINTON (1) I, II  
Beamer, Schwitters  
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  
Beamer  
Background and fundamentals of the hula. Selected dances with and without instruments.

126 (105) RHYTHMIC ACTIVITIES (1) I, II  
Murchison  
Emphasis on awareness of many factors related to enjoyment of social dances including ballroom dances, mixers, etc.

135 (103) VOLLEYBALL (1) I, II  
Beamer, Bruhn  
Rules, serving, passing, setting-up, spiking, blocking, and offensive and defensive team play strategy. Separate sections for men and women.

137 (103) BASKETBALL (1) I, II  
Beamer, Bruhn  
Rules, passing, shooting, dribbling, rebounding, individual defensive and offensive maneuvers, two-man plays, three-man plays, team offense and defense. Separate sections for men and women.

151 (106) ADAPTED AND PRESCRIBED EXERCISES (1) I, II  
Gustuson, Murchison  
Small group and individual guidance and instruction for those students recommended by the Student Health Service.
152 (107, 114) WEIGHT TRAINING (1) I, II
Gustuson
Kinesiology of lifting and weight training, various types of exercises and various methods of training with resistance.

154 (107, 115, 118) TUMBLING AND REBOUND TUMBLING (1) I, II
Gustuson
Single and combination stunts on tumbling mats and trampoline, balancing stunts and correct techniques of spotting and safety procedures.

156 (107, 116) 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 (104, 117) 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 (117) AIKIDO (1) II
Staff
Rules, etiquette, basic rolls, simple holds and the breaking of such holds, and specific physical conditioning exercises.

162 (117) KARATE (1) II
Staff
Rules, etiquette, basic stances, blocks, thrusts, kicks, ippon kumite, and selected kata.

190 (130) 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 (132) 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 (230) 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 (230) 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 (170) INTRODUCTION TO PHYSICAL EDUCATION (2) I
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
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.
218 (140) NATURE AND FUNCTION OF PLAY (2) I
Beamer
Historical and theoretical explanations of play; classification of play movements, interests, forms; place to play in the community and school life with applications to various age groups.

231 METHODS AND MATERIALS IN HEALTH EDUCATION (2) I
O'Brien
Organization and content, methods and materials for health teaching in elementary and secondary schools. Pre: 201 or 202.

232 (234) SAFETY PROCEDURES AND FIRST AID (2) 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 (221) 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 (227) TEACHING TEAM SPORTS FOR SECONDARY GIRLS (2) II
Beamer
Content and methods for teaching fundamental skills, rules, and strategy of team sports for secondary school girls. Includes hockey, soccer, speedball, basketball, volleyball, softball.

236 (222) TEACHING TEAM SPORTS FOR SECONDARY BOYS (2) II
Asato
Content and methods for teaching fundamental skills, rules, and strategy of team sports for secondary school boys. Includes touch football, soccer, basketball, volleyball, softball, water polo.

238 (249) CAMP LEADERSHIP (2) II
Murchison
Procedures in modern camping; characteristics and determinants of the program; relationships with educational and other agencies. ACA Campcrafter certificate may be earned. Primarily for recreation majors.

241 (235) 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.

248 HOBBIES IN RECREATION (2) II
Gibson
Creative procedures in various art media appropriate to hobbies and crafts; the role of guidance in relation to hobbies and crafts. Primarily for recreation majors. Others by permission of instructor.

249 (241) SOCIAL RECREATION (2) I
Gibson
Objectives and values of social recreation; social club organization; selections; planning, conduct, and evaluation of social activities; characteristics and responsibilities of leadership. Pre: 218 or may be taken concurrently.

271 (236) EVALUATION IN HEALTH EDUCATION (2) II
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 (239) HEALTH OF THE SCHOOL CHILD (2) I
Van Degrift
Health problems of the school child and role of the school in meeting them with emphasis on symptoms, causes, treatment. Pre: 201 or 202.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>302 (332)</td>
<td>SCHOOL'S ROLE IN COMMUNITY HEALTH (2) I</td>
<td>Tominaga</td>
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<td>Functional interrelationships between the school and other community health organizations in solving community health problems. Pre: 201 or 202.</td>
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<td>308–309 (250–251)</td>
<td>RECREATION LEADERSHIP (2–2) Yr.</td>
<td>Asato, Saake</td>
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<td>Students assigned to recreational agencies for supervised orientation. 1 hour per week in discussion of individual and group problems. Primarily for recreation majors. Pre: consent of instructor.</td>
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<tr>
<td>333 (215)</td>
<td>COACHING OF FOOTBALL AND BASKETBALL (2) I</td>
<td>Asato, Bruhn</td>
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<td>Fundamentals, position play, team play, strategy, rules, scouting, planning and conduct of practice, specific training problems. Pre: 204.</td>
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<tr>
<td>334 (217)</td>
<td>COACHING OF BASEBALL AND VOLLEYBALL (2) II</td>
<td>Bruhn, Tominaga</td>
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<td></td>
<td>Fundamentals, position play, team play, strategy, rules, scouting, planning and conduct of practice, specific training problems. Pre: 204.</td>
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<tr>
<td>335 (217)</td>
<td>COACHING OF TRACK AND FIELD (2) II</td>
<td>Vasconcellos</td>
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<td>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.</td>
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<tr>
<td>336 (217)</td>
<td>COACHING OF SWIMMING (2) II</td>
<td>Sakamoto</td>
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<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>337</td>
<td>COACHING OF INDIVIDUAL AND DUAL SPORTS (2) I</td>
<td>Schwitters, Seichi</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>338–339 (252–253)</td>
<td>FIELD WORK IN RECREATION (5–5) Yr.</td>
<td>Asato, Saake</td>
</tr>
<tr>
<td></td>
<td>Students assigned to recreational agencies for supervised experience. 1 hour per week in discussion of problems. For recreation majors only. Pre: 308-309 and consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>399</td>
<td>DIRECTED READING (arr.) I, II</td>
<td>Chui</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>401 (276)</td>
<td>CURRENT TRENDS IN HEALTH (3) II</td>
<td>O'Brien</td>
</tr>
<tr>
<td></td>
<td>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 and 302.</td>
<td></td>
</tr>
<tr>
<td>423 (263)</td>
<td>ORGANIZATION AND SUPERVISION OF PHYSICAL EDUCATION (3) II</td>
<td>Asato, Beamer</td>
</tr>
<tr>
<td></td>
<td>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 and 233.</td>
<td></td>
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<tr>
<td>433 (120)</td>
<td>MUSIC AND RHYTHMS IN PHYSICAL EDUCATION (2) I</td>
<td>Kaina</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>
434 (245–246) TECHNIQUES OF OFFICIATING IN ATHLETICS (2) I  
Beamer, Bruhn  
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.

453 (280) ANATOMY IN PHYSICAL EDUCATION (3) I  
Van Degrift  
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 (285) PHYSIOLOGY IN PHYSICAL EDUCATION (3) II  
Van Degrift  
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 (5 396) KINESIOLOGY (3) II  
Chui  
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  
Tominaga  
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 (5 395) EVALUATION AND MEASUREMENTS IN PHYSICAL EDUCATION (3) I  
Chui  
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: 203, EP 309 and consent of instructor.
College of Engineering

The College of Engineering prepares students for civil, electrical, mechanical, and general engineering.

Admission and Degree Requirements

Engineering programs require special preparation in addition to the requirements for admission to the University (pp. 20-24). Students are selected for the College of Engineering on the basis of aptitude tests and high school records. Those who lack the required special preparation, or who are unable to carry heavy academic schedules, or who elect advanced military or air science, usually need more than four years to meet degree requirements, and should plan on a five-year program.

To be eligible for the bachelor of science degree a student must:

1. Complete the course requirements for one of the curricula;
2. Complete all University degree requirements (pp. 29-32);
3. Have an aggregate of 130 semester hours of credit;
4. Have a 2.0 grade-point ratio for all registered credits;
5. Have a 2.0 grade-point ratio for all upper division courses in the major department.

Curricula

Four-year curricula lead to the degree of bachelor of science in civil, electrical, general, or mechanical engineering. These curricula are designed as three integrated programs to prepare the student to undertake the responsibility of an engineer. They include:

1. Humanistic and social sciences, to promote an understanding of the responsibilities of a free man.
2. Mathematics, physical science, and engineering science, to promote an understanding of the sciences underlying engineering.
3. Engineering analysis and design, to promote specialization in one field.

The first-year courses are common to all curricula.
### Common First Year

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</th>
<th>CREDITS</th>
</tr>
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<tbody>
<tr>
<td>Chem 103 General Chemistry</td>
<td>4</td>
<td>Chem 104 General Chemistry</td>
<td>4</td>
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<tr>
<td>GE 105 Engineering Graphics</td>
<td>3</td>
<td>Eng 102 Expository Writing</td>
<td>3</td>
</tr>
<tr>
<td>Eng 101 Expository Writing</td>
<td>3</td>
<td>Math 136 Calculus II</td>
<td>4</td>
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<tr>
<td>Health &amp; Phys. Ed</td>
<td>1</td>
<td>Phys 170 General Physics</td>
<td>3</td>
</tr>
<tr>
<td>Math 135 Calculus I*</td>
<td>4</td>
<td>Phys 171 General Physics Lab</td>
<td>1</td>
</tr>
<tr>
<td>GE 100 Orientation</td>
<td>1</td>
<td>SP 145 Expository Sp.</td>
<td>3</td>
</tr>
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### Civil Engineering Curriculum

#### SECOND YEAR

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<th>CREDITS</th>
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<tbody>
<tr>
<td>CE 111 Surveying I</td>
<td>2</td>
<td>CE 112 Surveying II</td>
<td>3</td>
</tr>
<tr>
<td>CE 170 Applied Mechanics I</td>
<td>3</td>
<td>CE 271 Applied Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>GE 110 Computer Prog.</td>
<td>1</td>
<td>Math 232 Adv. Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>Health &amp; Phys. Ed.</td>
<td>1</td>
<td>Phys 174 General Physics</td>
<td>4</td>
</tr>
<tr>
<td>Math 231 Adv. Calculus I</td>
<td>3</td>
<td>Hist 152 World Civ.</td>
<td>3</td>
</tr>
<tr>
<td>Phys 172 General Physics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phys 173 General Physics Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hist 151 World Civ.</td>
<td>3</td>
<td></td>
<td></td>
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<td><strong>Total</strong></td>
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#### THIRD YEAR

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<thead>
<tr>
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<th>CREDITS</th>
<th>SECOND SEMESTER</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>CE 220 Fluid Mechanics I</td>
<td>3</td>
<td>CE 222 Fluid Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>CE 221 Hydraulic Lab</td>
<td>1</td>
<td>CE 274 Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CE 241 Mechanics of Materials Lab</td>
<td>1</td>
<td>CE 351 Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CE 273 Mechanics of Materials</td>
<td>4</td>
<td>ME 231 Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EE 102 Electrical Science</td>
<td>3</td>
<td>Elective (Human. or Soc. Sciences)</td>
<td>6</td>
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<tr>
<td>Elective (Human. or Soc. Sciences)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Econ 150 Principles</td>
<td>3</td>
<td></td>
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<td><strong>Total</strong></td>
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### FOURTH YEAR

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<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>CE 331 Sanitary Engineering</td>
<td>3</td>
<td>GE 301 Engineering Management</td>
<td>3</td>
</tr>
<tr>
<td>CE 360 Transportation Engineering</td>
<td>3</td>
<td>CE Electives*</td>
<td>6 or 7</td>
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<tr>
<td>CE 380 Structural Design</td>
<td>4</td>
<td>Elective (Human. or Soc. Sciences)</td>
<td>3</td>
</tr>
<tr>
<td>CE 321 Hydraulics or CE 385 Structural Analysis</td>
<td>3</td>
<td>Elective**</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Human. or Soc. Sciences)</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>Total</strong></td>
<td><strong>15 or 16</strong></td>
</tr>
</tbody>
</table>

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* *Math 103 may be required if math preparation is inadequate.
† If prerequisite for GE 108 has not been met, GE 101-102 will be substituted.
‡ CE Electives CE 326, 328; or CE 386, 388; or CE 342, 344; Science Electives.
Approved by adviser.
**Consent of adviser.
### Electrical 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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</thead>
<tbody>
<tr>
<td>CE 170 Applied Mechanics I</td>
<td>3</td>
<td>CE 271 Applied Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>GE 110 Computer Programming</td>
<td>1</td>
<td>EE 211 Circuit Theory I</td>
<td>3</td>
</tr>
<tr>
<td>Econ 150 Principles</td>
<td>3</td>
<td>Math 232 Advanced Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>Health &amp; Phys. Ed.</td>
<td>1</td>
<td>Phys 174 General Physics</td>
<td>4</td>
</tr>
<tr>
<td>Math 231 Advanced Calculus I</td>
<td>3</td>
<td>Phys 175 General Physics Lab</td>
<td>1</td>
</tr>
<tr>
<td>Phys 172 General Physics</td>
<td>3</td>
<td>Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Phys 173 General Physics Lab</td>
<td>1</td>
<td>Total</td>
<td>17</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
<td>Total</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
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#### THIRD 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>ME 243 Mechanics of Solids</td>
<td>3</td>
<td>EE 221 Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>EE 212 Circuit Theory II</td>
<td>5</td>
<td>EE 232 Waves &amp; Networks Lab</td>
<td>1</td>
</tr>
<tr>
<td>EE 223 Circuits Laboratory</td>
<td>1</td>
<td>EE 242 Traveling Waves</td>
<td>3</td>
</tr>
<tr>
<td>Phys 440 Physical Electronics</td>
<td>3</td>
<td>EE 351 Energy Conversion</td>
<td>3</td>
</tr>
<tr>
<td>Phys 350 Electricity &amp; Magnetism</td>
<td>3</td>
<td>EE 353 Conversion Lab</td>
<td>1</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
<td>Phys 550 Electromagnetic Waves</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
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#### FOURTH YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EE 321 Electronics II</td>
<td>3</td>
<td>ME 231 Thermodynamics</td>
<td>3</td>
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<tr>
<td>EE 323 Electronics Lab</td>
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<td>Electives</td>
<td>12-13</td>
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<td>Elective*</td>
<td>12-13</td>
<td><strong>Total</strong></td>
<td><strong>15-16</strong></td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>16-17</strong></td>
<td><strong>Total</strong></td>
<td><strong>15-16</strong></td>
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</tbody>
</table>

*The 36 elective credits 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>
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<tbody>
<tr>
<td>CE 110 Computer Program</td>
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<tr>
<td>CE 111 Surveying I</td>
<td>2</td>
</tr>
<tr>
<td>CE 170 Applied Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>Hist 151 World Civ.</td>
<td>3</td>
</tr>
<tr>
<td>Health &amp; Phys. Ed.</td>
<td>1</td>
</tr>
<tr>
<td>Math 231 Advanced</td>
<td>3</td>
</tr>
<tr>
<td>Phys 172 General Physics</td>
<td>3</td>
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<tr>
<td>Phys 173 General Physics Lab</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>CE 271 Applied Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>Math 232 Advanced</td>
<td></td>
</tr>
<tr>
<td>Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>Phys 174 General Physics</td>
<td>4</td>
</tr>
<tr>
<td>Hist 152 World Civ.</td>
<td>3</td>
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<tr>
<td>Elective (Human. or Soc. Sciences)</td>
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THIRD YEAR

<table>
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<tr>
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<tbody>
<tr>
<td>CE 241 Mechanics of Materials Lab</td>
<td>1</td>
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<tr>
<td>CE 273 Mechanics of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ME 231 Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 150 Principles</td>
<td>3</td>
</tr>
<tr>
<td>Phys 350 Electricity &amp; Magnetism</td>
<td>3</td>
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<td>Elective (Human. or Soc. Sciences)</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>CE 220 Fluid Mechanics I</td>
<td>3</td>
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<tr>
<td>CE 221 Hydraulics Lab</td>
<td>1</td>
</tr>
<tr>
<td>CE 274 Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EE 102 or 211</td>
<td>3</td>
</tr>
<tr>
<td>ME 232 Adv. Thermodynamics</td>
<td>3</td>
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<tr>
<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 212</td>
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<tr>
<td>ME 366 Materials Science</td>
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</tr>
<tr>
<td>Phys 440 Physical Electronics</td>
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<tr>
<td>Elective (Human. or Soc. Sciences)</td>
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<td>Total</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EE 221 Basic Electronics Lab</td>
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<tr>
<td>Elective (Human. or Soc. Sciences)</td>
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<td>Electives—12 credits (Schedule a, b, c, or d)*</td>
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*(a) EE 223, 232, 242, 351, 353; Phys 550.
(b) ME 234, 367, 371, 373, 374, 382, 475.
(c) CE 112, 222, 231, 331, 351, 360, 380, 385.
(d) GE 301; BAS 301; Mgt 300; PIR 300, 310, 330, 350.
## Mechanical Engineering Curriculum

### SECOND YEAR

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</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>
<td>1</td>
<td>GE 110 Computer Prog.</td>
<td>1</td>
</tr>
<tr>
<td>Math 231 Adv. Calculus I</td>
<td>3</td>
<td>Hist 152 World Civ.</td>
<td>3</td>
</tr>
<tr>
<td>Phys 173 General Physics Lab</td>
<td>1</td>
<td>Phys 174 General Physics</td>
<td>4</td>
</tr>
<tr>
<td>Hist 151 World Civ.</td>
<td>3</td>
<td>Elective (Human. or Soc. Sciences)</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Human. or Soc. Sciences)</td>
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<td><strong>17</strong></td>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
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### THIRD YEAR

| ME 230 Mechanics of Fluids | 3       | ME 232 Applied Thermodynamics | 3       |
| ME 231 Thermodynamics | 3       | ME 234 Measurements Lab | 2       |
| ME 243 Mechanics of Solids | 3       | ME 367 Materials Processing | 3       |
| ME 366 Materials Science | 3       | ME 371 Dynamics of Machinery | 3       |
| Econ 150 Principles | 3       | EE 102 Electrical Science | 3       |
| Elective (Human. or Soc. Sciences) | 3       | Elective (Human. or Soc. Sciences) | 3       |
| **Total** | **18** | **Total** | **17** |

### FOURTH YEAR

| ME 333 Mechanical Engr. Lab | 2       | ME 374 Intro. to Engr. Design | 4       |
| ME 373 Optimum Design of Mechanical Elements | 3       | EE 203 Electr. Science Lab | 1       |
| ME 475 Heat Transfer | 3       | Electives (Technical)* | 9       |
| EE 301 Electronics Circuits | 3       | Elective† | 3       |
| Elective (Technical)* | 3       |                     |         |
| Elective (Human. or Soc. Sciences) | 3       |                     |         |
| **Total** | **17** | **Total** | **17** |

*Technical Electives: Any mathematics, physics, or engineering courses numbered 200 or above approved by adviser, 6 credits must be ME courses.
†Consent of adviser.
Humanistic—Social Sciences Electives

The Humanistic—Social Sciences Program requires each student to complete Economics 150, History 151-152 (or Hist 251-252), two elective courses in social sciences, and three elective courses in humanities.

The courses selected must satisfy University requirements for all baccalaureate degrees (see pp. 29-32).

Center for Engineering Research

The functions of the Center for Engineering Research are 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, 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.

In January 1966 the Center for Engineering Research acquired from the U. S. Army Corps of Engineers the James Look Laboratory of Oceanographic Engineering. This facility is the first structure of the Kewalo Oceanographic Research Center, and will support research activity that has direct bearing on many ocean-related problems occurring throughout the State of Hawaii. A partial list of contemplated 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. 45 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 HUMMEL, TAOKA, WILLIAMS; Instructors CHAN, KUMAGAI, MIKASA, YUASA

111 SURVEYING I (2) I (1 L, 1 Lb) Haselwood, Kumagai
   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) Daniel, Kumagai
   Topographic mapping; curves; earthwork; computer applications; route problems. Pre: Math 135, CE 111 and GE 110.
170 APPLIED MECHANICS I (3) I, II
   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
   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
   Experiments and demonstrations in fluid flow in closed conduits, fluid measurements and hydraulic machinery. Pre: credit or concurrent registration in 220.

222 FLUID MECHANICS II (3) II
   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 (1 Lb)
   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

273 MECHANICS OF MATERIALS I (4) I, II (3 L, 1 Lb)
   Elastic stress strain relationship and the behavior of members under flexural, torsional, and axial loading. Pre: 170; Math 231.

274 MECHANICS OF MATERIALS II (3) II
   Inelastic behavior, unsymmetrical bending, curved beams, torsion, energy methods, buckling. Pre: 273.

311 PHOTOGRAMMETRY (3) I
   Basic principles; photographic equipment; control, method of compilation; mosaics. Pre: 112.

321 HYDRAULICS (3) I

325 APPLIED HYDROLOGY (3) II
   Occurrence and movement of water by natural processes including rainfall, runoff, evaporation, transpiration and infiltration. Engineering applications. Pre: 220.

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
   Design and construction of water works. Pre: 220.

332 SANITARY ENGINEERING (3) II
   Design and construction of wastewater works. Pre: 331.

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: CE senior or permission of instructor.
362 ADVANCED TRANSPORTATION ENGINEERING (3) II
Pavement design and construction, traffic engineering, urban transportation studies. Pre: 351 and 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)

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
Ideal and real fluid, potential flow and conformal mapping, vortex motion, theory of waves in deep and shallow water, gas dynamics, laminar and turbulent flow. Pre: Math 232, CE 222 or consent of instructor.

622 ADVANCED FLUID MECHANICS II (3) II
Continuation of 621. Theory of turbulence, boundary layer, drag diffusion, other topics of advanced fluid mechanics. Pre: 621.

623 GROUND-WATER HYDROLOGY (3) I
Ground-water occurrence, flow, quality, conservation, development, and management. Hydromechanics of ground-water flow and water-well problems. Pre: 325 or 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  Jordaan
Solution of practical problems related to planning, design, construction, and maintenance of beaches, harbors, and other coastal structures. Pre: consent of instructor.

631 ENVIRONMENTAL AND SANITARY ENGINEERING THEORY I (3) I  Burbank
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  Burbank
Principles of waste water and solids of waste handling, treatment and re-use, and a study of the factors involved in disposal of waste to natural waters. Pre: 631.

633 ENVIRONMENTAL AND SANITARY ENGINEERING DESIGN 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)  Burbank
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)  Burbank
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)  Burbank
Studies of the chemistry and physics of the various unit processes and 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>671</td>
<td>THEORY OF ELASTICITY (3) I</td>
<td>Stuiver</td>
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<td>672</td>
<td>THEORY OF ELASTICITY II (3) II</td>
<td>Tung, Stuiver</td>
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<td>673</td>
<td>THEORY OF PLASTICITY (3) II</td>
<td>Mitsuda</td>
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<td>674</td>
<td>THEORY OF ELASTIC STABILITY (3) II</td>
<td>Stuiver</td>
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<td>675</td>
<td>THEORY OF VIBRATIONS (3) I</td>
<td>Tsaoa</td>
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<td></td>
<td>Principal modes and natural frequencies of discrete and continuous elastic systems. Approximate methods. Forced motions, damping effects and wave propagation. Pre: consent of instructor.</td>
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<td>676</td>
<td>STRUCTURAL DYNAMICS (3) II</td>
<td>Chiu, Tsaoa</td>
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<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></td>
<td>Analysis of stress and deformation in plates bent by transverse loads under various boundary conditions. Applications to circular, rectangular, and other shapes. 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 and Math 601, or consent of instructor.</td>
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<tr>
<td>680</td>
<td>ENERGY METHODS IN APPLIED MECHANICS: (3) II</td>
<td>Tsaoa</td>
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<tr>
<td></td>
<td>Variational principles of mechanics and their application to engineering problems. Virtual work, minimum potential energy, minimum complementary energy. Applications to structures, buckling, solid mechanics, and vibrations. Pre: 671. (Not offered 1966-67.)</td>
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<tr>
<td>681</td>
<td>ADVANCED INDETERMINATE STRUCTURES (3) I</td>
<td>Chiu</td>
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<td>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 STRESS ANALYSIS (3) II</td>
<td>Chiu</td>
</tr>
<tr>
<td>683</td>
<td>ADVANCED REINFORCED CONCRETE DESIGN I (3) I</td>
<td>Chiu</td>
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<tr>
<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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684 ADVANCED REINFORCED CONCRETE DESIGN II (3) II
    Go
    Continuation of 683. Spherical, cylindrical and hyperbolic paraboloid shells, circular and rectangular tanks, folded plates structures. Pre: 683.

685 ADVANCED DESIGN OF METAL STRUCTURES (3) II
    Tsokas

696 SELECTED TOPICS IN CIVIL ENGINEERING (3) I or II
    Staff
    Highly specialized topics in structural, soils, hydraulics, sanitary, and ocean engineering. Pre: consent of instructor.

697–698 SEMINAR IN CIVIL ENGINEERING (1–1) Yr.
    Staff
    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.

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

800 THESIS RESEARCH (arr.)

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**Electrical Engineering (EE)**

Professors Gott, Peterson, Yuen; Associate Professors Granborg, Weaver; Assistant Professors Lin, Najita, Roelofs, Seo; Lecturer Chow

102 ELECTRICAL SCIENCE (3) I, II (3 L)
    Staff
    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)
    Staff
    Application of electric and magnetic field concepts to circuits, machines, and electronics. For non-electrical engineers. Pre: 102.

211 CIRCUIT THEORY I (3) II (3 L)
    Staff

212 CIRCUIT THEORY II (5) I (5 L)
    Staff

221 ELECTRONICS I (3) II (3 L)
    Staff
    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)
    Staff
    Laboratory for 212. Pre: 211; registration in 212.

232 TRAVELING WAVES AND NETWORKS LABORATORY (1) II (1 Lb)
    Staff

242 TRAVELING WAVES (3) II (3 L)
    Staff
    Analysis of distributed-parameter systems. Application to transmission lines and waves in gases, liquids, and solids. Pre: 211; Math 232; registration in Phys 550.
301 ELECTRONICS CIRCUITS (3) I (3 L)  

321 ELECTRONICS II (3) I (3 L)  
Theory and design of oscillators, waveforming circuits, modulators, demodulators, and logic circuits. Instrumentation. Pre: 212, 221.

323 ELECTRONICS LABORATORY (1) I (1 Lb)  
Laboratory for 321. Pre: 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; Phys 350.

353 ELECTROMECHANICAL ENERGY CONVERSION LABORATORY (1) II (1 Lb)  
Experiments on electromechanical energy conversion using a generalized machine. Pre: registration in 351.

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)  

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: 212, 221.

471 SYNCHRONOUS MACHINES AND POWER SYSTEMS (3) I (3 L)  

601–602 ELECTROMAGNETIC THEORY AND APPLICATIONS (3–3) Yr. (3 L)  
Solutions and applications of Maxwell's equations to radiation and propagation of electromagnetic waves. Pre: Phys 550; Math 232 or equivalent.

604 MAGNETO-IONIC THEORY (3) II (3 L)  

605–606 NETWORK SYNTHESIS (3–3) Yr. (3 L)  
Properties of driving-point and transfer immittances, lossless and lossy. Approximation techniques. Transfer function synthesis and techniques using active elements. Pre: 212 or equivalent.

608 ANALYSIS OF NONLINEAR SYSTEMS (3) II (3 L)  

621–622 ADVANCED MICROWAVE THEORY (3–3) Yr. (3 L)  
Advanced topics in microwave theory. Pre: 421; Phys 550; or equivalent.

631 ADVANCED ELECTRONIC INSTRUMENTATION (3) I (3 L)  
Electronic conversion transducers for control and measurements; special-purpose amplifiers; analog and digital components and circuits; applications. Pre: 431 or equivalent.

641 STATISTICAL COMMUNICATIONS THEORY (3) I (3 L)  
Statistical approach to electrical communications theory. Pre: 441.

651 ADVANCED FEEDBACK CONTROL SYSTEMS (3) I (3 L)  
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)  
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.

655 SAMPLED-DATA CONTROL SYSTEMS (3) II (3 L)  
Theory and applications of sampled-data control systems. Pre: 451 or equivalent.

657 HYBRID AUTOMATIC CONTROL SYSTEMS (3) II (3 L)  
661 THEORY AND DESIGN OF DIGITAL MACHINES (3) I (3 L) Peterson
Concept of a register, Boolean algebra and simplification techniques. Sequential
switching circuit theory. Arithmetic operations. General purpose machines. Intro­
duction to Turing machines. Pre: 461 or equivalent.

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.

665 SIGNALS AND RANDOM NOISE (3) II (3 L) Lin
Spectral analysis, noise, gaussian noise, sampling, filtering prediction, detection.
Pre: Math 472 or equivalent.

672 MAGNETOHYDRODYNAMICS (3) II (3 L) Roelofs
Motion of an electrically-conducting fluid in the presence of a magnetic
field. Pre: Phys 550 or equivalent.

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 EE.

General Engineering (GE)

Associate Professors Avery, Conha; Instructors Landstreet, Smith, Jackson

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) Jackson, Landstreet, Smith
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) Jackson, Landstreet, Smith
Continuation of 101 in analyzing and solving spatial problems pertaining to points,
lines, planes, and their application to engineering. Surface intersections, vector geo­

105 ENGINEERING GRAPHICS (3) I, II (1 L, 2 Lb) Jackson, Landstreet, Smith
Analysis and solution of spatial problems pertaining to points, lines, and planes,
and their application to engineering. Surface intersections, vector geometry, and
graphical calculus. Pre: 1 year high school mechanical drawing. Not open to
students who have credit in 102.

110 DIGITAL COMPUTER PROGRAMMING (1) I, II Daniel
Introduction to FORTRAN IV language and application to engineering problems

301 ENGINEERING MANAGEMENT (3) I, II Tinniswood
Business, legal, and economic aspects of engineering. Pre: CE 273, or EE 351,
or ME 232.
Mechanical Engineering (ME)

Professors Downs, Stuiver; Associate Professors Chai, Chou; Assistant Professors Kihara, Larsen-Badse, Munchmeyer

230 MECHANICS OF FLUIDS (3) I

231 THERMODYNAMICS (3) I, II

232 APPLIED THERMODYNAMICS (3) II

234 MEASUREMENTS LABORATORY (2) II

243 MECHANICS OF SOLIDS (3) I, II
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

335 INTRODUCTION TO NUCLEAR ENGINEERING (3) I

336 NUCLEAR REACTOR ENGINEERING (3) II
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.

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, II Larson-Bads
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 Lb) Larson-Bads
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 Downs

373 OPTIMUM DESIGN OF MECHANICAL ELEMENTS (3) I (2 L, 1 Lb) Downs
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 Lb) Downs

382 POWER PLANTS (3) I Staff
Steam generators, prime movers, piping design, and plant economy. Solar energy. Introduction to non-electromechanical energy conversion. Pre: 232. (Not offered 1966-67.)

390 PROJECT (arr.) I, II Staff
Investigation of advanced problems in mechanical engineering design or development. Pre: senior standing.

475 HEAT TRANSFER (3) I Chai

477 FUNDAMENTALS OF SPACE DYNAMICS (3) I Stuiver

601 ADVANCED ENGINEERING THERMODYNAMICS (3) I Staff

605 HEAT TRANSFER I (3) I Chai

606 HEAT TRANSFER II (3) II Chai
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.

635 CORROSION (3) I Larson-Bads
The College of General Studies provides facilities for instruction in the evenings at both the Honolulu and Hilo campuses, and in areas away from the University both day and night, enabling many people other than regular day students to broaden their cultural backgrounds, gain an insight into the demands of responsible citizenship, and better prepare themselves for competent participation in the business and professional affairs of the community.

The College administers the academic affairs of those students who are not candidates for a degree in another college of the University. These students may be day or evening, full or part time.

Inasmuch as there is not a required program of study, students in this College have great latitude in the selection of day or evening courses. However, these students must comply with the general admission and other requirements and regulations of the University (see pp. 20-32). Students may not carry more than 18 credit hours; but in the selection of individual courses they are limited only by the requirement that they have the prerequisites, if any, for the courses of their choice.

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 evening courses are scheduled concurrently with University regular and summer sessions. Off-campus accelerated programs are 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 offered on Hawaii, Maui, Kauai, and sometimes on Molokai and Lanai, either by faculty members commuting from the
Manoa campus or by other qualified personnel. Schedules for off-campus courses are arranged to fit the needs of students when such adjustments are academically acceptable.

In addition to its programs within the state, the College operates an overseas center at Kwajalein. Here, selected courses for credit are given in an effort to meet the needs of personnel, both military and civilian, stationed in the area.

Non-Credit Courses. Short courses covering selected college-level material in art, business, English, engineering, foreign languages, mathematics, general culture, and other subjects are offered on the campus. These courses are generally offered in the evening.

Sessions begin in January, April, July, and October. Any person with the equivalent of a high school education who can profit from these courses may enroll. Students who regularly attend receive certificates upon completion of their course of study.

Conferences, Institutes, and Workshops. A division of the College, the Conference Center, serves as a coordinator between the University and the community for framing and administering programs in various subject matter fields. For the most part, these academic programs are professional and postgraduate in character and are scheduled for relatively concentrated periods of time. The center works closely with various public and private agencies on all levels of community activity and, on the campus, relies to a great degree on the advice of and cooperative working agreements with the several departments and divisions of the University having an interest in a given program. Services of the center include assistance in planning educational conferences, determining who should attend, establishing advisory committees to work out program details, and preparing conference budgets. For these services, scheduling is kept as flexible as possible to accommodate requests as they arise from campus groups, private concerns, the counties, and State and Federal organizations operating within the state. The College, under Conference Center auspices, also initiates and presents workshops, institutes, and conferences of varied character.

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 also Emergency Operating Center Simulation Workshops. The program is also responsible for conducting conferences in civil defense for business and industry. Courses 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) understand­
ing 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.

Special Services. Special programs are offered when needed to pro­
vide training in specific professional or vocational areas, to prepare can­
didates or professional licensing examinations, or to assist with special
local problems.

The College presents an annual Lyceum Series, which includes
plays, lectures, play reading, musical, and other educational and cul­
tural events, on the islands of the state other than Oahu. Special lec­
tures and occasional radio and television broadcasts are also scheduled
by the College in behalf of both civilian and military agencies.

A manuscript criticism service for writers of fiction, non-fiction,
poetry, and drama is available in the College.

Announcements and other information concerning these varied pro­
grams will be made available by the College of General Studies upon
request.
College of Health Sciences

The College of Health Sciences provides educational programs and fosters research in the three health fields of medicine, public health, and nursing.

The School of Medicine carries students to the master's level in medicine, after which two further years in a mainland school leads to the M.D. degree; or, alternately, it may lead to an M.S. or Ph.D., in a basic medical science. The medical curriculum will not be started until the fall of 1967, but graduate programs leading to the M.S. or Ph.D. degree are presently available in several of the departments.

The School of Public Health offers programs leading to the M.P.H. and 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 two-year programs; that in professional nursing is a four-year program and leads to the B.S. degree.

SCHOOL OF MEDICINE

Admission and Degree Requirements

Medical Students

Applicants to the School of Medicine for the curriculum in medicine must have completed three years of college work, including general University requirements (pp. 29-32) and those of the College of Arts and Sciences. Preparation for work in the School should include courses making for a breadth of learning, both in the humanities and in the sciences, and the following specific work should be taken (some of the work listed as desirable may be taken as electives after entry into the Medical School):
TENTATIVE REQUIREMENTS FOR ADMISSION

Biology: At least 10 units; work through comparative anatomy and embryology 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 calculus; elementary statistics is desirable.

Medical College Admission Test (MCAT): Required of all medical applicants.

A bachelor's degree, which may be in Basic Medical Sciences, is required before the final M.S. in Medical Sciences is granted; the latter is awarded at the completion of the course.

Correspondence regarding admission should be directed to: Associate Dean for Student Affairs, School of Medicine, 2538 The Mall, University of Hawaii, Honolulu, Hawaii 96822.

Non-medical Students

Applicants to the School of Medicine for B.S., M.S., or Ph.D. degrees other than in medicine should fulfill the requirements as noted for the specific disciplines, i.e., biochemistry or medical technology.

Application for admission to any of the departments of the School of Medicine as a candidate for a master's 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 Associate Dean noted above.

Curriculum

Medical students will follow a three-year program during which one year of elective work and two years of medical work will overlap. The elective work should develop and extend the student's special talents and knowledge and may include work in both humanities and sciences.

Although still under study and development, the tentative curriculum is shown in the following table:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Functional microscopic anatomy</td>
<td>5</td>
<td>Functional human anatomy</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Biochemistry</td>
<td>4</td>
<td>Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Medical history</td>
<td>1</td>
<td>Neuroanatomy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>5</td>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>
## Allied Medical Sciences

**Division of Medical Technology (MT)**  
*Instructor 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 B.S. in Medical Technology. Beginning with the summer session preceding the fourth year and continuing throughout the year, students are registered for Medical Technology 266, 267, and 268, for which a total of 28 credits is granted. Completion of this curriculum makes the student eligible for the bachelor of science degree and for 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 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. It is anticipated that this program will be inaugurated in 1967 and fully established in 1968. Thus, freshmen entering in the fall of 1966 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, cyto-genetics, etc. Interim students may take the courses as they are offered and may have the option of either curriculum when the complete senior year courses are available on campus.

### ADMISSION AND DEGREE REQUIREMENTS

Application for admission to the medical technology program should be made during the second semester of the sophomore year. The student
must have completed 66 credits, including the following courses: (The requirement for a general zoology course is waived until such time as a one semester course in physiology can be offered. The course requirement for trigonometry will be satisfied by a high school course in trigonometry.)

<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 sciences electives</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics (trig. and college algebra)</td>
<td>6</td>
</tr>
<tr>
<td>General chemistry and qual. analysis</td>
<td>8</td>
</tr>
<tr>
<td>Anatomy and physiology</td>
<td>8</td>
</tr>
<tr>
<td>Organic chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Quantitative analysis</td>
<td>4</td>
</tr>
<tr>
<td>General microbiology</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, and meet other University requirements for the baccalaureate (pp. 29-32);
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 Admissions and Records office during the semester preceding the awarding of the degree.

**CURRICULUM**

The following courses are required of upperclassmen in medical technology: (Six of the required electives must be non-science.)

**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 271</td>
<td>4</td>
<td>Micro 362</td>
<td>4</td>
</tr>
<tr>
<td>Micro 361</td>
<td>4</td>
<td>Zool 410</td>
<td>3</td>
</tr>
<tr>
<td>Med Tech 150</td>
<td>1</td>
<td>Zool 425</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
<td>Med Tech 151</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electives</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

**SENIOR YEAR**

| Summer Session - Med Tech 266  | 4       |
| Fall Semester - Med Tech 267  | 12      |
| Spring Semester - Med Tech 268 | 12      |
| **Total**                      | **28**  |
Medical Technology (MT)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
<th>Term</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-151</td>
<td>Medical Technology (1-1) I, II</td>
<td>1</td>
<td>I, II</td>
<td>Wulff</td>
</tr>
<tr>
<td>266</td>
<td>Medical Technology (4) Summer (internship)</td>
<td>1</td>
<td>Summer</td>
<td>Staff</td>
</tr>
<tr>
<td>267-268</td>
<td>Medical Technology (12-12) I, II (internship)</td>
<td>1</td>
<td>I, II</td>
<td>Staff</td>
</tr>
</tbody>
</table>

Division of Speech Pathology and Audiology (SPA)

Professor Ansberry; Associate Professor Ritter; Assistant Professors Pang-Ching, Utting

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Introduction to Speech Correction (3) I</td>
<td>3</td>
<td>Ansberry</td>
</tr>
<tr>
<td></td>
<td>Survey of field of speech correction; study of defective articulation, delayed speech, voice problems, cleft palate, cerebral palsy, stuttering, language disorders.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>201</td>
<td>Introduction to Audiology (3) I</td>
<td>3</td>
<td>Pang-Ching</td>
</tr>
<tr>
<td></td>
<td>Basic principles of hearing rehabilitation; hearing problems and their treatment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>Methodology of Speech Correction (3) II</td>
<td>3</td>
<td>Ritter</td>
</tr>
<tr>
<td>203</td>
<td>Testing of Hearing (3) II</td>
<td>3</td>
<td>Pang-Ching</td>
</tr>
<tr>
<td></td>
<td>Methods of administering screening testing programs; threshold determinations by conventional methods and special tests of hearing; interpretation of results. Pre: 201.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>Pathology of Speech (3) I</td>
<td>3</td>
<td>Ritter</td>
</tr>
<tr>
<td>310</td>
<td>Practicum in Speech Pathology (3) II</td>
<td>3</td>
<td>Ritter</td>
</tr>
<tr>
<td></td>
<td>Clinical practice in use of diagnostic procedures and rehabilitation techniques with a variety of defects and disorders at various age levels. Pre: 200, 202.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>311</td>
<td>Practicum in Audiology (3) I</td>
<td>3</td>
<td>Ansberry, Pang-Ching, Utting</td>
</tr>
<tr>
<td></td>
<td>Clinical practice in testing of hearing, hearing conservation, auditory training, speech reading, speech correction and conservation. Pre: 203.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>320</td>
<td>Speech and Hearing Science (3) II</td>
<td>3</td>
<td>Ritter</td>
</tr>
<tr>
<td></td>
<td>General introduction to the science of speech and hearing including anatomy and physiology of the organs involved.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GRADUATE COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>Organic Disorders of Speech (3) I</td>
<td>3</td>
<td>Ansberry</td>
</tr>
<tr>
<td></td>
<td>Study of disorders of speech resulting from organic anomalies: cleft palate, cerebral palsy, laryngectomy, and brain injury.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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—articulation, 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 Veterinary Medicine
Associate Veterinarian PALUMBO

The division of veterinary medicine provides veterinary facilities, materials, and guidance for research and participates in graduate instruction. No formal courses are offered.
Anatomy (Anat)

Professor NOYES; Associate Professors DE FEo, KANE; Assistant Professor YANAGIMACHI

The department of anatomy offers the work in gross and microscopic anatomy requisite for medical students. Graduate programs leading to the M.S. and Ph.D. degrees are also being developed.

601−602 FUNCTIONAL HUMAN ANATOMY (4−4) Yr. Noyes, De Feo
Structure of the human body correlated with function of the various systems and organs. Laboratory and demonstrations on Manoa campus, clinical correlations at St. Francis Hospital. (Not offered, 1966-67.)

611 HISTOLOGY (3) I Noyes, De Feo
Micro- and ultrastucture of human tissues and cells correlated with function. (Not offered, 1966-67.)

621 NEUROANATOMY (3) II Noyes, De Feo
Structure and function of human nervous system. (Not offered, 1966-67.)

691 SEMINAR (1) I, II Staff
Current topics of biologic structure and function, reports, discussions. May be repeated.

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

Biochemistry (Bioch) and Biophysics (Bioph)

Professors PIETTE, WINNIK, YASUNOBU; Associate Professors BARBER, MOWER; Assistant Professors HALL, MCKAY

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.

441 BASIC BIOCHEMISTRY (3) I Winnick
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) Barber
Experiments to accompany 441.

561-562 GENERAL BIOCHEMISTRY (3-3) Yr. Yasunobu, Mower, Staff
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) McKay, Hall
Selected physico-chemical and metabolic experiments to illustrate important principles of 561-562.
585 BIOCHEMICAL LITERATURE (1) II  
Barber  
Use of journals and modern references. One lecture, one library period. Pre: Bioch 561-562, or the equivalent.

591–592 SURVEY OF BIOPHYSICS (2–2) Yr.  
Piette, Staff  
Theory and application of various physiochemical techniques in molecular biology including physical constants of macromolecules, and enzyme kinetics.

610 SPECIAL TOPICS IN ENZYMIOLOGY (2) 1*  
Yasunobu  
Chemical and physical properties of enzymes and coenzymes; structure-function relationships; theory of enzyme catalysis.

615 ADVANCED CARBOHYDRATE METABOLISM (2) 1*  
Barber  
Chemistry and metabolism of sugars, polysaccharides, glycopeptides, glycolipids, and glycoproteins. Role of carbohydrates in immunology. Pathway of photosynthesis.

620 BIOENERGETICS (2) 1*  
Mower  
Mechanisms of energy conversion in biological systems, including oxidative phosphorylation and electron transport. Glycolysis and other processes of energy generation and utilization in various organisms.

630 NUCLEIC ACIDS AND VIRUSES (2) 1*  
Hall  
Current topics on DNA and RNA, radiation effects, cytoplasmic inheritance, mutagenesis, chemistry of the gene. Molecular biology of bacteriophages.

635 METABOLIC REGULATION (1) 1*  
Winnick  
Mechanisms of enzyme induction and repression; end-product inhibition; antimetabolites and antagonists; regulators; mechanism of hormone action.

640 BIOSYNTHESIS OF PROTEINS AND PEPTIDES (1) 1*  
Winnick  
Detailed discussion of pathways and mechanisms; the role of nucleic acids and ribosomes; cytochemistry; aspects related to enzymes, antibodies, hormones, viruses.

655 ENZYMOLaOGY LABORATORY (arr.) 1 (Lab)*  
McKay  
Purification and properties of enzymes, assay procedures; investigation of active centers.

671–672 SEMINAR (1) I, II  
StaR  
Weekly discussions and reports on various subjects; current advances in biochemistry and biophysics.

699 DIRECTED RESEARCH  
Students may register on approval of the department.

701 MARINE BIOCHEMISTRY (1) I  
Baslow  
Selected aspects of the biochemistry of fish considered in 1966.

751–752 TOPICS IN BIOPHYSICS (1–1) Yr.  
Piette, Staff  
Offered in alternate years: nuclear magnetic resonance, and electron spin resonance, optical rotary dispersion techniques, and mass spectrometry, quantum mechanics in molecular biology, free radical mechanisms in biological systems.

760 BIOPHYSICS LABORATORY (3) II  
Piette, Staff  
Applications of physiochemical techniques to biological systems. Use of the analytical ultracentrifuge, atomic absorption, optical absorption, electron spin resonance, viscosimetry, diffusion, optical rotary dispersion, light scattering, and liquid scintillation.

800 THESIS RESEARCH (arr.) I, II  
Staff  
Approval of department faculty required.

*Given in alternate years.
Genetics (Genet)

Senior Professor Snyder; Professors Ashton, Morton; Associate Professors Hirai-Zumi, Hunt; Assistant Professor Mi; Associate Clinical Professors Smith, 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 Hirai-Zumi
Experiments with a variety of organisms to illustrate the principles of 451.

518 BIOCHEMICAL GENETICS (3) II Hunt
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.

618 CYTOGENETICS (3) II (2 L, 1 Lab) Sagawa

625 ADVANCED TOPICS IN GENETICS (2) II Ashton
Advanced treatment of frontiers in genetics. Pre: graduate standing in genetics or consent of instructor.

650 POPULATION GENETICS (3) II Morton
Mathematical, observational, and experimental results bearing on the effects of mutation, selection, and systems of mating on the distribution of genes. Genetic analysis of non-experimental populations, especially man. Pre: 321 or 451 (preferred); elements of calculus, probability and statistics. (Alt. yrs.; offered 1966-67.)

654 GENETICS SEMINAR (1) I, II Ashton
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 Mi
Application of statistics to genetics and human biology, with emphasis of high speed computing methods. Pre: 451 or equivalent, calculus, & biometry or statistics.

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

800 THESIS RESEARCH (arr.) I, II Staff
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 SCIENCE 645 Advanced Animal Breeding
MICROBIOLOGY 671 Microbial Genetics
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.

Microbiology (Micro)

(Affiliate from the College of Arts and Sciences)

Professors Benedict, Bushnell, Chu; Associate Professors Berger, Contois, Folsome, Loh

151 is prerequisite to all more advanced courses.

(See course descriptions under Arts & Sciences—Microbiology, p. 116.)

Pathology (Path)

Professor Nishimura; Associate Professor Hokama; Associate Clinical Professors Stemmermann, Will

The department of pathology will provide teaching for medical students during their third year, training for hospital residents, and will support research throughout preclinical and clinical areas.

No formal courses will be given in 1966-67.

699 DIRECTED RESEARCH (arr.) I, II
Pre: consent of instructor.
Physiology (Physl) and Pharmacology (Pharm)


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  
Rogers  
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 (2) II  
Cutting  
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  
Staff  
Reporting and discussion of current research in pharmacology.

699 DIRECTED RESEARCH (arr.) I, II  
Staff

800 THESIS RESEARCH (arr.) I, II  
Staff

Public Health (PH)

(Affiliate from the School of Public Health)


The following course is part of the required curriculum for medical students:
Courses available in the School of Public Health which may be elected by medical students and certain basic medical science graduate students are:

- **601 PUBLIC HEALTH ADMINISTRATION I**
- **610 INFECTIOUS DISEASES, OF MAN IN THE PACIFIC AREA**
- **625 BIOSTATISTICS I**
- **626 BIOSTATISTICS II**
- **630 PUBLIC HEALTH NUTRITION I**
- **636 ENVIRONMENTAL HEALTH I**
- **640 PUBLIC HEALTH EDUCATION**
- **651 PRINCIPLES OF EPIDEMIOLOGY**
- **665 SOCIO-CULTURAL ASPECTS OF HEALTH AND ILLNESS**
- **680 MATERNAL AND CHILD HEALTH I**
- **685 DEMOGRAPHY AND WORLD POPULATION PROBLEMS**
- **695 INTERNATIONAL HEALTH I**

### 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 the 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. These areas of emphasis include biostatistics, epidemiology, environmental sanitation, international health, maternal and child health, public health administration, public health education, public health laboratory, public health nutrition, population dynamics, and public health engineering. All programs leading to degrees require the following courses: PH 601 Public Health Administration I, PH 625 Biostatistics I, PH 636 Environmental Health I, PH 651 Principles of Epidemiology, and PH 690 Staff Seminar in Community Health Services.

### 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 a minimum of 30 semester hours, a comprehensive essay and suitable field training. Students must pass a general diagnostic examination on public health before formal admission to candidacy and must pass a final oral examination near the completion of the 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 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 intensive research training in some specific aspect of public health (see above for areas of emphasis in public health). The program requires a minimum of 30 semester hours including thesis research or comprehensive essay and some form of appropriate short-term field work. The program usually requires two years to complete. For complete information, see the Bulletin of the School of Public Health.

**Public Health (PH)**

Professors Lee, Burbank, Char, Chung, Connor, Worth; Associate Professors Brown, Drenckhahn, Klemmer, Mytinger, Park, Voulgaropoulos, Wolff; Assistant Professors Gross, Suehiro; Lecturers Kau, Schnack, Shepard, Tokuyama

**601** PUBLIC HEALTH ADMINISTRATION I (3) I
Lee
History, organization, and objectives of public health service.

**602** PUBLIC HEALTH ADMINISTRATION II (3) II
Mytinger
Analysis of problems in public health administration. Pre: 601 or consent of instructor.
605 SEMINAR IN MEDICAL CARE ORGANIZATION (2) II  Mytinger
Survey of the major issues in the organization and administration of contemporary medical care programs.

610 INFECTIOUS DISEASES OF MAN IN THE PACIFIC AREA (3) I  Worth
Systematic presentation of existing knowledge of important infectious diseases in the Pacific area.

623 BIOSTATISTICS I (3) I  Park
Analysis, evaluation, interpretation, and uses of statistics as they relate to problems in public health.

626 BIOSTATISTICS II (3) II  Chung
Continuation of 625. Includes further treatment of probability, sampling, analysis of variance, maximum likelihood method, and some discussion of multi-variate analysis. Pre: 625 or consent of instructor.

630 PUBLIC HEALTH NUTRITION I (2) I  Brown
Principles of human nutrition underlying organization and administration of nutritional services in public health agencies.

631 PUBLIC HEALTH NUTRITION II (2) II  Brown
Extension of 630. Organizing for and evaluating community nutrition programs.

632 SEMINAR IN PUBLIC HEALTH NUTRITION (1) I, II  Brown
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  Gross
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  Gross
Organization, administration, and application of vector control methods in the control of diseases of environmental significance.

640 PUBLIC HEALTH EDUCATION (2) I  Drenckhahn
Principles, concepts, and methods of health education.

641 SEMINAR IN PUBLIC HEALTH EDUCATION (3) II  Drenckhahn
Planning for and evaluation of health education on international, national, state, and local levels.

651 PRINCIPLES OF EPIDEMIOLOGY (3) II  Worth
Basic epidemiologic principles, methods, and their application with particular reference to geographic patterns of diseases in the Pacific area. Pre: 625 or equivalent. May be taken concurrently.

660 COMMUNITY MENTAL HEALTH (2) II  Schnack
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) II
Public health practices and orientation in socio-cultural perspective. Pre: consent of instructor.

670 MEDICAL ASPECTS OF DISABILITY (3) I
Systematic presentation of medical conditions causing disability. Pre: consent of instructor. (Alt. yrs.; not offered 1966-67.)

675 EVALUATION AND MEASUREMENT OF ENVIRONMENTAL FACTORS IN HEALTH PROBLEMS (3) II
Theory and practice in use of common field and laboratory equipment available for evaluation of environmental factors with an influence on health.

680 MATERNAL AND CHILD HEALTH I (2) I
Basic principles and practices in maternal and child health programs.

681 MATERNAL AND CHILD HEALTH II (2) II
Advanced course in maternal and child health. Pre: 680.

682 THE HANDICAPPED CHILD (2) II
Problems and programs relative to children with handicapping conditions.

683 PRINCIPLES OF COMPREHENSIVE MATERNITY CARE (1) II, SS
Objectives and organization of comprehensive maternity care from the public health viewpoint.

685 DEMOGRAPHY AND WORLD POPULATION PROBLEMS (3) II
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.

690 STAFF SEMINAR IN COMMUNITY HEALTH SERVICES (MATERNAL AND CHILD HEALTH, PUBLIC HEALTH EDUCATION, PUBLIC HEALTH NURSING, PUBLIC HEALTH NUTRITION, MENTAL HEALTH) (2) I
Principles of health conservation and disease prevention in family and community. Concurrent with 601.

692 SEMINAR IN SCHOOL HEALTH SERVICES (1) I, II
Practical aspects of organization and administration of school health services.

695 INTERNATIONAL HEALTH I (1) I
Introduction to international health, its development, agencies and issues as related to economic, social, 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
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 professional 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. 20-24). 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 130 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 71 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 70 credits with a grade-point ratio of 2.0.

Professional Nursing Curriculum Leading to Bachelor of Science in Nursing

The baccalaureate program in nursing offers a foundation in the liberal arts with a major in professional nursing. Its aims are to prepare students for beginning positions in all fields of nursing and to provide a sound basis for graduate study in nursing.
Effective September 1966 pre-nursing students enroll in the College of Arts and Sciences and will be admitted to the professional nursing curriculum at the end of the sophomore year upon completion of a minimum of 60 credits, including the following:

UNIVERSITY REQUIREMENTS FOR GENERAL EDUCATION

(See pp. 29-32)

<table>
<thead>
<tr>
<th>Minimum Credits</th>
<th>English 101-102 or 105</th>
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<tbody>
<tr>
<td>3</td>
<td>Speech 145</td>
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<tr>
<td>3</td>
<td>Philosophy 200 or a mathematics course</td>
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<td>History 151-152, 161-162, or 251-252</td>
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<td>12</td>
<td>Humanities—a minimum of 12 units including English 150-151, 152-153, or 154-155, and electives in philosophy, art, religion, music, languages, or other humanistic studies.</td>
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<td>Natural Sciences—a minimum of 17 units including Chemistry 103-104 or Chemistry 107, Microbiology 151, and Zoology 115-116.</td>
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<tr>
<td>12</td>
<td>Social Sciences—a minimum of 12 units including Sociology 151, Psychology 100 or Psychology 200 and 201, Psychology 350, and one elective from the following fields: economics, political science, anthropology, geography.</td>
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</table>

In addition, the following courses are required of all students

| 1 | Health and Physical Education, one activity course |
| 3 | Home Economics 240 (Basic Nutritional Science) |

60

The upper division curriculum in professional nursing will consist of at least two years of sequential nursing courses of increasing complexity, and continuing requisite and elective courses in Arts and Sciences. The revised sequence of professional nursing courses, which is currently under study, will be implemented in Fall 1967. Sophomores and juniors now enrolled in the School of Nursing will complete the program as stated in the 1964-1965 catalogue. Present freshmen and incoming students will follow the revised curriculum.

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 without credit. If successful, credit is granted for the course. (See p. 32.)
Technical Nursing Program
Leading to an Associate of Science Degree in Nursing

This program prepares nurses for staff positions in hospitals, clinics, doctors' offices, and private duty where supervision is provided. Completion of the curriculum requires four academic semesters plus two six-week summer sessions. The graduate is granted an associate of science degree in nursing by the University and is eligible to take the state examination for licensure as a registered nurse. It is expected that this program will be revised for students entering September 1966.

FIRST YEAR

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<td>Technical Nursing 109</td>
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Summer Session
Technical Nursing 112 4

SECOND YEAR

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Summer Session
Technical Nursing 123 4

Two-Year Program in Dental Hygiene
Leading to a Certificate in Dental Hygiene

This program is intended to qualify dental hygienists for positions with dentists or health departments and for admission to licensing examinations for dental hygienists.
### FIRST YEAR

<table>
<thead>
<tr>
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<td>English 102</td>
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### SECOND SEMESTER

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### SUMMER SESSION

| Psychology 100 or Sociology 151 | 3 |
| Speech 145                     | 3 |
|                                 | 6 |

### SECOND YEAR

| Dental Hygiene 151 | 2 |
| Dental Hygiene 166 | 2 |
| Dental Hygiene 189 | 2 |
| Dental Hygiene 179 | 5 |
| Dental Hygiene 181 | 2 |
| Microbiology 151   | 4 |
| Dental Hygiene 170 | 2 |
| Dental Hygiene 171 | 2 |
| Dental Hygiene 180 | 5 |
| Dental Hygiene 182 | 2 |
| Dental Hygiene 188 | 1 |
| Dental Hygiene 190 | 1 |
| Psychology 100 or Sociology 151 | 3 |
|                                 | 17 |

| 16 |

### NURSING COURSES

See p. 45 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)** Koga

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)** Sherman

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.

It is recommended that all students in dental hygiene complete the standard Red Cross first aid course during the first year or by the end of that summer session; or complete HPE 234. A copy of the Red Cross certificate must be filed in the office of the chairman of the department of dental hygiene.
140 INTRODUCTION TO DENTAL PROPHYLAXIS PROCEDURES AND TECHNIQUES (1) II
   Clinical instruction and practice on manikin and few patients in operative technical procedures of instrumentation, polishing, charting.

150 INTRODUCTION TO DENTAL HISTOLOGY AND EMBRYOLOGY (1) II

151 DENTAL HISTOLOGY AND EMBRYOLOGY (2) I
   Formation, structure and function of enamel, dentin, cementum, pulp, periodontium, alveolar process and gingiva. Pre: 150.

155 INTRODUCTION TO HUMAN PATHOLOGY (1) II
   Basic causes of disease, their progress and termination. Emphasis on defensive mechanisms of the body. Pre: 150 or concurrent registration.

156 ORAL PATHOLOGY (2) I
   Study of oral diseases of interest to the dental hygienist. Pre: 165, 151 or concurrent registration.

165 SURVEY OF DENTISTRY (2-2) Yr.
   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) I
   Basic principles of teaching and learning dental health education as related to the office, school, public health; methods, materials and practice in teaching; laws, ethics and economics involved.

179-180 DENTAL HYGIENE AND PROPHYLAXIS (5-5) Yr.
   Clinical experience in dental prophylaxis; oral inspection and dental charting; chairside dental health education.

181 DENTAL ROENTGENOLOGY (2) I
   Lecture-laboratory course in the study, technique, and use of the roentgen ray in its application to dentistry.

182 PHARMACOLOGY (2) II
   Derivation and effects of drugs most commonly used in dentistry. Relative values of germicides, antiseptics, disinfectants, analysis of formulae of dentifrices, 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 (N)

Professor Dunlap; Associate Professors L. Bermosk, C. Canfield, Y. Gross, E. R. Smith; Assistant Professors Heglund, H. Kim, Love, Ozaki; Instructors Fancher, Ferdun, Clickman, Hee, Horiuchi, Jung, Laughlin, Lum, Najita, Nouchi, Ortelt, Roberts, Williams, Weiser

(Registration is restricted to students preparing for nursing except by special permission.)
220–230 MATERNAL AND CHILD NURSING (6–8) I, II  Ferdun, Lum, Najita, Ozaki, Roberts
Study and supervised laboratory experience in care of maternity patients, and of children from birth through adolescence. 4 hours lecture and 16 hours laboratory weekly. (Not offered after Spring 1967.)

300 PSYCHIATRIC NURSING (6) I, II  Glickman, 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.

340 PUBLIC HEALTH NURSING (6) I, II  Canfield, Jung, Patton
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.

345 ADVANCED NURSING (6) I, II  Laughlin, Smith
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  Love
Study of the forces which influence the development of nursing as a profession.

383 PUBLIC HEALTH (3) I  Mytingler
Principles of public health and preventive medicine; application in protecting the health of citizens through organized community effort.

394–395 SENIOR HONORS THESIS (2–2) Yr.  Ortelt
Preparation of research paper under individual faculty supervision. Required for graduation with honors. Pre: 350 and 399.

399 DIRECTED READING OR RESEARCH (arr.) I, II  Ortelt
Limited to seniors and juniors in nursing.

610 CURRICULUM DEVELOPMENT (3) I  Dunlap
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.

630 SEINAR (1) ADVANCED PSYCHIATRIC NURSING CONCEPTS (2) I, II  Bermosk
Exploration of the 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 PRACTICUM (1) ADVANCED PSYCHIATRIC NURSING: ADULTS; CHILDREN; COMMUNITY PSYCHIATRY (2) I, II  Bermosk
Supervised experience in intensive therapeutic nurse-patient relationships within the context of community psychiatry with individuals, groups, families. Pre: graduate standing, consent of instructor.

655–656 ADVANCED PSYCHIATRIC CONCEPTS (2–2) Yr.  Cody
Psychoanalytic theories of personality development. Principles of psychopathology; major mental illnesses and methods of treatment. Pre: graduate standing, consent of department chairman.

699 DIRECTED RESEARCH (1–3) I, II  Staff
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 Barnes; Assistant Professors Boys, Frojen, J. Johnson, Instructor Potter

(Registration is restricted to students preparing for technical nursing except by special permission.)

108–109 NURSING (FUNDAMENTALS) (4–6) Yr. Boys, Frojen

Basic health needs of individuals. Nursing care necessary to meet such needs, with guided clinical experience.

112 NURSING (PSYCHIATRIC) (4) (Summer–6 weeks) Boys, Potter

Nursing care for the mentally ill with guided clinical experience. Pre: 109 or equivalent.

115 NURSING (PEDIATRIC) (5) I (9 weeks) Johnson, Potter

Nursing care of sick children from infancy through adolescence. Guided clinical experience. Pre: 112 or equivalent.

116 NURSING (OBSTETRICAL) (5) I (9 weeks) Johnson, Potter

Nursing care of mother during complete maternity cycle and of newborn infant. Guided clinical experience. Pre: 112 or equivalent.

119 NURSING (MEDICAL-SURGICAL) (8) II Frojen, Johnson


120 NURSING (TREND) (2) II Barnes


123 NURSING (ADVANCED MEDICAL-SURGICAL) (4) (Summer–6 weeks) Frojen, Johnson

Student integrates and applies acquired knowledge and skills in planning, organizing, and implementing nursing care for groups of individuals. Pre: 120.

PACIFIC BIOMEDICAL RESEARCH CENTER

The Pacific Biomedical Research Center comprises a number of laboratories and programs for interdisciplinary or special research in the biomedical field. Fiscal administration is through the office of Research Administration.

Instruction is limited to graduate students; no formal courses are offered. See “Faculty & Staff” section on Pacific Biomedical Research Center for personnel listing.
College of Tropical Agriculture

The College of Tropical Agriculture prepares students for professional work in the fields of agriculture and home economics. There are three curricula in agriculture: agricultural technology, agricultural economics, and agricultural science. Agricultural technology has two options—general and tropical crop production. Agricultural science has five options—entomology, animal sciences, plant physiology, 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, institution management, home economics education, foods and nutritional sciences, 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. 20-24). Students who lack some of this required preparation are unable to follow the regular programs and usually need more than four years to complete the degree requirements.

To be eligible for the degree a student must:
1. Complete the course requirements of a curriculum;
2. complete University requirements for the baccalaureate degree (pp. 29-32);
3. have an aggregate of at least 130 semester hours of credit;
4. have a 2.0 grade-point ratio for all registered credits, and in the major field (see "Undergraduate Degree Requirements").
Curricula in Agriculture

The program is designed to give a knowledge of the fundamental principles underlying agriculture as a science, and to prepare for effective service in research, teaching, business, and industry, as well as in practical farming.

Summer practice work in the area of major interest may be required if, in the opinion of the adviser, such experience is necessary for reasonable competence.

Agricultural Technology

I General Agriculture

<table>
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<tr>
<th>First Semester</th>
<th>Credits</th>
<th>Second Semester</th>
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<tr>
<td>Agriculture 100</td>
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<td>Animal Science 141</td>
<td>3</td>
</tr>
<tr>
<td>Botany 101</td>
<td>4</td>
<td>Zoology 101</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 103</td>
<td>4</td>
<td>Chemistry 104</td>
<td>4</td>
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<tr>
<td>English 101</td>
<td>3</td>
<td>English 102</td>
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</tr>
<tr>
<td>Health &amp; Phys. Ed. 101</td>
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<td><strong>Total</strong></td>
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SECOND YEAR

| History 151    | 3       | History 152      | 3       |
| Microbiology 151 | 4       | Geography 151    | 3       |
| Horticulture 162 | 3       | Entomology 161   | 4       |
| Electives      | 7       | Electives        | 6       |
| **Total**      | **17**  | **Total**        | **16**  |

THIRD YEAR

| Genetics 451   | 3       | English 210      | 3       |
| Soil Science 481 | 4       | Entomology 372   | 4       |
| Electives      | 10      | Electives        | 10      |
| **Total**      | **17**  | **Total**        | **17**  |

FOURTH YEAR

In the fourth year the student takes courses necessary to complete the 130 credits required for graduation. His elective courses must include 9 credits in animal sciences, 9 credits in plant science, 6 credits in agricultural engineering, and 6 credits in agricultural economics.
## Tropical Crop Production

### First Year

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### Second Year

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### Third Year

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<tbody>
<tr>
<td>Entomology 161</td>
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<tr>
<td>Ag. Econ. 120</td>
<td>3</td>
<td>Entomology 372</td>
<td>4</td>
</tr>
<tr>
<td>Soil Science 481</td>
<td>4</td>
<td>English 210</td>
<td>3</td>
</tr>
<tr>
<td>English 154</td>
<td>3</td>
<td>History 152</td>
<td>3</td>
</tr>
<tr>
<td>History 151</td>
<td>3</td>
<td>English 155</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Plant Sc Elective</td>
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### Fourth Year

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<tbody>
<tr>
<td>Genetics 451</td>
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<td>AE 435</td>
<td>3</td>
</tr>
<tr>
<td>Ag. Econ 327</td>
<td>3</td>
<td>Soil Science 482</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td>History 171</td>
<td>3</td>
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<td>Plant Sc. Elective</td>
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<td><strong>16</strong></td>
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### Agricultural Economics and Agricultural Business*

#### Common First Year

<table>
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<th>Credits</th>
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<tbody>
<tr>
<td>Agricultural Economics 120</td>
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<td>Economics 150</td>
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<td>English 102</td>
<td>3</td>
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<tr>
<td>English 101</td>
<td>3</td>
<td>Speech 145</td>
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</tr>
<tr>
<td>Botany 101</td>
<td>4</td>
<td>World Civilization</td>
<td>3</td>
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<tr>
<td>World Civilization</td>
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<td>Humanities</td>
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<td>Social Science Elective</td>
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*Minor adjustments may be made with the approval of the adviser.
## COMMON SECOND YEAR

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<tr>
<td>Horticulture 162</td>
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<td>Political Science 110</td>
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<td>Agricultural Economics 327</td>
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## AGRICULTURAL ECONOMICS

### THIRD YEAR

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<tbody>
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<td>Agricultural Economics 434</td>
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<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>English 210</td>
<td>3</td>
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<tr>
<td>Ag Economics Elective</td>
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<tr>
<td>Econ or Business Elective</td>
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<td>Social Science Elective</td>
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### FOURTH YEAR

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## AGRICULTURAL BUSINESS

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<td>Agricultural Economics 428</td>
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<td>Agricultural Economics 434</td>
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<td>Agricultural Economics 321</td>
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<td>English 210</td>
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<td>Management 300</td>
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<td>Marketing &amp; Foreign</td>
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<td>Trade Elect</td>
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<td>Law 300</td>
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<tr>
<td>Econ or Business Elective</td>
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<tr>
<td>Agron or Soil Sci Elective</td>
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<tr>
<td>Social Science Elective</td>
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<td>Humanities</td>
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<table>
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Electives are chosen with approval of the adviser. They must include 9 credits in business or economics in addition to those specified, 9 in social science other than economics, 3 in agricultural economics for option in agricultural business, and 6 for option in agricultural economics.

### Agricultural Science

#### FIRST 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>Botany 101</td>
<td>4</td>
<td>Zoology 101</td>
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<td>Chemistry 103</td>
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<td>English 101</td>
<td>3</td>
<td>English 102</td>
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<tr>
<td>Health &amp; Phys. Ed. 101</td>
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<td>Health &amp; Phys. Ed. 102</td>
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<tr>
<td>Speech 145</td>
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<td>Elective</td>
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#### SECOND YEAR

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<td>Chemistry 144</td>
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<tr>
<td>Mathematics 102</td>
<td>3</td>
<td>Physics 161</td>
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<td>Physics 160</td>
<td>4</td>
<td>English 155</td>
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<td>Elective</td>
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<td>Mathematics 103</td>
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<td></td>
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<td>Elective</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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<th></th>
<th>Credits</th>
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<tbody>
<tr>
<td>Genetics 451</td>
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<td></td>
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<td>Soil Sciences 481</td>
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<tr>
<td>Electives</td>
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<td><strong>Total</strong></td>
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#### FOURTH YEAR

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<tbody>
<tr>
<td>History 181 or 182</td>
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<td>English 210</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>11 or 12</td>
<td>Electives</td>
<td>14 or 15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14 or 15</td>
<td><strong>Total</strong></td>
<td>17 or 18</td>
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The following list indicates the fields in which students electing the agricultural science curriculum may specialize. Required courses are listed, as well as additional courses from which electives may be chosen with approval of the adviser.

**Animal Sciences. Requirements:** Animal Sciences 141, 145, 341 and 9 credits from Animal Sciences 242, 243, 244, 245, 246; Microbiology 151; Zoology 206; 16 credits from the following: Agricultural Biochemistry 402; Agricultural Economics 327; Agricultural Engineering 131, 132;
Agronomy 502, 503; Animal Sciences 442, 443, 445, 446; Chemistry 331; Economics 150; Entomology 161, 372; Horticulture 101; Zoology 301, 345, 410, 416, 425, 431, 432.

ENTOMOLOGY. Requirements: Microbiology 151; Entomology 161, 361, 362, 372; also one year of a foreign language: German, French, Spanish, Japanese or Russian; and 15 credits from the following: Agricultural Engineering 131, 132; Botany 105, 360, 470, 353; Chemistry 331; Geography 420, Geology 200; Horticulture 362, 392, 453, 463; Philosophy 200; Plant Pathology 310; Soil Science 482, 483; Zoology 401, 410, 416, 425, 431, 345.

PLANT PHYSIOLOGY. Requirements: Botany 410, 360, 470; Chemistry 331; Mathematics 135, 136 and 24 credits as follows: 6 from Botany 201, 412, 418, 353, 430, 454, 670, 671, 672, 673; Plant Pathology 310; 6 from Anthropology 150, Economics 150, Philosophy 100; 12 from French, German or Russian.

SOIL SCIENCE. Requirements: Chemistry 331; Soil Science 399, 482, 483; and 18 credits from the following: Agronomy 502; Agricultural Engineering 435; Botany 160, 201, 353, 470, 670-671, 672, 673; Chemistry 432, 421, 551-552; Geography 101, 420, 430; Geology 150, 151, 410; Horticulture 162, 362, 392, 463; Mathematics 135, 136; Microbiology 151; Philosophy 200; Soil Science 484; Zoology 431.

TROPICAL HORTICULTURE. Requirements: Horticulture 162, and 25 credits from the following: Agricultural Biochemistry 402; Agricultural Engineering 131, 132, 435; Botany 160, 410, 412, 418, 430, 460, 461, 470, 553, 570, 571; Chemistry 331; Entomology 161, 372; Genetics 451; German 101-102; Horticulture 361, 362, 369, 392, 453, 464, 471, 494, 566; Mathematics 135, 136, 231; Microbiology 151; Plant Pathology 310; Soil Science 482, 483; Zoology 431.

Curricula in Home Economics

The home economics program is designed to provide, through the facilities of the department and the University, a liberal education integrating the social and natural sciences, the humanities and the arts, and to provide specialized instruction based upon these disciplines as preparation for professional careers in which the interest and well-being of the individual, 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. 20-24). To be entitled to a bachelor's degree in home economics, a student must:

1. Complete the general education requirements prescribed by the University (pp. 29-32).
2. Complete, in addition to the general education requirements, 60 hours or more of other 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 & 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 Sequence


**Home Economics Education.** HE 103, 112, 114, 120, 222, 240, 250, 251, 252, 262, 270, 356, 358, 470. Chem 103, 104; Econ 150; Micro 151; Psy 100, 350; Zool 115, 116; and in addition the professional sequence in Education and 3 units from courses within the department of health and physical education.
**Food & Nutritional Sciences.** HE 120, 223, 240, 443, 447. Biochem 271; Chem 103, 106, 141, 143, 144, 331, 332; Math 103; Micro 151; Zool 115, 116.

**Institution Administration.** HE 120, 222, 223, 234, 238, 239, 240, 336, 340, 443, 445, 447. Biochem 271; Bus 100, 101, 350; Chem 103, 106, 141; Micro 151; Psy 100, 350, 372; Zool 115, 116; Econ 150.


**General Home Economics.** Students may satisfy degree requirements with a general home economics major by following the sequence under Home Economics Education, and omitting the professional education and additional HPE courses.

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**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 Waimanalo; 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.

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**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.

**AGRICULTURE COURSES**

See p. 45 for a discussion of course descriptions.

**Agriculture (AG)**

Associate Professors Chun, S. Goto

100 ORIENTATION COURSE (1) I
Lectures to acquaint the student with agriculture in Hawaii and help select major.

399 AGRICULTURAL THESIS (arr.) I, II
Advanced individual work in field, laboratory, library. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in agriculture.

401 INTRODUCTION TO COOPERATIVE EXTENSION WORK (3) II
Chun
Objectives and organization. Methods, selection, and training of voluntary leaders; basic principles in program development and appraisal.

**Agricultural Biochemistry (AB)**

Assistant Professors Hylin, Young

402 PRINCIPLES OF METABOLISM (3) I
Hylin
Study of fundamental metabolic processes common to plants and animals. Pre: Chem 105-106 and 141, or consent of instructor. Approved for graduate credit.

**Agricultural Economics (AEc)**

Professors Davidson, Peters, Philipp, Scott; Associate Professors Barmettler, Ishida, Spielmann; Assistant Professors Boyer, Keeler, Larson; Lecturers Baker, Gertel, 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 Lb) Spielmann
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 Barmettler
History; appraisal of methods and operations; problems of management, membership relations, accounting. Pre: 322 or consent of instructor. (Alt. yrs.; not offered 1966-67.)

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.; not offered 1966-67.)

425 MARKETING OF LIVESTOCK, POULTRY AND DAIRY PRODUCTS (3) II Barmettler
Marketing systems and market analysis for livestock, poultry and dairy products. Pre: 322 or consent of instructor. (Alt. yrs.; offered 1966-67.)

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.; not offered 1966-67.)

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.; not offered 1966-67.)

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.; not offered 1966-67.)

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.; not offered 1966-67.)
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.; offered 1966-67.)

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.; not offered 1966-67.)

624 MARKETING RESEARCH (3) II  
Scott  
Research methodology, analysis of data, presentation of findings. Original research project. Pre: 321, 322, or consent of instructor. (Alt. yrs.; offered 1966-67.)

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  
Wieland  
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.; not offered 1966-67.)

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.; offered 1966-67.)

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.

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.; offered 1966-67.)

637 ECONOMICS OF AGRICULTURAL RESOURCE DEVELOPMENT (3) II  
Gerte  
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.; not offered 1966-67.)


General Home Economics. Students may satisfy degree requirements with a general home economics major by following the sequence under Home Economics Education, and omitting the professional education and additional HPE courses.

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 Waimanalo; 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.

**AGRICULTURE COURSES**

*See p. 45 for a discussion of course descriptions.*

**Agriculture (AG)**

Associate Professors Chun, S. Goto

100 ORIENTATION COURSE (1) I Goto

Lectures to acquaint the student with agriculture in Hawaii and help select major.

399 AGRICULTURAL THESIS (arr.) I, II 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 (AB)**

Assistant Professors Hylin, Young

402 PRINCIPLES OF METABOLISM (3) I Hylin

Study of fundamental metabolic processes common to plants and animals. Pre: Chem 105-106 and 141, or consent of instructor. Approved for graduate credit.

**Agricultural Economics (AEc)**

Professors Davidson, Peters, Philipp, Scott; Associate Professors Barmettler, Ishida, Spielmann; Assistant Professors Boyer, Keeler, Larson; Lecturers Baker, Gertel, 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 Lb) Spielmann
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 Barmettler
History; appraisal of methods and operations; problems of management, membership relations, accounting. Pre: 322 or consent of instructor. (Alt. yrs.; not offered 1966-67.)

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.; not offered 1966-67.)

425 MARKETING OF LIVESTOCK, POULTRY AND DAIRY PRODUCTS (3) II Barmettler
Marketing systems and market analysis for livestock, poultry and dairy products. Pre: 322 or consent of instructor. (Alt. yrs.; offered 1966-67.)

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.; not offered 1966-67.)

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.; not offered 1966-67.)

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.; not offered 1966-67.)

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.; not offered 1966-67.)
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.; offered 1966-67.)

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.; not offered 1966-67.)

624 MARKETING RESEARCH (3) II Scott
Research methodology, analysis of data, presentation of findings. Original research project. Pre: 321, 322, or consent of instructor. (Alt. yrs.; offered 1966-67.)

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.; not offered 1966-67.)

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.; offered 1966-67.)

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.

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.; offered 1966-67.)

637 ECONOMICS OF AGRICULTURAL RESOURCE DEVELOPMENT (3) II Gartel
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.; not offered 1966-67.)
Seminar: Land Use in Developing Countries (3) I
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.; offered 1966-67.)

Financing Agriculture in Developing Countries (3) I
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.; offered 1966-67.)

Directed Research (arr.) I, II
Pre: consent of instructor.

Agricultural Engineering (AE)

Professor Kinch; Associate Professor Wang; Assistant Professors Gitlin, LeBay, Wu

Introduction to Mechanized Agriculture (3) I (3 L)
Basic engineering calculations and their application to modern agriculture. Field and farmstead equipment. Introduction to physical methods of products processing. Pre: Phys 161; Math 103.

Farm Irrigation and Structures (3) II (3 L)

Agricultural Mechanics Laboratory (1) II (1 Lb)
Electrical wiring and electric motors. Engine and pump efficiency tests. Heating, cooling, refrigeration. Open and closed channel flow measurement. Surveying. Pre: credit in or concurrent registration in 132.

Methods of Post Harvest Handling of Agricultural Products (3) I (2L, 1 Lb)
Theory and techniques of precooling, cold storage, drying, bulk handling, and physical damage to agricultural products. Pre: 132, 232.

Farm Irrigation (3) II (2 L, Lb)
Irrigation methods. Farm water conveyance, distribution, and measurement.

Analysis of Implement Design (3) I (2 L, 1 Lb)
Application of machine design principles and the basic soil, crop requirements in solving typical equipment design problems. Pre: ME 374 or equivalent.

Farm Irrigation (3) II (2 L, 1 Lb)
Design based on water requirements; design of water conveyance and diversion structures and of application methods. Irrigation economics. Pre: CE 321 or equivalent.

Methods of Agricultural Engineering (3) I (3 L)
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)  
Advanced topics in heat transfer; forced convection, condensing vapor, boiling liquid; physical properties of agricultural products; design of precooling systems. Pre: ME 475, Math 402.

699 DIRECTED RESEARCH (arr.) I, II  
Staff

700 SEMINAR (1) I  
Kinch
Review of recent literature. Can be repeated once for credits. Pre: consent of instructor.

Agronomy and Soil Science

Senior Professor G. D. SHERMAN; Professors Fox, SWINDALE, YOUNGE; Associate Professors KANEHIRO, TAKAHASHI, UEHARA; Assistant Professor ROTAR

Agronomy (Agron)

501 TROPICAL CROP PRODUCTION (3) I  
Takahashi
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 Lab)  
Staff
Field crop production, ecology, geography. Pre: Bot 101; Chem 104 or equivalent.

503 RANGE MANAGEMENT (3) II  
Rotar
Origin, establishment, inventory, utilization, and management of pasture and range forage. Emphasis on applications in the tropics. Pre: Bot 101. (Alt. yrs.; not offered 1966-67.)

510 SUGAR CANE AGRONOMY (3) II  
Fox
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  
Ekorn
Historical development of pineapple culture in the world. Morphological and physiological peculiarities of the pineapple plant. Agronomic practices used in pineapple culture in Hawaii.

699 DIRECTED RESEARCH (arr.) I, II  
Rotar
Pre: candidacy for the M.S. degree.

Soil Science (Soils)

399 AGRICULTURAL THESIS (arr.) I, II  
Uehara

481 SOILS (4) I (3 L, 1 Lab)  
Ikawa
Origin, development, properties, and management of tropical soils; classification of Hawaiian soils. Pre: Chem 104.

482 SOIL FERTILITY (3) II  
Green
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 Lab)  
Kanehiro
Study of soil reaction, availability of plant nutrients, and chemical analyses of soils. Pre: 481.
484  **SOIL PHYSICS (3)** II (2 L, 1 Lb)  Uehara
   Physical properties of soils; structure and moisture relationships. Pre: Phys 161 or 181; 481.

486  **SOIL EROSION: CAUSES AND CONTROLS (3)** I  Ekern
   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.

685  **SOIL FORMATION (3)** I  Swindale
   Soil-weathering and soil-forming processes on the basis of modern pedologic principles. Pre: consent of instructor.

686  **SOIL CLASSIFICATION (3)** I  Swindale
   Comprehensive study of the genesis of soils and the various systems of classification, with special reference to tropical soil. Lectures and field work.

687  **SOIL SCIENCE SEMINAR (1)** I, II  Ekern
   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 Lb)  Uehara
   Identification of soil secondary minerals with special emphasis on clay. Pre: Geology 410 or consent of instructor.

689  **ADVANCED SOIL FERTILITY (4)** I (2 L, 2 Lb)  Fox
   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  Kanehiro
   Critical study of methods of soil analysis and the chemical properties of soils. Pre: consent of instructor.

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

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

**Animal Sciences (An Sc)**

Professors Otagaki, Ross, Wayman; Associate Professors Cobb, Hugh; Assistant Professors Herrick, Iwanaga, Stanley; Lecturer Lynd

141  **INTRODUCTION TO LIVESTOCK PRODUCTION (3)** II (2 L, 1 Lb)  Herrick, Iwanaga
   Study of the important domestic animals, including poultry, species origin, distribution, and economic importance with an introduction to breeding, feeding, and management for each species.

145  **FEEDS AND FEEDING (3)** I (2 L, 1 Lb)  Staff
   Basic principles of feeding farm animals; composition, and nutritional value of feeds; nutritional requirements of beef cattle, dairy cattle, horses, poultry, sheep, swine; balancing rations for specific productive purposes. Pre: Chem 104.

242  **BEEF PRODUCTION (3)** II  Wayman
   Economical production of beef cattle; organization of enterprise, breeds, selection of breeding stock, handling and feeding of animals of different ages on the range and in the feedlot. Pre: 141. (Alt. yrs.; offered 1966-67.)
243 DAIRY PRODUCTION (3) II
Principles involved in the economical production of milk; breeds of dairy cattle, selection, raising young animals; breeding, care, housing and management of the milking herd; factors affecting the quantity and quality of milk produced. Pre: 141. (Alt. yrs.; not offered 1966-67.)

244 SWINE PRODUCTION (3) I
Principles of efficient pork production including breeds, breeding, feeding, management, marketing. Pre: 141. (Alt. yrs.; offered 1966-67.)

245 POULTRY PRODUCTION (2) II
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. (Alt. yrs.; not offered 1966-67.)

246 HORSE HUSBANDRY (3) SS (4 L, 1 Lb)
Origin of the species, breeds, nutrition, care and management. Laboratory will be on management practices with work on light horses.

241 LIVESTOCK MANAGEMENT (4) SS (5 L, 5 Lb for 9 weeks)
Assigned problems and practical experience in management of livestock; evaluating, feeding and housing beef cattle, dairy cattle, poultry, swine. Required of animal science majors during summer between junior and senior years.

442-443 PHYSIOLOGY OF DOMESTIC ANIMALS (4-4) Yr. (3 L, 1 Lb)
Organ systems of the body, their anatomical arrangement, structure and function. Emphasis on most important species. (Alt. yrs.; not offered 1966-67.)

444 ANIMAL NUTRITION (4) II (2 L, 2 Lb)
Digestion and metabolism of carbohydrates, proteins, fats, minerals, vitamins, antibiotics, and hormones; nutrient needs for body processes and productive functions. Pre: 145, AB 402. (Alt. yrs.; offered 1966-67.)

445 ANIMAL BREEDING (3) I
Application of genetic principles to improvement of livestock, including poultry. Pre: Genet 451 or consent of instructor. (Alt. yrs.; not offered 1966-67.)

446 ANIMAL DISEASES AND THEIR CONTROL (3) I (2 L, 1 Lb)
Disease problems of livestock and poultry; prevention, control, eradication. Pre: 141, and consent of instructor.

641 SEMINAR IN ANIMAL SCIENCE (1) I, II
Topics of current interest and current research related to nutrition, genetics, physiology. Pre: consent of instructor.

642 RUMINANT NUTRITION (2) II
Physiology and nutrition of the ruminant including microbiology of the rumen, carbohydrate utilization and production of volatile fatty acids, protein metabolism, absorption of nutrients, metabolic processes, normal and abnormal functions within the rumen. Pre: 442-443, 444; AB 402. (Alt. yrs.; offered 1966-67.)

643 PHYSIOLOGY OF REPRODUCTION (3) I
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.; offered 1966-67.)

645 QUANTITATIVE GENETICS (3) II (2 L, 1 Lb)
Concepts relating to genetic properties of populations and to the inheritance of quantitative traits. Pre: Genet 451. (Alt. yrs.; offered 1966-67.)
699 DIRECTED RESEARCH (arr.) I, II, SS
   (1) Genetics—Cobb; (2) Nutrition—Otagaki, 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

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) Mitchell
   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. (Not offered 1966-67.)

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
   Insects as living units in an environment of physical and biotic factors. Pre: 362, 372; desirable Zool 431. (Alt. yrs.; not offered 1966-67.)

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. (Not offered 1966-67.)

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 Professor Frank; Assistant Professor Moy, Yamamoto

301  FOOD TECHNOLOGY (2) I
Introduction to the field of food technology and survey of commercial food processing. Special tropical and Asian food products. Lectures and field trips to local processors. (Alt. yrs.; not offered 1966-67.)

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 (2) II (1 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.; offered 1966-67.)

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.; not offered 1966-67.)

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.; offered 1966-67.)

620  SEMINAR IN FOOD SCIENCE (1) I  Staff
Special topics, reports, and informal discussion of graduate student research. Pre: consent of instructor.

630  BIOCHEMICAL AND CHEMICAL 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 D. DIRECTED RESEARCH (arr.) I, II
   Pre: consent of department chairman.

701 SEMINAR IN RECENT ADVANCES IN FOOD RESEARCH (1) II
   Reports and discussions from current literature in food science and technology.

Home Economics (HE)

Professor Kraemer; Associate Professors Allen, Brown, Lichton, Tull, Umbel; Assistant Professors Cooksey, Eder, Furier, Herrick, Hilker, Mackay, Standal, Weddle; Assistant Researcher Wenkam; Lecturers Butzine, Ching, Des Jarlais, Fargo, Garis

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) Butzine
   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 the individual and his family through various stages of the life cycle. Pre: Psy 104 and Soc 151 or 201.

330 HUMAN NEEDS AND COMMUNITY RESOURCES (2) I, II Staff
   Cross cultural and historical study of organization and implementation of community-wide programs for meeting family needs. Role of the individual and family in coordination of home and community resources.

350 CULTURAL ASPECTS OF CHILD REARING (3) (3L) II Staff
   Cultural context of socialization: class and ethnic differentials. Cultural influences on the 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 Butzine
   Interpretation of behavior and development during the preschool years through directed observation in the laboratory and selected readings. Pre: Psy 250 and consent of instructor.

422 WORK WITH PARENTS (3) II (2 L, 1 Lb) Fargo
   Study of parental behavior as a 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) Yr. Staff
   Application of theory of early childhood education to experience in the preschool. Students will arrange morning hours on 2 days each week for participation in the preschool. Pre: 361 and consent of instructor.
650 SEMINAR IN HUMAN DEVELOPMENT, FAMILY RELATIONSHIPS (3) I, II
Kraemer
Review and analysis of the literature related to human development and interpersonal relationships within the family. Projects carried out according to interests of the group. Pre: senior or graduate standing and consent of instructor.

FASHION DESIGN, TEXTILES, & MERCHANDISING

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 (2 L, 2 Lb)
Des Jarlais
Speed methods of construction using commercial patterns. Emphasis on fitting.

114 TEXTILES (2) I, II
Herrick
Fibers, yarns, fabric construction, and finishes related to selection, use, and care of textiles.

115 BLOCK PATTERN DESIGNING (2) I, II
Umbel
Principles of pattern making for women's and children's apparel through manipulation of quarter size master pattern blocks. Pre or concurrent: 112.

117 COSTUMES OF THE WESTERN WORLD (3) I
Furer
Chronological study of costume as related to culture and customs from ancient through modern times.

214 DRAPING (3) I (1 L, 2 Lb)
Umbel
Principles of pattern making through draping muslin models to standard measurements. Pre: 115, 218.

215 ADVANCED BLOCK PATTERN DESIGNING (3) II (1 L, 2 Lb)
Furer
Patterns for women and children made from sketches representing a variety of commercial requirements; grading; muslin models made to standard measurements. Pre: 214.

216 CREATIVE CLOTHING CONSTRUCTION (1 or 3) I, II (1 L, 2 Lb)
Umbel
Clothing construction as a form of creative expression. Construction techniques that contribute to individuality in dress. Pre: 112 (Lecture-demonstration-1 credit; plus two laboratories—3 credits).

218 FASHION DESIGN AND SKETCHING (3) II (2 L, 1 Lb)
Furer
Development of apparel design through sketching the fashion figure. Sources of design inspiration. Pre: 110, 115, 117.

319 APPAREL DESIGN STUDIO (3) I (2 Lb)
Furer
Preparation of individual design collection of children and junior wear. Noted local designers serve as critic-teachers. Pre: senior standing clothing design majors.

320 APPAREL DESIGN STUDIO (3) II (2 Lb)
Furer

322 ADVANCED FASHION DESIGN AND SKETCHING (2) II
Furer
Development of original designs for wearing apparel presented in portfolio form. Concurrent with 320.

324 FASHION ANALYSIS (3) I
Staff
Dynamics of fashion and analysis of trends. History, structure and terminology of the fashion industry. Fashion merchandise resources—mainland, Hawaiian, and import markets.
326 FASHION MERCHANDISING (3) II  
Major considerations involved in buying and selling of fashion merchandise. Organization and types of outlets, sources of buying information, resident and central buying offices, value determinants in selection of merchandise. Pre: 324.

418 COSTUMES OF ASIA (3) II  
Development and characteristics of costumes and fabrics of China, Japan, Korea, Philippines, India, Southeast Asia; relation to customs and culture.

FOOD AND NUTRITIONAL SCIENCES

120 FOOD PREPARATION (3) I, II (2 L, 2 Lb)  
Scientific principles underlying the preparation of foods to yield products of standard quality.

126 INTRODUCTION TO NUTRITION (2) II (2 L)  
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)  
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)  
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)  

441 CULTURAL ASPECTS OF FOOD (3) II (3 L)  
International and regional influences on meal patterns. Cultural and esthetic values of food.

443 ADVANCED NUTRITION (3) II (3 L)  
Metabolism of food nutrients. Methods and instruments for obtaining nutritional data and interpretation of findings. Pre: 240 and Bioch 271.

445 DIET AND DISEASE (3) II (3 L)  

447 SEMINAR IN NUTRITION (2) I, II  
Scientific literature in foods and nutrition. Discussion of selected materials from the literature. Pre: 443 or consent of instructor. Senior standing.

GRADUATE COURSES IN NUTRITION (Nutr)

601–602 HUMAN NUTRITION (3–3) I, II (2 L)  
Biochemistry and physiology of nutrition; fundamental concepts of human nutrition. Pre: consent of instructor.

603–604 HUMAN NUTRITION LABORATORY (1–1) I, II (2 Lb)  
Survey of methodology; analysis of foods and biological materials. Concurrent with 601-602. Pre: consent of instructor.

621 TOPICS IN NUTRITION (2) I, II  
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) Lichten
Survey of disease mechanisms in undernutrition, overnutrition, malabsorption and fluid imbalances; selected examples of disorders, or inborn errors of metabolism. Pre: 601-602 or consent of instructor. (Alt. yrs.; offered 1966-67.)

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 Staff
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 Tull
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 Tull
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) Eder
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) Garis
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) Everson
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 Eder
Role of the family as a consumer unit in the economy. Pre: Econ 150.

358 HOME MANAGEMENT LABORATORY (3) I, II Eder
Option I—Unmarried students

Option II—Married students
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 Staff
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.
INSTITUTION ADMINISTRATION

234 INSTITUTION FOOD PRODUCTION (3) I (2 L, 1 Lb)  
Food preparation and service in quantity; menu planning; cost, use and care of equipment. Pre: 120, 222 for HE majors; 120 for TIM majors.

235 ADVANCED INSTITUTION FOOD PRODUCTION AND PURCHASING (3) II (2 L, 1 Lb)  
Food preparation and service in various types of establishments, banquet and catering service, food and equipment selection and procurement. TIM majors only. Pre: 120, 234.

238-239 INSTITUTION PURCHASING (3-3) Yr.  
Food and equipment specifications and requirements for various types of institutions. Pre: 120, credit or concurrent registration in 234.

236 INSTITUTION ADMINISTRATION (3) II  
Organization and management of food service in various types of institutions. Pre: 234, 238, 239.

340 HOSPITAL DIETARY MANAGEMENT (4) I, II  

DIRECTED READING OR RESEARCH

399 DIRECTED READING OR RESEARCH (arr.) I, II  
(1) Child development, (2) family relationships, (3) clothing and textiles, (4) home management, equipment and family economics, (5) foods and nutrition, (6) institution administration. Limited to senior students with 3.0 grade-point average.

Horticulture (Hort)

Professors Brewbaker, Hamilton, Kamemoto, Sacawa, Warner, Watson; Associate Professors Gilbert, Nakasone; Assistant Professors Akamine, Hartmann, Romanowski, Yee

101 GENERAL HORTICULTURE (2) I  
Horticulture and horticultural research intended for students who want a general knowledge but who do not plan to specialize in these fields.

162 PRINCIPLES OF HORTICULTURE (3) I (2 L, 1 Lb)  
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)  

362 PRINCIPLES OF TROPICAL POMOLOGY (3) II (2 L, 1 Lb)  
Botany, distribution, and basic requirements of tropical fruit crops. Pre: 162; Bot 101.

369 ORNAMENTAL PLANT MATERIALS (3) II  
Lawns, ground covers, vines, shrubs, herbaceous plants, and trees in Hawaii. Pre: 162; Bot 360; or consent of instructor.
<table>
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<td>494</td>
<td>SYSTEMATIC VEGETABLE CROPS (3) II (2 L, 1 Lb)</td>
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<td>603</td>
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<td>Sagawa</td>
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<td>667</td>
<td>HORTICULTURE SEMINAR (1) I, II</td>
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<td>Presentation of reports upon research or reviews of current literature in horticulture.</td>
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<td>668</td>
<td>GROWTH REGULATORS IN HORTICULTURE (3) II</td>
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<td>691</td>
<td>CROP ECOLOGY (3) I (2 L, 1 Lb)</td>
<td>Warner</td>
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<td>699</td>
<td>DIRECTED RESEARCH (arr.) I, II</td>
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</table>
711 SPECIAL TOPICS IN EXPERIMENTAL HORTICULTURE (arr.) Staff
Lecture series on recent advances in horticultural research with detailed study of specific areas of this field. Intended for plant science graduates. Pre: consent of staff.

**Plant Pathology (P Path)**

**Professor Buddenhagen; Associate Professors Hine, Ishii; Assistant Professors Aragaki, Holtzmann, Trujillo**

**310 PRINCIPLES OF PLANT PATHOLOGY (4) I (2 L, 2 Lb)** Holtzmann
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)** Aragaki
Methodology and application of plant disease control. Pre: 310. (Alt. yrs.; not offered 1966-67.)

**615 PLANT NEMATOLOGY (3) II (2 L, 1 Lb)** Holtzmann
Collection, classification, morphology, biology, and control of nematodes which attack economic crops. Pre: 310; Zool 101, or consent of instructor. (Alt. yrs.; offered 1966-67.)

**620 PLANT PATHOLOGY TECHNIQUES (3) I (2 L, 1 Lb)** Ishii
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. (Alt. yrs.; offered 1966-67.)

**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.; offered 1966-67.)

**660 SEMINAR (1) I, II** Staff
Seminars in contemporary research. Reviews and reports.

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

**Plant Physiology**

Professor Cool; Associate Professors Lockhart, Putman

For course descriptions, see the following listings under the department of botany.

**BOTANY 470 PRINCIPLES OF PLANT PHYSIOLOGY (4) II (3 L, 1 Lb)**
**BOTANY 670-671 ADVANCED PHYSIOLOGY (3-3) Yr.**
**BOTANY 672 TECHNIQUES IN PHYSIOLOGY (2) I (2 Lb)**
**BOTANY 673 TECHNIQUES IN PHYSIOLOGY-BIOCHEMISTRY (2) II (2 Lb)**
**BOTANY 619 ADVANCED BOTANICAL PROBLEMS (arr.) I, II**
**BOTANY 679 PHYSIOLOGY SEMINAR (1) I, II**
**BOTANY 699 DIRECTED RESEARCH (arr.) I, II**
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, biochemistry and biophysics, botany, chemistry, educational psychology, entomology, genetics, geological sciences, history, horticulture, linguistics, meteorology, microbiology, philosophy (Western, Asian, and comparative), physics, pharmacology, physiology, political science, psychology, soil science, and zoology;

2) The master's degree in agricultural economics, agricultural engineering, agronomy, American studies, animal sciences, anthropology, art, Asian studies, biochemistry and biophysics, botany, business administration, chemistry, Chinese, civil engineering, drama and theatre, economics, education, electrical engineering, English, entomology, food science, French, genetics, geography, geological sciences, German, history, horticulture, Japanese, library studies,* linguistics, mathematics, meteorology, microbiology, music, nursing, nutrition, oceanography, Pacific islands studies,

*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.

For information concerning admission procedures and requirements see the Graduate Bulletin, available upon request from the office of the Graduate Division.

The School of Social Work, which offers instruction leading to the degree of master of social work, is placed within the Graduate Division.
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;

3) the professional certificate for teachers in the employ of the state Department of Education (see p. 160).

**Social Work (SW)**

Professors Handley, Jambor; Associate Professors Merritt, Walsh; Assistant Professors Hartman, Ishimoto, Kumabe, Reid, Takase, Tyson; Lecturers Schnack, Takasaki

300 THE FIELD OF SOCIAL WORK (3) I

Ishimoto

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

Ishimoto

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.

605 SOCIAL CASEWORK (2) I

Hartman, Kumabe

Introduction to the basic principles and processes of social casework.

606 SOCIAL CASEWORK (2) II

Hartman, Kumabe


608 SOCIAL GROUP WORK (2) I

Merritt

Introduction to the basic principles and processes of group work.

609 SOCIAL GROUP WORK (2) II

Merritt

Continuation of 608. Emphasis upon understanding the individual in groups, and skill in use of the helping process. Concurrent with 660-661. Pre: 608.

610–611 HUMAN GROWTH AND BEHAVIOR (3–3) Yr.

Walsh

Designed to provide a synthesized understanding of physical, mental, and emotional growth, with due regard to social and cultural influences on individual development.

612 GROUP WORK PROGRAM ACTIVITIES (1–1) Yr.

Ishimoto

The program as a tool in meeting individual and group needs. To be taken concurrently with 660-661.

615 COMMUNITY ORGANIZATION (2) II

Jambor

Methods and processes of community organization in social work.

626 TREATMENT OF JUVENILE DELINQUENCY (2) II

Social work practice in relation to problems of juvenile delinquency.

627 SOCIAL SERVICES (2) I

Jambor

Income maintenance programs in public and private social welfare fields.

628 SOCIAL SERVICES (2) II

Handley

Social services (other than income maintenance) with emphasis on selected programs such as those in children's field, health field, corrections, etc.
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  Jambor
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  Merritt
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.  Handley, Staff
Principles of objective fact-finding, primary and secondary sources of social data; preparation of a report or thesis.
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, Bonn, Schofield, Shaw, R. Stevens; Associate Professors Andrews, Sharp; Assistant Professors Dumont, Harris, McNeil; Instructor Taylor; Lecturers McAlister, H. Stevens

**601 BIBLIOGRAPHY AND REFERENCE SOURCES (3)**

Analysis of means by which availability and content of graphic materials are recorded; characteristics and problems of national and subject bibliography, and 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)**

Continued discussion of the various types of general reference tools. Introduction to the subject approach in reference work through three major areas: the sciences, the social sciences, and the humanities. Each area analyzed in terms both of the characteristics of the literature and of the typical problems and methods of reference work; major works in each area are studied as examples. Pre: 601.

**605 BASIC CATALOGING AND CLASSIFICATION (3)**

Designed as an introduction to cataloging in the research or large general library and as a terminal course in cataloging for the school or small popular library. Covers principles and practice of descriptive cataloging, structure and application of the Dewey Decimal Classification and Sears' List of Subject Headings, and the use of printed cards.

**606 ADVANCED CATALOGING AND CLASSIFICATION (3)**

Continues 605, using especially the 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 the handling of certain forms of materials, and provides opportunity for study of cataloging in collections specialized by subject. Pre: 605.

**610 SOCIAL FUNCTIONS OF LIBRARIES (3)**

Introduction to librarianship. Four aspects of the course 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)**

Criteria for evaluating and selecting library materials, devising and maintaining an acquisition program, and the structure of the book trade. Findings of studies of library use drawn upon where applicable. Pre: 601

**618 GOVERNMENT DOCUMENTS (3)**

Sources, types, and uses of government documents, both state and federal, and their acquisition and organization for use.

**642 AUDIO-VISUAL SERVICES IN LIBRARIES (3)**

Films, filmstrips, recordings, and related media as they apply to various types of educational programs in libraries. Sources, evaluations, organization, and use of audio-visual materials. Materials are viewed and audited and judged.
647 MANAGEMENT OF LIBRARY OPERATIONS (3) Andrews
Study of philosophies and techniques of scientific management and their application to library operations such as circulation, acquisition, cataloging routines. Provides foundation in the 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) Bonn
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 and university libraries and in company libraries.

664 ABSTRACTING AND INDEXING FOR INFORMATION SERVICES (3)
Principles, practices, and development of abstracting and indexing services. Integrating these into the complex of special library operations, with emphasis upon current awareness and the retrospective searching needs of clientele. Analyzes various types of abstracts, their organization and uses, and develops skill in preparation of abstracts and indexes.

670 LITERATURE SEARCHING AND DOCUMENTATION (3) Sharp, 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.

677 EVALUATION AND USE OF POPULAR LITERATURE (3)
Identification and evaluation of literature in the various areas of adult reading. Attention to such topics as why adults read and readability. Practice in writing annotations and preparations of reading lists. Analysis of specific reader services such as reader interest arrangement and book talks.

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 a 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) 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.
SCHOOL OF LIBRARY STUDIES

682 READING MATERIALS FOR YOUTH (3)  Schofield
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)  Schofield
Organization and provision of services from preschool through young adult years, considering both school and public libraries. Special attention to preparation of lessons in use of books and libraries.

685 TRADITIONAL LITERATURE AND ORAL NARRATION (3)
To provide background in traditional literature adapted for use with children and to develop skill in the use of such materials in storytelling. Wide reading and annotation of examples in all areas, with concentration by the student in a selected area, and experience in oral narration.

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)
Governmental and fiscal policies and programs, personnel administration, policy making, buildings and equipment for libraries in Asian countries.

705 ASIAN REFERENCE SOURCES (3)
Bibliographical and reference tools and services in Asian countries with special attention to source materials in other than Western languages.

710 ASIAN CHILDREN'S LITERATURE (3)
Children's classics, sources of reading materials for children, and children's library services in Oriental countries.

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 is a magnificent view 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 and put under the dean of faculties, the institution acquired the present campus through appropriations by the Legislature 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.

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 32,000 volumes, and currently receives about 450 periodi-
cals, 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.


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.

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 1966-67

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 “lab” 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 Fotos (Chairman); Associate Professor Allen; Assistant Professors H. Droste (on leave 1966-67), Hurley, Moon, Thomas; Instructors Black, Cremer, Y. Droste (on leave 1966-67), Hicks, Mathey, Lavy, Yonan; 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 103–104 ART FUNDAMENTALS (2–2) Yr.
Background material and studio practice to stimulate understanding of the arts. Lectures, museum visits, studio work.

Art 111–112 DRAWING (2–2) Yr.
Basic principles of drawing in a variety of media. This course or its equivalent prerequisite to all advanced studio courses.

Art 131–132 VISUAL DESIGN (2–2) Yr.
Elements and principles of visual organization. This course or its equivalent prerequisite to all advanced studio courses.

Art 331 THREE-DIMENSIONAL DESIGN (2)
Pre: 112, 132.

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 principal expository procedures, including assertion, exemplification, definition, classification. 102: study and practice of argument and persuasion; assembling and organizing research materials; analysis and evaluation of one or two works of imaginative literature; introduction to study of prose style. English 101-102 or 105 prerequisite to all sophomore 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 155 TYPES OF LITERATURE (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.

Eng 231 INTRODUCTION TO POETRY (3)
Written and oral analysis of the 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.

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 MUSICIanship (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.

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.

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 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 sub-standard dialect.

Sp 145 EXPOSITORY AND PERSUASIVE SPEAKING (3)
   Practice in systematic analysis of expository and persuasive ideas with instruction in their preparation for public discourse. Weekly lectures.

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 Professor Noda; Assistant Professors Baldwin, DORITY (Chairman), Little, Sood; Instructors Hwang, Nakata, Stein; Lecturers Kon, Niwao, Thompson
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 101–102 SURVEY OF CHEMISTRY (4–4) Yr. (3 L, 1 Lb)
Survey of general and organic. Pre: high school algebra and plane geometry.

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 143–144 ORGANIC CHEMISTRY (4–4) Yr. (3 L, 1 4-hr. Lb)
Carbon compounds: classification, structure, reactions. Laboratory techniques. Pre: 106.

Chem 331 ELEMENTARY QUANTITATIVE ANALYSIS (4) (2 L, 2 Lb)
Beginning gravimetric and volumetric analysis. Pre: 106; Math 103.

CE 111 SURVEYING I (2) (1 L, 1 Lb)
Basic principles, computations, and use of instruments involving horizontal and vertical measurements. Pre: Math 102; GE 101 or GE 105.

CE 112 SURVEYING II (3) (2 L, 1 Lb)
Topographic mapping; curves; earthwork; computer applications; route problems. Pre: Math 140; CE 111, GE 110.

CE 170 APPLIED MECHANICS I (3)
Equilibrium of particles, rigid bodies, frames and machines; vectors, centroids, friction, and moments of inertia. Pre: Math 141; Phys 170.

CE 271 APPLIED MECHANICS II (3)
Dynamics of particles and rigid bodies, impulse-momentum, work-energy. Pre: CE 170; Math 142.

GE 101 ENGINEERING GRAPHICS (2) (1 L, 2 Lb)
Applied geometry, orthographic and pictorial instrument drawing and sketching, dimensioning, auxiliary and section views. Fundamentals in analysis and solution of spatial problems pertaining to points, lines, and planes. Primarily for those who are deficient in high school mechanical drawing.

GE 102 ENGINEERING GRAPHICS (2) (1 L, 2 Lb)
Continuation of GE 101 in analyzing and solving spatial problems pertaining to points, lines, planes and their application to engineering. Surface intersections, vector geometry, and graphical calculus. Pre: 101.

GE 105 ENGINEERING GRAPHICS (3) (1 L, 2 Lb)
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.

GE 110 DIGITAL COMPUTER PROGRAMMING (1)
Introduction to the FORTRAN language and application to engineering problems using IBM 7040. Pre: Math 141.

Sci 120–121 INTRODUCTION TO SCIENCE (4–4) Yr.
Characteristics of science and interactions of society with science, illustrated by topics from physical and biological science. Sequence starts in the fall semester.
Math 99 MATHEMATICS REFRESHER (0)
Review of mathematical ideas for students with insufficient background in high school mathematics.

Math 103 COLLEGE ALGEBRA (3)
Pre: facility in trigonometry or concurrent registration in 102.

Math 111 INTRODUCTION TO MATHEMATICS (3)
To acquaint the non-specialist with the position of mathematics in modern culture.

Math 112 ALGEBRA (3)
Deductive treatment of elementary and intermediate algebra, emphasizing the concepts of function, identity, and equation. Pre: 111 or equivalent.

Math 113 TRIGONOMETRY AND ANALYTIC GEOMETRY (3)
Periodicity, trigonometric functions, elementary identities; analytic geometry of the line, circle and parabola. Pre: 112 or equivalent.

Math 114 CALCULUS (3)
Intuitive introduction to the derivative, the definite integral, and their applications. Pre: 113 or equivalent. (Primarily for non-science majors.)

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 CALCULUS III (3)

Math 232 DIFFERENTIAL EQUATIONS (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 140 MICROBIOLOGY LABORATORY (2) (2 Lb)
For students in nursing and dental hygiene. Pre: credit or registration in 130.

Micro 151 GENERAL BACTERIOLOGY (4) (3 L, 2 Lb)
Fundamentals. Pre: Chem 104 or 106; 4 credits in biological or physical science. Recommended: Chem 141 or 144. Lectures only (3 credits) require instructor’s approval.

Phys 160-161 COLLEGE PHYSICS (4-4) Yr. (3 L, 1 Lb)
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 Professor Beechert; Assistant Professors Bonk (Chairman), Dixon, Markey, Swann, Usijima, Wash; Instructors Fukuda, Goya, Hamai

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 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.

Anth 352 COMPARATIVE RELIGION (3)
Origins and development of magical practices and religious systems among tribal and folk societies. Ritual and symbolism as aids to social integration.
Asian 301 CIVILIZATIONS OF THE EAST (3)
Physical environment and cultural traditions of East, Southeast, and South Asia, before major Western contact.

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.

Ed HP 100–101 INTRODUCTION TO EDUCATION (1–1) Yr.
Orientation to education as a field of study and to teaching as a career.

Ed EE 220 ELEMENTARY EDUCATION (4)
Basic course in education of children ages 5-12; guided observation in elementary classrooms for purpose of developing ability to apply principles of growth and development in the learning situation. Pre: Psy 250.

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.

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, forearm and backhand strokes, serving, volleying, singles and doubles play.

HPE 108 TENNIS: ADVANCED (1)
Emphasis on improving the serve, forearm and backhand strokes, volleying, chop shot, 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, forearm 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 135 VOLLEYBALL (1)
Rules, serving, passing, setting-up, spiking, blocking, offensive and defensive team play strategy. Separate sections for men and women.

HPE 137 BASKETBALL (1)
Rules, passing, shooting, dribbling, rebounding, individual defensive and offensive maneuvers, two-man plays, three-man plays, team offense and defense. Separate 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.

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 INTRODUCTION TO 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 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.

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 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 nations, the institutions for international relations, and the problems posed for world government.

PolSc 500 PUBLIC ADMINISTRATION I (3)
Introduction to the concepts and content of public management, its historical development and changing role in relationship to policy-forming agencies.

PolSc 501 PRINCIPLES OF MANAGEMENT II (3)
Identification and analysis of administrative principles and practice in the use of techniques for problem identification and solution of administrative problems in terms of modern management principles.

PolSc 502 PERSONNEL ADMINISTRATION (3)
Major problems of personnel selection and supervision and their illustration through development of original illustrative cases in the areas of recruitment, classification, wage and salary determination, promotion, discipline and separation. Pre: PolSci 500.

Psy 104 GENERAL PSYCHOLOGY (3)
Principles of human behavior, individual differences, motivation, emotion, perceiving, learning, etc.

Psy 220 STATISTICAL TECHNIQUE (3) (2 L, 1 2-hr. Lb)
Types of data; graphic methods, central tendency; variability; correlations; reliability; tests of significance. Pre: 2 years of high school algebra or Math 101.

Psy 230 INTRODUCTORY EXPERIMENTAL PSYCHOLOGY (3) (2 L, 1 2-hr. Lb)
Basic methodology and experimental literature. Sensation, perception, emotion, conditioning, learning, thinking, social phenomena.

Psy 250 DEVELOPMENTAL PSYCHOLOGY (3)
Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels.

Psy 280 PSYCHOLOGY OF ADJUSTMENT (3)

Soc 151 INTRODUCTION TO THE STUDY OF SOCIETY I, II (3)
Basic social relationships and social structures; social disorganization; methods of study of group behavior with selected laboratory and field experience.
**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 promote 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**

Students (primarily graduate) are offered both regular and special University programs. These provide an opportunity for study, research, special conferences, and seminars in many fields.

Scholarships. Young men and women possessing a high degree of leadership potential and scholastic ability and giving evidence of real interest in the goals of the Center may qualify for scholarships which provide transportation to and from Honolulu, tuition and books, housing and meals, accident and health insurance, and a monthly incidentals allowance. The scholarship may include a field study grant to the mainland United States or Asia. The majority of the scholarships are awarded initially for nine months (one academic year) if the student begins his grant in September, or for one calendar year if it is necessary for him to begin in June or February. These scholarships are extendable for further periods if the academic program for which the student was selected requires additional time and if he has maintained a satisfactory academic and personal record.

Except for the Junior Year in Hawaii Program (below), scholarships for American students are for post-graduate study at the University of Hawaii. Students may enroll in a regular graduate curriculum or in an interdisciplinary program such as Asian Studies or Pacific Island Studies. All students from the United States are required to study an
Asian or Pacific language regardless of their major academic field. Demonstration of satisfactory attainment through the second-year level in the student's chosen language is a normal minimum requirement for Field Study. Also available are a number of graduate level, non-degree programs, such as the Teacher Interchange Program, the Language Teacher Training Program, a program of Study and Internship in International Educational Exchange, and a Summer Institute on Asian Studies. These are non-renewable grants for specific training purposes which though academic in nature do not refer to the attainment of degree.

The Institute for Student Interchange offers 30 one-year scholarships to American undergraduate students for junior-year study of Chinese or Japanese and related courses at the University of Hawaii. Fifteen grants are made only to students attending colleges where Chinese and Japanese are not offered.

The majority of scholarships for Asian and Pacific students are for work toward master's degrees (undergraduate scholarships are available to students from the Pacific Islands and certain Asian countries). A case of an early identification of student's academic excellence may result in a change of status to Ph.D.

**Field Study Grants.** The Asian Field Study program is made available to American grantees who demonstrate their seriousness, maturity, and academic ability. Four types of field study programs are available: language study; enrollment for academic courses at a university, plus limited research; independent research; or, a supervised group historical and cultural program during the summer. The length of time the student spends on field study varies according to individual necessity within the maximum limits authorized for each type of plan.

Qualified students from Asia and the Pacific may study on the mainland United States for a summer session, a semester, or a summer session and a semester. Academic credits earned on the mainland must be transferable to the University of Hawaii to fulfill degree requirements within the scholarship period.

**English Language Institute.** The English Language Institute provides intensive instruction in English to prepare students from abroad to do acceptable work in the English medium. The institute conducts testing and placement for all foreign students including those under EWC sponsorship.

**The Asia-America Program.** The Asia-America Program presents lectures and seminars (see p. 58 for seminars listed under American Studies) on an intercultural and interdisciplinary basis which are required of all EWC students. It further organizes group field study for Asian students on the United States mainland, providing professional staff for orientation and interpretation of the United States to Asian
participants. It assists in orientation programs, cultural presentations, film series, and has created a library of paperback books and phonograph records as source material for student activities in intercultural exchange.

With its staff based in the department of American studies, the Asia-America Program is supported directly by the Institute for Student Interchange to provide academic and para-academic activities for East-West Center grantees as an integral part of their intercultural and academic program.

**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-term, group basis, is designed to further understanding among nations at the same time technical knowledge is interchanged. Projects may last from 3 to 12 months and subject matter is chosen to fill needs of developing areas. Stress is now being given to training for those Pacific islands which are under the American flag.

Current training projects include medical-nursing education for Pacific islands, personnel and fiscal administration on the middle-management level, educational communications, techniques in teaching English to non-English speaking students, and programs designed to develop skills and to improve the status of women in developing areas. The institute also administers training and job observation in Hawai‘i 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.
Panels of advisers and consultants on substantive matters have been established to aid the program directors in selection of candidates and subject-matter emphases. Already established are the Japanese National Advisory Panel, a slate of University of Hawaii consultants in the fields of agriculture, economics, education, politics and law, public administration, communications, linguistics, and public health.

**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 and schedules exhibits for the East-West Center Gallery. The *Conference Program* plans and conducts conferences designed with the basic mission of the Center in mind 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

Asian-Pacific Scholarships. Write to the Director of Student Selection, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96822.

American Scholarships. Write or call on the Director of Student Selection, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96822.

Programs, Grants of the Institute of Advanced Projects. Write to the Vice-Chancellor, Institute of Advanced Projects, Lincoln Hall, East-West Center, Honolulu, Hawaii 96822.

Technical Training. Write to the Vice-Chancellor, Institute for Technical Interchange, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96822.
The art department offers a range of courses in history and technique.

The Pacific Biomedical Research Center is the focus for research and education activities in the health sciences.

Within the music department complex is the 409-seat Orvis Auditorium for concerts and recitals.
The Statistical and Computing Center provides services vital to research projects underway at the University.

Aerial view of the University of Hawaii's Manoa campus.
Faculty and Staff

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Clarence F. Chang, M.D., Honolulu.............................................. 1968
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George H. McPherson, Honolulu................................................ 1966
Edward H. Nakamura, Honolulu................................................ 1967
Pete T. Okumoto, M.D., Hilo, Hawaii........................................ 1965

FORMER PRESIDENTS

John W. Gilmore, 1908-1913 (Deceased)
  B.S.A. 1898, M.S.A. 1906, Cornell
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
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Gregg M. Sinclair, 1942-1955
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  B.S. 1922, Ohio State; M.A. 1925, Ph.D. 1927, Washington
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Laurence H. Snyder, 1958-1963

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THOMAS NICKERSON, B.A., University of Hawaii Press
FREDERICK Y. SMITH, B.S., M.S., University Relations and Development
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B.S. 1916, California

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ACADEMIC CHAIRS

The Citizens' Chair in English Literature, funded by the Hawaii State Legislature, unoccupied in 1965-66.
The Captain James Cook Chair in Oceanography, funded by The Honolulu Advertiser, Henry A. Stommel.*
The Hawaiian Telephone Company Chair in Science, funded by the Hawaiian Telephone Company, Georg von Bekesy.*
The Gerritt Parmile Wilder Chair in Botany, established by the will of the late Lillian Kimball Wilder (in memory of her husband), Albert C. Smith.*

INSTRUCTION

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ALY, BOWER, Professor of Speech
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ROSEN, LEON, M.D., Head, Pacific Research Section, National Institute
of Allergy & Infectious Diseases, U. S. Department of HEW
ROTHSCHILD, BRIAN J., PH.D., Chief, Skipjack Ecology Program, Bureau
of Commercial Fisheries, U. S. Fish & Wildlife Service
SMITH, JAMES B., PH.D., Head, Plant Breeding Section, PRI
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
STRASBURG, DONALD W., PH.D., Fishery Research Biologist, Bureau of Commercial
Fisheries, U. S. Fish & Wildlife Service
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
TU, JOSEPH C. C., PH.D., Senior Scientist, Experiment Station, HSPA
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Statistical Reporting Service, U. S. Department of Agriculture
WARNER, JOHN N., PH.D., Principal Geneticist, Experiment Station, HSPA
WILCOX, KINGSTON S., PH.D., Director, Bureau of Laboratories, State Department
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WILSON, NIXON A., PH.D., Acarologist, Bishop Museum
WISMER, CHESTER A., PH.D., Senior Pathologist, Experiment Station, HSPA
YOKOYAMA, MITSUO, PH.D., Director of Research, Kuakini Research Foundation
YOSHIKIKI, CARL N., PH.D., Spec., Taxonomy of Hymenoptera, Bishop Museum
YOUNG, H. Y., M.A., Chemist, Pineapple Research Institute
OFFICE OF VICE-PRESIDENT FOR ACADEMIC AFFAIRS

*Hiatt, Robert W., Vice-President for Academic Affairs
*Kamins, Robert M., Director of Curriculum and Faculty 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., Manager, Faculty Housing
  B.B.A. 1956, Philippines; M.A. 1960, Hawaii
*Bloede, V. Carl, Property Management Officer
  A.B. 1940, Dartmouth; LL.B. 1950, Baltimore
*Brodie, Myrtle S., Personnel Officer
*Campbell, William R., jr., Acting Director of Campus Development
  B.Arch. 1954, North Carolina State
*Curry, Harry, jr., Manager, Communication Services
*Goto, Masaichi, Manager, Bookstore
  B.A. 1940, Hawaii
*Hansen, John L., Manager of Physical Plant
  B.S. 1942, U.S. Naval Academy
*Inouye, Richard M., Projects Coordinator
  B.Arch. 1956, Michigan
*James, Charles S., Director of Finance
  B.A. 1947, California
*Knoff, Paul H., Planner
  B.S. 1949, Michigan State; M.C.P. 1952, Michigan
*Koehler, Philip W., Space Analyst
  B.A. 1942, Northwestern College
*Masumoto, Harold S., Institutional Research Analyst
  B.A. 1960, Hawaii
*Moriyasu, Henry M., Institutional Research Analyst
  B.A. 1947, Hawaii
*Snyder, Keith S., Director of Auxiliary Services
  B.A. 1942, Carleton College
*Sumida, Kenji, Institutional Research Analyst
  B.B.A. 1953, Hawaii
*Tanabe, George K., Comptroller
  B.B.A. 1941, Armstrong
*Tinker, Spencer, Director of Waikiki Aquarium

OFFICE OF UNIVERSITY PLANNING

*Turnbull, Murray, Assistant to the President for Planning
*Kosaki, Mildred, Institutional Research Analyst
  B.Ed. 1945, M.Ed. 1949, Hawaii

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

*Degrees listed under "Instruction."
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<tr>
<th>Enrollment Category</th>
<th>1st Semester</th>
<th>2nd Semester</th>
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<tbody>
<tr>
<td><strong>Graduate School</strong></td>
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<tr>
<td>Advanced Degrees</td>
<td>1,343</td>
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<tr>
<td>5-Year Diplomas</td>
<td>243</td>
<td>176</td>
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<td><strong>Total Graduate School</strong></td>
<td>1,586</td>
<td>1,638</td>
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<td><strong>College of Arts and Sciences</strong></td>
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<tr>
<td>Seniors</td>
<td>704</td>
<td>693</td>
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<tr>
<td>Juniors</td>
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<td>899</td>
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<tr>
<td>Sophomores</td>
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<tr>
<td>Freshmen</td>
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<td>1,886</td>
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<tr>
<td><strong>Total College of Arts and Sciences</strong></td>
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<td>4,650</td>
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<tr>
<td><strong>College of Engineering</strong></td>
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<tr>
<td>Seniors</td>
<td>197</td>
<td>165</td>
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<tr>
<td>Juniors</td>
<td>139</td>
<td>125</td>
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<tr>
<td>Sophomores</td>
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<tr>
<td>Freshmen</td>
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<td>297</td>
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<td><strong>Total College of Engineering</strong></td>
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<td>726</td>
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<td><strong>College of Education</strong></td>
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<tr>
<td>Seniors</td>
<td>460</td>
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<tr>
<td>Juniors</td>
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<tr>
<td>Sophomores</td>
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<td>Freshmen</td>
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<td><strong>Total College of Education</strong></td>
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<td><strong>College of Tropical Agriculture</strong></td>
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<tr>
<td>Seniors</td>
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<tr>
<td>Juniors</td>
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<td>112</td>
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<tr>
<td>Sophomores</td>
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<tr>
<td>Freshmen</td>
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<tr>
<td><strong>Total College of Tropical Agriculture</strong></td>
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<tr>
<td><strong>College of Business Administration</strong></td>
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<tr>
<td>Seniors</td>
<td>368</td>
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<tr>
<td>Juniors</td>
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<td>390</td>
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<td>Sophomores</td>
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<td>Freshmen</td>
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<td><strong>Total College of Business Administration</strong></td>
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<td><strong>School of Nursing</strong></td>
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<tr>
<td>Seniors</td>
<td>41</td>
<td>38</td>
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<tr>
<td>Juniors</td>
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<td>52</td>
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<tr>
<td>Sophomores</td>
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<td>103</td>
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<tr>
<td>Freshmen</td>
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<td>119</td>
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<tr>
<td><strong>Total School of Nursing</strong></td>
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<td>312</td>
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<tr>
<td><strong>School of Medicine</strong></td>
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<tr>
<td>Seniors</td>
<td>24</td>
<td>24</td>
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<tr>
<td>Juniors</td>
<td>32</td>
<td>23</td>
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<tr>
<td><strong>Total School of Medicine</strong></td>
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<tr>
<td><strong>Total University Degree &amp; Diploma Candidates</strong></td>
<td>11,489</td>
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### Summary of Enrollment (continued)

<table>
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<tr>
<th>Category</th>
<th>1st semester</th>
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<tr>
<td><strong>Not Candidates for University Degrees and Diplomas</strong></td>
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<tr>
<td>Graduates</td>
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<td>Classified Professional Certificates</td>
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<td>Professional Teaching Certificates (Grad)</td>
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<td>Undergraduates</td>
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<td>756</td>
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<td>Auditors</td>
<td>32</td>
<td>38</td>
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<tr>
<td>Professional Teaching Certificates (UG)</td>
<td>1</td>
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<tr>
<td><strong>Total</strong></td>
<td>2,098</td>
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**Total, Honolulu Campus**

<table>
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<tr>
<th>Category</th>
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<th>2nd semester</th>
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<tr>
<td>East-West Center Grantees on Study Tours</td>
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<tr>
<td>Asians</td>
<td>49</td>
<td>11</td>
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<tr>
<td>Americans</td>
<td>31</td>
<td>22</td>
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<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>33</td>
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**Total, Hilo Campus**

<table>
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<th>Category</th>
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<th>2nd semester</th>
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<tbody>
<tr>
<td>College of General Studies</td>
<td>3,340</td>
<td>3,892</td>
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<tr>
<td><strong>GRAND TOTAL CREDIT STUDENTS</strong></td>
<td>17,517</td>
<td>17,922</td>
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**Summer Session**

<table>
<thead>
<tr>
<th>Category</th>
<th>1st term</th>
<th>2nd term</th>
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<tbody>
<tr>
<td>Manoa Campus</td>
<td>11,301</td>
<td>3,767</td>
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<tr>
<td>Hilo Campus</td>
<td>440</td>
<td>15,508</td>
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<tr>
<td><strong>Total</strong></td>
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