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1963-64 CALENDAR

First Semester

September 16-17, Monday and Tuesday: Orientation of freshmen
September 16, Monday: Registration of seniors
September 17, Tuesday: Registration of juniors
September 18, Wednesday: Registration of sophomores
September 19-20, Thursday and Friday: Registration of freshmen
September 21, Saturday: 8:00 A.M. to 2:00 P.M. Registration of graduate and unclassified students and auditors
September 23, Monday: Instruction begins
September 28, Friday: Last day of registration for credit
October 14, Monday: Last day of withdrawal from courses without "grade" penalty
November 1, Friday: First deficiency reports due
November 11, Monday: Veterans' Day (holiday)
November 27, Wednesday: Last day for removal of "Incompletes"
November 28-30, Thursday through Saturday: Thanksgiving recess
December 6, Friday: Second deficiency reports due
December 9, Monday: Last day before Christmas recess
January 6, Monday: Instruction resumes
January 18, Saturday: Last day of instruction, first semester
January 20, Monday: Final examinations begin
January 25, Saturday: First semester ends

Second Semester

February 4, Tuesday: Registration of seniors and juniors
February 5, Wednesday: Registration of sophomores
February 6-7, Thursday and Friday: Registration of freshmen
February 8, Saturday: 8:00 A.M. to 2:00 P.M. Registration of graduate and unclassified students and auditors
February 10, Monday: Instruction begins
February 14, Friday: Last day of registration for credit
February 21, Friday: Holiday (Friday before a holiday falling on Saturday)
February 22, Saturday: Presidents' Day (holiday)
March 2, Monday: Last day of withdrawal from courses without "grade" penalty
March 20, Friday: First deficiency reports due
March 25, Wednesday: Last day for removal of "Incompletes"
March 26, Thursday: Prince Kuhio Day (holiday)
March 27, Friday: Good Friday (holiday)
March 28-April 4, Saturday through Saturday: Easter recess
May 1, Friday: Second deficiency reports due
May 4, Monday: Last day for withdrawal from courses
May 29, Friday: Holiday (Friday before a holiday falling on Saturday)
May 30, Saturday: Memorial Day (holiday)
June 2, Tuesday: Last day of instruction
June 3, Wednesday: Final examinations begin
June 9, Tuesday: Second semester ends
June 14, Sunday: Commencement

Summer Session

June 29, Monday: Registration day for Summer Session

1964-65

September 14-19, Monday through Saturday: Registration
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GENERAL INFORMATION

The University of Hawaii is the principal public institution of higher learning in the newest of the United States. Its aim is to provide high-caliber instruction, research, and service to Hawaii, the nation, and the world community.

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, geophysics, sociology, and cultural and technical interchange among students, scholars, and technicians from Asia, the Pacific, and the Americas.

Campus Locations. The main (Manoa Valley) campus of the University is a 268-acre tract on the island of Oahu. It lies three miles from the downtown business and government center of Honolulu, the state capital of Hawaii, and two miles from the Waikiki Beach resort area.

In addition, the University maintains a second campus in Hilo, on the island of Hawaii, and holds tracts of land on the islands of Kauai, Maui, and Molokai. Agricultural experiment stations are located on Oahu, Hawaii, Kauai, and Maui, and there is a demonstration farm on Molokai. University holdings throughout the State total 1,117 acres.

The Manoa Valley campus has grown from one building in 1912 to more than 50 today. New facilities are under construction, including the first increment of the East-West Center. A campus map (on last page) indicates the location of major buildings.

Organization. Established by the Hawaii Territorial Legislature in 1907 as the College of Agriculture and Mechanic Arts, the University assumed its present name in 1920. Its administrative units now comprise seven undergraduate colleges, the Graduate School, the Division of Research, the Gregg M. Sinclair Library, the Summer Session, the Hilo Campus, the Office of Student Personnel, and the Legislative Reference Bureau. The Center for Cultural and Technical Interchange between East and West, popularly called the East-West Center, is a closely integrated agency.

The seven undergraduate colleges are: Arts and Sciences, Business Administration, Education, Engineering, General Studies, Nursing, and
Tropical Agriculture. Included in the College of Tropical Agriculture are the Cooperative Extension Service and the Hawaii Agricultural Experiment Station.

Graduate work in all departments is organized under the Graduate School, which includes the School of Social Work, the Overseas Operations Program, and several other graduate curricula and programs of study.

With the exception of the Agricultural Experiment Station in the College of Tropical Agriculture, the Bureau of Business Research in the College of Business Administration, and the Engineering Experiment Station in the College of Engineering, all research is organized under the Division of Research.

The Office of Student Personnel administers the work of admissions and registration, and, through its Counseling and Testing Center, offers educational, vocational, and personal counseling, and gives aptitude, interest, and other psychological tests.

The deans of the several colleges are directly responsible to the President's Office, which includes the president, the provost, the administrative vice-president, and the vice-president-dean of faculties. The president is responsible to the Board of Regents, of which he is an ex-officio member. Other members are appointed by the governor of the State for four-year terms. Copies of statutes and bylaws of the Board are available upon request.

Academic departments are units of the colleges, and are responsible to the dean of the college on matters of finance and personnel. Coordination of the departments and the colleges in instructional matters is obtained through the dean of faculties and the administrative council, of which the president is chairman.

The University Senate acts as an advisory body to the president on matters of instruction and related problems.

The University is a federal land-grant institution, founded under the provisions of the Morrill Act of 1862 and subsequent legislation. In 1960, the school received $6,000,000 from the U.S. government, in lieu of a grant of land, and income from this source will provide a continuing source of revenue for the University. The major portion of its regular financial support, however, comes from the State of Hawaii.

Colors and Seal. University of Hawaii colors are green and white. The rainbow, a frequent sight in Manoa Valley, is the popular campus symbol, and University teams traditionally are nicknamed "The Rainbows." The University seal contains a torch and book titled Ma Lama Lama (The Light of Knowledge) in the center of a circular map of the Pacific, surrounded by the state motto, Ua Mau Ke Ea o Ka Aina i Ka Pono (The Life of the Land Is Preserved in Righteousness).
Accreditation. The University is accredited by the Western College Association. 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. Students in 1961 included individuals from all 50 states and from 44 foreign countries.

Academic Year. The academic year is divided into two 18-week semesters and a six-week summer session (see calendar). In addition, summer programs include offerings in two five-week terms and a three-week postsession.

Inquiries. Prospective students should address inquiries to the Office of Admissions and Records, University of Hawaii, Honolulu 14, Hawaii. Summer Session information may be obtained by writing the Dean of the Summer Session. Information concerning the Hilo Campus should be addressed to the Director, University of Hawaii, Hilo Campus, Hilo, Hawaii.

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 Cooperation Extension Service and the Agricultural Experiment Station are discussed under the College of Tropical Agriculture.

The Aquarium at Waikiki is operated as a place of education and entertainment.

The Computing and Statistical Center serves the University's research interests and provides training in modern computer techniques.

The Economic Research Center is designed to promote an understanding of the economy of the State of Hawaii. It secures and evaluates evidence on the economic effects of proposed and enacted legislation, performs basic economic research necessary for the operations of various governmental agencies, engages in continuing economic and statistical research relating to Hawaii, and evaluates the effects of national legislation and international developments on the economy of Hawaii. In cooperation with the Department of Economics, the Center offers research training to advanced students.

The Gregg M. Sinclair Library, main library of the University, contains 380,000 bound volumes and 890,000 unbound pieces. It is a depository for U.S. government publications as well as those of the
U.S. Atomic Energy Commission, the U.S. Army Map Service, the United Nations and its affiliated groups, and the Rand Corporation. There are extensive collections of material in Asian languages and material relating to Hawaii and other Pacific islands. Current serials include local, mainland, and foreign newspapers and more than 2,200 literary, technical, and scientific periodicals. The Library is open for use by the public.

Other local libraries which University students may use include the Library of Hawaii, the State Archives, and the libraries of the Hawaiian Historical Society, the Hawaiian Mission Children's Society, and the cooperating institutions.

The Harold L. Lyon Arboretum, covering 124 acres in upper Manoa Valley, was donated in 1954 by the Hawaiian Sugar Planters' Association. Six thousand kinds of trees and plants are established.

The Hawaii Institute of Geophysics promotes geophysical research and, in cooperation with departments devoted to the physical and chemical sciences, provides advanced training in astrophysics, geochemistry, geography, geology, meteorology, oceanography, and physics. A new building to house the Institute will be completed in 1963; the Institute also maintains a high-altitude observatory on the summit of Mount Haleakala on Maui, and a seismic vault in upper Manoa Valley.

The Hawaii Institute of Health Research facilitates basic biomedical research. A new Institute building contains research laboratories for human genetics, microbiology, physiology, biochemistry, biophysics, pharmacology, parasitology, and psychology, as well as extensive animal quarters. These facilities are used in cooperation with related instructional departments to provide research opportunities for graduate students and resident and visiting faculty members.

The Hawaii Marine Laboratory branches are located on Coconut Island in windward Oahu and at the Aquarium in Waikiki. The first has facilities devoted primarily to advanced training and research; the latter is used for instruction in marine biology, including laboratory courses which make use of the wealth of tropical marine flora and fauna found on the nearby reefs.

The Human Relations Area Files is a research organization which collects, organizes, and distributes to 16 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 publications of the basic services, such as those of the Bureau of National Labor Affairs, Prentice-
Hall, Commerce Clearing House, and the National Industrial Conference Board, as well as current materials and information in the field of industrial relations. The Center provides some reference service, and assists in conducting conferences, lectures, and group discussions, and in training of advanced students. The Center publishes research studies in basic industrial relations problems, as well as a monthly Newsletter, a bimonthly Selected Acquisitions List, reprints, reading materials, and bibliographies.

The Land Study Bureau develops, assembles, coordinates, and interprets data in 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. It provides the legislature, governor, departments, institutions, and agencies of the State with information and reports. During sessions of the legislature the Bureau maintains an office in Iolani Palace.

The Office of Publications and Information is a service agency of the University charged with issuing official University news releases and publications of general interest.

The Social Science Research Institute facilitates the initiation of faculty research, and sponsors basic and applied programs of research in the social sciences. The Psychological Research Center and Romanzo Adams Social Research Laboratory are divisions of the Institute.

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 University of Hawaii Press publishes scholarly books and journals.

Cooperating Institutions

Through cooperative agreements with institutions listed below, the University has increased its research facilities and expanded its services to the State. 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. Bureau of Entomology for the study of fruit fly pests.

The Hawaiian Sugar Planters' Association in 1947 provided $100,000 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 on the campus. Field studies are carried on at a 100-acre experimental farm in Wahiawa, Oahu.

The Honolulu Biological Laboratory of the U.S. Fish and Wildlife Service has permanent headquarters in the campus. Senior staff members of the Laboratory cooperate with the departments of zoology, botany, meteorology 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 fellowship application forms should be addressed to the Director, U.S. Fish and Wildlife Service, Honolulu Biological Laboratory, Box 3830, Honolulu, Hawaii.

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.

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 sound, well-balanced program, in which student participation and leadership are encouraged.

Students registered for 12 or more credits (see p. 29, Tuition and Fees) are eligible to participate and hold positions in the approximately
80 student scholastic, honorary, professional, religious, social, departmental, special interest, and residence organizations, and in all student government and college union activities.

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

The ASUH promotes and directs, through its elected senate, undergraduate extracurricular activities and cooperates with the Administration in student affairs. Some of the activities in which it engages are athletics, debate, drama, music, and student publications. The two major publications, *Ka Leo* and *Ka Palapala*, are integral parts of the journalism program, and executives of these publications must meet certain journalism course requirements. (See course listings under English.)

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

Tickets to all Theatre Group plays 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 theatre, is a permanent repertory of eight plays, two of which are produced each year.

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

Besides the ASUH and HUB activities, a number of departments conduct activities related to their educational programs. The Music Department sponsors concerts and recitals in the Mae Zenke Orvis Music Auditorium, a 409-seat 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.

**Living Accommodations and Expenses**

Admission to the University is made without reference to the availability of housing. You must write directly to the Director of Student Housing, University of Hawaii, Honolulu 14, Hawaii, for information and/or application blanks for on- or off-campus housing.
CAMPUS HOUSING

All students housed in University of Hawaii residence halls will be participants in a meal contract. Dining facilities for all residence hall students are located in Gateway House.

There are no housing facilities on campus for married students.

Undergraduate Women

MARY DILLINGHAM FREAR HALL has double accommodations for 144 students. Rent is $160 per semester.

LOW-RISE RESIDENCE HALL #2 will accommodate 140 students in double rooms. Rent is $160 per semester.

HALE LAULIMA, a small residence hall, houses 39 women in 18 double and 3 single rooms. It is reserved for upper-division students who have had at least one year in a University of Hawaii residence hall. Rent is $160 in doubles; $175 in singles.

Undergraduate Men

JOHN A. JOHNSON HALL has double accommodations for 192 men. Rent is $160 per semester.

Graduate Students

GATEWAY HOUSE has accommodations for 104 women in double rooms in the Koko Head Tower, and 104 men in double rooms in the Ewa Tower. 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. Rent is $185 per semester.

OFF-CAMPUS HOUSING

To supplement campus housing, the University maintains a file of off-campus dormitories, rooming houses, single rooms in private homes, and a few apartments. This file is located in the Office of Student Housing. Assistance in off-campus housing can be given to students only after the student arrives.

For further information on off-campus housing, address the Counselor for Student Housing, Johnson Hall, University of Hawaii, Honolulu 14, Hawaii.

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.

HEMENWAY HALL SNACK BAR. A complete food service in the East-West Center administration building, including a cafeteria, a snack bar, and private dining rooms.
A new snack bar in the northeast section of the campus which is expected to open during the present academic year.

EXPENSES

Minimum expenses are estimated at from $1,350 to $1,850 a year for board, room, tuition, registration, course fees, class and student body fees, and books. Off-campus housing may be higher. These estimates do not include the cost of clothing, laundry, transportation, and other personal items. Students from outside the State should add the cost of transportation to and from Hawaii and additional items for adjustment in a new community.

Foreign Student Adviser

The Office of the Foreign Student Adviser helps students from other countries with their living arrangements, financial responsibilities, immigration requirements, and other nonacademic matters. The Office also conducts special orientation programs each semester for new foreign students and assists individuals and organizations interested in building international understanding through contact with such students. Foreign students accepted for admission to the University may address specific inquiries to the Foreign Student Adviser, University of Hawaii, Honolulu 14, Hawaii.

Graduate Placement Office

The Graduate Placement Office provides information and counsel in the area of career employment for graduating students and former students. Assistance is provided in the selection of career objectives and in job-seeking campaigns. The Office cultivates the interest of prospective island and mainland employers and provides a meeting ground for contact with students and alumni.
ACADEMIC INFORMATION

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

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

*Regular* students follow organized programs of study and comply with regulations which lead to the bachelor's degree. They ordinarily carry full-time programs (12 semester hours or more), and for registration and classification purposes are divided as follows: freshmen, 1–24 credit hours completed; sophomores, 25–54; juniors, 55–88; seniors, 89 and above. Freshmen and sophomores are *lower division* students; juniors and seniors, *upper division* students.

*Unclassified* students are those who, although registered for credit, are not immediate candidates for a University of Hawaii 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.

Students taking fewer than 12 semester hours in any semester are considered “part-time” students. This classification, however, has significance only in determining fees. Both regular and unclassified students may be either part-time or full-time.

Admission

Candidates for admission must present satisfactory evidence of ability to do university work. Prospective regular or unclassified students who have not earned credits in an institution of higher learning apply to the
Director, Office of Admissions and Records. A high school senior who plans to enter within a year should file his application during the final semester of his high school course. Applications should be filed at least one month prior to the opening of the semester or summer session for which admission is requested. Requests for application forms and questions about admission should be addressed to the Director, Office of Admissions and Records.

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

College aptitude tests are given for high schools each spring. These tests are also given at the University several times during the summer, and between semesters. Applicants should communicate with the Director, Office of Admissions and Records, as to dates.

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 college aptitude examinations 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.

When authorized by the Office of Admissions and Records, candidates from continental United States and certain foreign countries may take the scholastic aptitude test given by the College Entrance Examination Board* and submit a certificate covering the results of this examination along with a complete record of work done in preparatory school. Such candidates should meet all admission requirements and await notice of acceptance before coming to Hawaii.

*For information consult a high school counselor or write the College Entrance Examination Board, c/o Educational Testing Service, Box 27896, Los Angeles 27, California, or Box 692, Princeton, New Jersey.
### 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>
</tbody>
</table>

15 . . . . . . . TOTAL . . . . . . 12

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

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

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

Prospective engineering students must have had plane geometry and two years of algebra. It is strongly recommended that they also have
trigonometry, solid geometry, mechanical drawing, and physics. Engineering students who have not completed trigonometry in high school should arrange to take Mathematics 102 during the summer session preceding their freshman year. Students who have not completed a course in mechanical drawing before entering engineering will be severely handicapped.

Prospective students of nursing and dental hygiene should have completed one year of algebra and plane geometry; a second year of algebra is highly recommended. Prospective students of medical technology should have completed two years of algebra and plane geometry.

Prospective students of agriculture should have had two years of algebra. Students with only one year must complete the second year by the end of the freshman year.

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

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

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

Admission to Advanced Standing. Applications should be filed at least one month prior to the semester or summer session for which admission is requested. Students who transfer from other accredited universities or colleges may be granted advanced standing. These students
must have the institutions attended send to the Director, Office of Admissions and Records, an official statement of the studies offered for admission at such institutions, of the studies pursued in college and the grade received in each, and of honorable dismissal. These transcripts become a permanent part of the University files. Credit toward graduation is given only in acceptable subjects in which grades of C or better are recorded. No more than 60 semester hours are accepted in transfer from a junior college. Candidates transferring with advanced standing are required to do a minimum of 30 semester hours at the University of Hawaii to qualify for a bachelor’s degree.

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

Admission of Mature Persons. Mature persons may register as unclassified 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 an unclassified 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, 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 do graduate study should apply to the Dean of the Graduate School. Each application should be accompanied by an official transcript of undergraduate record and of any graduate work completed at another institution. Admission to graduate study is provisional until such records are on file. These transcripts become a permanent part of the University files.

Registration, Withdrawal, and Other Changes

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

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

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

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

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

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

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

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

Auditors need not comply with these regulations, except that they cannot change to credit status after the above late registration periods.
Withdrawal from Courses or from the University. To withdraw from a course an undergraduate must have the written consent of the dean of his college, on a form available at the dean's office. Complete withdrawals must be applied for on a form available at the Office of Admissions and Records; signatures as indicated on the form must be obtained, and the completed application returned to the office of the dean concerned.

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

Transfers Within the University. A student may apply for transfer from one college to another during either semester. Application for transfer must be made on a form supplied by one of the deans concerned. The application must be approved by the deans of the two colleges and returned to the Office of Admissions and Records by August 15 for a first-semester transfer, and by January 15 for a second-semester transfer. 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 nonlaboratory 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. 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 stand and the student will receive neither credits nor grade points in that course. If the work is completed, the instructor will report a semester grade, taking the completed work into consideration. Credit in a course for which an F or I (if not removed as above) is given may be obtained only for 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 six-week 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 WF 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 classes of 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 earn, after two semesters' attendance, a minimum of one and six-tenths as many grade points as the total of their registered credits.

3. Those who are deficient in composition after two semesters' attendance and who have less than a 2.0 grade-point ratio in other subjects.

4. Those who have failed to earn, after four semesters' attendance, a minimum of one and eight-tenths times as many grade points as the total of their registered credits.

5. Those who have failed to earn, after six semesters' attendance, a minimum of one and nine-tenths times as many grade points as the total of registered credits.

6. Those on academic probation who during any one semester fail to earn twice as many grade points as credits for which they are registered, or, in other words, a C average.

7. Those whose progress in speech is unsatisfactory after three semesters of speech instruction, unless they register for, and attend regularly, a speech correction course. (Failure to remove a speech deficiency constitutes failure to meet graduation requirements.)

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

Students who have been dropped for academic failure may apply for readmission, in writing, to the chairman of the Committee on Scholastic Standing by August 17 for the first semester, by January 7 for the second semester, and by May 17 for the summer session. Readmission normally 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, noncredit college work, or individual study that they have made a constructive effort to strengthen themselves in areas of weakness. Only in unusual circumstances will a student be readmitted after having been dropped for the second time.

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

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

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

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

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

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

**Student Discipline**

Students are expected to observe accepted University and community standards of conduct. Disciplinary authority is exercised by the Committee on Discipline, 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 University Comptroller, 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**

**Credit and Grade-Point Requirements.** The minimum credit requirement for the baccalaureate (bachelor's) degree in all colleges is 130 except for the College of Business Administration, where 134 credits are required. In addition, the student must have earned at least twice as many grade points as the total of registered credits.
Kinds of Baccalaureate Degrees. Upon satisfactory completion of a regular program in the colleges of Tropical Agriculture, Engineering, or Nursing, a candidate is granted the degree of bachelor of science (B.S.); the diploma designates the particular program that has been pursued.

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

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

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

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

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

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

Credit by Examination. An enrolled student who has been in attendance for the semester with a grade-point average of 2.4 or better, and presents evidence to the dean that he has had the equivalent of a course through experience or training but has not received college credit for the course may apply for credit by examination. Application must be made within the first six-week period of a semester. Failure in the examination will be entered on the permanent record, and can be removed only by credit earned in a resident course. In no case will the grade received in such examination carry grade points. Graduate students may also obtain credit in this manner for certain undergraduate courses. A fee is charged for each examination. (See p. 29.)

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

**MWF**, or any day in this sequence

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<th>CLASS HOUR</th>
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<td>12</td>
<td>4</td>
<td>(Multiple section courses as announced.)</td>
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*Second Semester*

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<tr>
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<td>(Examinations for some multiple-section courses as announced.)</td>
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**Course Examinations.** Final examinations are required in all undergraduate courses except directed reading, research, or seminar courses. No examinations (other than short quizzes) are allowed during the two weeks just prior to the final examination period.

**Tuition and Fees**

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

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

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

All students registered for daytime courses pay a "Student Health
Fee" of $4.50 each semester.

For registration to be official, all fees must be paid within twenty-
four hours after the close of the final day of regular registration. Excep-
tions 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 Cer-
tificate for Education and Training, or Certificate of Eligibility and
Entitlement.

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

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

Withdrawal during

| First two weeks of instruction | 80% |
| Fourth week of instruction    | 40% |
| Fifth week of instruction     | 20% |
| Remainder of semester         | 0%  |

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

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

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

A fee of $5.00 must be paid to the Business Office before any degree
is awarded to a student. The five-year diploma fee is $2.50.

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
for $2.00.

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. Trans-
scripts of students whose records indicate indebtedness to the University
carry the following statement: "Denied further registration. See dis-
cipline file."
A fee of $8.00 per credit is charged for "Credit by Examination," payable at the time of application for the examination.

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

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

At the request of the Associated Students of the University of Hawaii (ASUH), the Board of Governors of the Hemenway Union Building (HUB), and the Board of Athletic Control (BAC), 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 BAC for the promotion and support of varsity athletics.

For students other than those taking 12 or more credit hours, the fees are optional and the benefits limited. These fees are not collected for the summer session (see p. 27). Complete details are available at the Bureau of Student Activities.

**Scholarships and Fellowships**

Scholarship aid is provided through appropriations by the legislature and contributions from business firms and private organizations. A few scholarships are supported by endowment funds. Awards are based, in general, on (1) character, (2) scholastic ability and achievement, and (3) financial need.

The period covered is usually one year, except for the State Scholarships, which cover four years. The recipient is expected to carry a regular load of college work with success. A scholarship may be withdrawn at any time if a satisfactory academic record is not maintained.

The chief aid for entering freshmen consists of State Scholarships described below. For freshmen there are few other scholarships available. However, several community organizations provide for deserving local students. Information is sent to the principals of all local high schools.

For undergraduate students of sophomore rank or above, numerous scholarships are available. Information may be obtained from the chairman of the Scholarship Committee.
Prospective graduate students who need financial assistance should communicate with the Dean of the Graduate School.

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

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

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

The John Fee Embree Scholarship of $300 is awarded to an outstanding upper-division or graduate student in the social sciences, preferably anthropology or sociology.

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

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 of Japanese ancestry majoring in Far Eastern art and culture or in voice (graduate or undergraduate).

E. E. Black, Ltd., offers a $500 scholarship for a student in construction engineering.

Government Employees Mutual offers one four-year $500 scholarship for entering freshmen.

Hawaiian Dredging and Construction Company, Ltd., offers a $500 scholarship for a sophomore, junior, or senior engineering student.

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

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

The Alumni Association provides tuition scholarships and loan grants for qualified junior, senior, and graduate students. Application should be made to the Association's committee through the Alumni Office.

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

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

Other Scholarships Administered by the Scholarship Committee. Alonzo Gartley (in agriculture); ASUH Scholarship-Leadership grants;
Chinese Community; Emma K. Mossman; Fushiminomiya Memorial Scholarship Endowment Fund; Harry H. Collins; Hawaii Druggists' Convention (prepharmacy); Hawaii Pharmaceutical Association (prepharmacy); ILWU (Filipino students in Social Work); Kappa Alpha Theta; Kenji Yamaguma Memorial; Korean Foundation; Korean University Club; Leora Parmlee Dean (sponsored by the Women's Campus Club); MidPac Lumber Company; Opti-Mrs. Club of Honolulu; Rama Watumull Memorial; Ruth C. Scudder Memorial (sponsored by the Women's League of Central Union Church); Seu Tin Chong Award; Stephen Spaulding; Theodore R. Rhea Hawaii Cancer Society Memorial; Tri-Alpha Art Club.

Scholarships Administered by Individuals and Private Organizations, with Assistance from the University Scholarship Committee. Alfred Apaka Memorial; Associated Chinese University Women; Chinese Women's Club; Dole Corporation; Francis H. Kanahele Memorial; Hawaiian Auto Exchange Scholarship in Journalism; HCEA, University Chapter; Hawaii Home Economics Association; Hung Wo and Elizabeth L. Ching; Kauai High School Alumni Association; Leilehua High School Alumni Association; Leilehua Parent Teachers Association; Miles E. Cary Memorial; Morning Music Club, Windward Branch; Ralston Purnia; Society of American Military Engineers; University Sociology Club; Soroptimist Club; Wahiawa Lions Club; Wahiawa-Waialua Rotary Club; Waikiki Lions Club; Waikiki Rotary Club; Wallace Rider Farrington (for graduates of Wallance Rider Farrington High School, sponsored by the Honolulu Star-Bulletin); West Honolulu Rotary; Women's Auxiliary of the Home Builders Association of Hawaii.

Scholarships Administered Entirely by Private Organizations. The Scholarship Committee has no direct information about the independent awards listed. Albert F. Judd Memorial; American Trust Company; Chinese University Club; "Chu" Baldwin Memorial (sponsored by Puunene Community Association); Civic Associates of Nuuanau YMCA; Elks (the Benevolent and Protective Order of Elks, Lodge No. 616, of Honolulu); Harold B. Turney–Dorothy K. Gillett Music Fund; Hawaii Veterans Memorial Scholarship Fund; Hawaiian Civic Club of Molokai; Honolulu Community Chest; Honolulu Symphony; Hui Hanalike; Jack Johnson Memorial Scholarship; Kaneohe Lions Club; Lahainaluna Alumni; Leeward Oahu Lions Club; Maui AJA Veterans Club; Molokai Lions Club; Pacific Fellowship (sponsored by the American Association of University Women); Peter H. Fukunaga Scholarship Foundation; Retail Board, Honolulu Chamber of Commerce; Waialua-Wahiawa Hawaiian Civic Club; Waialua Lions Club.
Loan Funds

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

Alumni Fund—Molokai Chapter  Louise S. Jessen Memorial Fund
Carey D. Miller Fund  Mary L. Kelsey Fund
Chinese Students’ Alliance Fund  Minnesota Club Fund
Commerce Club Fund  Moir-Ross Health Fund
Edgar Wood Memorial Fund  National Defense Student Loan Program
Future Farmers of America,  \* N.C.B. Fund
  Uniwai Chapter Fund
George H. Lamy Fund  Ruth Alexander, M.D., Student Fund
Gruscidada Fund  Representatives Club Fund
Hawaiian University Association Fund  Senior Class Fund
Helen Strong Carter Dental Fund  Student Fund of the College of Education
Honolulu Civic Association Fund  Theodore T. Kawahara Memorial Fund
Inez Wheeler Westgate Fund
Japanese Students’ Alliance Fund

Prizes and Awards

Dean Prize for Undergraduate Research. This prize fund, established in 1927 in honor of Dr. Arthur Lyman Dean, past President, is used to stimulate interest in undergraduate research. Any senior may compete for this prize of not less than $25.00 nor more than $50.00 each year by presenting to the Dean Prize Committee a thesis in which he reports fully upon his research in any field of intellectual endeavor. The committee selects the thesis which is the best example of originality, independence, logic, and form of presentation. This paper is placed in the Hawaiian Room of the Library.

Banks Memorial Prize. The Charles Eugene Banks Memorial Prize, the income from a $500 endowment, is awarded each year to the student whose manuscript is judged the best in a creative writing contest.

O. C. Magistad Award of the Hawaiian Section of the American Chemical Society. A one-year student membership and subscriptions to several journals are awarded each year to the outstanding senior in chemistry. The name of the winner is engraved on a bronze plaque in Bilger Hall.
Phi Beta Kappa Recognition Award. Made in recognition of high scholastic standing among sophomores in Arts and Sciences.

Phi Kappa Phi Prize. A $20.00 cash prize to the senior who graduates with the highest scholastic record in his class.

Carl F. Knobloch Prize in Government. Awarded to an outstanding student in government.

Best Soldier Awards. The Honolulu Star-Bulletin sponsors an annual award of two gold medals to cadets in first-year ROTC, one to the outstanding Army cadet and one to the outstanding Air Force cadet. Based on scholastic standing in military or air science as well as leadership.

Real Dean Awards of Honor. The ASUH annually awards medals to students who have given time and effort willingly, untiringly, and without thought of reward to the promotion of ASUH activities.

Berndt Prizes for Extemporaneous Public Speaking. Medals are annually awarded by the ASUH to the students judged best in an extemporaneous speaking contest.

University Oratory Prizes. The ASUH annually awards medals to the students judged best in an oratorical competition.

Theatre Group Prizes. An annual contest for undergraduates. Prizes of $50.00, $35.00, and $15.00 are awarded for original one-act plays.


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.

Major D. M. Bartow Rifle Plaque. Awarded to the cadet attaining the highest individual record with the M1 rifle at summer camp.

American Society of Civil Engineers (Hawaii Section) Award. A cash prize of $50.00 and a year's membership in the Society are awarded each year to the outstanding senior in civil engineering.

Danforth Summer Fellowship Awards. Given by the Danforth Foundation and Ralston Purina Company of St. Louis, to an outstanding junior in agriculture and in home economics. Transportation from San Francisco to St. Louis. Representatives spend two weeks in classes at the Ralston plant and two weeks in leadership training at the American Youth Foundation, Shelby, Michigan.
Major John A. Johnson Memorial Award. Made to the Army ROTC student with the best scholastic record at the end of the sophomore year who is approved for advanced training.

Captain H. Gaylord Dillingham Memorial Award. Given to the Air Force ROTC student with the best scholastic record at the end of the sophomore year who is approved for advanced training.

Hawaiian Botanical Society Award. An annual award, customarily $50.00, is made to a senior student on the basis of a thesis on an announced topic in theoretical or applied botany.

Das Prize in Asian History and Politics. An annual cash prize of $50.00, offered by the Taraknath Das Foundation, awarded to a senior selected by a faculty committee appointed by the President.

Sigma Pi Sigma Recognition Award. Made by the University chapter in recognition of high scholastic standing among sophomores in physics.

Carey D. Miller Award. Established by graduates in home economics for a senior who has shown outstanding leadership qualities in home economics.

Hawaii Dietetics Association Award. An annual monetary award to an outstanding senior graduating in dietetics and institutional management.

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

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

Admission to the Program is by invitation extended to freshmen and sophomores whose previous academic records as well as aptitude test scores and personal recommendations 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 by the particular department. To receive an honors degree, each honors student must in his senior year (1) pursue a program of independent reading or research culminating in a senior thesis, (2) pass a written comprehensive examination in his major field, and (3) participate in an interdisciplinary colloquium held one evening a week.

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. 39 for a discussion of course descriptions.

[Major Subject] 394-395 SENIOR HONORS THESIS (4 or 6) Yr.
Preparation of a research paper under individual faculty supervision. Required for graduation with honors.
36

GENERAL CATALOGUE, 1963-64

15 397–398 SENIOR HONORS COLLOQUIUM (2-2) Yr.
Weekly meetings for the discussion of great issues and problems which are of an interdisciplinary nature. Required of, and limited to, senior candidates for the bachelor's degree with honors.

Military Science and Air Science

Instruction is offered in military and air science in accordance with the requirements stipulated by Congress in legislation relating to land-grant colleges. In accordance with their contractual agreements, the University requires (as a prerequisite to graduation) successful completion of two years of the basic course by each male student who is an American citizen unless he:

a) has physical defects which prohibit participation;
b) has passed his 24th birthday at the time of initial enrollment at this or another collegiate institution having required ROTC training;
c) has completed 55 credit hours prior to initial enrollment at the University of Hawaii or other collegiate institutions having compulsory ROTC training;
d) is an unclassified student carrying less than 12 credit hours;
e) is a veteran with more than one year of service.

Individuals who have participated in training in the junior division of ROTC or who have had military service of less than one year may be exempt from a portion of the two-year requirement.

Students desiring to avail themselves of any of the above exemptions should present satisfactory evidence at the ROTC exemption desk at the time of their first registration.

Training in the advanced courses is optional for selected juniors and seniors but the number can not exceed the quotas authorized by the federal government. Students must be enrolled for 12 or more semester hours in order to take advanced military training. Completion of the advanced course leads to a Regular or Reserve commission in the Army or Air Force.

Military Training Courses

See p. 39 for a discussion of course descriptions.

AIR SCIENCE

Professor MEADVILLE; Associate Professor MULLEN; Assistant Professors BRITTON, CRAIN, Ho; Instructors CATHCART, REIS, HAMMERSTROM, MAKELA, MEADOWS

Leadership Laboratory required 1 hour per week for 4 years; fee, 75 cents each semester (not refundable). Government 360 required of all students in AS 251; Geography 360 of all in AS 252; Psychology 374 of all in AS 95.

91 FIRST-YEAR AIR SCIENCE (0) I, II
An introduction to AFROTC and the Leadership Laboratory Programs and the basic military skills of drill. (First semester enrollment by special request.)
102 FIRST-YEAR AIR SCIENCE (1) I
General survey of elements of aerospace power, basic aeronautical science, and organization and operation of USAF.

151 SECOND-YEAR AIR SCIENCE (1) II
Introduction to aerospace missiles, aircraft, and propulsion systems; aerospace defense and aerospace strategic and tactical USAF organizations.

94 SECOND-YEAR AIR SCIENCE (0) I, II
Provides opportunity to develop certain areas of leadership knowledge and skill in AFROTC leadership laboratory.

95 THIRD-YEAR AIR SCIENCE (0) I
Leadership seminar. Pre: second-year AS.

202 THIRD-YEAR AIR SCIENCE (3) II
AF Officer development—skills required for effective staff work; communicating, instructing, and military justice. Pre: second-year AS.

203 SUMMER TRAINING (2)

251 FOURTH-YEAR AIR SCIENCE (2) I
Navigation, weather, and career responsibilities.

252 FOURTH-YEAR AIR SCIENCE (1) II

MILITARY SCIENCE
Professor Boylan; Associate Professor Autrey; Assistant Professors Rudser, Tanimoto, Simpson; Instructors Ah Cook, Medley, Naluai, Phillips, Yagi

One selected academic subject required during one semester of the first, third, and fourth years.

102 FIRST-YEAR MILITARY SCIENCE (1) II
Organization of the Army and ROTC; individual weapons and marksmanship; U.S. Army and national security.

91–92 FIRST-YEAR LEADERSHIP LABORATORY (0–0) Yr.
Required of all students enrolled in first-year military science. School of the soldier; exercise of command.

151–152 SECOND-YEAR MILITARY SCIENCE (1–1) Yr.
Map and aerial photograph reading; basic tactics; American military history.

93–94 SECOND-YEAR LEADERSHIP LABORATORY (0–0) Yr.
Required of all students enrolled in 151-152. School of the soldier; exercise of command.

201 THIRD-YEAR MILITARY SCIENCE (3) I
Advanced military subjects; training in leadership leading to a commission. Selected students only. Pre: 1st and 2nd year MS or equivalent.

95–96 THIRD-YEAR LEADERSHIP LABORATORY (0–0) Yr.
Required of all students enrolled in the first year of the advanced course. Leadership, drill, and exercise of command.
230 ROTC SUMMER CAMP (2)
A six-week training period to supplement previous instruction. Pre: enrollment in advanced course.

252 FOURTH-YEAR MILITARY SCIENCE (3) II
Advanced military subjects; training in leadership leading to a commission. Pre: 201.

97-98 FOURTH-YEAR LEADERSHIP LABORATORY (0-0) Yr.
Required of all students enrolled in the second year of the advanced course. Leadership, drill, and exercise of command.

Health, Physical Education, and Sports

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

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

The Service offers a limited medical care program. A clinic provides outpatient physician and nursing care 8 A.M. to 5 P.M. Monday through Friday. The infirmary is operated on a 24-hour basis, 7 days a week during regular sessions of the University. Bed care for minor illness and injury is provided. Medical care beyond the scope of the medical service provided by the Service is the financial responsibility of the student; supplemental insurance, at least equal to that offered by the University to support this care, is essential.

The University also offers instruction in health and conducts a program of recreation and sports. Freshman and sophomore men and women whose twenty-fourth birthday has not passed at the time of enrollment and who are registered for 12 or more semester hours and have fewer than 55 college credits must take health and physical education courses (HPE 101-107) as required by the individual colleges. Veterans with one year of military service meet all health and physical education requirements.

Students engaged in varsity sports may be exempted from the health and physical education requirement during the semester of such participation upon petition to the academic dean and substantiation of such participation by the Director of Athletics.
Intramural sports are planned to supplement the regular courses. Varsity sports are conducted independently of the Department. They are governed by a Board of Athletic Control composed of 11 members: 5 faculty members appointed by the President; 2 alumni members appointed by the Governing Board of the Alumni Association; 2 students recommended by the ASUH President and Senate to the University President for appointment; the Comptroller of the University, ex officio; and the Director of Athletics, ex officio. The Board forms policies for intercollegiate athletics, drafts budgets, and makes contracts and other arrangements for contests between the University and other colleges and athletic groups.

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

COURSE NUMBERS AND DESCRIPTIONS

Courses are listed alphabetically by department under each college. Consult the Table of Contents or the Index to locate a given department. Numbers lower than 100 indicate noncredit courses. Orientation courses carry the number 100. Lower division courses, intended for freshmen and sophomores, are numbered 100 to 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.

Heading each course description are the number and title of the course, the number of credits, and the semester in which the course is given. Credits and semesters are indicated as follows: (3) I means a 3-credit first-semester course; (3) II, a 3-credit second-semester course; (3) I, II, a 3-credit course repeated the second semester; (3–3) Yr., a year course carrying three credits each semester; (Ar), 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.”

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 editions.
The College of Arts and Sciences is dedicated to the task of giving a general education of breadth as well as depth. It moves in the liberal arts tradition and offers a comprehensive acquaintance with the thought and achievement basic to civilization. Its courses are directed toward the development of ideals, interests, and attitudes characteristic of cultured people, and the ability to think clearly and to act upon conviction.

Preprofessional training is provided by stipulated combinations of courses. The programs lead to the bachelor of arts, the bachelor of fine arts (in art), the bachelor of music, or the bachelor of science (in chemistry, geology, and meteorology only) degree.

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

**Admission and Degree Requirements**

Admission requirements are the same as those for the University (pp. 16-22).

To be entitled to a bachelor's degree a student must:

1) Complete certain basic subjects;
2) complete a major field of study as prescribed by the major department;
3) offer at least 50 semester hours of credit in other than introductory courses;
4) earn an aggregate of at least 130 semester hours of credit;
5) earn a 2.0 (a C average) grade-point ratio for all registered credits, and in the major field (see "Undergraduate Degree Requirements").

**Curricula**

The bachelor of arts curriculum is built around major fields of concentration. All students must meet the basic requirements of the first two years. A major consists of 24 to 36 semester hours in one field of concentration; credits taken in excess of the latter figure cannot be applied toward a degree. Related courses (generally upper division) are
courses in other departments which are associated with and contribute to the major. They are not counted in the total number of hours required for the major. Twelve semester hours is the maximum which any department may require in related courses. The major must be indicated by the beginning of the third year, and for certain preprofessional programs (prearchitecture, predentistry, premedicine, prepharmacy), for chemistry, physics, and zoology, and for the degrees of bachelor of fine arts, bachelor of science, and bachelor of music, it should be indicated at the beginning of the first year.

Bachelor of Arts Degree Programs

Basic Requirements

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>SECOND YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101–102 or 105</td>
<td>English 150–151 or 152–153</td>
</tr>
<tr>
<td>Foreign language, elementary</td>
<td>Foreign language, intermediate</td>
</tr>
<tr>
<td>Health. &amp; Phys. Ed., 1 activ. course</td>
<td>Political Science 110</td>
</tr>
<tr>
<td>History 151–152</td>
<td>Health &amp; Phys. Ed. 130</td>
</tr>
<tr>
<td>AS 102, 91 or MS 91–92, 102</td>
<td>History 171</td>
</tr>
<tr>
<td>Laboratory science</td>
<td>AS 94, 151 or MS 92–93, 151–152</td>
</tr>
<tr>
<td>Speech 140</td>
<td>Speech (as required)</td>
</tr>
</tbody>
</table>

In addition, six of the following must be completed: Anthropology 150; Art 101; Drama 140; Economics 140 or 150; Geography 102; Mathematics 102, 103, or 111; Music 160; Philosophy 100 or 150; Religion 150 or 151; Sociology 151 or 201.

Entering freshmen with four years of a single language at the secondary school level are excused from the foreign language requirement. Qualified students, upon reporting to the Admissions Office, may also take an examination in American history to satisfy the requirement of History 171.

The science requirement may be satisfied by 6 to 8 credits from the following courses: Botany 101; Chemistry 103–104 or 105–106; Entomology 161; Geography 101; Geology 150 or 151; Microbiology 151; Physics 160–161 or 170–175; Psychology 102; Zoology 101 or 111; or General Science 120–121.

Majors (B.A. Degree)

The following list indicates the departments in which students may major and the requirements for the major, viz., the total number of semester hours and the specific courses required by the department. A 2.0 (C average) grade-point ratio in the major field is required for graduation.

ANTHROPOLOGY. Major requirement: 27 semester hours. Required courses: 200, 201, 202; 300 or 301; 6 hours from the following: 250, 251, 252, 253, Asian Studies 301; 9 hours from the following: 350, 351, 352, 353, 354.
ART. **Major requirement:** 36 semester hours. **Required courses:** 6 hours of studio courses, including 111-112; 12 hours of art history courses, including 171-181; additional courses as needed to complete one of the divisions—drawing, printmaking, and painting; weaving and textiles (applied design); ceramics; visual design; history of art. For the B.F.A. degree the major requirement is 64 semester hours (see p. 44).

**Asian Studies.** **Major requirement:** 39 semester hours. **Required courses:** 301–302; 6 hours of third-year language or equivalent; 15 hours from one of the following fields: anthropology, art, geography, government, history, philosophy, sociology; the remainder, outside this field of concentration, from two or more fields in the humanities or the social sciences.

**Biology.** **Major requirement:** 30 semester hours, including Botany 101, Genetics 451, Microbiology 151, Zoology 101, Botany 470 or Zoology 345, Botany 553 or Zoology 401. Additional nonintroductory courses to be selected from offerings in botany, genetics, microbiology, and zoology. As related courses, Geology 150 and Mathematics 103 are required.

**Botany.** **Major requirement:** 24 semester hours. **Required courses:** 101, 410, 425, 460, 470, 553; Genetics 451, or approved substitutes.

**Chemistry.** **Major requirement:** 34 semester hours. **Required courses:** 105–106, 143–144, 331–332, 551–552. A reading knowledge of scientific German is required.

**Chinese.** **Major requirement:** 32 semester hours. **Required courses:** 103–104, 153–154, 211–212, 220, 315–316, 317–318. **Related courses required:** A minimum of 6 hours from descriptive linguistics or courses dealing specially with China.

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

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

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

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

**Geography.** **Major requirement:** 25 semester hours. **Required courses:** 101, 102, 235, three regional and three systematic courses.
GEOLGY. Major requirement 26 semester hours. Required courses: 150, 151, 265, 275, 410, 415, 445, 460, 490. As related courses, Chemistry 103-104 and Mathematics 103 are required.

GERMAN. Major requirement: 24 semester hours exclusive of 101-102, 151-152, 153-154. Courses must include 159-160, 201-202, and 411-412 or 413-414.

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

HISTORY. Major requirement: 24 semester hours of upper-division courses. Required courses: 396, 397, or 398, and 9 hours from two of the three fields—United States, Pacific and Far East, European. Some courses may be applied to either of two of these groups. Greek 401 and Latin 402 are recommended as related courses.

JAPANESE. Major requirement: 32 semester hours. Required courses: 103-104, 153-154 (or the equivalent), 211-212, 315-316, 317-318, and six hours from other upper-division courses in Japanese or from any reading course in Chinese. As related courses, a minimum of 6 hours from descriptive linguistics or courses dealing specifically with Japan.

JOURNALISM. Major Requirement: 36 semester hours. Required courses: 115, 116, 239, 311, 385, 416; 3 to 6 hours in nonintroductory courses offered by three of the following departments—anthropology, economics, political science, psychology, sociology; 3 to 6 hours likewise from three of these departments—art, English, history, philosophy, speech; as related courses, 12 hours in a listed department not selected above.

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

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

MICROBIOLOGY: Major requirement: 24 semester hours. Required courses: 151, 251 or 252, 361-362, 415. Additional work to consist of an integrated group of courses selected from among appropriate offerings in botany, genetics, microbiology, and zoology. As related courses, Chemistry 132 and 141 or 144 are required.

MUSIC. Major requirement: 34-36 semester hours. Required courses: 181-182, 183-184, 465-466, and 6 hours in applied music, including 235-236. For emphasis upon theory, in addition, 6 hours selected in upper-division theory courses, and one course in upper-division music literature courses, as advised. For emphasis upon music literature, in addition, 8 hours selected from upper-division music literature courses, as advised.
PHILOSOPHY. Major requirement: 24 semester hours. Required courses: 150, 155, 350, 400, 430.


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

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

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

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

SOCIOLoGY. Major requirement: 24 semester hours. Required courses: 151, and one course from each of the following five subdivisions: (1) 410 to 430; (2) 434 to 460; (3) 462 to 518; (4) 520 to 558; (5) 560 to 600.

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

SPEECH. Major requirement: 27 semester hours. Required courses: 140 or 150, 130, 210, 220, 326, plus 12 additional hours of upper-division speech courses. For students wishing to emphasize speech correction and audiology, Speech 221, 222, 223, 320, 325, and Psychology 250 and 280.

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

Bachelor of Fine Arts Degree Program

This program is designed to provide basic preparation for a career in any one of several fields of art. Requirements include approximately twice as many semester hours in art as for the bachelor of arts degree with a consequent lessening of the credits to be taken outside the department. No foreign language is required. A major may be obtained in drawing, printmaking, and painting; weaving and textiles; ceramics; visual design. It is advisable for students anticipating a BFA program to take Art 111 and 131 in their first semester.
Bachelor of Music Degree Program

Basic Requirements: Basic Air or Military Science; English 101–102, 150–151 or 152–153; French 101–102 (voice only); German 101–102 (voice only); Italian 101–102 (voice only); Health & Physical Education, including 130; History 151–152; General Science 120–121; Speech 140 or 150.

Music Requirements:

Major Performance Area:
- OBI (24 sh) 135–136, 137–138
- P (24 sh) 235–236, 237–238
- V (24 sh)

Secondary Performance Area:
- OBI (4 sh) 113–114, 115–116
- P (2 sh) 121, 122, 123, 124, 131, 231
- V (2 sh) 113–114, 115–116

Orchestra and Ensemble:
- OBI (8 sh) 300, 301, 309
- P (6 sh)
- V (9 sh)

Sight Singing and Keyboard Harmony:
- OBI (4 sh) 283, 284
- P (4 sh)
- V (4 sh)

Theory:
- OBI (8 sh) 181, 182
- P (8 sh)
- V (8 sh)

Piano Literature:
- P (2 sh) 269

Music Electives: OBI, 6 sh; P, 8 sh; V, 8 sh.
Nonmusic Electives: OBI, 18 sh; P, 18 sh; V, 10 sh.

Bachelor of Science Degree Programs
(Chemistry, Geology, and Meteorology only)

Chemistry

Basic Requirements: Basic Air or Military Science; English 101–102, 150–151 or 152–153; German 101–102 and 151–152; Mathematics 102, 140, 141, 142, 143; Physics 160–161; Speech 140; and a minimum of 12 semester hours from the following: Anthropology 150; Art 101; Drama 140; Economics 140 or 150–151; History 151–152, 171; Music 160; Philosophy 100 or 150; Political Science 110; Psychology 102; Religion 150 or 151; Sociology 151.

*OBI—Orchestral and Band Instruments; P—Piano, V—Voice.
**Chemistry Requirements:** 105–106, 143–144, 331–332, 421, 444, 551–552, and a minimum of 6 semester hours from the following: 399, 424, 441, 445, 580, 651, 652, and Biochemistry 601–602.

**Recommended Electives:** Mathematics 401–402 or 431–432; Physics 174, Geology 150; one or more courses in biological science, and a minimum of 6 credits in non-science electives.

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**Geology**

**Basic Requirements:** Basic Air or Military Science; Engineering GE 101, CE 111; Chemistry 105–106; English 101–102, 150–151 or 152–153, 210; Health & Physical Education, including 130; Mathematics 102, 103, 140, 141, 142; Physics 160–161 or 170–173; Speech 140, and 12 semester hours from the following: Anthropology 150; Art 101; Economics 140 or 150; History 151–152, 171; Mathematics 111; Music 160; Philosophy 100 or 150; Political Science 110 or 210; Psychology 102; Religion 150 or 151; Sociology 151.

**Geology Requirements:** 150, 151, 265, 275, 410, 415, 420, 445, 460, 480, 490.

**Recommended Electives:** Chemistry 132, 580; foreign language; Geography 430; Geology 200, 454, 455; mathematics beyond 142; Meteorology 160, 250; Physics 310, 350; Soil Science 481.

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**Meteorology**

**Basic Requirements:** Basic Air or Military Science; Chemistry 103–104 or 105–106; English 101–102, 150–151 or 152–153, 210; Geography 101; Geology 150; Health & Physical Education, including 130; Mathematics 143; Physics 170–175, 310, 530; Speech 140, and 12 semester hours from the following: Anthropology 150; Art 101; Drama 140; Economics 140 or 150–151; History 151–152, 171; Music 160; Philosophy 100 or 150; Political Science 110; Psychology 102 or 104; Religion 150 or 151; Sociology 151.

**Meteorology Requirements:** 160, 202, 206, 422, 423, 425, 430; Physics 110, 151, 253.

**Recommended Electives:** Botany 161, 181; Engineering CE 220, 325; Geography 430; German 101–102; Mathematics 401–402, 431, 432, 442, 471, 472; Oceanography 550.

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**Preprofessional and Graduate Preparation**

Because of its relatively small population, the state of Hawaii can absorb only a very limited number of professional people each year, and University authorities have felt that it would be unwise to attempt the development of costly postgraduate professional schools. However, by
careful planning, students in the College of Arts and Sciences can prepare themselves adequately for admission to professional and graduate schools. This is especially true in view of the increasing emphasis upon a liberal arts background by most of the professions.

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

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

PREMEDICAL

The following are the combined requirements, in recommended sequence, of the University of Hawaii for graduation and of the most exacting medical schools for admission.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credits</th>
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**SECOND YEAR**

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THIRD YEAR

Physics 160  4  Physics 161  4
Zoology 311  4  Zoology 312  4
Chemistry 132  4

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

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

Schools of pharmacy usually require 1 year of college study for admission. This must include courses in English, chemistry, zoology, botany, trigonometry, and algebra.

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

Special Programs

The University has authorized nondegree programs in the fields of prearchitecture, journalism, public administration, and prepharmacy. These are administered by the College Dean, at whose office detailed information is available.

ARTS AND SCIENCES COURSES

See p. 39 for a discussion of course descriptions.

American Studies

Professor Denney; Associate Professor Lutzky; Assistant Professor McCutcheon

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

630 CRITICISM IN THE MASS MEDIA AGE (3) II
Problems in criticism, the philosophy of art, and aesthetics as generated by modern mass communications techniques. Limited to 20 students. Qualified seniors admitted. Pre: consent of instructor.
685-686 SEMINAR: THE NATURE OF AMERICAN SOCIETY (3-3) Yr.
An examination and interpretation of the American people and society for foreign students. Pre: consent of instructor.

690 INTRODUCTION TO CONTEMPORARY AMERICA (3) I, II
A survey of the people, the society, the arts and sciences, business and government for students preparing to teach English as a second language. Pre: consent of instructor.

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

In addition, note seminars entitled Special Programs in American Studies listed under the East-West Center.

Anthropology

Professors Elbert, Luomala, Mason, Spoehe; Associate Professor Lebra; Assistant Professors Cammack, Jay, Maretzki, Orans, Solheim; Instructor M. Force

150 INTRODUCTION TO ANTHROPOLOGY (3) I, II
Man's biological evolution; archeological history from the Stone Age to the Iron Age; patterned lifeways of tribal and folk societies throughout the world. Not open to junior and seniors.

200 CULTURAL ANTHROPOLOGY (3) I
The nature of culture. Process of sharing and transmitting learned behavior patterns by which man in groups has met the problems of survival, social interaction, world view.

201 BIOLOGICAL ANTHROPOLOGY (3) II
Man's physical nature. Human evolution and racial variation. Comparative study of individual constitutions and its practical application.

202 INTRODUCTION TO LINGUISTICS (3) I
The nature and workings of language, and its role in culture and history.

203 ANTHROPOLOGICAL STATISTICS (3) II
Introduction to statistical methods and their use in the analysis of anthropological data.

250 OCEANIA (3) I
Survey of racial origins, languages, and cultural institutions of aboriginal Australia, Melanesia, Micronesia, Polynesia. Pre: 150 or 200.

251 SUB-SAHARAN AFRICA (3) I
Ethnic unity and diversity among the societies of Negro Africa. Problems arising from historical contacts with Europeans and Moslems. Pre: 150 or 200. (Not offered 1963-64.)

252 EUROPE (3) I
Selected studies to show regional differences in the customs of home and community. Importance of provincialism to national and international affairs. Pre: 150 or 200.
253 THE AMERICAS (3) II
Asiatic origin and New World settlement. Cultural diversity in pre-Columbian Mexico and North America. United States Indians as a minority group. Pre: 150 or 200.

300 NEW WORLD ARCHEOLOGY (3) I
Regional cultures and interrelationships as revealed by archeological studies. Emphasis on higher civilizations of Mexico, Central and South America. Pre: 150 or 200.

301 OLD WORLD ARCHEOLOGY (3) II
Rise of civilization in Europe, Africa, and Asia, from the Paleolithic to the historic period, as known from archeological research. Pre: 150 or 200.

325 FOLKLORE (3) I
Unwritten literature in preliterate and literate societies. Myth and legend in socialization and as sanctions for custom. Pre: 150 or 200.

326 PRIMITIVE ART (3) II
Art styles of Paleolithic Europe and of tribal societies in Africa, Oceania, the Americas. Influence of techniques, materials, cultural context. Pre: 150 or 200. (Not offered 1963-64.)

350 COMPARATIVE SOCIAL SYSTEMS (3) I

351 ECONOMIC ANTHROPOLOGY (3) I
Comparison of selected nonindustrial societies to illustrate the interactive influences of physical environment, economic skills, and cultural tradition. Pre: 200.

352 COMPARATIVE RELIGION (3) I
Origins and development of magical practices and religious systems among tribal and folk societies. Ritual and symbolism as aids to social integration. Pre: 200.

353 PSYCHOLOGICAL ANTHROPOLOGY (3) II

354 CULTURAL DYNAMICS (3) II
Changing institutions as influenced by ecological setting, interpersonal group relations, contacts between alien peoples. Pre: 200.

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

400 HAWAII (3) I
Family, economic life, art, religion, mythology, language, and history as known from archeology and oral traditions. Pre: 150 or 200.

415 SOUTHEAST ASIA (3) I
Principal culture types in Burma, Thailand, and Indochina. Influence of Indian, Moslem, Chinese, and European civilizations. Pre: 200 or Asian Studies 301.
417 INDIA (3) I
Tribal and national cultures in India and adjacent regions. Traditions of family, kinship, and caste. Changing patterns of rural and urban community. Pre: 200 or Asian Studies 301.

419 ISLAMIC CULTURE (3) I
Traditional Muslim society. Growth and spread of Islamic culture in the ancient world. Contemporary community studies from selected countries to illustrate social and cultural change. Pre: 150 or 200. (Not offered 1963-64.)

501 THE AMERICAN IN FOREIGN CULTURES (3) II
Americans of different subcultures and occupational groups overseas. Interaction and relationship with host societies. Their behavior, adjustments to the foreign scene, and attitudes toward non-American customs. Pre: 200 or equivalent.

504 APPLIED ANTHROPOLOGY (3) I
The relation of anthropology to community development and human resources conservation. Use of anthropology in prediction, planning, and control. Concepts and methods. Oriented to needs of administrators, educators, social workers, and other professionals who lack anthropological training. Pre: 200 or equivalent.

515 ANTHROPOLOGY AND EDUCATION (3) II

600 POLYNESIA (3) II
Early settlement, local adaptation, and racial and cultural history of Tahitians, Maoris, Hawaiians, Tongans, Samoans, and other Polynesians. Pre: 250.

601 MICRONESIA (3) II
Native custom in the Marshall, Caroline, Mariana, Gilbert islands. Cultural innovation during Spanish, German, Japanese, American, British administrations. Pre: 250. (Not offered 1963-64.)

604 INDONESIA (3) II
People of the Philippines and the Malayan archipelago. Growth and change in the folk and urban cultures of the area. Pre: 150 or 200.

610 ASIAN ARCHEOLOGY (3) II
Prehistory of Asia and Oceania from the Stone Age to the present, presenting a background to modern cultures of the area. Pre: 300, 301 or Asian Studies 301.

620 INTRODUCTION TO LINGUISTIC ANALYSIS (3) I
An intensive introduction to modern techniques of linguistic analysis.

621 PHONEMICS (3) II
Principles of phonemic analysis. Training in phonetics with native speakers as informants. Pre: 202 or 620.

622 LINGUISTIC MORPHOLOGY (3) I
Principles of morphological and syntactic analysis. Pre: 621.

641 TYPOLOGY OF ASIAN LANGUAGES (3) II
Survey by regional specialists of the languages of East, South, and Southeast Asia. Native speakers as informants. Historical development of writing systems. Pre: 622.
699 DIRECTED RESEARCH (Ar.) I, II
Pre: consent of instructor.

700 HISTORY OF ANTHROPOLOGY (3) I
The historical development of anthropology, emphasizing the unity of the diverse fields which constitute the study of man. Pre: consent of instructor.

701 CULTURE, SOCIETY, AND PERSONALITY (3) II
The theories, concepts, and analytical schemes of contemporary cultural anthropology, with emphasis on relation of anthropology to sociology and psychology. Pre: 700, or consent of instructor.

710 METHODS I (3) I
Analytical framework, theory construction, research design, data collection (objective, subjective, and projective techniques), data processing and evaluation. Pre: 701 and a course in statistics.

711 METHODS II (6) II
Directed field research, laboratory procedures, preparation of materials for publication. Pre: 710.

750 SEMINAR (3) I, II
Reporting and discussion of current research. (1) Archeology, (2) linguistics, (3) ethnography, (4) social anthropology, (5) applied anthropology, (6) culture and personality, (7) biological anthropology. Pre: consent of instructor. May be repeated.

Credit toward the major will be granted in the following courses:
- Asian Studies 301
- Genetics 321
- Music 471

Art

Senior Professor CHARLOT; Professors COX, ECKE, HORAN, KINGREY, NORRIS, ROBINSON, TURNBULL; Associate Professors ANDERSON, CARPENTER, NEOCY; Assistant Professors EVERSON, KIMURA, MCVAY, STASACK; Instructors AIDLIN, BUSHNELL, INGLESON, KOBAYASHI

Art 171 or History 152 or 162 is prerequisite to other courses with numbers ending in the 70's.
Art 181 or History 152 or 162 is prerequisite to other courses with numbers ending in the 80's.
Certain courses may be repeated for credit with the consent of the instructor.
The University reserves the right to retain any student work which may be needed for exhibition or for the Art Department files.

ARCHITECTURE

116 ARCHITECTURAL GRAPHICS (3) I
Simple projections as applied to plans, sections, elevations; shades and shadows; perspective drawing; rendering techniques. Course fee $1.00.
138–139 ARCHITECTURAL DESIGN (3–3) Yr.

171–172 HISTORY OF ARCHITECTURE (3–3) Yr.
General survey of all periods; reference reading, illustrated lectures, discussions.

ART

101 INTRODUCTION TO THE VISUAL ARTS (3) I, II
Nature of visual art and its expression in various forms. Lectures, demonstrations, museum visits. Course fee $1.00.

102 STUDIO IN VISUAL ARTS (3) II
Elementary problems in various media as an introduction to the basic creative problems in the visual arts. Pre: Art 101. Course fee $7.50.

103–104 ART FUNDAMENTALS (2–2) Yr.
Background material and studio practice to stimulate understanding of the arts. Lectures, museum visits, studio work. Course fee $1.00 each semester.

111–112 DRAWING (2–2) Yr.
Basic principles of drawing in a variety of media. This course or its equivalent is prerequisite to all advanced studio courses. Course fee $1.00 each semester.

131–132 VISUAL DESIGN (2–2) Yr.
Elements and principles of visual organization. This course or its equivalent is prerequisite to all advanced studio courses. Course fee $1.00 each semester.

136 WEAVING (2) I, II
Creative processes of weaving. Warping and threading of simple hand looms and multiple harness looms. Course fee $7.50.

137 WEAVING (2) I, II

141 CERAMICS (2) I, II
Methods and principles of creating pottery by hand. Course fee $10.00.

142 CERAMICS (2) I, II
Emphasis on wheel throwing and experimentation with form and decorative techniques. Pre: Art 141. Course fee $10.00.

151 SCULPTURE (2) I, II
Introductory study of sculptural form. Basic techniques and problems in clay. Lectures and studio work. Course fee $10.00.

152 SCULPTURE (2) I, II
Continuation of 151. Emphasis on individual solutions to problems of sculptural form. Lectures and studio work. Pre: Art 151. Course fee $10.00.

171 COMPARATIVE ASPECTS OF WESTERN ART (3) I, II
Historical relationships of the major styles in the visual arts of the Western traditions including Africa, Europe, and post-Colonial Americas. Course fee $2.00.
181 COMPARATIVE ASPECTS OF FAR EASTERN ART (3) I, II
     Historical relationships of the major visual art styles of Far Eastern traditions, including Asia, the Pacific, and pre-Colonial Americas. Course fee $2.00.

235 TEXTILE DESIGN (2) I, II
     Execution of individual problems in design on fabrics, utilizing such media as the block print, stencil, silk screen. Pre: Art 132. Course fee $7.50.

263-264 LETTER FORMS (2-2) Yr.
     The letter as a visual element in design organization. Pre: Art 112, 132, or equivalent. Course fee $1.00.

270 THE LITERATURE OF ART HISTORY AND CRITICISM (3) II
     An historical introduction to the primary literary materials from the eastern and western traditions concerned with art theory and criticism. Course fee $2.00. (Not offered 1963-64.)

276 ART OF THE UNITED STATES (3) II
     An historical survey of the visual arts of the United States from colonial times to the present. Course fee $2.00.

281 ART OF ASIA MINOR, INDIA AND SOUTHEAST ASIA (3) I
     The development of the visual arts of Islam, India, Pakistan, and the spread of Indian Art to Southeast Asia. Course fee $2.00.

287 ART OF THE PACIFIC (3) II
     Stylistic and aesthetic characteristics of the arts of Oceania, including Australia, Indonesia, Melanesia, Micronesia and Polynesia. Course fee $2.00.

311 FIGURE DRAWING (2) I, II
     Basic principles of drawing the human figure, including study of anatomy and articulation as a foundation of knowledge and skill. Pre: Art 112. Course fee $4.00.

321-322 PAINTING (2-2) Yr.
     Problems in the creation of visual forms. Pre: Art 112, 132, or equivalent. Course fee $6.00 second semester.

323 WATERCOLOR PAINTING (2) I

331 THREE-DIMENSIONAL DESIGN (2) I, II
     Development of concepts of visual organization in three dimensions. Pre: Art 112, 132. Course fee $5.00.

335 TEXTILE DESIGN (2) I, II
     Originating ideas for fabrics. Printing and execution of individual or collaborative projects. Pre: Art 235. Course fee $10.00.

372 ANCIENT ART (3) I
     An historical survey of the visual arts of the Mediterranean Basin from pre-historic times to the Christian era. Course fee $2.00.
373 **MEDIEVAL ART (3) II**
An historical survey of the visual arts within the Christian sphere from the early Christian era to the Renaissance. Course fee $2.00.

374 **RENAISSANCE THROUGH ROCOCO (3) I**
An historical survey of the visual arts of Europe during the Renaissance Mannerist, Baroque and Rococo periods. Course fee $2.00.

375 **MODERN ART (3) II**
An historical survey of the visual arts in the west from circa 1790 to contemporary times. Course fee $2.00.

382 **ART OF CHINA (3) II**
The development of the visual arts in China from pre-historic times to the present. Course fee $2.00.

383 **ART OF JAPAN AND KOREA (3) II**
The development of the visual arts in Japan and Korea from pre-historic times to the present. Course fee $2.00.

390 **SENIOR SEMINAR (2) II**
Reports with group discussion to integrate studio practice, art history, theory. Pre: consent of chairman.

399 **DIRECTED WORK (Ar.) I, II**
Criticism and guidance in work of the advanced student’s own choosing in the following fields: (1) drawing and printmaking, (2) painting, (3) weaving and textiles, (4) ceramics, (5) sculpture, (6) visual design, (7) Western art, (8) Far Eastern. 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.

412 **FIGURE DRAWING (2) I, II**
Drawing of the human figure as a foundation for its imaginative use. Pre: Art 311. Course fee $4.00.

415 **PRINTMAKING (2) I, II**
Printmaking: lithography, linoleum cut, wood cut, or silk screen. Pre: Art 112, 132, 311, or equivalent. Course fee $3.00.

416 **ILLUSTRATION (2) I**
Problems of illustration with emphasis on individual experimentation. Various media for reproduction. Pre: Art 112, 132, or equivalent. Course fee $2.00.

421–422 **ADVANCED PAINTING (2–2) Yr.**
Continuation of 321-322. Course fee $6.00 second semester.

424 **WATER-COLOR PAINTING (2) II**
Imaginative expression of form and idea in water color. Studio and outdoor painting. Pre: Art 323.

425 **MATERIALS AND TECHNIQUES OF PAINTING (2) II**
Methods emphasizing physical properties and characteristics of materials. Pre: consent of chairman. Course fee $10.00.

436 **ADVANCED WEAVING (2) I, II**
Emphasis on individually designed problems. Pre: Art 137 or equivalent. Course fee $10.00.
442 ADVANCED CERAMICS (2) I, II
Functional and production limitations. Continuation of exploratory work in field of student's choice. Pre: Art 142 or equivalent. Course fee $10.00.

443 CERAMIC GLAZE CALCULATIONS (2) I, II
Molecular formulae for glaze experimentation; tests of raw materials. Care and operation of equipment. Pre: Art 141 or equivalent. Course fee $10.00.

463-464 ADVANCED VISUAL DESIGN (2-2) Yr.
Investigation into the processes of visualization; its expression and control. Pre: Art 112, 132.

476 ITALIAN RENAISSANCE PAINTING AND SCULPTURE (3) I
The development of painting and sculpture in Italy during the period of the Renaissance. Course fee $2.00.

477 NORTHERN RENAISSANCE PAINTING AND SCULPTURE (3) II
The development of painting and sculpture in the Netherlands, France, Germany and England during the period of the Renaissance. Course fee $2.00.

478 19th CENTURY PAINTING AND SCULPTURE (3) I
The development of the 19th Century European schools of painting and sculpture. Course fee $2.00.

479 20th CENTURY PAINTING AND SCULPTURE (3) II
The development of painting and sculpture in Europe and the Americas in the 20th Century. Course fee $2.00.

565 VISUAL COMMUNICATION (2) II
Experimental projects of visual design which communicate. Creation of new images and symbols. Pre: Art 264, 464 or equivalent. Course fee $1.00.

585 CHINESE PAINTING (3) II
Development of Chinese painting. Visits to Academy of Arts. Course fee $2.00.

621 PAINTING (2) I, II
Individual problems in advanced painting. Pre: consent of chairman and instructor.

636 DESIGN AND RESEARCH IN WEAVING (2) I, II
Utilization of native Hawaiian materials for weaving, or design for specific contemporary uses. Pre: consent of chairman and instructor. Course fee $10.00.

642 CERAMIC DESIGN AND RESEARCH (2) I, II
Individual problems in advanced ceramics. Pre: consent of chairman and instructor. Course fee $10.00.

661 VISUAL DESIGN (2) I, II
Individual problems in advanced visual design. Pre: consent of chairman and instructor.

683 APPLIED ARTS OF CHINA (3) I
Ceramics, glyptic arts, metalwork, lacquer, textiles, architecture, furniture, interior design, landscaping. Visits to Academy of Arts. Course fee $2.00.

689 SEMINAR IN ORIENTAL ART (2) I, II
Survey of available literature and presentation of papers in fields of the student's choice. Pre: consent of chairman and instructor.
690 GENERAL SEMINAR (2) I, II
   Historical and critical thought in the visual arts. Taken concurrently with Art 661, 642, 636, or 621. Pre: consent of chairman and instructor.

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

782 BUDDHIST AND HINDU ART OF INDIA (3) II
   Development of Buddhist and Hindu art in India and the diffusion of Indian art in Asia. Course fee $2.00.

784 EARLY CHINESE ART (3) I
   Developments in pottery, jade, bronze, and other arts to the end of Han. Visits to Academy of Arts. Course fee $2.00.

786 JAPANESE PAINTING AND SCULPTURE (3) II
   The development of Japanese painting and sculpture from prehistoric times to the present including printmaking. Course fee $2.00.

789 MUSEUM STUDIES IN FAR EASTERN ART (3) II
   Detailed critical consideration of the Far Eastern collections of the Academy of Arts. Pre: consent of instructor. Course fee $2.00.

Asian and Pacific Languages

Professors Elbert, Shen, Uyehara; Associate Professor Winters; Assistant Professors Artola, De Queljoe, Fujioka, Ikeda, Lee, Liu, Maurer, Roosman, McElrath, Yasuda; Instructors Fujikawa, Mirikittani, Spencer, Wan, Wellington

CHINESE

101–102 ELEMENTARY MANDARIN—CONVERSATION (3–3) Yr.
   Conversation and sentence patterns. Laboratory drill. May be taken concurrently with 103–104. Course fee $3.00 per semester.

103–104 ELEMENTARY MANDARIN—READING (3–3) Yr.

107–108 INTENSIVE MANDARIN—CONVERSATION (6–6) Yr.
   Equivalent of Chinese 101–102, 151–152. Classes meet daily Monday–Saturday, with additional daily laboratory drill. Course fee $6.00 per semester.

109–110 INTENSIVE MANDARIN—READING (6–6) Yr.

151–152 INTERMEDIATE MANDARIN—CONVERSATION (3–3) Yr.
   Continuation of 102. Advanced conversation with laboratory drill. May be taken concurrently with 103–104 or 153–154. Pre: 102 or equivalent. Course fee $3.00 per semester.
153–154  INTERMEDIATE MANDARIN—READING (3–3) Yr.
Continuation of 104. Selected reading of Pai-hua literature. May be taken concurrently with 101–102 or 151–152.

201–202  ADVANCED CHINESE—CONVERSATION (3–3) Yr.
Course conducted entirely in Chinese. Lectures, reports, discussions. Extensive use of taped samples of oral Chinese. May be taken concurrently with 209–210 or 211–212. Pre: 108 or 152. Course fee $3.00 per semester.

209–210  THIRD YEAR CHINESE (MODERN) (3–3) Yr.
Reading of materials related to the social sciences. Pre: 154 or 110. May be taken concurrently with 211–212.

211–212  THIRD-YEAR CHINESE—CLASSICAL (3–3) Yr.
Introduction to classical and contemporary literary styles. May be taken concurrently with 209–210. Pre: 154 or 110.

220  CHINESE COMPOSITION (2) I, II

315–316  [415] CHINESE GRAMMAR (3–3) Yr.
A survey of the grammar and structure of classical and modern Chinese. Pre: 154 or consent of instructor.

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

399  DIRECTED READING (Ar.) I, II
Limited to senior majors with 2.7 grade-point ratio, or 3.0 in Chinese.

401–402  CHINESE LITERATURE IN ENGLISH (3–3) Yr.
Historical survey of classical Chinese literature (poetry and prose) in relation to Chinese culture before 1919. Pre: English 151 or 153.

407  CONTEMPORARY CHINESE LITERATURE IN ENGLISH (2) I, II
Survey of modern literary movements. Works of major poets, novelists, and playwrights. Pre: English 151 or 153. (Not offered 1963–64.)

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

613–614  CHINESE POETRY (2–2) Yr.
Critical study of classical Chinese poetry in various forms. Pre: 212 or equivalent.

616  [408] HISTORY OF CHINESE LITERARY CRITICISM (2) II
Survey of Chinese literary criticism from Confucius to the twentieth century. Pre: 212 or equivalent.

693–694  [491] METHODS IN CHINESE STUDIES (3–3) Yr.
Main fields of research, special methods evolved, and principal sources of bibliographical information. Pre: 212 or equivalent. (Not offered 1963–64.)

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

701–702  RESEARCH SEMINAR IN CHINESE (2–2) Yr.
Specialization in (1) language, and (2) literature. Pre: consent of instructor.
HAWAIIAN

101-102  ELEMENTARY HAWAIIAN (3–3) Yr.
Elements of the language; emphasis on conversation with some attention to Hawaiian songs; laboratory drill. Course fee $3.00 per semester.

151-152  INTERMEDIATE HAWAIIAN (3–3) Yr.
Reading of legends and traditional materials. Conversation with laboratory drill. Conducted in Hawaiian. Course fee $3.00 per semester.

211-212  [411]  HAWAIIAN TRANSLATION (3–3) Yr.

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

HINDI

101-102  ELEMENTARY HINDI (3–3) Yr.
Conversation with laboratory drill. Course fee $3.00 per semester.

151-152  INTERMEDIATE HINDI (3–3) Yr.
Continuation of 102. Reading and conversation with laboratory drill. Course fee $3.00 per semester.

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

INDONESIAN

101-102  ELEMENTARY INDONESIAN (3–3) Yr.
Conversation with laboratory drill. Course fee $3.00 per semester.

151-152  INTERMEDIATE INDONESIAN (3–3) Yr.
Reading and conversation with laboratory drill. Course fee $3.00 per semester.

211-212  [411]  THIRD-YEAR INDONESIAN (3–3) Yr.
Conversation and advanced reading.

JAPANESE

101-102  ELEMENTARY JAPANESE—CONVERSATION (3–3) Yr.
Conversation and grammar with laboratory drill. Course fee $3.00 per semester. May be taken concurrently with 103-104 or 153-154.

103-104  ELEMENTARY JAPANESE—READING (3–3) Yr.
Katakana, hiragana, and mastery of about 500 kanji. May be taken concurrently with 101-102 or 151-152.

107-108  INTENSIVE JAPANESE—CONVERSATION (6–6) Yr.
Intensive conversation. Equivalent to 101, 102, 151, 152. Meets daily Monday through Saturday; additional laboratory drill. Course fee $6.00 per semester.
151–152 INTERMEDIATE JAPANESE—CONVERSATION (3–3) Yr.
   Continuation of 102. Conversation and drill. Pre: 102 or equivalent. May be taken concurrently with 103–104 or 153–154. Course fee $3.00 per semester.

153–154 INTERMEDIATE JAPANESE—READING (3–3) Yr.
   Continuation of 104. More difficult colloquial texts and additional kanji. Pre: 104 or equivalent. May be taken concurrently with 101–102 or 151–152.

157–158 INTENSIVE JAPANESE—READING (6–6) Yr.

201–202 ADVANCED JAPANESE—CONVERSATION (3–3) Yr.
   Course conducted entirely in Japanese. Lectures, reports, discussions. Extensive use of taped samples of oral Japanese. Pre: 108 or 152. Course fee $3.00 per semester.

211–212 [411] THIRD-YEAR JAPANESE (3–3) Yr.
   Mastery of the 1,850 standard kanji. Reading of selections from newspapers, magazines, contemporary fiction. Pre: 154 or equivalent.

220 JAPANESE COMPOSITION (2) I, II

401–402 JAPANESE LITERATURE (2–2) Yr.
   Historical analysis of Japanese thought through literature. Classics and contemporary works in English translation. Pre: English 151 or equivalent.

408 STRUCTURE OF JAPANESE (3) II

413 JAPANESE FOLK LITERATURE (3) I
   Myths, folktales, legends. Emphasis on reading of texts in Japanese. Pre: 154 or equivalent. (Not offered 1963–64.)

415–416 SURVEY OF JAPANESE GRAMMAR (2–2) Yr.
   A comparative study of colloquial and classical structure. Pre: 154 or equivalent.

417–418 FOURTH-YEAR JAPANESE (2–2) Yr.
   Selected readings in the modern literary, classical, and kambun styles. Pre: 212 or equivalent; 415–416 recommended.

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

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

613–614 JAPANESE POETRY (3–3) Yr.
   Historical survey of poetical types including tanka, haiku, senryu, shi, and folk songs. Pre: 212 or equivalent.
615-616 CLASSICAL JAPANESE LITERATURE (3-3) Yr.
Study of classical genres and selected readings in representative classical works:
Pre: 316, 318 or equivalent.

693-694 JAPANESE BIBLIOGRAPHY (3-3) Yr.
Basic reference and bibliographic materials; their use and method in Japanese
studies. Pre: 318 or equivalent. (Not offered 1963-64.)

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

701-702 RESEARCH SEMINAR IN JAPANESE (2-2) Yr.
(1) Language, (2) literature. May be repeated. Pre: consent of instructor.

JAVANESE

101-102 ELEMENTARY JAVANESE (3-3) Yr.
Conversation with laboratory drill. Course fee $3.00 per semester.

KOREAN

101-102 ELEMENTARY KOREAN (3-3) Yr.
Conversation, elements of grammar, reading; laboratory drill. Course fee $3.00
per semester.

151-152 INTERMEDIATE KOREAN (3-3) Yr.
Conversation, reading, writing. Some Chinese characters. Course fee $3.00 per
semester.

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

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

SANSKRIT

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

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

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

TAGALOG

101-102 ELEMENTARY TAGALOG (3-3) Yr.
Conversation and elements of grammar with laboratory drill. Course fee $3.00
per semester.

151-152 INTERMEDIATE TAGALOG (3-3) Yr.
Continuation of 102. Reading and conversation with laboratory drill. Course
fee $3.00 per semester.
THAI

101-102 ELEMENTARY THAI (3-3) Yr.
Conversation with laboratory drill. Course fee $3.00 per semester.

151-152 INTERMEDIATE THAI (3-3) Yr.
Reading and conversation with laboratory drill. Course fee $3.00 per semester.

211-212 THIRD-YEAR THAI (3-3) Yr.
Conversation and advanced reading.

Asian Studies

Professors R. Anderson, J. White; Associate Professor Lebra; Assistant Professor Akita

501 CIVILIZATIONS OF THE EAST (3) I
The physical environment and cultural traditions of East, Southeast, and South Asia.

502 CIVILIZATIONS OF THE EAST (3) II
The response of Asian culture to the West; movements of nationalism and modernization; Asia's role today.

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

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

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

703 CIVILIZATIONS OF THE EAST: SOUTH AND SOUTHEAST ASIA (3) I
The physical environment and cultural traditions of India, Southeast Asia, Indonesia, and the Philippines.

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

798 SEMINAR IN EAST ASIAN STUDIES (3) I
Emphasis on the period before the impact of the West. Pre: 701-702 or 703-704, or the equivalent.

799 SEMINAR IN EAST STUDIES (3) II
Emphasis on the response of China, Japan, and Korea to the West. Pre: 701-702 or 703-704, or the equivalent.

Biology

A program leading to a B.A. in biology is available for the student who seeks a general understanding in this field. The major is designed to provide a broad base suitable for graduate study in any branch of biological science. The requirements are listed on page 42.
Botany

Professors Baker, Cool, Doty; Associate Professors Gillett, Putman, J. Lockhart; Assistant Professor Lamoureux; Instructor Whittier

101 GENERAL BOTANY (4) I, II (2 L, 2 Lb)
Basic principles of plant biology. This course and Zoology 101 comprise an introduction to biology. Course fee $5.00.

103 EVOLUTION (2) II
Concepts of evolution and sequence of development from algae to flowering plants.

105 ECONOMIC PLANTS OF HAWAII (2) I
Cultivated and wild plants used in ancient and modern times by the Hawaiians and other Polynesians for food, drink, medicine, etc.

110 PLANTS AND MAN (2) I
Uses of plants and their influence upon man.

160 FLOWER AND TREE IDENTIFICATION (2) II
A nontechnical course in identification of cultivated plants and weeds of Hawaii.

161 PLANT GEOGRAPHY (2) I
Plant distribution throughout the world; types of vegetation; special attention to origin, development, economic importance.

399 BOTANICAL PROBLEMS (Ar.) I, II
May be repeated. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in botany.

410 PLANT ANATOMY (3) I (2 L, 1 Lb)
Structure of vascular plants; origin and differentiation of tissues; relation of structure to function. Pre: 101. Course fee $5.00.

412 PLANT MICROTECHNIQUE (3) II (1 L, 2 Lb)
Preparation of plant materials for histological and cytological study. Pre: 410 or consent of instructor. Course fee $8.00.

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

425 NONVASCULAR PLANTS (3) II (2 L, 1 Lb)

426 VASCULAR PLANTS (3) I (2 L, 1 Lb)

430 MYCOLOGY (3) II (2 L, 1 Lb)
Structure; food relation; classification of fungi. Identification of common fungi. Pre: 101 or consent of instructor. Course fee $4.00.

436 MEDICAL MYCOLOGY (2) II (2 L, 2 Lb)
Diagnostic morphology and cultural characteristics of fungi pathogenic to man. Pre: Micro 151 or Botany 430. (Alt. yrs.; not offered 1962–63.)
460  SYSTEMATIC BOTANY OF FLOWERING PLANTS (3) I (1 L, 2 Lb)

461  TAXONOMY AND EXPLORATION (3) II (1 L, 2 Lb)

470  PRINCIPLES OF PLANT PHYSIOLOGY (4) II (3L, 1 Lb)

553  PLANT ECOLOGY (4) I (2 L, 2 Lb)
Plants in relation to environment and geography; plant sociology. Pre: 460. Course fee $3.00.

562  ADVANCED TAXONOMY (1) I
Synopsis of monocotyledons and dicotyledons from Piperaceae to Rosaceae; plant distribution; identification of collections. Pre: 460.

570–571  ADVANCED PHYSIOLOGY (3–3) Yr.
Biochemical and physical aspects of plant physiology. Pre: 470; Chemistry 144; Physics 161.

572  TECHNIQUES IN PHYSIOLOGY (2) I (2 Lb)
Nutrient absorption and composition; osmotic relations. Pre: 470; Chemistry 144; Physics 161; consent of instructor. Course fee $5.00.

573  TECHNIQUES IN PHYSIOLOGY-BIOCHEMISTRY (2) II (2 Lb)
Determining substances of physiological significance in plant materials. Pre: 572; consent of instructor. Course fee $5.00.

586  BIOLOGICAL PRODUCTIVITY OF THE SEA (3) I
Qualities and functions of the sea; relationships to marine organisms. Pre: senior standing in botany or zoology or consent of instructor.

610  BOTANICAL SEMINAR (1) I, II
Study and discussion of significant topics and problems in botany.

612  ADVANCED BOTANICAL PROBLEMS (Ar.) I, II
Investigation of any botanical problem; reading and laboratory work. May be repeated. Pre: consent of instructor. Course fee $2.00.

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

665  NOMENCLATURE SEMINAR (2) II
Laws of botanical nomenclature; application; determination of correct scientific plant names. Pre 460. (Alt. yrs.; not offered 1963–64.)

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

681  PHYCOLOGY–CHLOROPHYTA (3) I (2 Lb)
Systematics, function, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; offered 1963–64.)
682 PHYCOLOGY—PHYTOPLANKTON (3) II (2 Lb)
Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; offered 1963–64.)

683 PHYCOLOGY—MYXOPHYTA AND PHAEOPHYTA (3) I (2 Lb)
Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; not offered 1963–64.)

684 PHYCOLOGY—RHODOPHYTA (3) II (2 Lb)
Systematics, functions, and utilization considered at an advanced level. Pre: consent of instructor. (Alt. yrs.; not offered 1963–64.)

699 DIRECTED RESEARCH (Ar.) I, II
Pre: candidacy for the M.S. degree; consent of instructor. Course fee $2.00.

799 DIRECTED RESEARCH (Ar.) I, II
Pre: candidacy for the Ph.D. degree; consent of instructor. Course fee $2.00.

Chemistry

Professors Naughton, Schaeuer; Associate Professors Froody, Ihrig, Inskeep, Larson, Waugh, Zeitlin; Assistant Professors Kiefer, Last, Vaughan

101–102 SURVEY OF CHEMISTRY (4–4) Yr. (3 L, 1 Lb)
Survey of general and organic. Pre: high school algebra and plane geometry. Course fee $10.00 each semester.

103–104 GENERAL CHEMISTRY (4–4) Yr. (3 L, 1 Lb)
Fundamental laws, principles, and methods. Pre: high school algebra and plane geometry. Course fee $10.00 each semester.

105–106 GENERAL CHEMISTRY—QUALITATIVE ANALYSIS (5–5) Yr. (3 L, 2 Lb)
Principles, theories, and elementary analytical methods. Pre: high school algebra and plane geometry. Desirable preparation for all subsequent courses. Course fee $12.00 each semester.

141 ELEMENTS OF ORGANIC CHEMISTRY (4) I (3 L, 1 Lb)
Intensive course. Chemistry of carbon compounds. Pre: 104 or 106. Course fee $12.00.

143–144 ORGANIC CHEMISTRY (4–4) Yr. (3 L, 1 4-Hr. Lb)
Carbon compounds: Classification, structure, reactions. Laboratory techniques. Pre: 106. Course fee $12.00 each semester.

331 ELEMENTARY QUANTITATIVE ANALYSIS (4) I (2 L, 2 Lb)
Beginning gravimetric and volumetric analysis. Pre: 106; Mathematics 103. Course fee $11.00.

332 INTERMEDIATE QUANTITATIVE ANALYSIS (4) II (2 L, 2 Lb)
Analysis of inorganic mixtures; introductory instrumental analysis. Pre: 331 Course fee $11.00.

399 DIRECTED READING OR RESEARCH (Ar.) I, II
Limited to senior majors with 2.7 grade-point ratio or 3.0 grade-point ratio in chemistry. Course fee $5.00 per credit.
421 INTERMEDIATE INORGANIC CHEMISTRY (3) I
Classification, description, and fundamental theory. Pre: 331, 144.

424 PREPARATIVE INORGANIC CHEMISTRY (3) II (1 L, 2 Lb)
Preparation, properties, selected reactions of representative inorganic compounds. Pre: 421. Course fee $10.00.

441 PREPARATIVE ORGANIC CHEMISTRY (3) II (1 L, 2 Lb)
Techniques and reagents; their application in organic synthesis. Pre: 331, 144. Course fee $15.00.

444 QUALITATIVE ORGANIC ANALYSIS (4) I (2 L, 2 Lb)
Identification and characterization of organic compounds and mixtures. Pre: 331, 144. Course fee $10.00.

445 INTERMEDIATE ORGANIC CHEMISTRY (3) I
Organic reactions with emphasis on modern synthetic methods. Pre: 331, 144.

551-552 PHYSICAL CHEMISTRY (4-4) Yr. (3 L, 1 Lb)
Principles and theories; physicochemical procedures. Pre: 106; Mathematics 142; Physics 161. Course fee $8.00 each semester.

580 OCEANOGRAPHIC CHEMISTRY (3) II (2 L, 1 Lb)
Chemistry of oceans. Analytical oceanographic methods. Pre: 331. Course fee $8.00. (Not offered 1963-64.)

582 CHEMICAL LITERATURE (2) II
Use of literature. Library problems. One lecture, one library period. Open to chemistry seniors and graduates.

621 ATOMIC STRUCTURE (3) I
Electronic energy states in atoms; x-ray and line spectra, ionization potentials, wave mechanics. Pre: 421, 552. (Not offered 1963-64.)

622 IONIC COMPOUNDS AND COMPLEXES (3) II
Electrostatic bond theory; ionic crystals and complexes, crystal structure. Pre: 421, 552. (Not offered 1963-64.)

623 ATOMIC AND MOLECULAR COMPOUNDS AND COMPLEXES (3) I
Atomic bond theory; 1-electron, 2-electron and 3-center-electron pair bonds; atomic compounds and complexes. Pre: 421, 552.

624 METALS AND INTERMETALLIC COMPOUNDS (3) II
Theory of metals; nature and properties of intermetallic compounds. Pre: 421, 552.

631 INSTRUMENTAL METHODS OF ANALYSIS (4) I (2 L, 2 Lb)
Electrical methods, theory, instrumentation, application. Pre: credit or registration in 551-552. Course fee $10.00.

632 INSTRUMENTAL METHODS OF ANALYSIS (4) II (2 L, 2 Lb)
Optical methods, theory, instrumentation, applications. Pre: credit or registration in 551-552. Course fee $10.00.

633 ADVANCED CHEMICAL ANALYSIS (4) I (2 L, 2 Lb)
Theory and design of analytical determinations. Pre: 552. Course fee $10.00.

642 ORGANIC CHEMISTRY THEORY (3) II
Structural theory; reaction mechanisms. Pre: 331, 445.
646 QUANTITATIVE ORGANIC ANALYSIS (3) II (1 L, 2 Lb)

651 INTERMEDIATE PHYSICAL CHEMISTRY (3) I
Chemical thermodynamics. Pre: 522.

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

655 RADIOCHEMISTRY AND NUCLEAR REACTIONS (3)
Isotopes, isobars, isotones, and nuclear isomers; nuclear radiations, their interactions and characteristics; nuclear phenomena. Pre: 552.

656 RADIOCHEMICAL TECHNIQUES (3) (1 L, 2 Lb)
Modern radiochemical practice; use of radioisotopes as tracers and in activation methods. Pre: 655. Course fee $10.00.

691-692 SEMINAR (1–1) Yr.
Current topics in chemistry. Required of graduate students.

699 DIRECTED RESEARCH (Ar.) I, II
Pre: consent of department chairman. Course fee $5.00 per credit.

731–732 SPECIAL TOPICS IN ANALYTICAL CHEMISTRY (3–3) Yr.
Theory, description, and application of modern analytical methods. Pre: 552.

741 NATURAL PRODUCTS CHEMISTRY (3) I
Recent developments in the field of alkaloids, steriods, terpenes, etc. Pre: 642.

742 CHEMISTRY OF CYCLIC COMPOUNDS (3) II
Recent developments in carbocyclic and heterocyclic compounds. Pre: 642. (Not offered 1962–63.)

743 STEREOCHEMISTRY (3) I
Classical concepts, conformational analysis, steric effects. Pre: 642. (Not offered 1962–63.)

751 MOLECULAR STRUCTURE (3) I
Experimental determination of molecular structure. Electric, magnetic, and spectroscopic methods. Pre: 552.

752 SURFACE AND POLYMER CHEMISTRY (3) II
Adsorption, heterogeneous catalysis, polymerization, and the special chemical properties of macromolecules. Pre: 652.

753–754 QUANTUM CHEMISTRY (3–3)
Wave mechanics. Applications of the valence-bond and molecular-orbital approximations to problems of chemical bonding and reactivity. Pre: two years physical chemistry; Mathematics 402 desirable.

800 DIRECTED RESEARCH (Ar.) I, II
Pre: candidacy for the M.S. or Ph.D. degree; consent of thesis chairman. Course fee $5.00 per credit.
Drama and Theatre

Senior Professor Ernst; Professor Trapido; Associate Professors Bentley, Dreier; Assistant Professor Langhans; Assistant Caldeira

140 or 150, or the equivalent, is prerequisite to all courses above 429 except as noted.

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.

150-151 DRAMATIC PRODUCTION (3-3) Yr.
   Introduction to basic theories and practices of the theatre. Students may enter the second semester.

200 THEATRE PRACTICE (2) I, II
   Supervised work in one or two areas: stagecraft, lighting, costuming, make-up, business, publicity, acting (only after being cast). A paper is required. May be repeated.

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

405 PUPPETRY (3) I
   Survey of history and scope of puppetry. Construction and presentation of puppets for adult and child audiences.

410 CREATIVEDRAMATICS (3) II
   Intensive study of dramatic activities for children and young people. Designed for teachers, group workers, recreation majors, and others dealing with children.

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

420 ACTING (3) II
   Individual exercises and group rehearsals. In addition to work in course, students must try out for productions and must play at least one role in public performance. May be repeated for credit.

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

435 DESIGN IN THE THEATRE (3) I
   Principles of design as related to scenery, costume, and lighting for the stage. Pre: consent of instructor.

440 MODERN STAGECRAFT AND STAGE LIGHTING (3) II
   The basic principles applied, and the techniques used, in staging and lighting plays in modern theatres. (Alt. yrs. offered 1963-64.)

540 ORIENTAL DRAMA AND THEATRE (3) I
   The principal forms of Oriental drama and the manner of production in the theatre. Pre: consent of instructor.
550  HISTORY OF THE THEATRE (3) I
Survey of the development of the theatre from the earliest times to the present.

560  HISTORIC STAGE PRODUCTION (1) I, II
Production practices in theatre of past and present for classic masterpieces. Coordinated with Great Plays Cycle. May be repeated for credit.

620  ADVANCED ACTING TECHNIQUES (3) I
Individual and group exercises in stage movement and line reading. Research and reports on styles of acting. May be repeated for credit.

630  PROBLEMS IN DIRECTION (3) II
Directorial analysis of three plays of different styles and periods; exercises; preparation of prompt books.

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

640  PROBLEMS IN STAGECRAFT AND STAGE LIGHTING (3) I
Special topics in the staging and lighting of plays, and in the planning and use of various types of modern theatres. (Alt. yrs.; not offered 1963-64.)

660  MODERN THEORIES OF STAGE PRESENTATION (3) I
Theories of production from Antoine to Brecht. Reading, discussion, reports. (Alt. yrs. offered 1963-64.)

670  AESTHETICS OF THE THEATRE (3) I
Consideration of the theatre as an art form. Reading, discussion, reports. (Alt. yrs.; not offered 1963-64.)

700  ADVANCED THEATRE PRACTICE (2) I, II
Special projects in one or two areas: stagecraft, lighting, costuming, make-up, business, publicity, acting (only after being cast). A term paper is required. May be repeated for credit.

720  SEMINAR IN DRAMA AND THEATRE (3) II
Significant topics and problems in the field of drama. Pre: consent of instructor.

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

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

Economics
Visiting Professor Ellsworth; Professors R. Kamins, Oshima; Associate Professor Hung; Assistant Professors Hoffman, Meyers; Naya, Sato; Lecturer Mark
150–151 is prerequisite to all courses except 140.

140  INTRODUCTION TO ECONOMICS (3) I, II
The principles of economics with applications to current economic problems. Designed for non-economics majors. Credit cannot be obtained in both this and 150.
150-151 PRINCIPLES OF ECONOMICS (3-3) Yr.
Economic analysis of production, income, prices, and distribution in the American economy.

240 MONEY AND BANKING (3) I, II
U.S. monetary system, principles of commercial and central banking; the Federal Reserve, the Treasury, and credit control; monetary theory.

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
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) II
Concepts; determination of income, employment, price levels; effects of fiscal, monetary, other policies.

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

399 DIRECTED READING (Ar.) 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 CURRENT ECONOMIC PROBLEMS OF ASIA AND THE FAR EAST (3) II
Principles, problems, and policies of economic development in underdeveloped areas, with particular attention to Asia and Far East.

411 ECONOMIC DEVELOPMENT OF EAST ASIA (3) I
Economic growth and structural change of China, Japan, and other East Asian countries after the Western impact of the 19th century.

412 ECONOMIC DEVELOPMENT OF SOUTH AND SOUTHEAST ASIA (3) II
Economic growth and structural change of India, Pakistan, and Southeast Asia during the period of colonialism and the emergence of new national states.

413 ECONOMIC DEVELOPMENT OF THE SOVIET UNION (3) I
Analysis of Russian economic policy and economic institutions, with emphasis on the Soviet period. (Alt. yrs.; offered 1963-64.)

416 ECONOMIC DEVELOPMENT OF EUROPE (3) I
Economic growth and structural change of Europe since the Industrial Revolution.

419 ECONOMIC DEVELOPMENT OF HAWAII (3) II
Analysis of regional development, with attention to location of economic activity. Development of Hawaiian economy as a case study. (Alt. yrs.; not offered 1963-64.)

420-421 QUANTITATIVE METHODS IN ECONOMIC ANALYSIS (3-3) Yr.
430  COMPARATIVE ECONOMIC SYSTEMS (3) I
Comparative study of existing economic systems; analysis of assumptions underlying their operations; appraisal of their effectiveness in solving economic problems.

450  PUBLIC FINANCE (3) I, II
Government expenditures, revenues, debts, budgeting; economic effects; fiscal policy. Emphasis on federal government.

452  SUBNATIONAL PUBLIC FINANCE (3) II
State and local expenditures, revenues, debts, fiscal policy and administration; international comparisons. Pre: 450 or consent of instructor.

460  INTERNATIONAL TRADE AND FINANCE (3) II
Theory, foreign exchange rates, balance of payments adjustment; recent international commercial and financial policy. Pre: 240 or consent of instructor.

462  INTERNATIONAL ECONOMIC POLICY (3) II

470  GOVERNMENT AND BUSINESS (3) II
Economic aspects and consequences of public policy and regulation of business activity.

502  AMERICAN ECONOMIC POLICY (3) II
Application of analytical techniques to selected current problems. Pre: consent of chairman. (Alt. yrs.; not offered 1963-64.)

600  THEORY OF PRICE AND DISTRIBUTION (3) I

602  THEORY OF INCOME AND GROWTH (3) II

604  HISTORY OF ECONOMIC THOUGHT (3) I
Development of economic theories and their impact upon the economic policies of their times. Pre: 304. (Alt. yrs.; offered 1963–64.)

606  ECONOMIC DEVELOPMENT (3) I
Analysis of problems of economic development with special emphasis on underdeveloped countries.

610  SEMINAR IN ECONOMIC DEVELOPMENT (3) II
Selected problems, case studies, and research approaches in economic development. Pre: 300, 302.

619  REGIONAL ECONOMIC ANALYSIS (3) II
Application of analytical techniques to problems peculiar to regions of a national economy. Pre: 420–421 or consent of instructor.

620  MATHEMATICAL ECONOMICS (3) I
Application of mathematical methods to formulation of economic theory. Pre: 300, 302, calculus.
624  **ECONOMETRICS (3) II**

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) II**
Pre: 240, 302. (Alt. yrs.; offered 1963-64.)

650  **SEMINAR IN FISCAL PROBLEMS (3) I**
Pre: 450. (Alt. yrs.; not offered 1963-64.)

660  **SEMINAR IN INTERNATIONAL ECONOMICS (3) II**
Pre: 300, 460. (Alt. yrs.; offered 1963-64.)

661  **SEMINAR IN INTERNATIONAL TRADE AND ECONOMIC DEVELOPMENT (3) II**
Role of international trade in economic development, with emphasis on Asian countries.

690  **SEMINAR IN CURRENT LABOR PROBLEMS (3) II**
Pre: consent of instructor. (Alt. yrs.; not offered 1963-64.)

699  **DIRECTED RESEARCH (2-2) Yr.**
Pre: consent of department chairman.

800  **THESIS RESEARCH**

**English**

Senior Professors Day, Stroven, Wilson; Professors Bouslog, Heiser, Korn, Lowers; Associate Professors Frierson, Fujimura, George, Leib, Lutzky, Stempe1, Summersgill; Assistant Professors Backus, Brosnahan, Brown, Derstine, Gempertz, Griffing, Huntsberry, Kirtley, Larson, Levy, Manev, R. Scott, Stillians; Teevan, WelIeim, West, Winters; Instructors Abrums, Alexander, Friedman, Glick, Glissmeyer, Komenaka, Maltby, McCutcheon, Miller, Newton, O'Toole, Sinclair, J. Solomon, M. Solomon, Topham

101-102  **COMPOSITION (3-3) Yr.**
101: fundamentals. 102: rhetorical principles; a research project. Prerequisite to all other English courses.

105  **INTERMEDIATE COMPOSITION (3) I**
Accelerated course for entering freshmen with experience in writing. Substitutes for 101-102. Admission through the Dean and department chairman.
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
  155 is prerequisite to all advanced courses in English.

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

155 TYPES OF EUROPEAN AND AMERICAN LITERATURE (3) I, II
  Poetry, drama, essays, prose fiction; sixteenth century to the present. Open only
to those in agriculture, business administration, engineering, recreational leadership.

201 EXPOSITORY WRITING (3) I, II
  Principles and practice of exposition. Not open to English majors.

209 WRITTEN COMMUNICATION (3) I, II
  Practice in securing, organizing, and presenting information. Open only to stu­
dents in Business Administration. Pre: 102, 155, or equivalents.

210 REPORT WRITING (3) I, II
  Technical exposition: reports and other types of professional writing. Pre: junior
  or senior standing.

212 LITERARY WRITING (3)
  Writing and criticism of formal and informal essays, various types of articles,
  reviews, reportage, etc., designed to develop effective expression in an individual
  and personal style, and to prepare for more advanced writing courses.

213 NARRATIVE WRITING (3) I, II
  Analysis and writing of narrative, including the short story. Pre: consent of
  instructor.

215 ADVANCED EXPOSITORY WRITING (3) I, II
  Writing of essays on subjects apropriate to the student's intellectual interests.
  This intensive course is designed for students who desire further training in clear
  and coherent expression, with emphasis on logical and rhetorical principles, especially
  modes of definition, assertion, and proof.

220 CURRENT ENGLISH (3) I, II
  Methods of linguistic analysis; description of English structure; current usage.

231 INTRODUCTION TO POETRY (3) I, II
  Analysis of selected English and American poems, emphasizing problems of com­
munication and appreciation.

235 BACKGROUNDS OF ENGLISH LITERATURE (3) I
  The most important sources of English literary themes and allusions, including the
  King James Bible and Western European myth and legend.

309-310 JUNIOR HONORS PROGRAM IN ENGLISH (3-3) Yr.
  Individual study of periods of English literature, from Anglo-Saxon times through
  the 16th century. Tutorial method. Consult departmental honors advisor.

313 ADVANCED FICTION WRITING (3) II
  Study of modern fiction; application of principles of narrative craftsmanship. Pre:
  consent of instructor. (Alt. yrs.; not offered 1963-64.)
329-330 SENIOR HONORS PROGRAM IN ENGLISH (3-3) Yr.
Individual study of periods of English and American literature, from the 17th century through the 19th. Tutorial method. Consult departmental honors advisor.

336 INTRODUCTION TO LITERARY PROBLEMS (3) I
Critical evaluation of the genres of literature, of various modes of analysis, and of problems involved in literary perception.

357 INTRODUCTION TO SHAKESPEARE (3) I, II
Rapid reading, lectures, and discussion of about 15 representative plays, with emphasis on the play as poetry and drama and on the development of Shakespeare as dramatist. Not open to English majors in Arts and Sciences and Education.

416 INTERPRETIVE WRITING (2) I, II
Professional level projects in preparing specialized material for a general audience; particular attention to problems of accuracy, objectivity, interpretation, depth, and continuity in mass media. Pre: consent of instructor and major department chairman.

425 MODERN ENGLISH GRAMMAR (3) I
Description and analysis of present-day American English, with emphasis upon the structure of the language.

440 ENGLISH DRAMA TO 1642 (3) I
Origins of English drama; medieval drama and theatre; contemporaries and successors of Shakespeare. (Alt. yrs.; offered 1963-64.)

443-444 MODERN DRAMATIC LITERATURE (3-3) Yr.
443: European, Ibsen and Chekhov to Shaw, 1880-1920. 444: European and American, O’Casey to Miller, 1920 on. (Alt. yrs.; offered 1963-64.)

447 THE ENGLISH NOVEL TO 1832 (3) I
Principal English novels and novelists from the beginnings to 1832. (Alt. yrs.; offered 1963-64.)

448 THE ENGLISH NOVEL, 1832-1900 (3) II
Principal English novels and novelists. (Alt. yrs.; offered 1963-64.)

451 MEDIEVAL ENGLISH LITERATURE (3) I
Representative Old and Middle English poetry, prose, drama, exclusive of Chaucer, with continental backgrounds; chiefly in translation. (Alt. yrs.; offered 1963-64.)

452 CHAUCER (3) II
Life, times, and major works of Chaucer, with emphasis on The Canterbury Tales. (Alt. yrs.; offered 1963-64.)

455 SIXTEENTH-CENTURY ENGLISH LITERATURE (3) I
Poetry and prose of the Tudor period, exclusive of the drama. (Alt. yrs.; not offered 1963-64.)
457–458  SHAKE*PEARE (3–3) Yr.
        457: Shakespeare's plays from the beginnings to *Hamlet*. 458: from *Hamlet*
        through the last plays.

460  EARLY SEVENTEENTH-CENTURY ENGLISH LITERATURE (3) II
        Poetry and prose of the seventeenth century to 1660, exclusive of the drama.
        (Alt. yrs.; offered 1963–64.)

465  RESTORATION LITERATURE (3) I
        Poetry, prose, and drama from 1660 to 1700, exclusive of Milton. (Alt. yrs.;
        not offered 1963–64.)

466  MILTON (3) II
        Selected poetry and prose. (Alt. yrs.; not offered 1963–64.)

470  EARLY EIGHTEENTH-CENTURY ENGLISH LITERATURE (3) I
        Poetry, prose (exclusive of the novel), and drama from 1700 to 1740, with
        emphasis on the works of Pope and Swift. (Alt. yrs.; not offered 1963–64.)

471  LATE EIGHTEENTH-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. (Alt. yrs.; not offered 1963–64.)

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

485  VICTORIAN LITERATURE (3) II
        Poetry and prose from 1832 to 1900, exclusive of the novel.

490  TWENTIETH-CENTURY BRITISH NOVEL (3) I

571–572  AMERICAN LITERATURE (3–3) Yr.
        571: from the beginnings to the Civil War. 572: from the Civil War to the
        present.

573  AMERICAN LITERATURE AND CULTURAL HISTORY (3) II
        Studies in the relations of American literature to American culture before 1900.
        Pre: 571 or the equivalent.

585  LITERATURE OF THE PACIFIC (3) II
        Pacific islands, Australia: narratives of voyagers, translations of native literature,
        fiction by Melville, Stevenson, London, Becke, Nordhoff, Hall. (Alt. yrs.; not
        offered 1963–64.)

590  TWENTIETH-CENTURY AMERICAN NOVEL (3) II

592  TWENTIETH-CENTURY BRITISH AND AMERICAN POETRY (3) II

601  THE TEACHING OF ENGLISH COMPOSITION (3) I, II
        Designed to develop skill in the analysis, writing, and teaching of English expository
        prose styles. For MATESL students only.

602  THE TEACHING OF ENGLISH LITERATURE (3) I
        A systematic survey of the major genres of English literature and the methods
        of analyzing the various genres for the purposes of teaching. For MATESL students
        only.
603 TEACHING ENGLISH COMPOSITION AND TEXTBOOK WRITING (3) I
Survey of methods, procedures, and theory of teaching English composition, and introduction to the specialized skills of planning and writing textbooks for the teaching of English as a second language. For T.I.P. and other special one-year programs.

620 SEMINAR IN TEACHING COMPOSITION (3) I
Theory and observation of the teaching of composition at the college level. Pre: consent of instructor.

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

622 TEACHING ENGLISH AS A SECOND LANGUAGE (3) II
Introductory survey of methods of foreign language teaching; detailed study of the "oral method" with materials based on comparative linguistic analyses; survey of audio-visual aids in language teaching.

623 TEACHING ENGLISH AS A SECOND LANGUAGE AND LANGUAGE TEST CONSTRUCTION (3) II
Survey of the theory, methods, procedures, and practices of TESL, and introduction to the theory and practice of constructing linguistically based examination materials for testing English language proficiency among foreign students. For T.I.P. and other special one-year programs.

625 HISTORY OF THE ENGLISH LANGUAGE (3) II
Growth and development of the English language; sources, forms, mutations, and standards of usage.

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

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

636 HISTORY OF LITERARY CRITICISM (3) I, II
Chief theories of literary criticism, with readings (in English) from Plato to the present.

640 OLD ENGLISH (3) I
Structure of the language, relation to Present English; reading of selected prose and poetry. Pre: consent of instructor. (Alt. yrs.; not offered 1963-64.)

685 SEMINAR IN ENGLISH LITERATURE (3) I, II
Study of problems, authors, or a period. Pre: consent of instructor.

699 DIRECTED RESEARCH (Ar.) I, II
Individual reading or research. Pre: consent of instructor.

723 TEXTBOOK AND TEST CONSTRUCTION (3) II
Textbooks and tests in the English language written for specific native language backgrounds of the MATESL students. Pre: 622.

780 SEMINAR IN AMERICAN LITERATURE (3) I, II
Intensive study of one or two writers. Pre: consent of instructor.
785 SEMINAR IN AMERICAN LITERATURE (3) I, II
   Study of a problem or a period. Pre: consent of instructor.

JOURNALISM

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

112 EDITORS WORKSHOP (2) I, II
   Restricted to and required of executives of student publications.

115 NEWS WRITING (3) I, II

116 NEWS EDITING (2) I, II
   News and photo editing, headline writing, publications makeup; introduction to typography. Pre: 115.

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

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

316 EDITING AND PUBLISHING (3) II
   Illustration and typographical design; printing processes; newspaper and magazine management; editorial responsibility; laws of libel and copyright. Pre: Journalism 116.

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

European Languages

Professors Aspinwall, Mueller; Associate Professors Bertrand, Holton, Knowlton, Jackson, Pavlantos, Wiswell; Assistant Professors Elliott, Michalski; Instructors Burkett, Chirol, Moore, Theuma

GENERAL

630 SEMINAR IN RESEARCH METHODS (2) I
   A study of available source material in European languages with emphasis upon basic research tools and methods.

FRENCH

101–102 ELEMENTARY FRENCH (3–3) Yr.
   Conversation, laboratory drill, grammar, reading. Course fee $3.00 per semester.
151-152  INTERMEDIATE FRENCH (3-3) Yr.
   Reading, conversation, laboratory drill, composition. Pre: 102 or the equivalent. Course fee $3.00 per semester.

211-212  FRENCH CIVILIZATION (3-3) Yr.
   Historical and cultural view of French civilization seen through representative readings. French conversation and composition will be stressed.

401  LITERATURE SINCE 1800 IN TRANSLATION (2) II
   Rapid reading in translation; lectures, discussion, and reports. Not open to French majors. Pre: English 151 or 153. (Alt. yrs.; offered 1963-64.)

411-412  LITERATURE OF THE GOLDEN AGE (3-3) Yr.
   Emphasis on Corneille, Descartes, La Fontaine, Moliere, Pascal, Racine. Conducted in French. (Alt. yrs.; not offered 1963-64.)

413-414  THE EIGHTEENTH CENTURY (2-2) Yr.

415-416  LITERATURE OF THE NINETEENTH CENTURY (2-2) Yr.
   Novels, plays, poetry representative of romanticism, realism, naturalism, symbolism. Conducted in French. Pre: 202. (Alternates with 413-414; not offered 1963-64.)

417-418  LITERATURE OF THE TWENTIETH CENTURY (3-3) Yr.
   Novels, plays, poetry. Conducted in French. (Alt. yrs.; offered 1963-64.)

601  SEMINAR IN MODERN FRENCH LITERATURE (2) II
   Study of authors and movements of the modern period. Pre: consent of instructor.

609  FRENCH RENAISSANCE (3) II
   Poetry, theatre, prose. Emphasis on Montaigne and Rabelais. Lectures, discussions, reports. Conducted in French. Pre: consent of instructor.

660  ADVANCED COMPOSITION AND STYLISTICS (3-3) II
   Designed to give mastery of structure and phrasing. Translation into French, discussion, composition. Pre: consent of instructor.

671  HISTORY OF THE LANGUAGE (2) I
   Historical and cultural history of the development of the French language from the classical Latin roots to the present. Examples drawn from readings in pre-medieval literature. Pre: Latin 101 or equivalent.

672  MEDIEVAL LITERATURE (2) II
   The beginnings of French literature through the fifteenth century. Emphasis on theatre, prose, satire, and didactic literature.

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

800  THESIS RESEARCH (6)

GERMAN

101-102  ELEMENTARY GERMAN (3-3) Yr.
   Reading, conversation, laboratory drill, grammar. Course fee $3.00 per semester.
151–152 INTERMEDIATE: INTRODUCTION TO GERMAN LITERATURE (3–3) Yr.
Modern and classical authors; grammar review; conversation; laboratory drill. Pre: 102 or equivalent. Course fee $3.00 per semester.

153–154 INTERMEDIATE: SCIENCE GERMAN (3–3) Yr.
Accurate reading over a wide range of subjects. Emphasis on sentence construction and vocabulary building. Pre: 102 or equivalent.

159–160 COMPOSITION AND CONVERSATION (3–3) Yr.
Designed to develop proficiency in German sentence structure and phrasing; conversation; exact composition on literary subjects. Pre: 152.

201–202 GERMAN CIVILIZATION (3–3) Yr.
Cultural history of the German lands as reflected in their literature, philosophy, history, and fine arts. Not open to native speakers. Pre: 152.

411–412 THE CLASSICAL PERIOD (3–3) Yr.
Representative works of Lessing, Goethe, Schiller, interpreted within the literary framework of their time. Pre: 152. (Alternates with 413–414; offered 1963–64.)

413–414 THE MODERN PERIOD (3–3) Yr.
Poetic realism to naturalism; from New Functionalism to the present. Pre: 202 or equivalent. (Alternates with 411–412; offered 1963–64.)

416 RENAISSANCE AND BAROQUE LITERATURE (3) II
Chief works of poetry and prose during the Renaissance and Baroque periods. Pre: 152. (Alternates with 418; not offered 1963–64.)

417 THE GERMAN DRAMA (3) II
Representatives from the chief literary periods. Pre: 202. (Alternates with 415; offered 1963–64.)

418 THE ROMANTIC MOVEMENT (3) I
Chief works of poetry and prose during the Romantic Period. Pre: 202. (Alternates with 416; offered 1963–64.)

601 HISTORY OF THE GERMAN LANGUAGE (3) I
Development of the language from its beginnings to the present.

602 COMPOSITION AND STYLISTICS (3) II
Designed to develop a lucid German idiom and style.

615 MIDDLE HIGH GERMAN MASTERPIECES (3) II
Study of the chief works in their original and modern German versions.

693 SEMINAR IN GERMAN LITERATURE (5) I, II
Four cycles: (a) German Novel, 18th and 19th centuries; (b) Goethe's Faust; (c) German Lyric Poetry; (d) German Novel, 20th century.

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

800 THESIS RESEARCH

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; reading from selected prose and poetry. Pre: 102 or the equivalent.

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

301 **NEW TESTAMENT** *(3) I*
Selections from St. John, St. Luke, St. Mark. Pre: 152. (Alternates with 410; offered 1963–64.)

401 **GREEK CIVILIZATION** *(3) I*
Study of the history, art, and culture of Greece. Pre: History 151 or 161. (Alt. yrs.; not offered 1963–64.)

403 **GREEK LITERATURE** *(3) I*
Major writers of Greece in translation. Pre: 151 or 153. (Offered 1963–64.)

410 **PLATO** *(3) I*
Selections from the *Apology*, *Crito*, *Phaedo*. Pre: 152. (Alternates with 301; not offered 1963–64.)

421 **HOMER** *(3) II*
Selections from the *Odyssey*. Pre: 152. (Alternates with 432; not offered 1963–64.)

432 **DRAMA** *(3) II*
Translation of Sophocles’ *Oedipus Tyrannos* and Euripides’ *Andromache*. Pre: 152. (Alternates with 421; offered 1963–64.)

490 **SEMINAR** *(2) I, II*
Four-year cycle:
1) Historians—selections from Herodotos, Thucydidides.
2) Lyric Poetry—Pindar, Alcaeus, Anacreon, etc.
3) Aristophanes—*Clouds*, *Frogs*, *Lysistrata*.
4) Pre-Socratics—study of the development of the Ionian and Eleatic schools of philosophy.
Pre: 152. May be repeated for credit.

**ITALIAN**

101–102 **ELEMENTARY ITALIAN** *(3–3) Yr.*
Reading, conversation, laboratory drill, grammar. Course fee $3.00 per semester. (Alternates with 151–152; offered 1963–64.)

151–152 **INTERMEDIATE ITALIAN** *(3–3) Yr.*
Reading, conversation, laboratory drill, grammar, composition. Pre: 102. Course fee $3.00 per semester. (Alternates with 101–102; not offered 1963–64.)

**LATIN**

101–102 **ELEMENTARY LATIN** *(3–3) Yr.*
Vocabulary and grammar, with reading of simple Latin.
151–152 INTERMEDIATE LATIN (3–3) Yr.
   Review of grammar, reading of selections from prose and poetry. Pre: 102 or the equivalent.

157 ADVANCED COMPOSITION (3) I
   A close study of the structure of the language with an opportunity for the student to write prose compositions in Latin. Pre: 152.

401 HISTORIANS (3) I
   Reading of Livy and Tacitus. Pre: 152. (Alternates with 410; offered 1963–64.)

402 ROMAN CIVILIZATION (3) II
   Study of the history, art, and culture of Rome. Pre: History 151 or 161. (Alternate years; not offered 1963–64.)

404 ROMAN LITERATURE (3) II
   Major writers of Rome in translation. Pre: English 151 or 153. (Offered 1963–64.)

410 LYRIC POETS (3) I
   Selections from the foremost Latin lyricists, Horace, Catullus, Propertius, Tibullus. Pre: 152. (Alternates with 401; not offered 1963–64.)

421 SATIRE (3) II
   Selections from Horace, Juvenal, Martial. Pre: 152. (Alternates with 422; not offered 1963–64.)

422 DRAMA (3) II
   Reading of Plautus and Terence. Pre: 152. (Alternates with 421; offered 1963–64.)

490 SEMINAR (2) I, II
   Three-year cycle:
   1) Vergil—a literary study of the Aeneid.
   2) Cicero—Tusculan Desputations.
   Pre: 152. May be repeated for credit.

PORTUGUESE

101–102 ELEMENTARY PORTUGUESE (3–3) Yr.
   Reading, conversation, laboratory drill, grammar. Course fee $3.00 per semester.

RUSSIAN

101–102 ELEMENTARY RUSSIAN (3–3) Yr.
   Reading, writing, grammar; conversation, laboratory drill. Course fee $3.00 per semester.

151–152 INTERMEDIATE: INTRODUCTION TO RUSSIAN LITERATURE (3–3) Yr.
   Reading from classical and modern authors; grammar review, conversation, laboratory drill. Pre: 102 or the equivalent. Course fee $3.00 per semester.
153–154  INTERMEDIATE: SCIENTIFIC RUSSIAN (3-3) Yr.
        Rapid reading and translation: sentence structure and vocabulary. Pre: 102 or the equivalent.

158–159  ADVANCED CONVERSATION AND COMPOSITION (3-3) Yr.
        Further training in oral expression and composition; practice in writing; vocabulary building. Pre: 152 or 154.

201–202  RUSSIAN CIVILIZATION (3-3) Yr.
        Survey of Russian literature correlated with different historical periods. Pre: 152 or 154.

402  NINETEENTH-CENTURY NOVEL (3) II
        Survey of important novelists in translation, particularly Gogol, Goncharov, Turgenev, Dostoevsky, and Tolstoi. Pre: English 151 or 153.

404  LITERATURE OF THE 18TH CENTURY (3) II
        Representative reading and discussion of the more important writers before Pushkin. Pre: 202. (Alternates with 420; offered 1963-64.)

411–412  LITERATURE OF THE 19TH CENTURY (3-3) Yr.
        Reading and discussion of representative writers beginning with Pushkin. Pre: 202. (Alternates with 413–414; offered 1963-64.)

413–414  LITERATURE OF THE 20TH CENTURY (3-3) Yr.
        Representative writers before the revolution and contemporary Soviet writers. Pre: 202. (Alternates with 411–412; not offered 1963-64.)

415  RUSSIAN POETRY (2) I
        Reading and discussion of classical and contemporary Russian poets. Pre: 202. (Alternates with 417; not offered 1963-64.)

417  RUSSIAN DRAMA (2) I
        Representative plays of the 18th 19th, and 20th centuries. Pre: 202. (Alternates with 415; offered 1963-64.)

420  HISTORY OF THE RUSSIAN LANGUAGE AND EARLY RUSSIAN LITERATURE (2) II

493  SEMINAR IN RUSSIAN LITERATURE (2) I
        Important literary movements. Pre: consent of instructor.

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

SPANISH

101–102  ELEMENTARY SPANISH (3-3) Yr.
        Reading, conversation, laboratory drill, grammar. Course fee $3.00 per semester.

151–152  INTERMEDIATE SPANISH (3-3) Yr.
        Reading, conversation, laboratory drill, some grammar and composition. Pre: 102 or the equivalent. Course fee $3.00 per semester.
201–202 SPANISH AND LATIN-AMERICAN CIVILIZATION (3–3) Yr.
Introduction through literature to the main currents of the cultural history of Spain (Sem. I) and of Latin America (Sem. II). Pre: 152 or the equivalent.

258–259 ADVANCED CONVERSATION AND COMPOSITION (3–3) Yr.
Designed to develop skill in oral expression and composition. Pre: 152 or the equivalent.

402 HISPANO-PHILIPPINE LITERATURE (2) II
Study of the important writers in Spanish from the Philippine Islands. (Alt. yrs.; offered 1963–64.)

404 INTRODUCTION TO LITERATURE OF MEXICO (2) II
Cultural history and representative writers. Pre: 152 or the equivalent. (Alt. yrs.; offered 1963–64.)

405 SPANISH LITERATURE OF THE MIDDLE AGES (2) I
The major works and trends of the medieval period. The epic, poetry, and prose. (Alt. yrs.; not offered 1963–64.)

407 LITERATURE OF THE GOLDEN AGE (3) I
Representative readings in poetry, drama, and prose of the sixteenth and seventeenth centuries. (Alt. yrs.; offered 1963–64.)

411 LITERATURE FROM 1700 TO 1898 (2) I
Representative readings in poetry, drama, and prose. (Alt. yrs.; not offered 1963–64.)

413 CONTEMPORARY HISPANIC LITERATURE (3) I
Readings in 20th century Spanish and Latin American authors. Studies of recent trends. (Alt. yrs.; offered 1963–64.)

420 LATIN AMERICAN NOVEL (3) II
Major schools and novelists of South America. (Alt. yrs.; not offered 1963–64.)

471 HISTORY OF THE SPANISH LANGUAGE (2) I
Pre: Spanish 152 or the equivalent; one semester of college Latin or the equivalent. (Alt. yrs.; not offered 1963–64.)

476 CERVANTES (3) II
The works of Cervantes. (Alt. yrs.; offered 1963–64.)

480 SEMINAR IN SPANISH LITERATURE (2) II
Given in triennial cycles: 19th and 20th century drama; 19th and 20th century poetry; 19th and 20th century novel.

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

General Science

Associate Professors Bernatowicz, Kay; Instructors Dangler, Forster

120–121 INTRODUCTION TO SCIENCE (4–4) Yr.
Nature of science as a discipline; understanding of nature; relationships of science and society. Course fee $1.50 each semester.
520 CASE HISTORIES IN SCIENCE (3) II (2 L, 1 Lb)
Emphasis on relations between facts, laws, and theories, on innovations in methods and attitudes, and on historical importance. Pre: 2 semesters of biological science, 2 semesters of physical science. Course fee: $2.00.

530 HISTORY OF SCIENCE (3) II
The development of scientific thought: man’s changing ideas concerning the universe reflected against the contemporary historical setting. Pre: one year of laboratory science; consent of instructor.

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

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

Geography

Profs. Bowers, Manchester; Asst. Profs. Fuchs, Street; Instructor Pirié

101 or 102, or 151, or 401, or the equivalent, or consent of instructor is prerequisite to all advanced courses.

101 ELEMENTS OF PHYSICAL GEOGRAPHY (3) I, II (2 L, 1 Lb)
A survey of man’s natural environment; climates, vegetation, soils, and landforms. Course fee $1.00.

102 WORLD REGIONAL GEOGRAPHY (3) I, II
The geography of the world’s major cultural regions with emphasis on contemporary economic, social, and political conditions. Course fee $1.00.

151 ECONOMIC GEOGRAPHY (3) I, II
Man’s use of the earth. World patterns of physical resources, population, economic activity and development. Course fee $1.00.

235 MAP READING AND AIRPHOTO INTERPRETATION (2) I (1 L, 1 Lb)
Map projections, topographic map reading, interpretation of physical and cultural features from maps and airphotos. Course fee $1.50.

360 POLITICAL GEOGRAPHY (3) II
Geographic background of international politics and national power. Course fee $1.00.

399 DIRECTED READING (Ar.) I, II
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in geography.

401 WORLD GEOGRAPHIC PATTERNS (3) I, II
Physical character and human use of geographic regions. For prospective teachers. Course fee $1.00.
410 PHYSICAL GEOGRAPHY (3) I
Nature and distribution of vegetation, soils, and landforms. Readings in recent literature. Course fee $1.00.

420 WEATHER AND CLIMATE (3) I
Basic elements of meteorology and climatology. Course fee $1.00.

430 CARTOGRAPHY (3) I (2 L, 1 Lb)
Study and laboratory practice in presenting geographic, statistical and other data on maps and charts for reproduction. Course fee $5.00.

450 URBAN GEOGRAPHY (3) II
The functions, forms, internal structure, growth, and problems of the modern city and its tributary area. Course fee $1.00.

501 GEOGRAPHY OF UNITED STATES AND CANADA (3) II
Regional differences in physical features and resources; evolution of settlement and economic activity. Emphasis on United States. Course fee $1.00.

507 CONSERVATION AND UTILIZATION OF NATURAL RESOURCES (3) II
Conservation and utilization of soil, water, mineral, and biotic resources. Contemporary problems in United States (especially Hawaii) and underdeveloped areas. Course fee $1.00.

521 GEOGRAPHY OF EUROPE (3) I
Physical and human geography. European geography as a background of present problems. Course fee $1.00.

526 GEOGRAPHY OF THE SOVIET UNION (3) I
The land and its people. Regional differences in physical environment, resources, economic development. Elements of strength and weakness. Course fee $1.00.

541 GEOGRAPHY OF ASIA (3) I
Physical regions of Asia and their human occupancy. Geographic background of current Asian problems. Course fee $1.00.

552 GEOGRAPHY OF JAPAN (3) II
Regional study; emphasis on people and use of the land. Course fee $1.00.

553 GEOGRAPHY OF CHINA (3) II
People and environment on a regional basis; background and emphasis on current development of contemporary China. Course fee $1.00.

554 GEOGRAPHY OF INDIA AND SOUTHEAST ASIA (3) II
Physical and human-use regions; attention to geographic factors in the history, politics, and economics of the area. Course fee $1.00.

561 GEOGRAPHY OF AUSTRALIA AND NEW ZEALAND (2) II
Systematic and regional studies. Emphasis on the transformation of Australasia by European settlement. Course fee $1.00.

571 GEOGRAPHY OF THE PACIFIC ISLANDS (3) I
Polynesia (except Hawaii); Micronesia, and Melanesia. Course fee $1.00.
578 GEOGRAPHY OF HAWAII (3) II
   Regional, physical, and cultural geography. Detailed study of the people and resources. Course fee $1.00.

580 GEOGRAPHY OF THE TROPICS (3) I
   Distribution and interrelationship of the elements of physical environment in the tropics; their bearing on economic activity and human health. Course fee $1.00.

601 HISTORY OF GEOGRAPHY (3) I
   Development of geographic thought from early Greece to the present. Special emphasis on the modern period.

605 HISTORICAL GEOGRAPHY (3) II
   A methodological approach to the reconstruction of the physical and cultural geography of an area at a specific time. Pre: consent of instructor, 601, or Geology 445, or History 711.

620 STUDIES IN ECONOMIC GEOGRAPHY (3) II
   Readings and critical discussion of selected topics in agricultural, mineral, industrial, transportation, and resource geography.

645 FIELD METHODS (3) II
   Techniques for acquiring geographic data by means of traverses and instrument surveys, field observation, and interviews; presentation of data in field reports. Pre: 430 or consent of instructor. Course fee $5.00.

660 SEMINAR IN GEOGRAPHY OF JAPAN (3) II
   Pre: consent of instructor.

665 SEMINAR IN GEOGRAPHY OF THE PACIFIC (3) II
   Investigation of geographic problems of Melanesia, Micronesia, and Polynesia.

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

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

Geology

Senior Professor MACDONALD; Professors ABBOTT, COX, WOOLLARD; Assistant Professors CHAMBERLAIN, FURUMOTO, MOBERLY

150 PHYSICAL GEOLOGY (4) I, II (3 L, 1 3-Hr Lab)
   Work of oceans, glaciers, streams, wind; volcanoes, earthquakes, mountain building. Identification of rocks and minerals. Course fee $1.00.

151 HISTORICAL GEOLOGY (4) II (3 L, 1 3-Hr Lab)
   History of earth; evolution of its inhabitants, emphasizing man's ancestors. Ancient seas, continents, and events. Fossil forms of major life groups. Pre: 150. Course fee $1.00.

200 GEOLOGY OF THE HAWAIIAN ISLANDS (2) II
   Survey of Hawaiian volcanism, rock types, engineering materials, ground water. (Alt. yrs.; offered 1963-64.)
265 STRUCTURAL GEOLOGY (2) I (1 L, 1 3-Hr Lb)

275 GEOLOGIC FIELD METHODS (2) II (2 3-Hr Lb)
Practice in geologic surveying with Brunton compass, plane table, altimeter; general field procedure; air photos. Pre: 265.

310 PRINCIPLES OF STRATIGRAPHY (3) II (2 L, 1 3-Hr. Lb)
Elements of sedimentary petrology and sedimentation. Description, classification, and correlation of sedimentary rock units. Pre: 151.

399 DIRECTED READING OR RESEARCH (Ar.) I, II
Limited to seniors with 2.7 grade-point ratio, or 3.0 grade-point ratio in geology.

410 MINERALOGY (3) I (2 L, 1 3-Hr Lb)

415 PETROLOGY (3) II (2 L, 1 3-Hr Lb)
Hand specimen identification and origin of igneous, sedimentary, metamorphic rocks. Pre: 150, 410, Chemistry 105–106.

420 OPTICAL MINERALOGY (3) I (2 L, 3-Hr Lb)
Introduction to petrographic microscope and to optical properties of minerals. Pre: 415 or consent of instructor.

430 INTRODUCTION TO SOLID EARTH GEOPHYSICS (3) I
A general study of gravitational, magnetic, seismic, and electrical properties of the earth. Pre: 150, Mathematics 141, Physics 161 or 172. (Alt yrs.; offered 1963–64.)

431 ELEMENTARY SEISMOLOGY (3) I
The elastic properties of rocks, and behavior of earthquake waves; earthquake recording instruments; reading of seismograms. Pre: Mathematics 142, Physics 170. (Alt. yrs.; not offered 1963–64.)

440 GEOLOGY OF FUELS (2) I
Origin and occurrence of oil, gas, coal, and fissionable minerals. Pre: 265 or consent of instructor. (Alt. yrs.; not offered 1963–64.)

445 PALEONTOLOGY (3) I (1 L, 2 3-Hr Lb)

454 ECONOMIC GEOLOGY (2) II
Distribution, nature, and origin of deposits of metallic and nonmetallic minerals. Pre: 150. (Alt. yrs.; offered 1963–64.)

455 GEOLOGY OF GROUND WATER (3) II
Origin, circulation, recovery, quality of ground water; emphasis on fresh water problems of the Hawaiian Islands. Pre: 150, Physics 161 or 170. (Alt. yrs.; not offered 1963–64.)

456 ENGINEERING GEOLOGY (2) II
Application of geology to engineering practice, with particular reference to building and highway foundations, dams, and reservoirs. Pre: 150, Mathematics 141. (Alt. yrs.; not offered 1963–64.)
457 MINERAL RESOURCES AND HUMAN AFFAIRS (2) II
General and regional geologic bases for the occurrence, distribution, exploitation, and conservation of ores, fuels, and underground water. (Not offered 1963-64.)

460 GEOMORPHOLOGY (3) II
Study of landforms and their relation to geologic structure. Pre: 151 or consent of instructor.

470 MARINE GEOLOGY (2) II
A survey of marine geologic processes and forms. Field work involving marine geologic equipment and techniques. Pre: 150 or consent of instructor.

480 PETROGRAPHY AND PETROLOGY (3) II (1 L, 2 3-Hr Lb)
Microscopic study of minerals and rocks. Origin and alteration of the several types of rocks. Pre: 420.

490 REGIONAL GEOLOGY (2) II
Evolution of continents from regional tectonic and stratigraphic studies. Pre: senior standing in Geology.

495 CHEMICAL GEOLOGY (3) I (2 L, 1-3 Hr Lb)
Distribution of chemical elements in the earth's crust and oceans, and their relation to rock types and geologic processes. Pre: 415.

500 ADVANCED GENERAL GEOLOGY (2) II
Application of the specialized techniques and knowledge of the several branches of geology, geochemistry, and geophysics, to major geologic problems. Pre: senior standing in Geology.

601 SEMINAR IN VOLCANOLOGY (2) II
Volcanic products and processes; form and structure of volcanoes; nature and origin of volcanism. Pre: 415. (Alt. yrs.; not offered 1963-64.)

602 SEMINAR IN IGNEOUS PETROLOGY (2) II
Theories of origin of igneous rocks. Pre: 480. (Alt. yrs.; offered 1963-64.)

603 SEMINAR IN METAMORPHIC GEOLOGY (2) II
An examination of the composition and structures of metamorphic rocks and modern theories of metamorphism. Pre: 480, Chemistry 105-106. (Alt. yrs.; offered 1963-64.)

605 SEMINAR IN HYDRO-GEOLOGY (3) II
Infiltration, percolation, discharge, and development of ground water. Quantitative aspects. Pre: 265, 455; Chemistry 104 or 108. (Alt. yrs.; offered 1963-64.)

606 SEMINAR IN ENGINEERING GEOLOGY (3) II
Consideration of special problems related to the engineering properties of geologic materials and the effects of geologic processes on man-made structures. Pre: 450, Mathematics 142 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

610 SEMINAR IN SOLID EARTH GEOPHYSICS (3) II
Discussions of the crust and internal structure of the earth from various geophysical evidences. Pre: consent of instructor. (Alt: yrs.; offered 1963-64.)
615 SEISMOLOGY (3) II
Theory of vibration, theory of elastic waves. Pre: 150, Physics 310; Mathematics 401-402. (Alt. yrs.; not offered 1963-64.)

620 SEMINAR IN GRAVITY OF THE EARTH (3) II
Problems and interpretations related to the nature and origin of the earth's gravitational field. Pre: 430, Mathematics 142 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

621 SEMINAR IN GEOMAGNETISM (3) II
Problems and interpretations related to the nature and origin of the earth's magnetic field. Pre: consent of instructor. (Alt. yrs.; not offered 1963-64.)

641 SEMINAR IN ORE DEPOSITS (2) II
A consideration of the physical and chemical processes and structural controls in the formation of metalliferous ore deposits. Pre: 454, Chemistry 105-106. (Alt. yrs.; not offered 1963-64.)

651 SEMINAR IN GEOMORPHOLOGY (2) II
A consideration of special problems and geologic processes in the development of land forms. Pre: 460. (Alt. yrs.; offered 1963-64.)

671 NEAR-SHORE MARINE PROCESSES (2) II
Waves, tides, currents, wind, and their effects upon beaches and near-shore sediments. Pre: consent of instructor. (Alt. yrs.; not offered 1963-64.)

672 SEMINAR IN GEOLOGY OF DEEP OCEAN BASINS (2) I
Deep-sea structure, topography, and sediments; geologic problems of island arcs, and the ocean basins. Pre: consent of instructor.

673 PRINCIPLES OF SEDIMENTOLOGY (3) I (2 L, 1 2-Hr Lb)
Physics of erosion, transportation, and deposition. Statistical and other analytical procedures applicable to sediments. Pre: consent of instructor. (Alt. yrs.; offered 1963-64.)

674 SEDIMENTARY PETROGRAPHY AND STRATIGRAPHY (3) II (2 L, lb)
Composition of carbonate and other sediments and sedimentary rocks; interpretation of their variation. Methods of study. Pre: 420, desirable 673. (Alt. yrs.; offered 1963-64.)

695 SEMINAR IN GEOCHEMISTRY (3) II
Behavior of chemical elements as related to geologic processes. Pre: consent of instructor.

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

800 THESIS RESEARCH

History
Senior Professor Marder; Professors Hunter, D. Johnson, Murphy, Nunn, Saka-maki, J. White; Associate Professors Shinoda, Stalker; Assistant Professors Akita, Cowing, Ernest, Kamil, Kwok, Margulies, McCutcheon
151-152 WORLD CIVILIZATION (3-3) Yr.
Development of civilization from the ancient Orient and classical Greece and Rome to the present; emphasis on Western civilizations. Prerequisite for advanced courses.

161-162 WORLD CULTURES IN PERSPECTIVE (3-3) Yr.
Problems in world history; development of ideas, institutions. Alternative for 151-152. Admission only by approval of the dean and instructor.

171 INTRODUCTION TO AMERICAN HISTORY (3) I, II
Religious, cultural, and social backgrounds of the American people. Prerequisite for advanced courses in American history.

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

327 CONTEMPORARY WESTERN EUROPE (3) I
Land, people, institutions, historical and cultural heritage of northern Europe, especially England and Germany.

328 CONTEMPORARY WESTERN EUROPE (3) II
Land, people, institutions, historical and cultural heritage of southern Europe, especially France, Italy, and Spain.

331 AFRICA, SOUTH OF THE SAHARA (3) II
Development of colonial regimes; chief personalities, African and foreign; emergence of new African states. (Not offered 1963-64.)

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

377 AMERICAN ECONOMIC HISTORY (3) II
Emphasis on the role of techniques, agricultural developments, the entrepreneur and the rise of the labor movement. Economics 150-151 recommended as preparation.

379 REPRESENTATIVE AMERICANS (3) I
A series of biographical sketches of leading characters in American history from the Revolution to the present.

395 SENIOR HONORS THESIS (3-3) Yr.
Preparation of research paper under individual faculty supervision. Required for graduation with honors.

396 SENIOR SEMINAR IN EUROPEAN HISTORY (3) II
Selected problems; use of historic materials; form and content of historical writing.

397 SENIOR SEMINAR IN AMERICAN HISTORY (3) II
Same as in 396.

398 SENIOR SEMINAR IN ASIAN-PACIFIC HISTORY (3) I
Same as in 396.
399 DIRECTED READING (Ar.) I, II
Individual reading projects in various fields. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in history.

For Ancient History, see Greek 401, Greek Civilization, and Latin 402, Roman Civilization. Either of these courses will be accepted by the College of Arts and Sciences as partly fulfilling the World History requirement.

405-406 MEDIEVAL EUROPE, 300–1300 (3–3) Yr.
Cultural, social, economic, and political changes in the development of the European community.

409 RENAISSANCE AND REFORMATION, 1300–1600 (3) I
Ideas and institutions in the early period of commercial and national development. (Not offered 1963–64.)

410 EARLY MODERN EUROPE, 1600–1800 (3) II
Thought and culture of Europe in the age of expansion. (Not offered 1963–64.)

415 EXPANSION OF EUROPEAN CIVILIZATION (3) I
Survey of cultural changes and developments in Europe, the Western Hemisphere, and Asia resulting from European expansion. Interchangeable credit: Asian or European.

419–420 EUROPEAN IDEAS AND THE WORLD SINCE 1800 (3–3) Yr.
Development of the major ideas and movements that have influenced Europe and the world community.

425 EUROPE IN THE NINETEENTH CENTURY (3) I
Major political, social, economic, and intellectual trends in the evolution of Europe from Napoleon to the end of World War I.

426 EUROPE SINCE VERSAILLES (3) II
Problems of contemporary Europe and their historical background. (Alt. yrs.; 1963–64.)

431 HISTORY OF ENGLAND TO 1688 (3) I
Major trends in the development of English civilization from the origins to the Glorious Revolution.

432 HISTORY OF ENGLAND FROM 1688 (3) II
Major trends in modern English history; origins of twentieth-century developments.

435 CONSTITUTIONAL HISTORY OF ENGLAND (3)
Anglo-Saxon institutions; Norman innovations; legal, administrative, parliamentary development under Angevins; rise of cabinet system.

439 AUSTRALIA AND NEW ZEALAND (3)
Major historical developments from colonization to independent nationhood; present problems and policies.

451 HISTORY OF RUSSIA TO 1850 (3) I
Survey of the development of thought and institutions, and of territorial expansion.
452 HISTORY OF IMPERIAL AND SOVIET RUSSIA SINCE 1850 (3) II
The impact of revolutionary changes on recent Russian thought and institutions.

461–462 HISTORY OF THE UNITED STATES TO 1876 (3–3) Yr.
Expansion of Europe into the Western Hemisphere; establishment of American Independence; the Federal Union to the close of the Reconstruction Period.

463–464 HISTORY OF THE UNITED STATES SINCE 1877 (3–3) Yr.
A detailed political, economic, and social survey of the history of the American people, 1877 to the present.

471–472 DIPLOMATIC HISTORY OF THE UNITED STATES (3–3) Yr.
History of American foreign policy, with emphasis upon recent developments.

475 CONSTITUTIONAL HISTORY OF THE UNITED STATES (3) II
The genesis, drafting, ratification, and development of the federal Constitution.

481 AMERICAN THOUGHT AND CULTURE (3) I
An advanced course in American social customs, institutions, and intellectual pursuits.

491 THE WEST IN AMERICAN HISTORY (3)
Western expansion forces in the development of the economic, cultural, and political trends of the nation.

492 THE SOUTH IN AMERICAN HISTORY (3) I
Southern economic, social, intellectual, and political development, with special attention to race relations. (Not offered 1963–64.)

511–512 HISTORY OF HISPANIC AMERICA (3–3) Yr.
Political, economic, and social development of the Hispanic-American republics from colonial times to the present.

515 THE UNITED STATES AND HISPANIC AMERICA (3)
Development of political and economic problems and policies in inter-American relations.

527 RUSSIAN SIBERIA AND THE PACIFIC (3)
Russia's eastward expansion; dynamic role as a Far Eastern power; relations with China and Japan. Interchangeable credit: Asian or European. (Not offered 1963–64.)

529–530 SOUTHEAST ASIA (3–3) Yr.
Survey of Burma, Siam, Indo-China, Malaya, Indonesia, Philippines; history, relations with Europe and the United States.

531 HISTORY OF CHINA TO 1800 (3) I
Thought and institutions from ancient to early modern times.

532 HISTORY OF CHINA SINCE 1800 (3) II
Response to Western culture; recent revolutionary changes.

533–534 CULTURAL HISTORY OF CHINA (3–3) Yr.
Principal stages of China's social and intellectual development from the dawn of Sinic culture to the modern era. (Not offered 1963–64.)
539 AMERICAN-CHINESE RELATIONS (3) II
Diplomatic, economic, cultural relations; emphasis on American Far Eastern policy. Interchangeable credit: Asian or European. (Not offered 1963-64.)

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

543 CONSTITUTIONAL HISTORY OF MODERN JAPAN (3)
Political, economic, social, and ideological factors as these influenced the beginnings and development of constitutional government in Japan from 1878 to the present. Pre: 541–542, Govt 110 or 210.

551–552 SOUTH AND SOUTHWEST ASIA (3–3) Yr.
General historical survey of India, Pakistan, Ceylon, and the Muslim countries of Southwest Asia from the earliest times to the present.

553 RUSSIAN CENTRAL ASIA AND THE CAUCASUS (3) I
Russia's expansion; impact on Mohammedan and Christian peoples; relations with Middle East and India. Asian or European credit.

571 PACIFIC EXPLORATION AND DISCOVERY TO 1799 (3)
Europe in the Pacific; first contacts through Cook's voyages. Emphasis on island areas.

572 PACIFIC ISLANDS FROM 1779 (3)
Expansion of European commerce, missionary activity, settlement; effects on native peoples in Australasia, Melanesia, Micronesia, Polynesia. (Alt. yrs.; not offered 1963-64.)

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

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

611 SEMINAR IN EUROPEAN HISTORY (3) I, II
Selected problems for reading and research; alternating emphasis on medieval, modern, and British fields.

618 BRITISH EMPIRE AND COMMONWEALTH FROM 1815 (3)
The Empire; transformation of colonies and dependencies into member nations of the Commonwealth; present problems; relationships.

633 AMERICAN SOCIAL REFORM MOVEMENTS SINCE 1865 (3) I
A detailed survey of America's quest for social justice.

635 THE COLONIAL PERIOD IN AMERICAN HISTORY (3)
A reading and research seminar in political, social, and intellectual history. (Not offered 1963-64.)

636 MAJOR CULTURAL THEMES IN AMERICAN HISTORY (3)
Immigration, urbanization, industrialism are some of the themes used to focus the semester's work in this seminar.
637 THE PROGRESSIVE PERIOD IN AMERICAN HISTORY (3)
Research in problems relating to the rise, character, and decline of the Progressive Movement, 1872 to 1924.

641 SEMINAR IN AMERICAN DIPLOMATIC HISTORY (3) II
Selected problems in the development of the United States foreign policy and its implementation.

660 EARLY CIVILIZATION IN THE FAR EAST (3) I
Study of the origins of the peoples and cultures in Eastern Asia.

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

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

664 SEMINAR IN SOUTHEAST ASIAN HISTORY (3) II
Studies in the histories of the peoples and states of Southeast Asia. Selected topics and research papers.

665 SEMINAR IN JAPANESE HISTORY (3) I, II
Main fields of Japanese historical research; principal sources of bibliographical information; selected problems in modern Japanese history.

666 HISTORY OF THOUGHT IN JAPAN (3) II
Major schools of thought and important thinkers, social reformers, economists, statesmen, educators of Japan.

671 SEMINAR IN RUSSIAN HISTORY (3) II

675 SEMINAR IN PACIFIC HISTORY (3) II
Selected problems and studies in the history of Oceania and its relations with other areas.

699 DIRECTED RESEARCH (Ar.) I, II
Individual research in the same fields as in 399.

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) II
Training in bibliography and research methods in Asian history. Discussions and special problems.

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

790 SEMINAR IN HISTORY AND LITERATURE (2) I
Problems in contemporary American culture, with emphasis on the history of ideas. History 790 the first semester; English 790 the second. Pre: consent of instructor. (Not offered 1963-64.)
Interdisciplinary Studies

300 FIELD STUDY (Var.) I, II
Pre-arranged systematic investigation in the field of selected topics. Primarily for East-West grantees. Pre: permission of appropriate department chairman and dean.

Mathematics

Professors Gregory, Townes; Associate Professors Mookini, Yamauchi; Assistant Professors Borges, Clark, F. Davis, Nagy, Sioson, Spiller, H. White, Wilson; Instructors N. Bouslog, Brixey, R. Garcia, Koehler, Lo, Miura, Siu, Tatham, Wong; Lecturers L. Bell, Mottl, Paolucci

101 INTERMEDIATE ALGEBRA (3) I, II

102 PLANE TRIGONOMETRY (3) I, II
Pre: two years of high school algebra or Math 101; one year of plane geometry.

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

111 INTRODUCTION TO MATHEMATICS (3) I, II
To acquaint the nonspecialist with the position of mathematics in modern culture.

112 ALGEBRA (3) I, II
Unified treatment of elementary mathematics through the consideration of the fundamental concepts of number, set, and function. Pre: 111 or equivalent.

113–114 CONCEPTS OF ANALYTIC GEOMETRY AND CALCULUS (3–3) Yr.
Analytic geometry and calculus with emphasis on the fundamental notions and their implications. Pre: 112 or equivalent.

140 ANALYTIC GEOMETRY AND CALCULUS I (3) I, II
Topics of analytic geometry and calculus which supplement each other. Pre: 102.

141 ANALYTIC GEOMETRY AND CALCULUS II (3) II
Continuation of 140 with emphasis on the integral calculus. Pre: 140.

142 CALCULUS III (3) I, II
Techniques of integration with applications. Pre: 141.

143 CALCULUS IV (3) I, II
Partial differentiation, multiple integration, and elementary differential equations. Pre: 142.

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

401–402 DIFFERENTIAL EQUATIONS (3–3) Yr.
410 NUMERICAL METHODS FOR ALGEBRAIC EQUATIONS (3) I, II
Solution of algebraic equations and systems of linear algebraic equations by
direct, iterative, and relaxation techniques. Calculation of eigenvalues and inver-
sion of matrices; difference methods. Prerequisite: 143, 401.

411 NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS (3)
Difference methods, interpolation, solution of ordinary differential equations.
Discussion of some types of partial differential equations. Prerequisite: 401. (Not offered
1963-64.)

421 INTRODUCTION TO MODERN ALGEBRA (3) I
Matrices, determinants, groups, properties of number systems, and the theory of
fields. Prerequisite: 143.

422 MATRICES AND THEORY OF EQUATIONS (3) II
Algebra of matrices, linear equations, real vector spaces and transformations.
Prerequisite: 143.

431-432 ADVANCED CALCULUS (3-3) Yr.
Limits and continuity, functions of several variables, multiple integrals, infinite
series, calculus of variations. Prerequisite: 143.

442 VECTOR ANALYSIS (3) II
Vector operations and their applications. Vector differential operators. Line and
surface integrals. Prerequisite: 143.

444 THEORY OF FUNCTIONS OF A COMPLEX VARIABLE (3) II
Residue theory; contour integration; other topics of analysis. Prerequisite: 143.

471 PROBABILITY (3) I
Probability laws, discrete and continuous probability distributions, expectations,
moments, cumulants, generating functions. Prerequisite: 143.

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

501-502 THEORY OF SETS AND METRIC SPACES (3-3) Yr.
Sets, mappings, and metric spaces. Normed spaces, Hilbert spaces and the space
of continuous functions. Prerequisite: 143, 421, 422, 432.

601-602 APPLIED MATHEMATICS (3-3) Yr.
Ordinary and partial differential equations, orthogonal functions, vector analysis,
complex variables. Prerequisite: 143, 401, 402.

611-612 MODERN ALGEBRA (3-3) Yr.
Groups, vector spaces, matrices, fields, rings, ideals. Prerequisite: 421, 422.

621-622 TOPOLOGY (3-3) Yr.
Homeomorphisms, complexes, homology and cohomology groups, manifolds. Prerequisite:
421, 422, 431, 432.
631–632 THEORY OF FUNCTIONS OF A REAL VARIABLE (3–3) Yr.
Point sets, function limits, differentiation, Riemann integral, convergence, Lebesgue and Stieltjes integral. Pre: 432.

644–645 ANALYTIC FUNCTION THEORY (3–3) Yr.
Infinite series, Cauchy theory, conformal mapping, analytic continuation, application to special functions. Pre: 431, 432.

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

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

Meteorology and Oceanography

Professors W. Chiu, Estoque, Ramage; Associate Professor Lavaestu; Assistant Professors Adams, Lavoie

Meteorology

Meteorology 160, or the equivalent, is prerequisite to all advanced courses.

160 INTRODUCTION TO METEOROLOGY (3) II
An introductory discussion of various types of atmospheric phenomena; basic physical principles, structure, and behavior.

202 METEOROLOGICAL INSTRUMENTS AND OBSERVATIONS (3) I (2 L, 1 3-Hr Lb)
Principles of meteorological instruments and their care; instrumental and visual weather observation; coding. (Not offered 1963-64.)

204 APPLIED TROPICAL METEOROLOGY (3) I
Effects of the tropics on health, comfort, housing, hydrologic cycle, agriculture, industry.

206 PHYSICAL CLIMATOLOGY (3) II
Climates related to physical processes and their regional variations; synoptic climatology. (Not offered 1963-64.)

422 THEORETICAL METEOROLOGY I (4) I
Atmospheric statics; optical, acoustical, and electrical phenomena; condensation and precipitation; radiation and heat balance; thermodynamics; kinematics. Pre: Math 143, Phys 174; Phys 310, 530, concurrently, or consent of instructor.

423 THEORETICAL METEOROLOGY II (4) II
Basic concepts of fluid motion applied to the atmosphere. Equations of motion; special cases of balanced motion; principles of numerical weather prediction. Pre: Meteorol 422.

425 TROPICAL METEOROLOGY (3) II
History; tropical clouds and hydrometeors; easterly waves and typhoons; monsoons; local and diurnal effects. Pre: Meteorol 422.
430 METEOROLOGICAL ANALYSIS LABORATORY (5) II
Techniques of portraying and analyzing atmospheric structure and weather systems; exercise in analysis of tropical and extra-tropical motion systems. Pre: Meteorol 422, credit or registration in 423.

575 ADVANCED TROPICAL METEOROLOGY (6)
Modern methods of analysis and forecasting in the tropics. Pre: professional experience or graduate standing. Course fee $12.00.

624 ATMOSPHERIC TURBULENCE (3) I
Equations of motion for turbulent flow; turbulent diffusion; atmospheric boundary layer processes. Pre: Meteorol 423.

673 CLOUD PHYSICS (3) II
Physical processes attending formation and subsequent history of clouds and cloud particles.

674 PHYSICAL METEOROLOGY (3) II
Advanced treatment of radiation, atmospheric optics, acoustics, electricity, and visibility; radar meteorology. Pre: Meteorol 422. (Not offered 1963-64.)

675 NUMERICAL ANALYSIS AND PREDICTION (5) I (1 L, 4 3-Hr Lbs)
Theory and practice of objective analysis and numerical weather prediction; formulation of prediction equations, numerical integration procedures; programming of high speed electronic computers. Course fee $12.00.

676 STATISTICAL METEOROLOGY (3) I
Frequency distributions of atmospheric variables, probability; correlation and regression; time series analysis; statistical forecasting. Pre: Math 143. (Not offered 1963-64.)

680 ADVANCED THEORETICAL METEOROLOGY I (3) I
The basic equations of meteorology in vector form and in various coordinate systems; circulation and vorticity theorems; classical hydrodynamics. Pre: Meteorol 423 or equivalent; knowledge of ordinary and partial differential equations.

681 ADVANCED THEORETICAL METEOROLOGY II (3) II
Basic theories of the mechanics of compressible fluids; atmospheric waves and tides; stability problems. Pre: Meteorol 680. (Not offered 1963-64.)

682 SPECIAL TOPICS IN METEOROLOGY (3)
Concentrated studies on selected atmospheric problems. Pre: Meteorol 681 or consent of instructor.

683 ADVANCED TOPICS IN SYNOPTIC METEOROLOGY I (3) I
Studies of the structure and development of weather systems. (Not offered 1963-64.)

684 ADVANCED TOPICS IN SYNOPTIC METEOROLOGY II (3) I
Recent developments in applied meteorology. Synoptic approach to atmospheric problems of industry, marine and aircraft operations; local forecast problems.

685 SEMINAR I (1) I
Discussions by staff members and students of recent meteorological articles as well as results of original investigations.
686 SEMINAR II (1) II  
A continuation of Seminar I, but primarily intended for research results of staff members, students, and invited lecturers.

687 PROBLEMS IN TROPICAL METEOROLOGY (2) II  
Group discussion and evaluation of selected topics in tropical meteorology.

699 DIRECTED RESEARCH (Ar.) I, II

**OCEANOGRAPHY**

_The University does not offer a degree program in this area, but the courses listed below are available._

550 GENERAL OCEANOGRAPHY (3) I  
Ocean basins, bathymetry, sedimentation; physics and chemistry of sea water; distribution of properties; interactions between the sea and the atmosphere, currents, waves and tides, turbulence and mixing; organic production in the sea, seaweeds, phytoplankton, zooplankton; benthos, fish in relation to the sea. Interdepartmental offering. (Some laboratory and field work.) Pre: Mathematics 103, senior standing in a biological or physical science.

575 REGIONAL OCEANOGRAPHY (2) II  
Processes at the surface and formation of water types; formation of deep waters; water type and mass analyses; coastal and oceanic waters; water masses by natural regions and description of the characteristics of oceans. Pre: Zoology 201; or Oceanogr 550; or consent of instructor.

600 PHYSICAL OCEANOGRAPHY (3) II  
Ocean-atmosphere interaction processes; dynamics of ocean waves and currents. Pre: Oceanogr 550.

601 OCEANOGRAPHIC FORECASTING (2) II  
Forecasting of waves and surface currents; sea and weather routing of ships; storm surges and tsunamis; tidal computations; maritime meteorological services; application of various forecasts in navigation, fishery and marine engineering. Pre: Oceanogr 550 or 600.

675 OCEANOGRAPHIC INSTRUMENTATION LABORATORY RESEARCH AND FIELD WORK (2-4) I, II  
Description and demonstration of oceanographic instruments and observation practices. Laboratory exercises and treatment of oceanographic data. Sea practices on research vessels arranged through the Department. Pre: Oceanogr 550 or 600, and consent of instructor.

684 PROBLEMS IN OCEANOGRAPHY (Ar.) I, II  
Study of selected subjects in all fields of oceanography. Preparation of term paper required (review or analyses of available data). Pre: graduate standing in oceanography.

_Descriptions for the following courses are given under the respective departments._

**BOTANY 586 BIOLOGICAL PRODUCTIVITY OF THE SEA (3) II**
CHEMISTRY 580 OCEANOGRAPHIC CHEMISTRY (3) II
GEOLOGY 470 MARINE GEOLOGY
ZOOLOGY 201 SCIENCE OF THE SEA (3) I
ZOOLOGY 536 OCEANOGRAPHY (3) II

Microbiology

Professors Benedict, Bushnell, Chu; Associate Professor Loh; Assistant Professors Berger, Contois

151 is prerequisite to all more advanced courses.

130 MICROBES AND MAN (2) I, II
  Microorganisms as they affect people and their possessions. Not open to those who have credit in 151.

140 MICROBIOLOGY LABORATORY (2) II (2 Lb)
  For students in nursing and dental hygiene only. Pre: credit or registration in 130, and Chem 101, 102. Course fee $6.00.

148 ENVIRONMENTAL SANITATION (2) II
  Microorganisms in foods, water, air, and sewage as hazards to health; principles and practices of sanitation.

151 GENERAL BACTERIOLOGY (4) I, II (3 L, 2 Lb)
  Fundamentals. Pre: Chem 104 or 108; 4 credits in biological or physical science. Recommended: Chem 141 or 144. Lectures only (3 credits) require instructor's approval. Course fee $6.00.

251 AGRICULTURAL MICROBIOLOGY (3) I (2 L, 1 Lb)
  Soil, sewage, water, milk, and dairy microbiology. Pre: Chem 141 or 144. Course fee $3.00. (Alternates with 252; not offered 1963-64.)

252 INDUSTRIAL MICROBIOLOGY (3) I (2 L, 1 Lb)
  Role of microorganisms in food processing, fermentation, and production of important biologicals. Pre: Chem 141 or 144. Course fee $3.00. (Alternates with 251; offered 1963-64.)

361-362 MEDICAL MICROBIOLOGY AND SEROLOGY (4-4) (3 L, 2 Lb)
  Infectious diseases of man and their diagnosis by laboratory methods. Pre: Chem 141 or 144. Course fee $6.00.

399 MICROBIOLOGICAL PROBLEMS (Ar.) I, II
  Directed reading and laboratory. Limited to senior majors with 2.7 grade-point ratio, or 3.0 in microbiology. Course fee $6.00.

415 DESCRIPTIVE BACTERIOLOGY (3) I (2 L, 2 Lb)
  Isolation, description, and classification of selected groups of bacteria. Pre: 251 or 252, or consent of instructor. Course fee $6.00.
620 ADVANCED GENERAL MICROBIOLOGY (3) I (2L, 2Lb)
Fundamental concepts and techniques of study of general microbiology from an advanced standpoint, with particular emphasis on modern developments. Pre: Chemistry 141 or 144 and 6 credits in biological science, or consent of instructor. Course fee $6.00.

625 IMMUNOLOGY (3) II (3 L)
Concepts of the nature and mechanism of immunity and hypersensitivity. Pre: 362; Chemistry 141 or 144; or consent of instructor. Course fee $6.00.

627 TECHNIQUES OF IMMUNOLOGY (3) I (3 Lb)
Studies on the nature and mechanism of natural and acquired resistance and hypersensitivity with special emphasis on chemical, physical, and biological methods of characterizing antigens and antibodies. Pre: concurrent registration in Microbiology 625. Course fee $6.00.

631 MICROBIAL PHYSIOLOGY (3) I (2 L, 2 Lb)
Fundamentals of microbial physiology and metabolism, and basic techniques. Pre: Chem 271 or 572 or consent of instructor. Course fee $6.00.

632 TECHNIQUES OF MICROBIAL PHYSIOLOGY (3) II (2 L, 2 Lb)
Advanced techniques for the study of selected topics. Pre: 631 or consent of instructor. Course fee $6.00.

655 VIROLOGY (2) II (2 L)
Concepts of growth, pathogenesis, and epidemiology of animal viruses. Pre: 362, 625; Chem 271; or consent of instructor.

657 VIRUS LABORATORY (3) II (2 Lb)
Techniques used in the growth, purification, and identification of animal viruses. Pre: 362, 625; Chemistry 271 or 601-602; or consent of instructor.

690 SEMINAR (1) I, II
Significant topics in microbiology. Required of graduate students. May be repeated.

699 DIRECTED RESEARCH (Ar.) I, II
Selected problems in microbiology. Pre: consent of instructor. Course fee $6.00.

Credit toward the major will be granted in the following courses:

Biochemistry 271, 601-602, 611-612

Botany 415, 418, 430, 436, 470, 570-571

Genetics 451, 518

Plant Pathology 310

Zoology 410, 425
Music

Professors Rian, B. Smith, R. Vaught, Vine; Associate Professor Horn; Assistant Professors Herand, Kerr, Landsman, O. P. Paul, W. Pfeiffer, Russell; Instructors Gillett, R. Lum, Mundy, Saclausa, Uchima; Lecturers Alexander, Harling, Miyamura, K. Vaught

109 UNIVERSITY FIELD BAND (1) I, II
For ROTC band members but open to others. Two sessions weekly with an additional hour arranged. May be repeated for credit.

111 GROUP VOICE INSTRUCTION (1) I, II
Basic principles of voice production and elementary music skills in classes of twenty.

112 GROUP VOICE INSTRUCTION (1) I, II
Continuation of 111. Pre: 111 or consent of instructor.

113-114 GROUP INSTRUCTION IN SECONDARY PIANO (1) I, II
Basic instruction on the piano as a secondary instrument. Music majors only.

115-116 GROUP INSTRUCTION IN SECONDARY PIANO (1), I, II
Continuation of 113-114.

117-118 INTRODUCTION TO MUSIC SKILLS (1-1) Yr.
Experience in singing, reading, and playing of classroom instruments (including recorder and bell-type instruments, autoharp, and fretted instruments). Not open to those who have had 150.

140 RECREATIONAL MUSIC (2) I
Elementary music skills including instruction on the ukulele. Not open to those who have had 150 or 117-118. (Not offered 1963-64.)

150 ELEMENTARY MUSICIANSHIP (3) I, II
Basic instruction in singing and ukulele playing, covering terminology and notation. Not open to those who have had 140 or 117-118.

151-152 STRING METHODS (2-2) Yr.
Basic skills and teaching methods for stringed instruments. For students preparing to teach instrumental music.

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

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

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

160 INTRODUCTION TO MUSIC LITERATURE (3) I, II
Orchestral literature from the classical through the modern period. From the listener's point of view. Lab section required. Course fee $2.00.

181-182 THEORY (4-4) Yr.
Basic rhythmic, melodic, harmonic, and formal elements of eighteenth and nineteenth century music.
183-184 ADVANCED THEORY (4-4) Yr.
Continuation of 182. Altered chords; modulation. Pre: 182.

200 UNIVERSITY CHORUS (1) I, II
Three hours a week. May be repeated for credit.

251-252 MUSIC, ELEMENTARY CURRICULUM (2-2) Yr.
Organization and direction of music in childhood experience. Materials and procedures. Pre: 150; junior standing in education. 251 is prerequisite to 252.

253 MUSIC, ELEMENTARY CURRICULUM (2) I
Combination of 251-252. Auxiliary Teacher Training only. Pre: 150.

257-258 CONDUCTING (2-2) Yr.
Preparation for school, community, and church conducting. Score reading, organizing and conducting choral and instrumental groups. Pre: 152, 182.

259 PIANO METHODS (2) I
Methods and materials for class and private instruction in piano. Pre: 182 or consent of instructor.

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

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

394-395 SENIOR HONORS THESIS (4) Yr.
Credit in 160 or 181 or consent of instructor, is necessary for 461, 462, 463, 464, 465, 466, 470, 471.

400 UNIVERSITY CONCERT CHOIR (1-1) Yr.
Performance of a cappella literature and other major choral works including masses and cantatas. Three hours a week. May be repeated for credit. Pre: audition or consent of instructor.

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

405 UNIVERSITY CONCERT 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) II
Continuation of 150 with emphasis upon sight singing, melodic and rhythmic dictation, and basic harmony. Pre: 150 or equivalent. Not open to music majors.
451 ADVANCED STRING METHODS (2) I  
Advanced playing, teaching technique, and materials and of string instruments.  
Pre: 152.

452 ADVANCED WOODWIND METHODS (2) II  
Advanced playing, teaching technique, and materials of woodwind instruments.  
Pre: 153.

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

461 MUSIC OF THE BAROQUE PERIOD (2) I  
Music literature 1580-1750, especially Bach and Handel. Oratorio, opera, and instrumental. Course fee $2.00.

462 MUSIC OF THE CLASSIC PERIOD (2) II  
Haydn, Mozart, and Beethoven. Opera, choral, and instrumental music. Course fee $2.00.

463 MUSIC OF THE ROMANTIC PERIOD (2) I  
Emergence of the romantic style of the nineteenth century. Major composers. Course fee $2.00. (Not offered 1963-64.)

464 CONTEMPORARY MUSIC (2) II  
From Debussy to the present. Schoenberg, Bartok, Hindemith, Stravinsky, and contemporary American composers. Course fee $2.00. (Not offered 1963-64.)

465-466 HISTORY OF WESTERN MUSIC (3-3) Yr.  
Development of music from its origins to the present. Nationalities, schools, and composers. Course fee $2.00.

470 MUSIC OF ASIA (3) I  
Folk and traditional music of Asia. Recordings, demonstrations, pictures, etc. Course fee $3.00.

471 MUSIC OF NONLITERATE PEOPLES (3) II  
Music of nonliterate people and changes in musical style resulting from contact with Western culture. Emphasis on Pacific islands. Recordings, demonstrations, pictures, etc. Pre: 160 or 181. Course fee $3.00.

481 ADVANCED ORCHESTRATION (2) II  
Arranging and composing for band, orchestra and choral groups. Pre: 281.

483-484 COUNTERPOINT (2-2) I, II  
Contrapuntal elements of music and their use from the fourteenth century to the present. Pre: 182.

485-486 FORM AND ANALYSIS (2-2) Yr.  

487-488 COMPOSITION (2-2) I, II  
Selected masterpieces and creative writing in smaller forms. Pre: recommendation of the department.
600 SEMINAR (3) I, II
Selected problems in (1) composition, (2) ethnomusicology, (3) musicology, (4) performance repertory, (5) music education. Pre: consent of instructor. May be repeated.

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

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

654 PACIFIC AND ASIAN MUSIC IN EDUCATION (2) II
Songs, dances, musical instruments of Hawaii and Asia, for grades 4, 5, 6. Pre: teaching experience or consent of instructor. Rehearsal hours arranged.

657–658 ADVANCED CONDUCTING (2–2) I, II
Practical experience with instrumental and choral groups, including public performance. Pre: 258.

661 BIBLIOGRAPHY AND RESEARCH METHODS IN MUSIC (3) I
The use of basic research material and techniques in ethnomusicology and historical musicology.

699 DIRECTED WORK (Ar.) I, II
Reading and research in ethnomusicology, musicology or music education; reading and practice in theory, composition or performance. Pre: candidacy for the M.A. or M.F.A. degree; consent of instructor.

APPLIED MUSIC

Instruction is given in piano, organ, voice, and orchestral instruments in individual half-hour lessons either once or twice a week. Lessons are not made up unless the instructor is notified a reasonable time in advance of the absence. Lessons occurring on holidays are not made up.

Registration for lessons and choice of teachers must be approved by the department chairman.

One public appearance in both the junior and senior levels is required of all students majoring in music. This requirement is satisfied by successful participation in University student recitals.

Assignment to Applied Music courses is based on tests and auditions given by the department during the Freshman Orientation Period. In order to receive credit in Applied Music courses 135–136 and above, the following minimum requirements must be met:

Satisfactory work in Music 181–182, or the equivalent.

Piano and organ—Play any major or minor scale in octaves, at a moderate tempo; Bach Two-Part Invention or a dance from one of the
suites; a sonata by Haydn or Mozart; a modern composition as difficult as the sonata.

Voice—Sing on pitch, with correct phrasing and musical intelligence, standard songs in good English.

Orchestral instruments—Entrance requirements may be had by writing the Music Department.

FEES PER SEMESTER

<table>
<thead>
<tr>
<th>Class Description</th>
<th>Fee</th>
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<tbody>
<tr>
<td>One class lesson each week</td>
<td>$10.00</td>
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<tr>
<td>One lesson each week (half hour)</td>
<td>$55.00</td>
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<tr>
<td>Two lessons each week (half hour each)</td>
<td>$90.00</td>
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121 CLASS INSTRUCTION (1-1) Yr.
Class instruction at the beginning level in voice and Asian instruments.

122 CLASS PIANO INSTRUCTION (1-1) I, II
Class instruction at the beginning level in piano.

123 INTERMEDIATE CLASS PIANO (1) II
Class instruction at the intermediate level in piano. Continuation of 122.

131 INDIVIDUAL INSTRUCTION (Ar.) I, II
Voice, piano, organ, orchestral or Asian instruments. Nonmusic majors at freshman-sophomore level, or majors as a secondary medium. May be repeated for credit.

135–136 INDIVIDUAL INSTRUCTION (Ar.) Yr.
Voice, piano, organ, or orchestral instruments at the freshman level. For prospective music majors. Pre: 131 or consent of instructor.

137–138 INDIVIDUAL INSTRUCTION (Ar.) Yr.
Voice, piano, organ, or orchestral instruments at the sophomore level. For prospective music majors. Pre: 136 or consent of instructor.

231 INDIVIDUAL INSTRUCTION (Ar.) I, II
Voice, piano, organ, orchestral, or Asian instruments. Nonmusic majors at junior-senior level, or majors as a secondary medium. May be repeated for credit.

235–236 INDIVIDUAL INSTRUCTION (Ar.) Yr.
Voice, piano, organ, or orchestral instruments at the junior level. Recital required second semester (236). For music majors. Pre: 138 or consent of instructor.

237–238 INDIVIDUAL INSTRUCTION (Ar.) Yr.
Voice, piano, organ, or orchestral instruments at the senior level. Recital for graduation (238–81). For music majors. Pre: 236 or consent of instructor.

435 INDIVIDUAL (Ar.) I, II
Voice, piano, organ, orchestral, or Asian instruments at the graduate level. May be repeated for credit. Pre: 238 or graduate standing.

635 ADVANCED INDIVIDUAL INSTRUCTION (Ar.) Yr.
Vocal or instrumental instruction for M.A. or M.F.A. candidates. Pre: 435 and consent of instructor. May be repeated for credit.
Philosophy

Senior Professor Moore; Professors McCarthy, Nagley, Saksema; Assistant Professors Gimigliano, Haynes, Inada, Resnik

One of the following is generally a prerequisite to each advanced course: 100, 110, 150, 155, or the equivalent.

100 INTRODUCTION TO PHILOSOPHY (3) I, II
Problems, methods, and fields of philosophy.

110 INTRODUCTION TO ETHICS (3) I, II
Major philosophies and typical theories of the nature of the good life.

150 HISTORY OF PHILOSOPHY (3) I
Western philosophy from the era of great Greek thinkers to the Renaissance. Pre: sophomore standing.

155 MODERN PHILOSOPHY (3) II
Western philosophy from the Renaissance to the present. Desirable preparation: 150.

WESTERN

315 TYPES OF PHILOSOPHY (3) II
Analysis of the following basic types: Idealism, Naturalism, Mysticism, Skepticism, etc.

350 ETHICS (3) I, II
A comparative analysis of ethical theory in theological, legal, literary, scientific, social, as well as philosophical sources, indicating the relevance of ethical theory to the process of decision making.

400 CONTEMPORARY PHILOSOPHY (3) I
Survey of recent developments in Western philosophy. Pre: one of the following, 100, 150, 155.

410 AMERICAN PHILOSOPHY (3) I
Major trends in the development of American philosophy in relation to socio-political background and influence. (Not offered 1963–64.)

420 PROBLEMS OF PHILOSOPHY (3) I
Persistent specific problems of philosophy, primarily those concerning nature, man, God.

430 LOGIC (3) I, II
Principles of deductive and inductive logic, traditional and modern.

432 SYMBOLIC LOGIC (3) II
Principles of mathematical logic. Pre: 430, or 12 credits of mathematics.

435 BRITISH EMPIRICISM (3) I
Analysis of the development of empiricism in the writings of Locke, Berkeley, and Hume. Special attention to the concepts of substance, sensation, self, nature, causation, mathematics, morality, and religion.

436 CONTINENTAL RATIONALISM (3) II
Epistemological, metaphysical, and ethical problems in Continental Rationalism. Particular attention to Descartes and Spinoza. (Not offered 1963–64.)
440 POLITICAL PHILOSOPHY (3) II
A combined systematic and historical approach to the major problems of Western political philosophy. Special attention will be given to European political theory.

475 PLATO (3) I
Analysis of the theory of ideas, theory of knowledge, ethical and political ideas, and his view of the arts through examination of the Dialogues.

476 ARISTOTLE (3) II
Analysis of the fundamental ideas and works including his methodological, metaphysical, ethical, political, logical, and aesthetic theory. (Not offered 1963-64.)

500 PHILOSOPHY OF ART (3) I
Study of art from the points of view of creation, appreciation, criticism. Particular attention to painting, sculpture, music, poetry.

505 PHILOSOPHY OF RELIGION (3) II
Western religious philosophy: Thomism, Mysticism, Reformationism, Rationalism, Agnosticism, Romanticism, Humanism, Existentialism.

510 PHILOSOPHY IN LITERATURE (3) II
Literary expression of philosophical ideas. Consideration of such writers as Beckett, Camus, Hemingway, Kafka, Rilke, Sartre, T. S. Eliot.

515 PHILOSOPHY OF HISTORY (3) II
Occidental and Oriental conceptions of the meaning of historical processes. Particular attention to Augustine, Hegel, Marx-Engels.

520 EXISTENTIAL PHILOSOPHY (3) II
Survey of the main themes of European existential philosophy. Particular attention to Kierkegaard and Heidegger.

550 THEORY OF SCIENCE (3) I
A systematic study of the methods and procedures of reliable knowledge in the formal, natural, and social sciences.

555 FOUNDATIONS OF SCIENCE (3) I
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 INTRODUCTION TO INDIAN PHILOSOPHY (2) 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) I
The basic codes of Indian moral and social philosophy (Dharmasastras) and their historical developments and their practical significance.
460 INTRODUCTION TO BUDDHIST PHILOSOPHY (3) I
Survey of the basic schools and tenets of Buddhist philosophy.

461 THERAVADA BUDDHIST PHILOSOPHY (3) I
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 BUDDHIST PHILOSOPHY (3) II
Origin and development of Indian, Chinese, and Japanese Zen; influence on Oriental cultural traditions and contemporary scene. Pre: 460; consent of instructor. (Not offered 1963-64.)

470 INTRODUCTION TO CHINESE PHILOSOPHY (3) I
Historical survey of the important philosophical schools and tendencies in China, ancient and modern.

471 CONFUCIANISM (3) II
Doctrinal, ethical, social and institutional problems from Confucious to the present. Pre: 455; consent of instructor.

COMPARATIVE

465 PHILOSOPHY, EAST AND WEST (3) I
Basic systems and methods of Eastern and Western philosophy, with special attention to similarities and contrasts.

FOR GRADUATES

600 SEMINAR IN PROBLEMS OF PHILOSOPHY (3) II
Pre: graduate standing; consent of instructor. (Not offered 1963-64.)

601 SEMINAR IN GREEK PHILOSOPHY (3) I
Pre: graduate standing; consent of instructor.

610 SEMINAR IN MODERN PHILOSOPHY (3) I, II
Pre: graduate standing; consent of instructor. (Not offered 1963-64.)

620 SEMINAR IN CONTEMPORARY PHILOSOPHY (3) I, II
Pre: graduate standing; consent of instructor.

650 SEMINAR IN INDIAN PHILOSOPHY (3) I, II
Pre: graduate standing; consent of instructor.

660 SEMINAR IN BUDDHIST PHILOSOPHY (3) II
Pre: graduate standing; consent of instructor.

670 SEMINAR IN CHINESE PHILOSOPHY (3) II
Pre: graduate standing; consent of instructor. (Not offered 1963-64.)

690 SEMINAR IN COMPARATIVE PHILOSOPHY (3) II
Pre: graduate standing; consent of instructor.
699 DIRECTED RESEARCH (Ar.) I, II
(1) Greek philosophy, (2) modern classical philosophy, (3) contemporary Western philosophy, (4) Indian philosophy, (5) Chinese philosophy, (6) Buddhist philosophy, (7) East-West philosophy. Available to advanced graduate students, consent of instructor and chairman required.

Physics

Professors J. Holmes, I. Miyake, Peterson, Watanabe; Associate Professors Kudar, Pong, Steiger; Assistant Professors Cence, McAllister, Nose; Instructors Chang, Matsunaga

Mathematics 143 and Physics 160-161 or 170-173 are prerequisite to all courses numbered 300 or above.

110 ASTRONOMY (3) I
Introduction to the nature of the astronomical universe; survey of observational methods and historical development. Pre: Mathematics 102.

140 ELEMENTARY PRINCIPLES OF SOUND (2) II
A study of the physics of sound as related to music and speech, and related problems in acoustics. Pre: Mathematics 112 or equivalent, or consent of instructor.

151 INTRODUCTION TO ELECTRONIC CIRCUITS (3) I (2 L, 1 Lb)
An electricity course covering DC and AC theory and applications; emphasis on vacuum tube circuits. Pre: Mathematics 102. Course fee $6.00.

153 PRINCIPLES OF RADIO AND VACUUM TUBE CIRCUITS (3) II (2 L, 1 Lb)
Introduction to theory, design, construction of vacuum tube circuits; emphasis on radio receivers, amplifiers. Pre: 151. Course fee $6.00.

160-161 COLLEGE PHYSICS (4-4) Yr. (3 L, 1 Lb)
Fundamental principles, theories, experimental methods. Pre: Math 102 and credit or registration in Mathematics 103. Course fee $6.00 each semester.

170 GENERAL PHYSICS (3) I, II
Mechanics of particles, rigid bodies, fluids; properties of matter; wave motion; sound. Pre: credit or registration in Mathematics 141.

171 GENERAL PHYSICS LABORATORY (1) II (1 3-Hr Lb)
Experiments in statics, dynamics, properties of matter, periodic motion, sound. Pre: credit or registration in 170. Course fee $6.00.

172 GENERAL PHYSICS (3) I, II
Heat; fundamental laws of electricity and magnetism and their applications. Pre: 170, 171; credit or registration in Mathematics 142.

173 GENERAL PHYSICS LABORATORY (1) I (1 3-Hr Lb)
Experiments in heat, electricity, and magnetism. Pre: credit or registration in 172. Course fee $6.00.

174 GENERAL PHYSICS (4) II
Light and modern physics. Pre: 172, 173 or 160-161; Mathematics 142.
175  GENERAL PHYSICS LABORATORY (1) II (1 3-Hr Lb)
    Experiments in light and modern physics. Pre: credit or registration in 174.
    Course fee $6.00.

253  ELECTRICAL MEASUREMENTS (1) I
    Experimental determination of fundamental electromagnetic quantities and appli­
cations to high vacuum and microwaves. Pre: 173 or 161; Mathematics 142. Course
    fee $6.00.

310  THEORETICAL MECHANICS (3) I

350  ELECTRICITY AND MAGNETISM (3) I
    Experimental laws, field theory, and mathematical application to special problems.

399  INDIVIDUAL WORK IN ADVANCED PHYSICS (Ar.) I, II
    Limited to senior majors with 2.7 grade-point ratio, or 3.0 in physics.

400  NUCLEAR SCIENCE LABORATORY (2) I (1 L, 1 Lb)
    Experiments concerned with nuclear instrumentation, radiation detection, dosi­
metry, induced radioactivity by neutron bombardment, neutron flux measurements,
and the basic operation of a subcritical nuclear reactor. Pre: 175 or equivalent.
    Course fee $6.00.

420  SOUND (3) I
    Theory of sound and its application.

440  PHYSICAL ELECTRONICS (3) I
    Theory of electronic phenomena and devices. Pre: credit or registration in 350.

460  PHYSICAL OPTICS (3) II

461  OPTICS LABORATORY (1) II (1 Lb)
    Experiments in geometrical and physical optics. Pre: credit or registration in
460. Course fee $6.00.

480  ATOMIC AND NUCLEAR PHYSICS (3) I
    Quantum mechanics, one-electron atom, many-electron atom, perturbation theory,
the hydrogen molecule, quantum statistics, and the band theory of solids. Pre:
174 or equivalent; credit or registration in Mathematics 402.

481  ATOMIC AND NUCLEAR PHYSICS (3) II
    Basic properties of nuclei, quantum-mechanical theories of alpha and beta decay,
gamma emission, dynamics of nuclear reactions, fission and fusion processes, element­
ary 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.

610  ANALYTICAL MECHANICS I (3) I
    Dynamics of particles, systems of particles, and rigid bodies, Langrangian and
Hamiltonian equations, special theory of relativity. Pre: 310; Mathematics 402.
611 **ANALYTICAL MECHANICS II (3)**

Invariants, Hamilton-Jacobi equation, Huygen's principles, small oscillations, mechanics of elastic media. Pre: 610.

620 **PHYSICS OF THE UPPER ATMOSPHERE (3)**

Basic parameters, experimental methods, absorption and recombination processes, intrusion of extraterrestrial particles and fields. Pre: 310, 350, or consent of instructor.

630 **STATISTICAL MECHANICS (3)**

Probability and statistics, classical and quantum-mechanical statistical mechanics, relation to thermodynamical variables, applications. Pre: 530, 610, 670. (Alt. yrs.; not offered 1963-64.)

650 **ELECTRODYNAMICS I (3)**


651 **ELECTRODYNAMICS II (3)**


670 **QUANTUM MECHANICS I (3)**

Physical basis and formulation, solution of Schroedinger's equation, angular momentum, scattering problems, atomic structure. Pre: 481; Mathematics 402.

671 **QUANTUM MECHANICS II (3)**

Matrix formulation, spin, approximation methods, relativistic wave equation, quantization of field. Pre: 670.

677 **NUCLEAR PHYSICS I (3)**

Properties and structure of nuclei, reactions, nuclear models, elementary particles, nuclear forces, meson theory. Pre: 481, 670.

678 **NUCLEAR PHYSICS II (3)**

Advanced topics primarily for students doing thesis work in nuclear physics. Pre: 677, and consent of instructor.

680 **ATOMIC AND MOLECULAR SPECTRA (3)**

Study of atomic and molecular structure by quantum mechanical interpretation of line, band, and continuous spectra. Pre: 670.

685 **SOLID STATE THEORY (3)**

Crystalline state, lattice vibration, lattice defect, ferroelectrics, ionic crystals, theory of metals, band theory, semiconductors. Pre: 440, 630, 670. (Alt. yrs.; offered 1963-64.)

690 **SEMINAR (1)**

Discussion and reports on physical theory and recent development. Pre: graduate standing or consent of the chairman.

699 **DIRECTED RESEARCH (Ar.)**

Pre: consent of instructor.
Political Science

Professors Levi, Meller, Saunders, Spellacy; Associate Professors Friedman, Kosaki, Miwa, Stauffer, Tuttle; Assistant Professors Cahill, Neff, Palumbo, Thrombley

110, 210, or the equivalent, is prerequisite to all other courses except 215.

110 INTRODUCTION TO GOVERNMENT (3) I, II
Role of government in modern society. Types and practices of government; processes of political change; citizen participation. Not open to juniors or seniors.

210 MODERN GOVERNMENT AND POLITICS (3) I, II
Role of government in modern society; governmental structures and political processes. Juniors and seniors only. Closed to those with credit in 110.

215 CURRENT POLITICAL AFFAIRS (1)
Survey of current political topics and problems.

300 ELEMENTS OF POLITICAL THEORY (3)
Analysis of some of the major concepts of political theory; their statement by the major political philosophers.

301 DEMOCRACY (3) I
Analysis of the concept of democracy.

320 AMERICAN GOVERNMENT (3)
Development, organization, and functioning of national, state, and local government.

324 CIVIL RIGHTS (3)
Study of the principal court decisions on freedom of speech, press, assembly, conscience, and other basic civil liberties.

340 COMPARATIVE POLITICS: POLITICAL PATTERNS (3)
Nature and types of political parties; party systems; relation to electoral systems.

341 COMPARATIVE POLITICS: INSTITUTIONAL DEVELOPMENT (3)
Classification of major structural types; levels, range, and “universe” of decision-making; patterns in executive-legislative relations.

360 INTRODUCTION TO INTERNATIONAL RELATIONS (3)
A survey of the major historical, political, and social forces which influence the relations among nations.

361 PROBLEMS IN INTERNATIONAL RELATIONS (3)
Intensive case studies of a limited number of substantive problem areas in international relations.

362 UNITED NATIONS (2)
Problems involved in the development and structure of international organizations, with special emphasis on the United Nations.

382 CAMPAIGNS AND ELECTIONS (3)
Management and conduct of elections, with attention to techniques employed by candidates for public office. Field investigations.
384 THE LEGISLATIVE PROCESS (3)
The lawmaking process in the United States. Role of representative assemblies, the executive branch, interest groups, and the public.

394 SENIOR HONORS THESIS

404 MODERN POLITICAL IDEOLOGIES (3) I
Survey of political ideologies such as communism, fascism, socialism.

405 AMERICAN POLITICAL THOUGHT (3) II
Examination of American political ideas from colonial days to the present.

420 STATE GOVERNMENT AND ADMINISTRATION (3) I
Constitutions; historical evolution; structure with reference to judicial, legislative, and executive branches; limitations on authority.

421 MUNICIPAL GOVERNMENT AND ADMINISTRATION (3) II
The city as a political subdivision and as a municipal corporation; powers and liabilities; forms of government; the metropolitan problem; related matters.

422 GOVERNMENT OF HAWAII (3)
State and local government; consideration of the state constitution; formative political factors in Hawaii. (Alt. yrs.; offered 1963-64.)

423 CONSTITUTIONAL LAW (3) I
Examination of principal cases concerned with state relations, due process of law, interstate commerce, and related subjects.

443 GOVERNMENT AND POLITICS OF CHINA AND JAPAN (3) I
Changing patterns of government; emphasis on problems faced and the institutional, ideological, and political answers created through time.

444 GOVERNMENT AND POLITICS OF SOUTH AND SOUTHEAST ASIA (3) I
Analysis of relevant colonial patterns that have conditioned the newly created governmental structures, followed by a study of present developments.

446 GOVERNMENT AND POLITICS OF THE USSR (3) I
Historical, social, political, and ideological factors in the development of political institutions in the Soviet Union.

461 AMERICAN FOREIGN POLICY (3) I
Historical, institutional, political, and economic influences on the formation and execution of American foreign policy. (Alt. yrs.; not offered 1963-64.)

462 INTERNATIONAL RELATIONS OF THE FAR EAST (3) I
Rise and fall of eastern Asia and the re-emergence of this area as a pivotal factor in world politics.

463 INTERNATIONAL RELATIONS OF SOUTH AND SOUTHEAST ASIA (3) II
Emergence from colonialism of these new states. "Neutralism"; intra-regional struggles; cooperation; Afro-Asian bloc; United Nations' activities.

466 FOREIGN POLICY OF THE SOVIET UNION (3) II
Historical, institutional, political, ideological and personal influences on the formation and execution of the foreign policy of the Soviet Union.
467 PROBLEMS OF EUROPEAN ORGANIZATION (3) II
A study of contemporary developments in intra-European relations and organization; changing role of key European states; Europe's position in world politics.

481 AMERICAN POLITICAL PARTIES (3) II
Organization, methods, and functions of political parties, with special attention to the electoral and organizational aspects of party behavior.

483 PROPAGANDA AND PUBLIC OPINION (3) I
Characteristics, methods, and results of propaganda and pressure group activity. Nature of public opinion; methods of influencing it; techniques for measuring political opinions.

500 PUBLIC ADMINISTRATION (3) I
Relationship of administration to policy-forming agencies and to the courts; structure of administration; devices for integration; related materials.

501 PRINCIPLES OF MANAGEMENT (3) II
Basic principles of management and techniques of application; human relations in management.

502 PERSONNEL ADMINISTRATION (3) II
Organization and administration of civil service systems; recruitment, classification, discipline, and status of civil servants. Pre: 500.

600 CONTEMPORARY POLITICAL SCIENCE (3) I, II
Analysis of the field, scope, and methods of political science, and its professional and academic status.

602 ASIAN POLITICAL THOUGHT (3)
A study of the major political and intellectual thought patterns as they reflect and influence governments in Asia.

631 SEMINAR IN AMERICAN FOREIGN SERVICE (3) II
Pre: consent of instructor.

632 GOVERNMENT AGENCIES OVERSEAS (3) II
The development of United States agencies in overseas areas, with particular attention to the role, function and procedures of such agencies and their relation to over-all U.S. foreign policy.

640 POLITICS OF NATIONAL DEVELOPMENT (3)
Processes in building new and larger forms of political association in "old" and "newly emergent" nations; techniques; role of political values.

651 DEVELOPMENT ADMINISTRATION (3) II
Pre: consent of instructor. (Alt. yrs.; offered 1963-64.)

655 TECHNOLOGY OF PUBLIC ADMINISTRATION (3) I
Pre: consent of instructor.

656 SEMINAR IN REGIONAL AND CITY PLANNING (3) I
Pre: consent of instructor. (Not offered 1963-64.)

670 INTERNATIONAL LAW (3)
Historical and theoretical investigation of the development of an international legal order.
673 ADMINISTRATIVE LAW (3)
Laws relating to public officers, status, rights, and obligations; laws governing relations between government and the public, e.g., rights to notice and hearing, due process.

680 POLITICAL BEHAVIOR (3)
The theory and practice of "behavioral science" research in the study of politics.

681 PUBLIC POLICY DEVELOPMENT (3)
Comprehensive review and analysis of the process whereby public policies are formulated.

699 DIRECTED READING AND RESEARCH (Ar.) I, II
Individual problems in the same fields as in 399. Pre: consent of instructor.

700 SEMINAR: CLASSICAL WESTERN POLITICAL THOUGHT (3) I
701 SEMINAR: MODERN WESTERN POLITICAL THOUGHT (3) II
720 SEMINAR: AMERICAN NATIONAL GOVERNMENT (3)
721 SEMINAR: STATE AND LOCAL GOVERNMENT (3)
740 SEMINAR: FAR EASTERN POLITICS (3)
741 SEMINAR: SOUTH AND SOUTHEAST ASIA (3)
742 SEMINAR: COMPARATIVE POLITICS (3)
750-751 SEMINAR: PUBLIC ADMINISTRATION (3-3) I, II
760 SEMINAR: INTERNATIONAL POLITICS (3) I
761 SEMINAR: INTERNATIONAL ORGANIZATIONS (3) II
771 SEMINAR: PUBLIC LAW (3)
780 SEMINAR: POLITICS (3)
781 SEMINAR: LEGISLATIVE PROCESS (3)
800 THESIS

Credit toward the major will be granted in the following course:
PSYCHOLOGY 468

Psychology

Professors Bitner, Crowell, Herrick, Vinacke, Weaver; Associate Professors Arkoff, Diamond, Digman, Dole, R. C. Johnson, Oakes; Assistant Professor W. R. Wilson

102 or 104 is prerequisite to all other courses. Qualified seniors may enroll in some graduate courses with consent of instructor.

102 GENERAL PSYCHOLOGY (4) I, II (3 L, 1 Lb)
Principles of human behavior. Individual differences, motivation, emotion, perceiving, learning, etc. Course fee $1.00. Not open to those who have had 104.
104  INTRODUCTION TO PSYCHOLOGY (3) I, II
   Similar to 102 but without laboratory. Not open to those who have had 102, or Arts and Sciences students.

220  STATISTICAL TECHNIQUES (3) I, II
   Types of data; graphic methods; central tendency; variability; correlation; reliability; tests of significance. Pre: two years of high school algebra or Mathematics 101.

226  PSYCHOLOGICAL MEASUREMENTS (3) II
   Construction, validation, and administration of tests; interpretation of scores; familiarization with types of group tests. Pre: 220.

230  INTRODUCTORY EXPERIMENTAL PSYCHOLOGY (3) I, II [2 L, 1 2-Hr Lb]
   Basic methodology and experimental literature. Sensation, perception, emotion, conditioning, learning, thinking, social phenomena.

250  DEVELOPMENTAL PSYCHOLOGY (3) I, II
   Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels.

280  PSYCHOLOGY OF ADJUSTMENT (3) I, II

304  PSYCHOLOGY OF MOTIVATION (2) I
   Instinct, drive, motives, emotion, attitudes; their biological bases, modification, organization.

306  PSYCHOLOGY OF LEARNING (3) I
   The major conditions influencing learning and forgetting; the role of motivation, rewards, practice; theoretical interpretations of the learning process.

308  PSYCHOLOGY OF THINKING (2) II
   Concept formation, problem solving, creative imagination, autistic thinking, attitudes, opinions. (Alt. yrs.; offered 1963–64.)

356  PSYCHOLOGY OF EXCEPTIONAL CHILDREN (3) II
   Evaluation of physical, emotional, and intellectual deviations and their effects upon the growth and development of children. Pre: 250.

360  PSYCHOLOGY OF PERSONALITY (3) I (2 L, 1 2-Hr Lb)
   Theory and methods in study of behavioral organization and continuity; case study. Course fee $5.00.

362  SOCIAL PSYCHOLOGY (3) II
   Psychology of human relations; psychological factors that determine the behavior of an individual in his social relationships.

372  EDUCATIONAL PSYCHOLOGY (3) I, II
   Major factors of learning and mental health as they apply to the educative process. Pre: 250.

374  INDUSTRIAL AND BUSINESS PSYCHOLOGY (3) II
399 DIRECTED READING OR RESEARCH (Ar.) I, II
Pre: consent of instructor and department chairman.

410 HISTORY OF PSYCHOLOGY (3) I
The background of modern psychology. Origins and development of contemporary points of view. Relationship to Western thought.

430 INTERMEDIATE EXPERIMENTAL PSYCHOLOGY (3) II
Original experiments with emphasis upon laboratory techniques. Control of variables, apparatus design, and statistics in research.

440 PHYSIOLOGICAL PSYCHOLOGY (3) I
Physiological explanation of behavior in terms of sense organs, the nervous system, muscles and glands.

450 SOCIAL DEVELOPMENT OF CHILDREN (3) I
Survey of the socialization process and acquisition of social behavior. Pre: 150.

468 POLITICAL PSYCHOLOGY (2) I
Political behavior; the voter, the politician, political parties; psychological problems in government.

480 ABNORMAL PSYCHOLOGY (3) I
Nature and causes of psychoneuroses and psychoses; abnormalities of intelligence; incipient abnormal traits manifested in everyday life; psychotherapy.

512 COMPARATIVE PSYCHOLOGY (3) I (2 L, 1 2-Hr. Lab)
Significant literature of animal studies in learning and instinct, perception, motivation, physiological mechanisms. Pre: 230 or consent of instructor.

574 PROBLEMS IN INDUSTRIAL AND BUSINESS PSYCHOLOGY (3) I
Consideration of special problems in the area. Pre: 374.

600 SEMINAR (2) I, II
(1) General, (2) history and theory, (3) statistics and measurements, (4) experimental, (5) physiological, (6) personality, (7) social, (8) developmental, (9) applied-industrial, (10) clinical, (11) counseling. May be repeated.

614 THEORY I (3) I
An introduction to current theoretical systems. Special issues treated from various viewpoints, but with a central integrating theme, based on a major theoretical formulation.

615 THEORY II (3) II
Major theoretical problems in psychological science, treated from various viewpoints, but with a central integrating theme, based on a major theoretical formulation. Theory I is desirable preparation, but either course may be taken without the other.

620 QUANTITATIVE METHODS I (3) I
Basic concepts and techniques in psychological statistics and research design.

621 QUANTITATIVE METHODS II (3) II
Advanced statistical techniques, including analysis of variance. Pre: 620.
626 QUANTITATIVE METHODS III (3) I
Scaling theory, test theory, factor analysis. Pre: 420, 426 or consent of instructor.

630 EXPERIMENTAL PSYCHOLOGY I (3) I
Advanced techniques and research procedures, with a central focus on problems of learning, problem solving, etc.

631 EXPERIMENTAL PSYCHOLOGY II (3) II
Advanced techniques and research procedures, with a central focus on problems of perception, motivation, or other basic topics.

650 DEVELOPMENTAL PSYCHOLOGY I (3) I
Theoretical movements and research in child and adolescent psychology.

652 DEVELOPMENTAL PSYCHOLOGY II (3) II
Theoretical movements and research in the psychology of maturity and old age.

660 PERSONALITY (3) II
Theory and research in personality, with an emphasis upon primary sources, such as Freud, Jung, Adler, Rogers, Murray, Lewin, and Murphy. Pre: 460 or equivalent.

662 SOCIAL PSYCHOLOGY (3) II
Methods and objective verification of hypotheses; interpersonal relations, group structure and process, social conflict, propaganda, etc.

670 APPLIED SOCIAL PSYCHOLOGY (3) II
Survey of basic problems in the use of social psychological principles and techniques in the fields of human relations, business and industry, and communication.

672 ADVANCED EDUCATIONAL PSYCHOLOGY (3) II
Application of experimental evidence in psychology to major educational problems; the bearing of recent psychological theories upon education.

678 PSYCHOLOGY OF OCCUPATIONS (3) II
Vocational development, determinants of career choice, personality correlates, job requirements and human disabilities, vocational guidance.

682 PSYCHOLOGICAL APPRAISAL (A) (3) I

683 PSYCHOLOGICAL APPRAISAL (B) (3) II
Advanced clinical study of individual. Emphasis on projective and other personality measures. Pre: 682; consent of instructor. Course fee $5.00.

684 PSYCHOLOGICAL APPRAISAL (C) (3) I, II
Field experience in appraisal. Pre: 682; consent of instructor. May be repeated. Course fee $5.00.

699 DIRECTED RESEARCH (Ar.) 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 SOCIAL-PERSONALITY PSYCHOLOGY (1-3) I, II
Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

779 PSYCHOLOGY OF VOCATIONAL REHABILITATION (3) II

780 RESEARCH IN COUNSELING PSYCHOLOGY (1-3) I, II
Supervised reading, discussion, and research projects in areas of special interest. Open only to second-year graduate students. May be repeated.

782 PSYCHOLOGICAL COUNSELING (A) (3) I
Theory and technique in psychological counseling. Pre: 226; consent of instructor.

783 PSYCHOLOGICAL COUNSELING (B) (3) II
Supervised experience in psychological counseling. Pre: 782; consent of instructor.

784 PSYCHOLOGICAL COUNSELING (C) (3) I, II
Intensive supervised experience with a variety of cases and in a variety of settings. Pre: 783; consent of instructor. May be repeated.

Religion

Associate Professor Aoki; Assistant Professor Seifert

150 INTRODUCTION TO THE STUDY OF RELIGION (3) I
The nature of religion; the world's living religions—Hinduism, Buddhism, Shinto, Confucianism, Taoism, Judaism, Christianity, Islam.

151 RELIGION AND THE MEANING OF EXISTENCE (3) II
Contemporary problems of religious thought: faith and knowledge, God, freedom, evil, man, science, and immortality.

200 UNDERSTANDING THE OLD TESTAMENT (3) I
A study of the developing beliefs and practices of the Hebrew religion as set forth in the Old Testament. Emphasis on the meaning of its faith for the modern world.

201 UNDERSTANDING THE NEW TESTAMENT (3) II
The origin and development of the early Christian message as set forth in the New Testament, with special attention to Jesus and Paul.

309 THE LIFE AND TEACHINGS OF JESUS (3) II
A critical study of the life and teachings of Jesus. An interpretation of the meaning of Jesus Christ for Christian faith.

310 THE PROPHETS AND SAGES OF THE OLD TESTAMENT (3) II
The prophetic and wisdom literature of the Old Testament.
321  GREAT PERSONALITIES IN CHRISTIANITY (3) II
   An examination of the lives and thought of some outstanding representatives.

340  WESTERN RELIGIOUS THOUGHT TO 1492 (3) I
   Ideas of major religious thinkers and movements in the history of the Western
   world to 1492; an evaluation of Roman Catholicism.

341  WESTERN RELIGIOUS THOUGHT FROM 1500 (3) II
   The period of the Protestant Reformation to the present, with an evaluation of the
   Protestant movement.

351  EXISTENTIAL INTERPRETATION OF BIBLICAL FAITH (3) II
   An interpretation of Biblical faith on the basis of critical theological thought and
   existential analysis.

361  THE NATURE AND DESTINY OF MAN (3) II
   Religious views of human nature in their bearing on man's activities in politics,
   education, law, economics, and literature.

371  CHRISTIAN THOUGHT IN CONTEMPORARY ASIA (3) II
   A study of the Asian contributions in the field of Christian theology, with special
   emphasis on Indian and Japanese Christian thinkers.

382–383  THE HISTORY OF LIVING RELIGIONS (3–3) Yr.
   382: basic beliefs and practices of Hinduism, Confucianism, Taoism, Buddhism,
   Shintoism, Islam. 383: Judaism, Roman Catholicism, Protestantism, their history,
   beliefs, contributions. Semesters are independent.

386  CHRISTIAN ETHICS (3) II
   A study of historical types of Christian ethics.

Social Sciences
Professors Kamins, Weaver

300–301  MAN IN SOCIETY (3–3) Yr.
   Some basic problems and processes of contemporary society, jointly examined by
   the several social sciences. Pre: junior standing or consent of instructor.

Sociology
Senior Professor Lind; Professors Cheng, Glick, Hormann, Yamamura; Associate
Professor Wittermans; Assistant Professors Bartos, Krauss, Won, Yamamoto;
Instructor Sakamoto

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
sociology courses.

151  INTRODUCTION TO THE STUDY OF SOCIETY (3) I, II
   Basic social relationships, norms, social structures, processes affecting social
   change. Not open to juniors or seniors.
155 THE SOCIOLOGY OF SOCIAL PROBLEMS (2) I, II
Nature of social problems, their relations to basic technological, institutional, and value structures.

201 PRINCIPLES OF SOCIOLOGY (3) I, II
Principles underlying the organization of social groups, communities, institutions, and ecological structures; basic processes of socialization, collective behavior, and social change. Equivalent to 151, and open to juniors, seniors, and graduates only.

232 COMMUNITY FORCES IN HAWAII (3) I, II
Basic factors and forces in contemporary society as exemplified in Hawaii. Course fee $2.00.

399 DIRECTED READING (Ar.) I, II
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in sociology.

410 POPULATION AND SOCIETY (3) II
Society analyzed in terms of the quantitative and qualitative aspects of population. Sociological aspects of birth and death rates, natural increase, mobility.

418 HUMAN MIGRATION (3) I

420 HUMAN ECOLOGY (3) I
Basic concepts, principles, and techniques. Factors affecting distribution of population, utilities, and social institutions.

434 AMERICAN RURAL COMMUNITY (3) II
Organization of life in the rural environment. A comparative study of rural community types.

436 THE URBAN COMMUNITY (3) I
Sociological principles applied to the modern city. Structure, growth, social and personal life organization.

440 FOLK AND PEASANT SOCIETY (3) II
Folk-peasant society in contrast to urban-industrial; world-wide transition; special reference to the peasant society in China and Japan.

444 PEOPLE AND INSTITUTIONS OF CHINA (3) I, II
Analysis of social philosophies and their influence on basic institutions and traits of the people. Impacts of Western culture and Communism. Social change under the People's Democratic Dictatorship.

446 PEOPLE AND INSTITUTIONS OF JAPAN (3) I, II
Social structure and social change in contemporary Japan. Special attention to the family, stratification, and mobility.

450 RACE AND CULTURE CONTACTS IN HAWAII (3) I, II
Dominant conceptions of race and race relations; analysis of factors affecting them. Problems in a commercial and plantation frontier.

452 RACE RELATIONS IN THE PACIFIC (3) I
Survey of typical situations of race and culture contacts in the Pacific area.
458 RACE RELATIONS (3) I, II
Race relations in world perspective; typical situations; conflict and accommodation; caste; race prejudice; miscegenation; effects upon personality.

462 AMERICAN SOCIETY (3) I
Technology, normative structure, value system, stratification, and major institutions. Their interaction and change.

464 SOCIAL INSTITUTIONS (3) II
Culture as a conceptual tool. Origin, structure, function, and growth of institutions. Interrelation and integration.

472 THE FAMILY (3) I, II
Culturally distinctive family types as background for analysis and interpretation of the American family.

480 SOCIOLOGY OF RELIGION (3) I
Structure, function, and dynamics of religion in various types of society.

486 INDUSTRIAL SOCIOLOGY (3) I, II

490 SOCIAL STRATIFICATION (3) II
Analysis of social class; local and national stratification patterns; social mobility in industrial and nonindustrial societies.

500 SOCIAL DISORGANIZATION (3) II
Factors in community, institution, and group disorganization; behavioral deviancy and social pathology. An integrated approach to social problems.

504 JUVENILE DELINQUENCY (3) I, II
Nature and extent of juvenile delinquency; theories and research; control and correction.

506 CRIMINOLOGY (3) I, II

520 SOCIAL CONTROL (3) I, II
Analysis of the processes by which individuals become amenable to social and mass definitions of conduct and behavior.

524 PERSONALITY AND CULTURE (3) I, II
Origin and development of personality as the subjective aspect of culture; function of communication; human nature and the mores; personal life organization.

530 SOCIOLOGY OF SMALL GROUPS (3) I
Practical application of theories and research findings involving face-to-face relations: leadership, prestige, group morale.

540 COLLECTIVE BEHAVIOR (3) I
Elementary forms of collective behavior; social unrest; crowd, public, mass behavior; operation of publics in democratic societies.

542 SOCIAL MOVEMENTS (3) II
Sociology of reform movements, countermovements, and revolution; their development and relation to social change. Case studies of contemporary social movements.
544 SOCIAL CHANGE (3) I, II
Structural-functional organization. Impact of technology on institutions, value orientation, power structures, system of role and stratification.

546 PUBLIC OPINION AND THE COMMUNITY (3) II

560 METHODS OF SOCIAL RESEARCH (3) I, II
Values and limitations of methods of research for various types of studies. Laboratory, field work. Pre: 9 credits in sociology or consent of instructor.

570 SOCIAL STATISTICS (3) I, II
Introduction to statistical methods and resources as applied to social research data.

572 ADVANCED SOCIAL STATISTICS (3) II
Treatment of sociological data; sampling procedures, test of hypotheses, analysis of variance, correlation and regression, scale analysis. Pre: 570 or equivalent.

580 SOCIOLOGICAL THEORY (3) II
History of sociology as reflected in writings ranging from early Greek thought to modern authors such as Durkheim, Pareto, Simmel, Parsons, Merton.

602 GRADUATE SEMINAR (3) I, II
(1) Human ecology and demography; (2) social organization; (3) social disorganization; (4) the group and the person; (5) collective behavior and social change. Pre: consent of instructor.

628 SEMINAR IN RACE RELATIONS (3) I
Major theoretical developments and research problems in the field of race relations. Pre: consent of instructor.

652 SEMINAR IN SOCIAL CHANGE IN DEVELOPING AREAS (3) I
Principles, processes, and problems of social change in non-Western societies undergoing industrialization and modernization. Pre: consent of instructor.

654 SEMINAR IN COMMUNITY DEVELOPMENT (3) II
Analysis and evaluation of the prevailing theories of community development in typical regions of folk or peasant culture undergoing industrialization and urbanization.

656 CULTURE AND COMMUNICATIONS (3) I
Theories of communication; interaction between oral traditions, the press, and audio-visual mass-media in cultural context. Pre: consent of instructor.

660 SEMINAR IN METHODS OF RESEARCH (3) I

680 SEMINAR IN SOCIOLOGICAL THEORY (3) I
Survey of contemporary sociological theory; principles of theory construction, analysis, and criticism. Pre: consent of instructor.

699 DIRECTED RESEARCH (Ar.) I, II
Pre: graduate standing; consent of instructor.
Speech

Senior Professor J. Smith; Professors Ansberry, Carr, Hoshor; Associate Professors Bentley, Highlander, Klopf, Lefforge, Newcomer; Assistant Professors Bilsborrow, Breneman, M. Gordon, Hervey, Larson, Linn, Ritter, Schutz, Sloan, H. Wong; Instructors Burgess, Hayne, Kop, Krause, Oxford, Phipps, Pic'l, Pierson, Sanderson, Vanderslice, Watson

140 or 150 is prerequisite to all other courses.

101 SOUNDS AND RHYTHMS OF SPOKEN ENGLISH (1) I, II
Sounds and rhythms of General American speech; effective communication of ideas. International Phonetic Alphabet taught. Conferences required. Course fee $2.00.

102 DEVELOPMENT OF ORAL SKILL (1) I, II

106-107 PRONUNCIATION AND GRAMMAR FOR PROSPECTIVE TEACHERS (1-1) Yr.
Continued work on sounds and rhythms; idiom and grammar. Pre: 110. Fee $1.00 each semester. 107 may be required by recommendation.

109 LANGUAGE SKILLS FOR PROSPECTIVE TEACHERS (1) I, II

110 SOUNDS OF ENGLISH FOR PROSPECTIVE TEACHERS (1) I, II
Sounds and rhythms of General American speech. Techniques for correction of pronunciation and improvement of rhythm. Course fee $1.00.

130 READING ALOUD (3) I, II
Study of the relationships between silent and oral reading with intensive practice in getting and giving the meaning from the printed page.

135 READING TO CHILDREN (1) I, II
Theory and techniques of interpreting poetry and prose to the preschool and elementary school child.

140 FUNDAMENTALS OF ORAL COMMUNICATION (2) I, II
Communication for social interaction. Speech production; organization of ideas; training for mastery of speech standards. Conferences required. Course fee $1.00.

150 PUBLIC SPEAKING (3) I, II
Basic principles of speech composition and delivery; preparation and delivery of speeches with attention to principles studied; special attention to individual problems.

152 BUSINESS AND PROFESSIONAL SPEECH (3) I, II
Speaking in the business and professional world: interviews, conferences, committee work, oral reports, parliamentary procedure. (Credit only in 150 or 152.)

180 PRINCIPLES AND TYPES OF DISCUSSION (2) I, II
Discussion of problems, using cooperative investigation, round table, panel, symposium, case and incident methods, parliamentary procedure.

210 PHONETICS (3) I, II
The phonology of American English; standards of pronunciation; dialects; teaching problems posed by Hawaii's particular linguistic background.
214 VOICE TRAINING FOR SPEECH (2) I, II
Physical and physiological bases of voice production; problems of nasality, inaudibility, monotony. Pre: permission of instructor, or recommendation of department.

220 INTRODUCTION TO SPEECH CORRECTION (3) I
Survey of the field of speech correction; study of defective articulation, delayed speech, voice problems, cleft palate, cerebral palsy, stuttering, and language disorders.

221 METHODOLOGY OF SPEECH CORRECTION (3) II
Methods used in clinical procedures for organic and functional disorders of speech; observation of clinical procedures.

222 INTRODUCTION TO AUDIOLOGY (3) I
Basic principles of hearing rehabilitation; hearing problems and their treatment.

223 TESTING OF HEARING (3) II
Methods of administering screening testing programs; threshold determinations by routine methods and special tests of hearing; interpretation of results. Pre: 222.

270 INTRODUCTION TO BROADCASTING (3) I
Analysis and survey of radio and television as communications media and as industries.

271 RADIO PRODUCTION (3) II
Programs and analysis of techniques. Announcing and use of equipment; basic control; performance. Pre: 270 or consent of instructor.

285 PUBLIC DISCUSSION AND DEBATE (1) I, II
Training in debate and discussion; analysis of social, political, and economic problems. Public discussion and debate required. May be repeated for a total of 3 credits.

320 SPEECH PATHOLOGY (3) I
Etiology and symptomatology of speech disorders; diagnostic procedures used in speech rehabilitation. Pre: 220, 221.

322 PRACTICUM IN SPEECH CORRECTION (3) II
Clinical experience in the use of diagnostic procedures and rehabilitation techniques with a variety of defects and disorders at various age levels. Pre 220, 221.

325 PRACTICUM IN AUDIOLOGY (3) I
Clinical practice in testing of hearing, hearing conservation, auditory training, speech reading, and speech correction and conservation. Pre: 222, 223.

326 SPEECH AND HEARING SCIENCE (3) II
General introduction to the science of speech and hearing, including anatomy and physiology of the organs involved.

335 STORYTELLING (2) I, II
The oral story as a device for entertainment, for teaching, for occupational therapy, and for library programs.

350 PERSUASION (3) I
Factors influencing audience attitudes, beliefs, actions; logical, psychological, and semantic approaches to preparation and analysis of persuasive discourse.
365 SPEECH FOR THE CLASSROOM TEACHER (3) I, II
   Pedagogy for the classroom teacher. Integration of speech improvement in the
   curriculum; speech problems of Hawaii.

369 TECHNIQUES OF SPEECH IMPROVEMENT (3), I, II
   Principles of diagnosis; improvement of substandard speech; emphasis upon
   Island speech. Pre: 110, 210, or consent of instructor.

370 RADIO-TELEVISION SPEECH (3) I, II
   The study of speech forms and principles as adapted for the broadcasting media.
   Preparation of radio and television program material; performance with emphasis
   on microphone and camera presentation. Pre: 270.

399 DIRECTED READING (Ar.) I, II
   The same fields as in 598. Limited to senior majors with at least a 2.7 grade-
   point ratio, or 3.0 grade-point ratio in speech.

421 ORGANIC DISORDERS OF SPEECH (3) I
   Study of disorders resulting from organic anomalies; cleft palate, cerebral palsy,

424 AUDITORY TRAINING AND SPEECH READING (3) II
   Principles and methods of development of maximum communication ability
   through training in the use of residual hearing and by observation of visible bodily
   clues. Pre: 222, 223.

430 ADVANCED INTERPRETATIVE READING (3) I, II
   Interpretative reading based on textual analysis of literary forms and careful study
   of principles of effective reading. Pre: 130; English 151 or equivalent.

440 SEMANTICS (3) II
   Language in understanding; verbal meaning and implication; the role of assumption
   in interrelationships. Use of language for clarity, accuracy, and evaluation.

480 GROUP LEADERSHIP AND DISCUSSION (3) I, II
   Principles and techniques of effective group leadership and human relations;
   semantic and psychological barriers to communication. Analysis and discussion of
   social problems.

485 ARGUMENTATION AND DEBATE (3) I
   Evidence and forms of reasoning; analysis and synthesis of argument; fallacies
   and refutation; structuring arguments for clarity and force.

550 SPEECH COMPOSITION (3) II
   Composition and delivery. Synthesis of rhetorical theory applied to proof, style,
   attention, and purpose of discourse. Pre: 150.

598 SPECIAL PROBLEMS (Ar.) I, II
   (1) General speech education; (2) speech correction; (3) phonetics and voice
   science; (4) interpretation; (5) forensics, public address; (6) radio; (7) pedagogy;
   (8) audiology. Pre: consent of instructor or recommendation of department
   chairman.

610 SEMINAR IN PHONETICS AND VOICE SCIENCE (3) I
   Problems in advanced phonetics and voice science. Pre: consent of instructor.
615 PHONETICS AND PHONEMICS OF AMERICAN ENGLISH (3) I
Theory and practice in formation of segmental and suprasegmental phonemes of American English. (MATESL students only.)

616 SPECIAL PROBLEMS IN PHONETICS AND PHONEMICS (3) II
Comparison of the English phonemic structure with the structure of the native language of each student. (MATESL students only.) Pre: 615 or consent of instructor.

620 SEMINAR IN SPEECH CORRECTION (3) II
Problems in the etiology and therapy of speech deviations.

621 LANGUAGE DEVELOPMENT FOR CHILDREN WITH HEARING DEFICIENCIES (3) II

622 ADVANCED AUDIOLOGY (3) II
Instrumentation; selection of hearing aids; special tests of hearing; functional vs. organic hearing loss; vocational problems of impaired hearing.

623 ADVANCED PRACTICUM IN SPEECH PATHOLOGY (3) I
Clinical practice in diagnostic and therapeutic procedures; emphasis placed upon complex problems such as delayed speech, language problems, aphasia, and stuttering.

624 ADVANCED PRACTICUM IN AUDIOLOGY (3) I
Clinical practice in administering special tests; interpretation of audiograms; counseling of individuals with impaired hearing; use of varied rehabilitation techniques.

625 SEMINAR IN SPEECH PATHOLOGY (3) II
Intensive study of special problems in diagnosis and therapeutic procedures in the field of speech pathology.

626 SEMINAR IN AUDIOLOGY (3) II
Review of research and literature in the field of hearing; reports on phases of special interest to students enrolled.

630 SEMINAR IN INTERPRETATION (3) I, II
Current literature in interpretation; reports; lecture recitals. Pre: consent of instructor.

650 SEMINAR IN RHETORIC AND PUBLIC ADDRESS (3) II
Review of studies; preparation of reports. Pre: consent of instructor.

651 HISTORY AND CRITICISM OF BRITISH ORATORY (3) I
The analytical and critical study of rhetorical elements in representative British oratory 1700 to the present. Pre: 450 or consent of instructor.

652 HISTORY AND CRITICISM OF AMERICAN ORATORY (3) I
The analytical and critical study of rhetorical elements in representative American oratory from the colonial period to the present. Pre: 450 or consent of instructor.

653 CLASSICAL RHETORICAL THEORY (3) II
Significant movements in the development of rhetorical theory and criticism. (Alt. yrs.; offered 1963–64.)
660 GENERAL SEMINAR (3) I, II
   Significant topics and problems in speech. May be repeated.

690 SEMINAR IN RESEARCH METHODS (3) I
   Research methods, analysis and reporting of data; bibliography; contemporary research.

699 RESEARCH (Ar.) I, II
   The same fields as in 598. Four credits may be earned. Pre: undergraduate major in speech; consent of adviser or recommendation of department.

Zoology

Senior Professors Hiatt, Tester; Professors Banner, Chu, Frings, Gosline, Hsiao, Matthews, Tuthill, van Weel; Associate Professor Townsley; Assistant Professors Kamemoto, Muir, Reese; Instructor Nasse

101 is prerequisite to all advanced courses with the exception of 111, 115, and 201.

101 GENERAL ZOOLOGY (4) I, II (2 L, 2 Lb)
   Zoological principles; studies of structure, development, relationships, and distribution of animals. Course fee $6.00.

111 PRINCIPLES OF HUMAN BIOLOGY (3) I
   Biological principles relating to man; man's place in nature; structure and function of the organ systems. Not open to students who have had 101.

115-116 ELEMENTARY HUMAN ANATOMY AND PHYSIOLOGY (4-4) Yr. (3 L, 1 Lb)
   General survey of gross anatomy and physiology. Course fee $3.00. Not open to students who have had 345.

161 GENERAL ENTOMOLOGY (4) I, II (2 L, 2 Lb)
   Structure, habits, biology, and classification of insects; insects characteristic of Hawaii. Course fee $3.00.

201 SCIENCE OF THE SEA (3) I
   Origin, history, water movements, chemical composition, sediments, plant and animal life, productivity and resources. Interdepartmental offering.

205 INVERTEBRATE ZOOLOGY (3) I (2 L, Lb)
   Classification, general ecology, functional anatomy, and life history of invertebrates. Laboratory includes field work. Course fee $6.00.

206 VERTEBRATE ZOOLOGY (3) II (2 L, Lb)
   Classification, evolution, functional anatomy, and development of the vertebrates. Course fee $6.00.

301 COMPARATIVE EMBRYOLOGY (3) I (2 L, Lb)
   Descriptive and experimental embryology of selected vertebrates and invertebrates. Pre: 205 or 206. Course fee $6.00.

317-318 JUNIOR HONORS SEMINAR (1-2) Yr.
   Survey of research areas, specialized reading and preliminary experimentation, definition of a specific research problem.
345 ANIMAL PHYSIOLOGY (3) I (2 L, 2 Lb)
Properties of protoplasm; functions of organ systems; fundamental principles. Pre: Chemistry 141; desirable: Chemistry 132; Physics 161. Course fee $8.00.

361 INSECT MORPHOLOGY (3) I (2 L-Lb)
Comparative and gross morphology; homologies of structures; anatomy; development in representative groups. Pre: 161. Course fee $1.00.

362 SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)
Classification of insects; orders and families. Use of taxonomic tools. Pre: 361. Course fee $2.00.

390 GENERAL ZOOLOGY SEMINAR (1) II
Reports on research or reviews of literature. Pre: senior standing. Required of students majoring in zoology or entomology.

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

399 DIRECTED READING OR RESEARCH (Ar.) I, II
Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in zoology.

401 ANIMAL ECOLOGY (2) I
Animals in relation to their biotic and physical environment; animal communities in the sea, fresh water, and on land.

410 PARASITOLOGY (3) II (2 L, 2 Lb)
Parasitology with reference to man and domestic animals; classification, comparative morphology, life history, control. Course fee $5.00.

416 HISTOLOGY (3) II (2 L, 2 Lb)
Studies of tissues, principles of histology, and microscopic anatomy of a limited number of vertebrate animals. Pre: 301. Course fee $6.00.

425 MICROTECHNIQUE (3) I, II (2 L-Lb)
Fixing, staining, mounting of tissues, entire animals and organs. Course fee $15.00.

431 BIOMETRY (3) I (2 L-Lb)
Elementary statistical methods; confidence interval, chi-square, t-test, normal distributions, regression, correlation. Pre: Mathematics 103; desirable: Zoology 140.

432 ADVANCED BIOMETRY (3) II (2 L-Lb)
Analysis of variance and covariance, curvilinear regression, multiple correlation, design of experiments. Pre: 431; desirable: Mathematics 141.

441 HISTORY OF ZOOLOGY (2) I
Development of zoological science as a specialized field of human knowledge.

504 ANIMAL EVOLUTION (2) II
Processes of evolution; interaction between population genetics and natural selection in animals. Desirable preparation: Genetics 451.

505 ENDOCRINOLOGY (2) II
Anatomy and physiology of the organs of internal secretion; role of hormones in metabolism and development. Pre: 6 credits of zoology.

525-526 GENERAL ICHTHYOLOGY (3-3) Yr.
601 ZOOLOGICAL LITERATURE (1) I
Survey of zoological literature with stress upon bibliographic tools. Required for advanced degrees in zoology or entomology.

602 PREPARATION OF SCIENTIFIC MANUSCRIPTS (1) II
Styles and methods of preparation for publication; proofreading and editing. Required for advanced degrees in zoology or entomology.

603 ZOOGEOGRAPHY (2) I
Animal distributions; physiographic, climatic, and historic factors. Desirable preparation: 401; Geology 151. (Alt. yrs.; not offered 1963-64.)

606 COMPARATIVE ANIMAL BEHAVIOR (3) II (2 L, 2 Lb)
Physiological basis, ontogenetic and phylogenetic origins, and categories of behavior. A study of innate, learned, and social behavior with emphasis on the innate behavior of marine species. Pre: either 205 or 525-526; desirable: 345.

607 PHYSIOLOGICAL BASES OF ANIMAL BEHAVIOR (3) I (2 L, Lb)
Sensory, neural, and endocrine determinants of animal behavior patterns and communication. Pre: 345, 606. Course fee $10.00.

611 PRINCIPLES OF SYSTEMATIC ZOOLOGY (3) I
Taxonomic categories; processes of evolution in their development; taxonomic data; rules of nomenclature.

615–616 ADVANCED INVERTEBRATE ZOOLOGY (3–3) Yr. (2 L, 2 Lb)
Comparative morphology, development, taxonomy, and phylogeny of invertebrate animals. Identification and classification of reef and shore fauna. Desirable preparation: 205 or equivalent. Course fee $6.00 per semester.

620 MARINE ECOLOGY (3) II (2 L, 2 Lb)
Natural history, behavior, and relation of invertebrates and fishes to environment. Desirable preparation: 616. Course fee $6.00.

621 PHYSIOLOGICAL ECOLOGY (3) I (2 L–Lb)
Physiological adaptations to environmental, physical, and biotic features. Pre: 345, 616; desirable: 401 or 620. Lab fee $8.00.

622 ISOTOPIC TRACERS IN BIOLOGY (3) II (2 L, 1 Lb)
Chemical and physical features of radioactive isotopes used in biological work. Methods of detection; application to biological systems. Course fee $10.00.

629 METHODS OF FISHERIES INVESTIGATION (3) I
Determining age, growth, spawning success, and life history of fish; emphasis on marine species of the Pacific. Pre: 431, 526; desirable: 432.

631 POPULATION DYNAMICS (3) I
Fundamentals of population growth, mortality and equilibrium. Consideration of mathematical models developed for various animal populations, including man. Pre: Mathematics 103; desirable: Mathematics 141.

645 ADVANCED GENERAL PHYSIOLOGY (3) I (2 L–Lb)
Major problems in general physiology and methods for their study. Pre: 345. Lab fee $8.00. (Alt. yrs.; not offered 1963-64.)

646 COMPARATIVE INVERTEBRATE PHYSIOLOGY (3) II (2 L, Lb)
Life processes, with emphasis on marine invertebrates. Pre: 345; Physics 161. Course fee $8.00.
691 SEMINAR IN MARINE ZOOLOGY (1) I
Reports on research or reviews of literature. Graduate students in marine zoology are required to take this course or 692.

692 SEMINAR IN FISHERIES BIOLOGY (1) II
Investigations and literature pertaining to fisheries biology; stress on problems relating to pelagic fisheries of the Pacific.

699 DIRECTED RESEARCH (Ar.) I, II
Directed research and reading in various fields of zoology.

732 FISHERIES MANAGEMENT (3) II
COLLEGE OF
BUSINESS ADMINISTRATION

The College of Business Administration aims to provide an understanding of the structure, functions, and objectives of American business enterprise, and to train for active participation in business and industrial activities in Hawaii. The four-year program leads to the degree of bachelor of business administration.

A broad foundation of courses in liberal arts, humanities, and physical and social sciences serves as a base for an economics minor, a solid core of basic business subjects, and a specialized field of business activity selected by the individual student.

For the first two years, all students follow a common program of required basic courses. During the junior and senior years, provision is made for specialization in one of the following curricula: accounting, advertising, banking and finance, business economics, business research, foreign trade, insurance, management, marketing, personnel and industrial relations, real estate, and retail merchandising. The Division of Hotel Management and Tourism offers a four-year program, which includes most of the basic requirements of the College as well as special requirements for a degree in this field.

Admission and Degree Requirements

Admission requirements are the same as those for the University (pp. 16–22), except that as of September 1, 1964, entering freshmen must have had two years of algebra and plane geometry in high school.

In order to qualify for the degree a student must:

1) Meet certain basic requirements of the first two years;
2) complete one of the fourteen curricula of the College;
3) earn an aggregate of at least 134 semester hours of credit;
4) earn a 2.0 grade-point ratio for all registered credits, and in the major field (see "Undergraduate Degree Requirements").
## Curricula

### FIRST YEAR

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<td>English 101</td>
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<td>Science 121</td>
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<td>AS 91 or MS 102, 92</td>
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### SECOND YEAR

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<td>Philosophy 110 or Government 110</td>
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<td>History 171 or Speech 150</td>
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### Majors

The third- and fourth-year programs are composed of (1) 9 credit hours of liberal arts; (2) an economics minor of 12 credit hours; (3) business core courses of 24 credit hours; (4) major subject courses of 24 credit hours.

**ACCOUNTING. Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300. **Business Core:** BAS 300-301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** Acc 400-401, 405, 415, 425, 430, Law 310, and one of Acc 410, 415, 420, 435, Mgt 435.

**ADVERTISING. Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300.

*Two semester hours required in business program.*


Business Economics. Liberal Arts: English 209, Sociology 201, and 3 credit hours in music, art, or drama. Economics: BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 450, Geography 151, PIR 300. Business Core: BAS 300-301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. Major courses: Econ 300, 302, 304, 430, and any economics courses except Econ 140, BEc 150-151, 240, 440. Six hours from BAS courses numbered 400 or higher may be counted toward the major.


Foreign Trade. Liberal Arts: English 209, Sociology 201, and 3 credit hours in music, art, or drama. Economics: BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300. Business Core: BAS 300-301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. Major courses: BEc 460, 461, 501, Mkt 410, 480, and three of BAS 400, Fin 420, Geography 151, Mkt 400, 405, 420, 430, 490, or 12 credit hours in any single foreign language may be substituted for the three Foreign Trade electives and the Liberal Arts elective.

Hotel Management and Tourism. (specialized program). First year: HMT 101, English 101-102, Mathematics 111, BAS 110, Chemistry 101-102, Psychology 104, Geography 102, HPE and AS or MS as required. Second year: HE 120, 122, 240, Acc 100-101, BEc 150-151, English 155, Micr 148, Speech 150, AS or MS as required. Third year: HE 234 235, History 171, Mgt 300, PIR 350, BAS 300-301, Mkt 300, HMT 301, 320. Fourth year: HMT 330, 350, 355, Government 210, Law 300, BEc 240, 440, Fin 300, Acc 420, Mgt 450, and 3 credit hours from music, art, or drama.
INSURANCE. **Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300. **Business Core:** BAS 300–301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** Ins 300, 400, 410, 420, and four of Acc 420, 425, BAS 415, BEc 475, Fin 410, Law 310, RE 300, 420, Mgt 430, PIR 493, Mkt 400, Psychology 362, Speech 285 (a unit course which may be repeated for a total of 3 credits).

MANAGEMENT. **Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, Econ 302, 304, 430, 450, Geography 151, PIR 300 (required elective in major). **Business Core:** BAS 300–301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** BEc 475, Mkt 400, 410, 460, Speech 480, and three of Acc 420, 425, Fin 400, Ins 300, Mgt 430, Mkt 410, PIR 420, Psychology 374, Sociology 486, 530, Mgt 435.

MARKETING. **Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300. **Business Core:** BAS 300–301, Fin 300 Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** Mkt 400, 405, 410, 420, 490, and three of BAS 400, BEc 496, Mkt 400, PIR 420, 490, 492, and two of Mgt 415, PIR 405, 410, 493, 494.

PERSONNEL AND INDUSTRIAL RELATIONS. **Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300 (required elective in major). **Business Core:** BAS 300–301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** BAS 496, Mkt 400, PIR 420, 490, 492, and two of Mgt 415, PIR 405, 410, 493, 494.

REAL ESTATE. **Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300. **Business Core:** BAS 300–301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** Mkt 400, RE 300, 400, 410, 420, 430, 490, and one of Fin 410, Ins 400, Law 400, Mgt 435, Mkt 410, 420, English 210.

RETAIL MERCHANDISING. **Liberal Arts:** English 209, Sociology 201, and 3 credit hours in music, art, or drama. **Economics:** BEc 240, 440, and two of AE 120, BEc 406, 475, Econ 302, 304, 430, 450, Geography 151, PIR 300. **Business Core:** BAS 300–301, Fin 300, Law 300, Mgt 300, 450, Mkt 300, PIR 350. **Major courses:** Fin 420, Mkt 400, 440, 445, and four of Acc 420, BEc 501, Ins 300, Mgt 435, Mkt 410, 425, 430, 490, Home Economics 114, 252, 260, Psychology 270, 463, 474, Sociology 232, 530.
Business Administration Courses

See p. 39 for a discussion of course descriptions.

Accounting (Acc)

Professors Adler, Carlson; Visiting Professors Dickerson, Miller; Associate Professors Corbin, Taussig; Assistant Professors S. Lee, B. Taussig; Lecturers Prescott, Smith

100–101 (Bus 150–151) ELEMENTARY ACCOUNTING (3–3) Yr.
Theory and practice of income determination and asset valuation. Preparation and analysis of statements; uses for decision making. Pre: sophomore standing.

200–201 (Bus 400–499) (3–3) Yr.
Critical examination of generally accepted accounting principles as applied to preparation and use of financial statements. Pre: Acc 101.

300 (Bus 401) ADVANCED ACCOUNTING (3) I
More specialized phases of accounting; special reports, consolidated statements, installment sales, consignments, fiduciaries, branches. Pre: Acc 201.

310 (Bus 402) BUDGETARY ACCOUNTING AND MANAGERIAL CONTROL (3) II
Budgeting for control of business. Problems in purchase, sales, expense, and cash budgets. Pre: credit or concurrent registration in Acc 300 and 315.

315 (Bus 403) COST ACCOUNTING (3) I, II
Cost determination and analysis as a tool of management in such areas as pricing, make, rent or buy decisions. Job order, process, direct, and standard costs. Pre: Acc 200.

320 (Bus 404) ANALYSIS OF FINANCIAL STATEMENTS (3) II
Analysis of the balance sheet and profit and loss statement from the standpoint of owners, managers, credit grantors, and the public. Pre: Acc 101.

325 (Bus 405) INCOME TAX PROBLEMS (3) I

330 (Bus 407) AUDITING (3) II
Principles of conduct of a business audit. Practical aspects of auditing emphasized by means of problems. Pre: Acc 405 or consent of instructor.

399 DIRECTED READING (Ar.) I, II

435 (Bus 409) GOVERNMENTAL ACCOUNTING (3) II
Account classification, budgetary procedure, fund accounting, revenues, operating costs. Pre: Acc 101.

600 (Bus 601) MANAGEMENT ACCOUNTING (3) II
Case studies in the use of accounting reports for planning, policy making and control of business. Pre: Acc 405, 415, 420.

605 SEMINAR IN ACCOUNTING HISTORY AND THEORY (3) I
610 SEMINAR IN CONTEMPORARY ACCOUNTING THEORY (3) II
A consideration of contemporary issues, with emphasis on recent journal literature. Pre: 405.

699 DIRECTED RESEARCH (Ar.)
Pre: consent of department chairman.

Business Analysis and Statistics (BAS)
Professor Leong; Associate Professor Sasaki; Assistant Professor Congdon; Instructor Matsumoto

100 CAREER PLANNING (1) I, II
Preparation for effective career placement: personal inventory, selecting field of interest, the job market, preparation of resumes, employment interviews, employment decisions, initial career experience, and progress.

110 (Bus 110) APPLIED MATHEMATICS (3) I, II
Application of mathematical operations in business: logarithms, algebraic equations, ratios, progressions as used in pricing, interest, annuities, and depreciation.

300-301 BUSINESS STATISTICS (3-3) Yr. (2 L, 1-2 Hr Lb)
Principles of statistical inference including frequency distribution, averages, variation, testing hypotheses, estimation of population mean, index numbers, time series, correlation, probability, sampling, chi square and F distribution, analysis of variance. Utilization of statistical data as an aid to managerial decisions.

310 SAMPLING METHODS (3) I
The design and use of random, systematic, stratified, and sequential samples for the estimation of universe characteristics. Pre: BAS 301.

315 (Bus 408, 430) ELECTRONIC DATA PROCESSING FOR BUSINESS (3) II
Computers and their memories, inputs and outputs, punched card layouts, the possibilities for calculation and decision, program coding, and report writing.

396 (Econ 496) METHODS OF SCIENTIFIC RESEARCH APPLIED TO BUSINESS AND ECONOMIC PROBLEMS (3) I
A study of the fundamentals of research methodology, including the planning, organizing and executing a research project; techniques of gathering the data; the use of library facilities and other sources of information; the analysis and interpretation of the data; the art and strategy of presenting the findings.

399 DIRECTED READING (Ar.) I, II

400 (Bus 500) APPLIED BUSINESS STATISTICS (3) I
Study of case problems, drawn from business and industry, in which the appropriate decision hinges upon statistical treatment of the available information. Pre: BAS 301 or consent of instructor.

405 STATISTICAL QUALITY CONTROL (3) II
Techniques for detecting nonrandom variations in manufacturing, record keeping, and purchasing on order to maintain a standard of performance. Pre: BAS 301. (Alt. yrs.; not offered 1962-63.)

420 OPERATIONS RESEARCH (3) II
Methods of operations research from an executive or managerial viewpoint, with emphasis on the application of mathematical and statistical techniques to manage-
ment decision making; matrix algebra; linear programming, queueing theory, decision theory, replacement theory, etc. Pre: college algebra.

500 APPLIED BUSINESS STATISTICS (3) I (2 L, 1–2 Hr Lb)
Projection of local and national economies by modern statistical techniques. For the purpose of projections, both time series and cross-section data will be used. BAS 301 or consent of instructor.

600 SEMINAR IN BUSINESS ANALYSIS AND STATISTICS (3) I
Pre: BAS 300–301.

699 DIRECTED RESEARCH (Ar.)
Pre: consent of department chairman.

Business Economics (BEc)
Professors Grayson, Pendleton; Assistant Professors Kirkpatrick, Seo, Spangler

BEc 150–151 is prerequisite to all other courses in business economics.

150–151 PRINCIPLES OF ECONOMICS (3) I, II
Principles of production, income, prices, and distribution in the American economy.

240 MONEY AND BANKING (3) I, II
United States monetary system, principles of commercial and central banking; the Federal Reserve, the Treasury, and credit control; monetary theory.

305 (Bus 501) BUSINESS CYCLES (3) II
Analysis of fluctuations of economic activity with emphasis on business cycle theories. Pre: BEc 240.

340 MANAGERIAL ECONOMICS (3) I, II
Economic analysis as it is applied to business decisions and policy for workable concepts of profit, demand, costs, market structure, and performance.

350 ECONOMICS OF TRANSPORTATION (3) I
Development of our major transportation systems and their marketing function in the American economy as an integral part of the process of physical distribution

360 (Bus 570) FOREIGN TRADE (3). I
Development of international trade including comparative costs, balance of international payments, international transfer payments, foreign exchange rates, and comparative economic systems.

361 (Bus 575) FOREIGN TRADE POLICY AND FINANCE (3) II
Means and ends of foreign trade policy and business practices including tariffs, controls, free trade and protection, current United States foreign policy, and overseas investments. Pre: BEc 240.

372 PUBLIC UTILITIES (3) I
Economic nature and history of public utilities; critical discussion of their control by governments.

375 BUSINESS AND GOVERNMENT (3) I, II
Economic aspects and implications of public policy, taxation, and regulation of business activity.

399 DIRECTED READING (Ar.) I, H
**Finance (Fin), Insurance (Ins), Law (Law), Real Estate (RE)**

Professor Lau; Associate Professor Taussig; Assistant Professors Bell, Carlson, Pierson; Lecturer Ito

**FINANCE**

300 (Bus 390) BUSINESS FINANCE (3) I, II

A study of the forms and sources of financing business firms large and small, corporate and noncorporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems. Financial policies are also considered in their social, legal, and economic effects. Pre: Acc 101, BEc 151.

305 (Bus 490) PROBLEMS OF BUSINESS FINANCE (3) II

Application of principles of finance to the financial management of business enterprises with particular reference to corporate distributions, mergers, and reorganizations. Pre: Fin 300, BEc 240 or consent of the instructor.

310 (Bus 491) INVESTMENTS (3) II

Mechanics of investment banking and markets, corporate and government securities, selection and security analysis, risk programming and establishment of investment policy for individuals and institutions. Pre: Fin 305.

320 (Bus 492) CREDIT MANAGEMENT (3) I

Credit organization, development of policies and procedures, credit analysis and risk techniques, decision making, legal determinants, mathematical tools developed into principles for sound operation. Pre: Mkt 300, Mgt 300.

340 BANKING ADMINISTRATION AND POLICIES (3) I

The internal operations of commercial banks with emphasis on organization, sources of bank funds, allocation of bank funds, and supervision and regulation of commercial banks.

399 DIRECTED READING (Ar.) I, II

600 (Bus 691) SEMINAR IN FINANCE (3) I

Advanced study of the problems of financial management. Current literature and case studies are examined with particular emphasis on quantitative methods for making financial decisions under uncertainty. Pre: Fin 305.

699 DIRECTED RESEARCH (Ar.)

Pre: consent of department chairman.

**INSURANCE**

300 (Bus 410) PRINCIPLES OF INSURANCE (3)

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 (Bus 411) 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 (Bus 412) CASUALTY INSURANCE (3) II

Emphasis on third-party liability coverages: general liability, automobile insurance, and workmen's compensation.
330 (Bus 413) LIFE INSURANCE (3) II
Policy forms; calculation of premiums, reserves, and nonforfeiture values; underwriting; regulation of policy provisions; and related coverages.

399 DIRECTED READING (Ar.) I, II

600 SEMINAR IN INSURANCE (3) II
Pre: Ins 300.

699 DIRECTED RESEARCH (Ar.)
Pre: consent of department chairman.

LAW

300 (Law 100) PRINCIPLES OF BUSINESS LAW (3) I
The American system of jurisprudence, elements of torts, criminal law, property, trusts and estates, law of contracts and agency.

310 INTERMEDIATE BUSINESS LAW (3) II
The law of business organizations, with emphasis on partnerships and corporations, and the law of sales, bailments, and negotiable instruments.

399 DIRECTED READING (Ar.) I, II

320 (Bus 502) NEGOTIABLE INSTRUMENTS (3) II
History, nature, and kinds of negotiable instruments and the provisions of the Uniform Negotiable Instrument Law and Uniform Commercial Code. Pre: Law 300 or consent of instructor.

REAL ESTATE (RE)

300 (Bus 420) REAL ESTATE FUNDAMENTALS (3) I
Principles of real estate for the customer and home owner, and as a business. Real estate law, brokerage, management, appraisal, finance.

310 (Bus 423) ELEMENTS OF REAL ESTATE LAW AND PRACTICE (3) II
Fixtures, easements, land descriptions, titles, deeds, recording requirements, brokers, land contracts, escrows, closing of sale, abstracts, mortgages, mechanics' liens, co-ownership, descent, zoning, taxes, landlord and tenant, leasing. Pre: RE 300.

320 (Bus 424) REAL ESTATE FINANCE (3) I
A study of real estate financing and the American mortgage money market; sources of funds for first and second mortgage loans; agreements of sale; the effect of leasing on the money market. Pre: Fin 300, RE 300.

330 (Bus 421) PROPERTY VALUATION (3) II
Economic, social, legal, and physical factors influencing property values, and their relationship to housing. Pre: RE 300 or consent of instructor.

340 (Econ 482) LAND ECONOMICS (3) I
Economic principles and social institutions that influence the use and ownership of lands, both rural and urban. Pre: Econ 140 may be substituted for BEc 150-151.

350 (Bus 422) URBAN LAND UTILIZATION (3) II
Economic concepts, market forces and institutional factors influencing land utilization in urbanized areas. The dynamics of city growth and renewal. Pre: RE 330 or consent of instructor.

399 DIRECTED READING (Ar.) I, II
600  SEMINAR IN REAL ESTATE (3) II  
Pre: RE 300.

699  DIRECTED RESEARCH (Ar.)  
Pre: consent of department chairman.

**Hotel Management and Tourism (HMT)**

Associate Professor WINTER; Assistant Professor BLACK; Lecturer BURNS

101  INTRODUCTION TO HOTEL MANAGEMENT AND TOURISM (2) I, II  
Introduction to the public housing, food service, and tourist service industries. Simplified case studies and guest lectures by industry leaders will be included.

200–201  INTERNSHIP (0–0) Ar.  
800 hours of paid employment in the hotel or tourist industry. Employment for summer months arranged with Department Chairman.

301  HOTEL MANAGEMENT PRINCIPLES (3) II  
Principles of management as applied to the science and art of hotel keeping.

320  TOURISM PRINCIPLES (3) II  
Study and application of the basic components of tourism. Includes the philosophy and promotion of tourism, travel counselling, transportation, tours, entertainment, education, and satisfactions of travel achieved through skillful application of these principles.

330  HOTEL DESIGN, ENGINEERING, AND MAINTENANCE (3) I  
Concepts of the manager's role in architectural design, engineering and maintenance problems in hotels and resorts, including food service facilities.

350  STUDIES IN HOTEL MANAGEMENT (2) I  
Procedures, problems, policies, and planning involved in hotel management. Emphasis on individual research and creative thinking.

355  STUDIES IN TOURISM (2) II  
Critical analysis of available concepts and generalizations concerning tourism on a world basis. Emphasis on individual research and creative thinking.

399  DIRECTED STUDIES (Ar.) I, II  
Limited to senior majors with 2.7 grade-point ratio or 3.0 grade-point ratio in hotel management and tourism.

**Management (Mgt)**

Professors BUCHELE, FERGUSON; Assistant Professors CARLSON, MOSELEY, SCOTT; Lecturer AVERY

300  (Bus 442) PRINCIPLES OF MANAGEMENT (3) I, II  

310  (Bus 464) SUPERVISORY MANAGEMENT (3) II  
Principles governing supervisory personnel in the lower organizational echelons with emphasis on training, direction, motivation, emotional problems, and human relations. Pre: Mgt 300.
320 PRODUCTION MANAGEMENT (3) I
Principles of industrial plant location, product and process engineering, equipment selection, materials handling, control systems, product simplification, procurement, and labor standards. Pre: Mgt 300.

325 (Bus 462) TIME AND MOTION STUDY (3) II
Application of scientific management to industrial operations, including job breakdown, time studies, work simplification, and standards of performance.

330 (Econ 300) PUBLIC RELATIONS (3) II
The relations between organizations and the nation, the community, customers, stockholders, and employees in order to inspire interest, increase loyalty, instill confidence, build prestige, and inform.

335 (Bus 441) SMALL BUSINESS MANAGEMENT (3) I
Principles, problems, and practices in the management and operation of small business enterprise. The place, importance, and future of small business in the economy. Pre: Mgt 300 or consent of instructor.

350 (Bus 443) BUSINESS POLICY (3) I, II

360 ADVANCED MANAGEMENT (3) I
Basic considerations in decision making. Executive action and its consequences. Explanation and demonstration of the practical application of theory. Pre: senior standing.

399 DIRECTED READING (Ar.) I, II

600 (Bus 642) SEMINAR IN MANAGEMENT (3) II
Pre: Mgt 300.

610 (Bus 641) SEMINAR IN PROBLEMS OF BUSINESS (3) II
Pre: consent of department chairman.

640 (Bus 711) APPLIED PROBLEMS OF BUSINESS AND GOVERNMENT (3) I
Problems of business management that arise from specific legislation such as the anti-trust, labor, and revenue laws.

699 DIRECTED READING OR RESEARCH (Ar.)
Pre: consent of department chairman.

Marketing and Foreign Trade (Mkt)
Associate Professors Pratt, Slate, Winter; Assistant Professors Congdon, Stellmacher

300 (Bus 480) PRINCIPLES OF MARKETING (3) I, II
A broad survey course covering the consumer, retailing, wholesaling, functional analysis, marketing policies, and a critical appraisal of marketing in a governmental context. Pre: BEc 151.

305 (Bus 485) PERSUASION IN BUSINESS (3) I, II
The applied psychology of persuasion and motivation; the pervasive role of the selling function in the American economy; some effective techniques of presentation as developed by master salesmen.
310 (Bus 505) INDUSTRIAL MARKETING (3) I
Industrial development; industrial goods marketing characteristics and distribution channels; product planning and development; pricing of industrial goods and market research; and strategy, policy and control. Pre: Mkt 300.

315 (Bus 486) MARKETING MANAGEMENT (3) I
Policy and operational decisions of marketing executives; product decisions, distribution, pricing, marketing plans, sales programs, and organization and control of sales forces. Pre: Mkt 300.

320 (Bus 481) ADVERTISING (3) I, II
The marketing function of advertising; visualization, copy, layout, production, media selection, research, merchandising the complete program, organization and control, and the economic and social aspects of advertising.

325 (Bus 482) ADVERTISING COPY WRITING (3) II
Principles underlying the preparation of effective copy. Practice in creative copy writing. (Alt. yrs.; not offered 1963-64.)

330 (Bus 530) ADVERTISING MANAGEMENT (3) II
Advertising decision making, advertising's role in the marketing mix, primary demand stimulation, selective demand stimulation, building complete programs, and advertising agency relationships. Pre: Mkt 300, 320.

340 (Bus 483) RETAIL MERCHANDISING (3) I
Retailing history, store organization and management, sales promotion, customer's buying habits.

345 (Bus 545) RETAIL ADVERTISING (3) II
Why the retailer should advertise, costs, planning, local media problems, store display, direct mail, and retail sales promotion methods.

380 (Bus 487) FOREIGN MARKETING (3) II
Methods and organization peculiar to international marketing, with emphasis on practical and technical aspects. Pre: Mkt 300.

390 (Bus 484) MARKETING RESEARCH (3) I
Specification of problem; data collection; tabulation, interpretation, and presentation of findings; applications. Pre: Business Analysis 301, Mkt 300.

399 DIRECTED READING (Ar.) I, II

600 (Bus 681) MANAGERIAL PROBLEMS OF MARKETING (3) I
Analysis of executive decisions and policies related to securing the optimum competitive position in the marketing structure. Pre: Mkt 300.

610 SEMINAR IN MARKETING THEORY (3) II
Pre: Mkt 300.

699 DIRECTED RESEARCH (Ar.)
Pre: consent of department chairman.

Personnel and Industrial Relations (PIR)
Senior Professor Roberts; Professors Ferguson, Pendleton; Lecturers Alden, Davi

300 (Econ 290) LABOR PROBLEMS (3) I
Study of wages, hours, working conditions, employment, and other labor problems. Structure and operation of trade unions. Pre: BEc 150-151.
305 (Bus 465) EMPLOYMENT INTERVIEWING (3) I
Interviewing, promotion, transfer, discharge, practice in conducting board, stress, group oral, and other types of interviews. Pre: senior standing or consent of instructor.

310 (Bus 461) INDUSTRIAL SAFETY AND HEALTH (3) II
Principles of accident prevention; reporting, analyzing, and prescribing remedies for accident experience; staff organization and safety programs.

320 (Bus 450) COLLECTIVE BARGAINING (3) I
Principles and concepts of collective bargaining; analysis of sample contracts including union status, seniority, contract enforcement. Pre: PIR 300.

330 (Bus 463) WAGE AND SALARY ADMINISTRATION (3) II
Compensation systems. Wage, salary, and incentive plans. Wage surveys, job analysis, and evaluation.

340 (Econ 490) AMERICAN TRADE UNIONISM (3) II
Development, internal structure, and economic function of organized labor in the United States.

350 (Bus 460) PERSONNEL MANAGEMENT (3) I
Effective programs of employee selection, training, coordination, and adjustment within the firm.

360 (Econ 492) LABOR LEGISLATION (3) I
General principles of labor law; emphasis upon applicable statutes and their economic implications.

370 SOCIAL SECURITY (3) II
Old-age security, health insurance, workmen's compensation, unemployment insurance, and social assistance. An analysis of legislative efforts to reduce some of the economic risks.

380 (Econ 494) ARBITRATION OF GRIEVANCES (3) II
Purpose and functions of grievance procedure; background and procedure of arbitration; substance of arbitration; illustrative cases. Pre: PIR 300.

399 DIRECTED READING (Ar.) I, II

690 (Econ 690) SEMINAR IN CURRENT LABOR PROBLEMS (3) II
Pre: consent of instructor.

699 DIRECTED RESEARCH (Ar.)
Pre: consent of department chairman.
THE FUNCTIONS of the College of Education include the preparation of teachers for elementary and secondary schools and the professional development of teachers in service. Standard preparation for teaching positions in the public schools of Hawaii requires four years of undergraduate and one year of graduate work. The four-year programs lead to the bachelor of education degree, and the year of graduate work to the five-year diploma. Both the degree and the diploma indicate the level—elementary or secondary—of the completed curriculum.

The bachelor of science degree is awarded after the completion of the recreation curriculum.

Admission and Degree Requirements

In addition to University admission requirements (pp. 16–22), applicants must meet certain standards of college aptitude, scholarship, health, personality, and oral English. Applicants for admission to the fifth year or any other advanced program must take the National Teacher Examinations or present scores previously earned in this examination. These examinations are included in Ed EP 309, required of all seniors. Admission to the fifth-year program leading to five-year diploma requires a grade of C or better in student teaching, and professional preparation equivalent to that represented by the bachelor of education degree or the bachelor of science degree in vocational education.

Admission requirements for the recreation curriculum are the same as those for the University.

To be eligible for the bachelor's degree, a student must:

1) Have an aggregate of at least 130 semester hours of credit;
2) have a 2.0 grade-point ratio for all registered credits, and in the major field (see “Undergraduate Degree Requirements”);
3) have met all University degree requirements;
4) have met course requirements for one of the curricula.
Five-Year Diploma Requirements

To be eligible for the five-year diploma a student must:
1) Have the bachelor of education degree or its equivalent, including:
   a) directed teaching in amount and under conditions comparable to those in the laboratory schools; and
   b) course background in general and professional education, comparable to the specific requirements of one of the curricula offered by the College;
2) have satisfactorily met the intern teaching and course requirements of the fifth-year curriculum.

Professional Certificate Requirements

The standard certificate for public school teaching in Hawaii is the professional certificate 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 course experience. 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) proficiency in oral and written communication, and in arithmetic; (3) recommendations from former employers and/or college advisors; (4) transcripts of college records, including standard test scores; (5) meeting of standards of academic success as required at the specific curriculum levels, including a teaching field at the secondary level with a grade-point average of at least 2.5; (6) interview with College of Education admission personnel; (7) 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. Application 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 as follows:
   a) Elementary level—child psychology, principles of education, teaching of language arts, arithmetic, social studies, science, tests and measurements, educational psychology, speech, and two or three of music, art, and physical education.
   b) Secondary level—adolescent psychology, principles of second-
ary education, a methods course in the teaching field, educational psychology, and tests and measurements.

c) In addition, at both levels, a semester of student teaching and 6 graduate credits in education.

Curricula

The curricula in elementary and secondary education are identical for the first year, and are designed to provide a broad general background. This emphasis on general education continues in the second year; however, some differentiation appropriate to the selected curriculum begins at this point. All students are required to pass a proficiency test in arithmetic prior to the junior year.

All students in the College of Education are required to have the equivalent of a semester’s experience in a leadership role with children or youth in a nonschool group situation prior to the junior year. A performance report by the employer or supervisor is sent to the department chairman.

During the third year the professional information and background necessary for public school service are emphasized. Students preparing for secondary school teaching utilize the electives included in the curriculum outline in meeting requirements for teaching field concentrations. In the elementary curriculum students have the option of choosing an area of specialization which usually will require approximately 20 credits. Course sequences for specialization in music, Japanese, speech, and library science have been established, and others are being developed.

The fourth-year program consists largely of professional education. One semester is devoted to student teaching, while the other provides necessary professional courses. One half of the students engage in practice teaching the first semester and take courses the second semester, while the other half reverses the order. The criteria for initial placement in student teaching are as follows: (1) cumulative grade-point average of at least 2.0; (2) evidence of competency in spoken and written English; (3) evidence of personality adjustment suitable for contact with children; (4) at the secondary level a grade-point average of at least 2.5 in the teaching field or fields.

The program of the fifth year is practically identical for both curricula, with intern teaching appointments being made at the appropriate level, and, in the case of prospective secondary school teachers, in the appropriate teaching fields. An alternation of supervised teaching and course work, similar to that in the senior year, is followed.

Teaching Field Requirements—Secondary Education

Agricultural arts: 32 credits in agriculture, Botany 101, Chemistry 103–104, Zoology 161; Ed SE 333. Art: 36 credits in history and theory

Elementary and Secondary Curricula

**FIRST YEAR**

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<th>Second Semester</th>
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**Elementary Curriculum**

**SECOND YEAR**

| Art 103         | 2       | Art 104         | 2       |
| English 150 or 152 | 3       | Ed EE 220       | 4       |
| History 171     | 3       | English 151 or 153 | 3     |
| AS 94 or MS 151, 93 | 0-1     | Government 110  | 3       |
| Music 150       | 3       | HPE 130         | 1       |
| Philosophy 100  | 3       | AS 151 or MS 152, 94 | 1    |
| Psychology 250  | 3       | Speech 110      | 1       |
|                |         | Elective‡       | 3       |
| **Total**       | 17 or 18|                | 18      |

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*Mathematics 103 may be substituted for secondary majors.
†Chemistry 105–106 may be substituted for secondary majors.
‡Two of the following for elementary majors, one for secondary majors: Anthropology 150, Economics 140, Sociology 151.
## THIRD YEAR

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## FOURTH YEAR

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### Secondary Curriculum

#### SECOND YEAR

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#### THIRD YEAR

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<td>16-18</td>
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#### FOURTH YEAR

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*Anthropology 150, Economics 140, or Sociology 151; and other electives.
†Social Studies majors substitute History 461-462 or 463-464.
‡As required to meet teaching field concentrations.
††Concurrent with appropriate methods course.
**For other teaching fields, appropriate methods courses will be substituted.
††Speech majors substitute Speech 369.
Elementary and Secondary Curricula

FIFTH YEAR

<table>
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<tr>
<th>First Semester</th>
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Recreation Curriculum

The Department of Health and Physical Education offers a program of study leading to a B.S. degree in Recreation Leadership. This four-year program is centered in training leaders in community recreation and related fields of recreation.

FIRST YEAR

<table>
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<tr>
<th>Course</th>
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<tr>
<td>Anthropology 150</td>
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<tr>
<td>English 101</td>
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<td>Government 110</td>
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SECOND YEAR

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<td>HPE 115</td>
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THIRD YEAR

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<td>or 225 (for women)</td>
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<td>HPE 245</td>
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<td>HPE 246</td>
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<td>HPE 250</td>
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<td>HPE 251</td>
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<td>HPE 280</td>
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<td>HPE 285</td>
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FOURTH YEAR

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<td>Elective</td>
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Electives

Eight credits of electives must be selected from Group I. Additional electives from Group II must be selected to complete curriculum requirements of 130 semester hours. Substitutions for suggested electives may be approved by the adviser.


Group II: Air Science 95–202, 251–252; Anthropology 300; Art 101; Chinese 101–102; Drama 140; Geography 101; Geology 150; Hawaiian 101–102; History 151–152, 521–522, 577; Japanese 101–102; Military Science 202, 252; Music 160; Philosophy 100; Psychology 270, 420; Religion 150; General Science 120–121; Speech 150.

Laboratory Schools

Practical experience in teaching is given in the College laboratory schools and selected public schools. To insure a rich experience for the children enrolled and to set a high standard of achievement for the student teachers, conditions are made as ideal as possible, with small classes, selected children, and a strong supervising staff assisted by specialists in art, drama, health, library science, physical education, music, and speech.

Observation-participation experience in the third year and intern teaching in the fifth year are provided in selected public schools under the joint supervision of the College and the State Department of Education.

Reading Clinic

The Clinic is a teacher-education laboratory of the Department of Educational Psychology, offering experience to qualified graduate students in diagnosing reading problems and in tutoring children with reading disabilities. It also serves as a materials center in the field of reading: trade books, basal reading series, workbooks, tests, games, and professional books and pamphlets.
Vocational Home Economics Education

Prospective vocational home economics teachers obtain their undergraduate preparation in the College of Tropical Agriculture. Basic professional education courses and student teaching are required. Selective standards, including those in English, used in the College of Education apply to prospective vocational teachers. Students in this program register in the secondary curriculum for the fifth (graduate) year. For the work of this year, see "Five-Year Diploma Requirements."

Certification in School Counseling

The Counseling and Guidance Program is designed for students who wish to develop competency in counseling and guidance in the schools, and to meet certification requirements in Hawaii or other states. The curriculum may be completed as part of the requirements for a master of education degree, or may be taken without completing the degree. Individuals who complete the program satisfactorily are recommended for counselor certification. Those interested should confer with the counselor-educator.

Certification in Teaching the Mentally Retarded

The College offers a program leading to certification as a teacher of the mentally retarded. Completion of 24 credits of course work and student teaching experience with mentally retarded children (for which one year of successful on-the-job supervised teaching of mentally retarded children may be substituted) qualifies the student for certification. Course requirements include Ed EP 315, 510, 511, 609, 615, 616, Ed HP 655, and Psychology 456.

Certification in Library Science

Regulations of the State Department of Education provide that a teacher may have "Qualified School Librarian" placed on the face of the Professional Certificate providing he meets the requirements of 26 credits in library science and related courses. Individuals interested in the program should confer with one of the instructors in library science.

Certification in School Administration

School administration credentials—elementary, intermediate, secondary, and technical—are granted by the State Department of Education after the following requirements have been satisfied: (1) possession of a professional teaching certificate; (2) completion of five years of successful teaching experience; (3) 15 graduate credits in administra-
tion, supervision, and curriculum; and (4) successful completion of the leadership training program.

The leadership training program is sponsored by the College and the State Department of Education. To be admitted to the program, the candidate must have three years of teaching experience, hold the professional certificate, and successfully pass annual examinations administered by the State Department of Education. Approved candidates enroll for Ed Ad 780 and 697-698.

EDUCATION COURSES

See p. 39 for a discussion of course descriptions.

Administration and Supervision (Ad)

Professors Crossley, Everly, Mickelson; Associate Professors L. Jackson, R. Johnson, Simpson

Credit for 697 and 698 does not apply to graduate degree programs.

Ad 670 Supervision of Instruction (2) I
Principles of supervision and development of supervisory programs. Pre: EE 622 or SE 636.

Ad 671 School Publicity and Public Relations (2) I
Principles, techniques, policies, organization of a school-community information program. (Alt. yrs.; offered 1963-64.)

Ad 679 Supervision of Student Teaching (2) I, II
Principles and methods; role of the supervisor; human relations in supervision of student teaching. Pre: teaching experience; consent of instructor.

Ad 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.

Ad 682 Administration of the Elementary School (2) II
Curricula and programs; reports to parents, pupils, staff; plant; community relations; problems of the small school. Pre: Ad 680; teaching experience.

Ad 683 Administration of the Secondary School (2) II
Organization and administration; curriculum; schedules; personnel; plant; public relations. Pre: Ad 680; teaching experience.

Ad 686 Organization and Administration of Vocational and Technical Schools (2) I
Problems and procedures in organizing and administering industrial and vocational school programs. (Alt. yrs.; offered 1963-64.)

Ad 687 Organization and Administration of Adult Education (2) II
Practices, agencies, clientele, philosophy, and goals of adult education.

Ad 688 Administration of the Intermediate School (2) II
Organization and administration of the intermediate school; unique role of the intermediate school in America. Pre: teaching experience.
Ad 689 THE SCHOOL PLANT (2) I
Problems and techniques in school plant planning, operation, and maintenance; working with other agencies and with classified personnel.

Ad 697-698 INTERNSHIP IN EDUCATIONAL LEADERSHIP (2–2) Yr.
Supervised field work in educational leadership. Pre: acceptance in State Department of Education Leadership Training Program or East-West Center. May be repeated, but only by Center students.

Ad 699 DIRECTED RESEARCH (Ar.) I, II
Pre: consent of instructor and department chairman.

Ad 762 HIGHER EDUCATION IN THE UNITED STATES (3)
Trends in higher education; financing; increasing enrollments; recruitment and improvement of faculties; liberal and professional programs. (Not offered 1963–64.)

Ad 770 SEMINAR IN SUPERVISION OF INSTRUCTION (2) II
Methods and tools of supervision; faculty meetings; classroom observation; conferences; evaluation. Pre Ad 670 or 679. May be repeated.

Ad 780 SEMINAR IN EDUCATIONAL ADMINISTRATION (2) I, II
Analysis of selected problems in school administration. Pre: Ad 682 or 683; consent of instructor. May be repeated.

Ad 781 LEGAL AND BUSINESS ASPECTS OF SCHOOL ADMINISTRATION (2) I
Advanced course in legal and business controls and practices in the public school system. Pre: Ad 682 or 683; consent of instructor.

Ad 783 ORGANIZATION OF INSTRUCTIONAL PROGRAMS (2) II
Organization and administration of elementary and secondary schools for improvement of the curriculum and instructional program. Pre: EE 622 or SE 636.

Educational Psychology (EP)
Professors R. Alm, Beyers, F. Clark, Collins, Freeman, Wittich; Associate Professors Reed, Sax; Assistant Professors Fitzgerald, Haehnlen, Sanderson; Instructors Lubitz, Reck

EP 309 TESTS AND MEASUREMENTS (3) I, II
Theory and techniques of evaluation in education. Pre: EE 221, SE 222, or SE 230. Course fee $12.00, including $11.00 for the National Teacher Examination.

EP 315 ARTS AND CRAFTS FOR MENTALLY RETARDED (2) II
Construction and use of learning aids for mentally retarded children. May be taken concurrently with EP 615 with consent of instructor.

EE 372 EDUCATIONAL PSYCHOLOGY (3) I, II
Major factors of learning and mental health as they apply to the educative process. Pre: Psychology 250. (Identical to Psychology 372.)

EP 399 DIRECTED READING (Ar.) I, II
Individual reading or research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in education. Pre: consent of instructor and department chairman.

EP 507 REMEDIAL READING (2) II
Techniques for motivating and helping children whose reading skills are below their capacity and needs.

EP 510 EDUCATION OF EXCEPTIONAL CHILDREN (3) I
A basic survey course covering recognized areas of exceptionality with emphasis on retarded children. Pre: EP 309.
EP 511  TEACHING TECHNIQUES, RETARDED CHILDREN (3) I
Teaching techniques in the skill subjects; diagnosing and correcting weaknesses
in basic curriculum areas. Pre: EP 309.

EP 514  AUDIO-VISUAL MEDIA (3) I, II
Communication theory, the characteristics of A-V media: automated learning
programs, TV, projected and opaque materials (maps and models). Course fee $4.00.

EP 601  GUIDANCE IN THE SCHOOL (3) I, II
Basic principles of guidance; consideration of techniques, organization, materials,
resources.

EP 602  ELEMENTARY SCHOOL GUIDANCE (2) I
Principles, techniques, and organization of guidance services in the elementary
school.

EP 603  SOCIOMETRY FOR CLASSROOM TEACHERS (2)
Theory and practice in use of sociometric measures; application to group guidance
techniques. Pre: 1 year of teaching experience. (Alt. yrs.; not offered 1963–64.)

EP 604  OCCUPATIONAL INFORMATION IN GUIDANCE (2) I
Occupational research and survey techniques; trends, sources of materials, use

EP 605  PROBLEMS OF SCHOOL ADJUSTMENT (2) I
Principles of behavior which affect human relationships in the school, with
emphasis upon application to actual situations.

EP 607  CLINICAL PROCEDURES IN READING (3) I, II
Diagnosis and improvement of reading in elementary and secondary schools. Pre:
course in teaching of reading; consent of instructor.

EP 609  TESTS AND INVENTORIES IN GUIDANCE (2) II
Tests and inventories for measuring aptitudes, interests, and modes of behavior.

EP 613  EDUCATION OF SLOW LEARNERS (2) I
Analysis of the special problems of slow learners and development of techniques
and programs for serving them.

EP 614  EDUCATION OF RAPID LEARNERS (2) II
Analysis of special problems of rapid learners and development of techniques and
programs for serving them.

EP 615  CURRICULUM DEVELOPMENT FOR MENTALLY RETARDED CHILDREN (3) II
Development of curricula and use of materials for teaching mentally retarded

EP 616  SEMINAR IN EDUCATION OF MENTALLY RETARDED (2) II
Advanced problems in the education of mentally retarded children. Pre: 20
credits in MR endorsement plan; teaching experience in mentally retarded classes.

EP 619  EDUCATION OF ADULT LEARNERS (2) II
Psychology of adult learner; techniques for stimulating interest and purpose;
methods; teaching skills; materials of instruction.
EP 634 TELEVISION IN EDUCATION (3) II
Research backgrounds, development, and utilization of television in education, including fundamentals of television production and teaching of television with emphasis on the utilization of television in the school. Pre: EP 304 or 514, or consent of instructor. Course fee $5.00.

EP 672 ADVANCED EDUCATIONAL PSYCHOLOGY (3) II
Application of experimental evidence in psychology to major educational problems; the bearing of recent psychological theories upon education. (Identical to Psychology 372.)

EP 699 DIRECTED RESEARCH (Ar.) I, II
Pre: consent of instructor and department chairman.

EP 701 SEMINAR IN GUIDANCE (2) I, II
Current issues and problems. (1) General, (2) testing, (3) counseling, (4) vocational, (5) elementary school, (6) administration, (7) group procedures. Pre: 8 credits in guidance courses.

EP 702 GROUP GUIDANCE (2) II

EP 703 GUIDANCE PRACTICUM (3) I, II
Supervised experience in guidance activities in schools. Guidance majors only. Pre: consent of instructor.

EP 704 SEMINAR IN AUDIO-VISUAL EDUCATION (3) I
Review of general and current audio-visual research. Applications of same to problems in the improvement of instruction. Pre: EP 514 or equivalent.

EP 705 PRODUCTION OF AUDIO-VISUAL MATERIALS (3) II

EP 708 EDUCATIONAL RESEARCH METHODS (3) I, II

EP 709 EDUCATIONAL EVALUATION (3) II
Educational objectives and evaluation methods; synthesis of data from objective and subjective sources. Pre: EP 309; consent of instructor.

EP 714 ORGANIZATION OF NEW MEDIA PROGRAMS (3) I

Elementary Education (EE)
Professor Porter; Associate Professors Hayes, Pickens; Assistant Professors Bilous, A. Carr, Ezer, Fitzsimmons, S. Fujita, Gillespie, Jenkins, Leib, Yang; Instructor Uehara

Credit for 690 and 691 does not apply to graduate degree programs.
EE 220 ELEMENTARY EDUCATION (4) I, II
Basic course in the education of children of ages 5 to 12; observation in the laboratory schools. Pre: Psychology 250.

EE 221 THE ELEMENTARY SCHOOL PROGRAM (4) I, II
Function of the elementary school; basic concepts concerning curriculum, method, and the teacher's role; observation and work with children. Pre: EE 220.

EE 224 THE KINDERGARTEN-PRIMARY PROGRAM (4) I, II
Education in kindergarten and primary grades; curriculum, method, teacher's role; observation and work with children. Pre: EE 220.

EE 225 CHILDREN'S LITERATURE (2) I, II
Acquaintance with a wide range of children's books; criteria for judging literature on the basis of needs and interests. Pre: EE 220.

EE 228-229 HAWAIIAN NATURAL HISTORY (2-2) Yr.
Survey of the local physical and biological environment with special reference to the needs of teachers in the schools of Hawaii. Students may enter the second semester. (Not offered 1963-64.)

EE 290 PARTICIPATION TEACHING (1) I, II
Classroom experience and discussion and analysis of such experience. Required of students who take EE 5222.

EE 320 LANGUAGE ARTS, ELEMENTARY (3) I, II
Modern approach to the teaching of language arts—reading, oral and written expression. Pre: EE 220.

EE 322 SOCIAL STUDIES, ELEMENTARY (2) I, II
Scope and organization of the social studies for the elementary school. Pre: EE 220.

EE 323 SCIENCE, ELEMENTARY (2) I, II
Science education in the elementary school; developing concepts and understandings. Pre: EE 220.

EE 324 MATHEMATICS, ELEMENTARY (3) I, II
Scope and organization of curriculum materials; mathematical content for use of newer approaches. Pre: EE 220, Mathematics 111, and satisfactory score on basic skills test in arithmetic.

EE 326 CREATIVE ART, ELEMENTARY (2) I, II
Understanding the creative use of art materials, tools, ideas, and their sources. Pre: EE 220; Art 103. Course fee $7.50.

EE 390 STUDENT TEACHING, ELEMENTARY (14) I, II
Supervised experience in the University Elementary School or public school. Pre: EE 221, S222, or 224. Follows laboratory school calendar.

EE 391 SEMINAR FOR STUDENT TEACHERS (2) I, II
Study of problems arising from experience as student teachers. To be taken concurrently with EE 390.

EE 399 DIRECTED READING (Ar.) I, II
Individual reading or research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in education. Pre: consent of instructor and department chairman.
EE 620 TEACHING READING IN THE ELEMENTARY SCHOOL (2) I, II
Various techniques and materials for teaching reading and for improving reading skills.

EE 621 MODERN LANGUAGE ARTS PROGRAM, ELEMENTARY (2) II
Survey of research; critical examination of educational procedures in teaching the language arts. Pre: basic course in teaching language arts.

EE 622 ELEMENTARY SCHOOL CURRICULUM (2)
Principles and techniques of curriculum improvement at the elementary school level. Resources and teaching units. Pre: teaching experience.

EE 626 ART IN ELEMENTARY EDUCATION (2) II
Principles of and problems in teaching art in the elementary school; current approaches in art education. Pre: Art 103–104; EE 326. Course fee $7.50.

EE 690 INTERNSHIP, ELEMENTARY (14) I, II

EE 691 SEMINAR FOR INTERN TEACHERS (2) I, II
Problems arising from classroom experiences of intern teachers. Restricted to fifth-year students. To be taken concurrently with EE 690.

EE 699 DIRECTED RESEARCH (Ar.) I, II
Pre: consent of instructor and department chairman.

EE 722 SEMINAR IN CURRICULUM, ELEMENTARY (3)
Advanced study in the development and improvement of the curriculum of the elementary schools. Pre: EE 622; consent of instructor. May be repeated once for credit.

Health and Physical Education (HPE)
Professor Saake; Associate Professors Gay, Gustason, Vasconcellos; Assistant Professors Beamer, Chui, O'Brien, Sakamoto, Van Decrft; Instructors Asato, Bruin, Furukawa, Gibson, Ko, D. Thompson

An activities and locker fee of $3.00 is assessed in 101–120, except for bowling.

HPE 101 AQUATIC ACTIVITIES (1) I, II
Skill, knowledge, attitudes, and appreciation. Separate sections: swimmers, non-swimmers.

HPE 102 INDIVIDUAL AND DUAL ACTIVITIES (1) I, II
Skill, knowledge, attitudes, and appreciation. Separate sections: golf, tennis, badminton, bowling.

HPE 103 TEAM SPORTS (1) I, II
Skills, knowledge, attitudes, and appreciation. Combination volleyball and softball; combination basketball and soccer. Separate sections for men and women.

HPE 104 COMBATIVE ACTIVITIES (1) I, II
Skills, knowledge, attitudes, and appreciation. Combination judo and wrestling.

HPE 105 RHYTHMIC ACTIVITIES (1) I, II
Skills, knowledge, attitudes, and appreciation. Combination social dancing and folk dancing.
HPE 106 PRESCRIBED EXERCISES (1) I, II
Exercises adapted to individual needs, capacities, and interests.

HPE 107 DEVELOPMENTAL AND GYMNAS TIC ACTIVITIES (1) I, II
Skills, knowledge, attitudes, and appreciation. Combination tumbling, trampoline, parallel bars, etc.

HPE 111 INTERMEDIATE SWIMMING (1)
For students who have met basic requirements and desire to develop additional skills in swimming and diving.

HPE 113 ADVANCED TENNIS (1) II
For those interested in developing advanced skills and strategy in tennis.

HPE 114 DEVELOPMENTAL ACTIVITIES (1-1) Yr.
Exercises with and without apparatus selected to meet personal needs; various forms and systems of exercise surveyed.

HPE 115 TUMBLING (1) I
Exercises suitable for use with child and adult groups.

HPE 116 HEAVY APPARATUS (1) II
Heavy apparatus, including trampoline, for the development of balance, strength, and skills.

HPE 118 TRAMPOLINE (1) II
History, principles, methods, safety procedures. Tumbling and exercises.

HPE 120 MUSIC AND RHYTHMS IN PHYSICAL EDUCATION (2) II
The use of music in the activity program. Includes a brief survey of the various rhythmic patterns and their applications.

HPE 123 FOLK AND NATIONAL DANCES (1) I
Selected dances of various national groups now in popular use. Square dances included.

HPE 124 DANCES OF HAWAII (1) I
Introduction to the hula. The background and fundamentals will be presented, and selected dances given. Activities and locker fee $3.00.

HPE 126 GOLF FOR BEGINNERS (1) II
Emphasis upon basic skills and fundamentals.

HPE 127 INTERMEDIATE GOLF (1) II
For those with some experience. Improving basic skills.

HPE 128 ADVANCED GOLF (1) II
For those with considerable experience. Advanced techniques, scoring, rules and conditions relating to tournament play.

HPE 130 PERSONAL HYGIENE (1) I, II
Scientific health information as a basis for hygienic living. Personal health problems.

HPE 132 PERSONAL HEALTH (2) I
The proper care of the body and development of desirable health habits and attitudes. Intended primarily for majors in physical education and recreation.
HPE 140  NATURE AND FUNCTION OF PLAY (2) II
Place of play in community and school life; applications to the various age groups.

HPE 170  INTRODUCTION TO PHYSICAL EDUCATION (2) II
Designed for prospective teachers and leaders in physical education and recreation; objectives, needs, procedures, and outcomes in physical education activities.

HPE 215  ATHLETIC COACHING, FOOTBALL AND BASKETBALL (2) I
Fundamentals, position play, team play, and strategy in football and basketball.

HPE 217  ATHLETIC COACHING, BASEBALL AND TRACK (2) II
Fundamentals, team play, and strategy in baseball; basic skills, analysis of form, and conditioning in track.

HPE 219  COACHING OF SWIMMING (2) II
Designed for those interested in the development of swimming teams in schools and other agencies. Content and method emphasized.

HPE 221  PHYSICAL EDUCATION, ELEMENTARY (2) I, II
Content and method for elementary school programs. Adaptations to meet situations with like age groups outside of school. Activities and locker fee $3.00.

HPE 222  SKILLS AND ACTIVITIES IN SECONDARY PHYSICAL EDUCATION (2) II
Analysis of activities and methods for junior and senior high school programs.

HPE 225  THE TEACHING OF INDIVIDUAL SPORTS (2) I
Organization and teaching of athletic activities for girls, such as tennis, archery, badminton, golf, etc., on the secondary level.

HPE 227  THE TEACHING OF TEAM SPORTS (2) II
Techniques of teaching fundamentals and strategy of team games for girls and women.

HPE 230  SCHOOL HEALTH PROBLEMS (2) I, II
Health needs of the school child and principles, methods, and materials applicable to the school health program.

HPE 231  METHODS AND MATERIALS IN HEALTH EDUCATION (2) II
Organization and content, methods and materials for health teaching in elementary and secondary schools.

HPE 234  SAFETY PROCEDURES AND FIRST AID (2) I
Prevention and emergency treatment of injuries, emphasis upon school, playground, and athletic situations. Practical work in first aid. Red Cross Certificate may be earned.

HPE 235  THE HEALTH EDUCATION CURRICULUM (2) I
Procedures for the development and construction of the health education program with emphasis on the health needs and interests of school age children.

HPE 236  EVALUATION IN HEALTH EDUCATION (2) II
Processes involved in appraising the effectiveness of health education program. Practice in use and development of evaluation instruments.

HPE 239  HEALTH OF THE SCHOOL CHILD (2) I
Deals with various problems in child health and the role of the school in meeting them.
HPE 241 SOCIAL RECREATION (2) I
Activities and leadership techniques for parties, socials, etc.

HPE 245–246 OFFICIATING IN ATHLETICS (2–2) Yr.
Techniques used by officials in the various sports. Practice in officiating is included.

HPE 248 HOBBIES IN RECREATION (2) II
Development of procedures and skills in various hobbies for recreation majors. Others by permission of instructor only.

HPE 249 CAMP LEADERSHIP (2) II
Program development; procedures in modern camping; relationships with educational and other agencies. For recreation majors; others with consent of instructor.

HPE 250–251 RECREATION LEADERSHIP (2–2) Yr.
Students assigned to recreational agencies for orientation. One hour per week in discussion of individual and group problems. Prerequisite: consent of instructor.

HPE 252–253 FIELD WORK IN RECREATION (5–5) Yr.
Students assigned to recreational agencies for experience. One hour per week in discussion of problems. Prerequisite: consent of instructor. For recreation majors only.

HPE 263 INTRAMURAL ATHLETICS (2) I
Organization, program, and procedures used in conducting a sports program for students outside of regular class hours.

HPE 276 CURRENT TRENDS IN HEALTH (2)
A critical analysis of current problems and trends in basic health education areas which contribute to healthful living in the community, home, and school.

HPE 280 ANATOMY IN PHYSICAL EDUCATION (3) I
Designed to develop an understanding of muscle action during activity. Primarily for leaders in physical education and recreation but open to others.

HPE 285 PHYSIOLOGY IN PHYSICAL EDUCATION (3) II
Essentials necessary in teaching health practices; activities to meet individual and group needs. Primarily for leaders in physical education and recreation but open to others.

HPE 332 THE SCHOOL'S ROLE IN COMMUNITY HEALTH (2) II
Historical and modern developments of health problems with special emphasis on interpretation of their effect on individual and community life. Promotion of community health programs for the solution of current health problems. Prerequisite: HPE 230, or consent of instructor.

HPE 399 DIRECTED READING (Ar.) I, II
Individual problems. Limited to seniors in the recreation leadership curriculum with 2.7 grade-point ratio, or 3.0 grade-point ratio in health and physical education.

HPE 631 ORGANIZATION AND ADMINISTRATION OF THE SCHOOL HEALTH PROGRAM (2)
Underlying principles, organization for health including health services, healthful school living, health and safety instruction; interrelationships with community agencies. Prerequisite: HPE 230, 231, 235, 236, and 239.
History and Philosophy of Education (HP)

Senior Professor CLOPTON; Professor ANDERSON, AUSTIN; Associate Professor L. JACKSON; Assistant Professors AMIYOKA, BOYER, STUEBER; Instructor J. ALM

Qualified graduate students in other colleges may enroll in courses in this department with consent of instructor.

HP 100-101 INTRODUCTION TO EDUCATION (1-1) Yr.
The teacher as a person; teaching as a profession; choice of a teaching field. Course fee $1.00 first semester.

HP 360 FUNDAMENTAL IDEAS IN EDUCATION (2) I
Examination of basic ideas influencing modern education; sociological, psychological, and philosophical considerations; for juniors in the Honors Program.

HP 570 ANTHROPOLOGY AND EDUCATION (3) II
Education as a means of transmitting culture. Socialization in nonliterate societies; universal aspects of the process. Cross-cultural education. (Identical with Anthropology 515.)

HP 650 HISTORY OF EDUCATION (3) I, II
History of Western educational thought and practice as a basis for the study of modern school problems.

HP 660 PHILOSOPHY OF EDUCATION (3) I, II
Philosophy and science in education; social, psychological, and ethical considerations essential to a philosophy of education. Pre: student teaching.

HP 661 THE CHURCH AND THE SCHOOL (2)
Church, state, and school relationships in the U.S., Canada, Latin America, and Europe. Pre: HP 660. (Alt. yrs.; not offered 1963-64.)

HP 663 SOCIAL FOUNDATIONS OF EDUCATION (3) II
The impact on education of major social trends and forces operating in American society; social change and education. Pre: consent of instructor.

HP 664 INTERPERSONAL RELATIONSHIPS IN EDUCATION (3)
Philosophical and psychological considerations in personal relationships in family and school. (Not offered 1963-64.)

HP 665 EDUCATION IN AMERICA (3)
A comprehensive overview of the American educational scene from nursery school to graduate and professional schools, public and private; problems of support, organization, curriculum, methods, teacher preparation. Designed primarily for students who are not Americans.

HP 670 COMPARATIVE EDUCATION: EUROPE AND AMERICA (3)
Comparison of the ways in which contemporary Western societies undertake to meet their educational problems.

HP 671 COMPARATIVE EDUCATION: THE ORIENT (3) II
Study of the educational problems, practices, and institutions in the countries of Asia.

HP 672 EDUCATION AND THE WORLD COMMUNITY (3) I
The world community and its relationship to education; representative cultures; aims and programs of the U.N.; cross-cultural learning.
HP 699 Directed Research (Ar.) I, II
Pre: consent of instructor and department chairman.

HP 751 History of American Education (3) II
History of educational thought and practice in America, with major emphasis on the 19th and 20th centuries. Pre: HP 650.

HP 754 Seminar in the History of Education (2)
Selected individual problems; major social forces and ideas affecting education. Pre: HP 650. (Not offered 1963-64.)

HP 757 Educational Classics (2) II
Intensive study of English translations of major contributions to Western educational thought from Plato to Dewey. Pre: HP 650. (Alt. yrs.; offered 1963-64.)

HP 761 Japanese Philosophy of Education (2)
Development of philosophy of education in Japan from the Imperial Rescript to the present; Western influences on Japanese educational thought. Pre: HP 660. (Alt. yrs.; offered 1963-64.)

HP 762 Educational Philosophy of John Dewey (2)
Intensive study of Dewey's writings on education. Pre: HP 660. (Alt. yrs.; not offered 1963-64.)

HP 763 Seminar in Philosophy of Education (2) II
Social and psychological theory involved in educational issues. Pre: HP 650, 660. May be repeated once for credit. (Alt. yrs.; not offered 1963-64.)

HP 764 Contemporary Educational Philosophers (2)
Characteristics, similarities, and divergencies of chief contemporary schools of educational philosophy in America; chief exponents of each. Pre: HP 660. (Alt. yrs.; not offered 1963-64.)

HP 768 Seminar in Problems in Education (2) I, II
Study and discussion of significant topic and problems. Required of Plan B Ed.M. candidates in their final semester or summer session. Pre: EP 708.

HP 770 Seminar in Comparative Education (2) II
(1) East Asia; (2) South Asia; (3) Southeast Asia; (4) Latin America; (5) Africa; (6) USSR and Eastern Europe; (7) Western Europe; (8) the British Commonwealth. Pre: HP 670 or 671. May be repeated.

Industrial Education (IE)

Associate Professor Povzer; Instructor W. T. Chang

IE 101 Wood Fabrication and Technology (3) I
Fundamental operations and technology of wood fabrication. Design and fabrication of projects. Course fee $10.00.

IE 102 Metal Fabrication and Technology (3)
Fundamental operations in metal fabrication. Projects in benchmetal, sheetmetal, tempering, machining. Course fee $10.00.

IE 107 Basic Drafting and Design for Industrial Education (3) I
Drafting and design as the language of industry; basic drafting and design principles and techniques, perspective, orthographic, isometric, and development problems; contemporary design as applied to fabrication.
IE 108  DRAFTING AND DESIGN FOR INDUSTRIAL EDUCATION (3) II  
Continuation of IE 107. Machine and assembly drafting; auxiliary views and sectioning, architectural and technical illustration.

IE 201  ELECTRICITY (3) I  
Series and parallel circuits, magnetism, electromagnetism, measuring instruments, generator and motor principles. Course fee $10.00.

IE 202  ELECTRICITY (3) II  
Circuits, coils, motors, generators, transformers; inductance; conduit wiring; radio. Course fee $10.00.

IE 206  POWER MECHANICS (3) II  
Basic power units: internal combustion engines. Experience with hand tools in repair of two- and four-cycle engines. (Alt. yrs.; offered 1963-64.)

IE 300  INDUSTRIAL CRAFTS—JEWELRY AND LAPIRARY (2)  
Design, processes, and materials of jewelry making; lapidary processes and materials for polishing semi-precious gemstones; black coral polishing and mounting. (Not offered 1963-64.)

IE 301  INDUSTRIAL CRAFTS—LEATHER (2) I  
Design and fabrication of leather products. Materials and processes taught through creative projects and problems.

IE 302  INDUSTRIAL CRAFTS—PLASTICS AND WOOD SCULPTURE (2) II  
Design and fabrication of plastics projects; materials and processes of metal enameling; other industrial crafts native to Hawaii.

IE 303  ADVANCED WOOD FABRICATION AND TECHNOLOGY (3) II  
Nomenclature, setup, and operation of power equipment. Design, patterns, jigs, and templates; production procedures. Course fee $10.00.

IE 304  ADVANCED METAL FABRICATION AND TECHNOLOGY (3) II  
Organization, layout, equipment, management, uses of instructional material. Selected projects in benchmetal, forging, heat-treating, machine shop, oxyacetylene welding, and cutting. Course fee $10.00.

IE 307  ADVANCED DRAFTING AND DESIGN (3) II  
Drafting and design principles in fabrication of industrial products; problems of wood, metal, other materials; architectural drafting. Application to instruction.

IE 348  INDUSTRIAL ARTS FOR ELEMENTARY TEACHERS (2)  
Hand and simple machine tool instruction taught through selected elementary education projects and units.

IE 401  PROBLEMS IN INDUSTRIAL EDUCATION (Var.) I  
A program arranged for specialization in several technical areas. May be repeated for total of 5 credits.

IE 402  IMPROVEMENT OF INSTRUCTION, INDUSTRIAL EDUCATION (Var.) I, II  
Consideration of problems in teaching industrial education. May be repeated for total of 5 credits.

IE 764  SEMINAR IN INDUSTRIAL EDUCATION (2) II  
Individual study of special problems.
Library Science (LS)

Assistant Professors Geiser, Tom; Instructor Crockett

Students may enroll in courses only after consultation with instructors concerned. Individual problems may be registered for under 699.

LS 301 INTRODUCTION TO LIBRARIANSHIP (3) I, II
Development, function, and operation of libraries as social institutions; orientation to librarianship. Observation of various types of libraries.

LS 310 THE LIBRARY IN TEACHING (2) II
For prospective teachers and librarians. Use of the library in classroom instruction; use of school and public library resources; teaching library skills.

LS 320 REFERENCE MATERIALS (3) I
Introduction to basic types of reference sources; their evaluation, content, use.

LS 340 CATALOGUING AND CLASSIFICATION (3) II
Introduction to the Dewey Decimal classification; dictionary cataloguing; subject headings and filing. Pre: typing ability. Course fee $3.00.

LS 399 DIRECTED READING (Ar.) I, II
Individual problems. Limited to seniors in the library science curriculum with 2.7 grade-point ratio, or 3.0 grade-point ratio in library science. Pre: consent of instructor and department chairman.

LS 430 BOOK SELECTION AND READING GUIDANCE (3)
Selection and use of school library materials in terms of the curriculum and children's needs and interests. Pre: EE 225 or SE 235. (Not offered 1963-64.)

LS 608 SCHOOL LIBRARY ADMINISTRATION (3)
Philosophy, problems, and procedures in organizing, administrating, and developing school library programs. Pre: EE 390 or SE 390; LS 301, 320, 332, 340.

LS 610 PROMOTING LIBRARY USE (2) I
Techniques of staff and public relations; book lists and school news; book talks and story-telling; bulletin boards and exhibits.

LS 640 ADVANCED TECHNICAL PROCESSES (2)
More detailed cataloguing problems, including the organization of audio-visual aids. Pre: typing ability. Course fee $3.00.

LS 680 SEMINAR IN SCHOOL LIBRARY PROBLEMS (2)
Analysis of major problems, issues, and practices in the school library field. For in-service librarians and graduate students.

LS 690 LIBRARY INTERNSHIP (14) I, II
Full-time supervised service in laboratory or public school libraries. Pre: LS 300, 320, 340, 380, 430; EE 390 or SE 390.

LS 699 DIRECTED RESEARCH (Ar.) I, II
Pre: consent of instructor and department chairman.

Secondary Education (SE)

Professors R. Alm; Associate Professors In, Nelson, Noda, Pickens, Povzer; Assistant Professors O. Davis, De Queljoe, Fultz, Moriwaki; Instructors J. Alm, Sato
Credit for 690 and 691 does not apply to graduate degree programs.

SE 230 SECONDARY EDUCATION (4) I, II
Basic course dealing with the major problems of secondary education. Pre: Psychology 152.

SE 235 LITERATURE FOR ADOLESCENTS (2) I
Literature for the secondary school level; helping students appreciate the significance and meaning of literature; materials suitable for varying levels of ability and interests.

SE 237 MATHEMATICS IN UPPER ELEMENTARY AND INTERMEDIATE GRADES (2)
Arithmetic beyond fundamental processes; "general mathematics" courses; arithmetic in other courses.

SE 238 PHYSICAL EDUCATION, SECONDARY (2) I
Methods and materials in conduct of the physical activities program; techniques in leadership; selection of activities and program evaluation. Pre: SE 230.

SE 290 PARTICIPATION TEACHING (1) I, II
Classroom experiences and discussion and analysis of such experiences. Concurrent registration with major field methods course. May be repeated once for credit. Pre: SE 230.

SE 330 LANGUAGE ARTS, SECONDARY (3) I, II
Teaching of speaking, reading, writing, and listening in the secondary school; literature, grammar, usage, spelling. Pre: SE 230.

SE 331 TEACHING OF READING IN INTERMEDIATE AND HIGH SCHOOL (2) II
Techniques and materials for teaching reading and improving reading skills in the intermediate and high school.

SE 332 SOCIAL STUDIES, SECONDARY (3) I, II
Scope and organization of social studies in the secondary school; development of social knowledge and understanding. Pre: SE 230.

SE 333 SCIENCE, SECONDARY (3) I, II
Purposes and procedures; development of scientific attitude; review of the major generalizations of the biological and physical sciences. Pre: SE 230.

SE 334 MATHEMATICS, SECONDARY (3) I, II
Purposes and procedures; development of basic mathematical concepts. Pre: SE 230; Math 132, 421.

SE 335 FOREIGN LANGUAGES, SECONDARY (3) I
Techniques and materials; aims, motivation, tests; infusion of cultures; use of instructional aids. Pre: SE 230.

SE 336 ART, SECONDARY (3) I
Purposes and procedures; the arts in relation to all school subjects. Pre: SE 230; Art 103–104. Course fee $2.00.

SE 337–338 SCHOOL MUSIC, SECONDARY (3–3) Yr.
SE 339 SPEECH AND DRAMATICS, SECONDARY (3) I
Techniques for teaching types of speech and play analysis and direction, production, and management problems. Pre: SE 230.

SE 346 METHODS OF INSTRUCTION, INDUSTRIAL EDUCATION (3) I
Techniques of individual and group instruction in shop and related classes; evaluation of various methods. Pre: SE 230.

SE 347 ORGANIZATION AND MANAGEMENT OF INDUSTRIAL EDUCATION (2) II
Organization of instruction, handling supplies; maintaining equipment and tools; purchasing materials; keeping records; making inventories. Pre: SE 230.

SE 348 TYPEWRITING AND SHORTHAND (2) I

SE 349 BOOKKEEPING AND OFFICE PRACTICE (2) II

SE 390 STUDENT TEACHING, SECONDARY (14) I, II
Supervised experience in the University High School or public school. Pre: SE 230. Follows laboratory school or public school calendar.

SE 391 SEMINAR FOR STUDENT TEACHERS (2) I, II
Study of problems arising from experience as student teachers. To be taken concurrently with SE 390 or 392.

SE 392 STUDENT TEACHING IN HOME ECONOMICS (6) I, II
Observation, supervised teaching, and conferences. Pre: senior standing; credit or concurrent registration in Home Economics 270.

SE 399 DIRECTED READING (Ar.) I, II
Individual reading or research. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in education. Pre: consent of instructor and department chairman.

SE 437 CURRICULUM DEVELOPMENT, INDUSTRIAL EDUCATION (2) II
Curriculum development in industrial arts with special emphasis on the planning of courses of studies for both intermediate and senior high school offerings.

SE 431 MODERN LANGUAGE ARTS PROGRAM, SECONDARY (2) I
Survey of research; critical examination of educational procedures in teaching the language arts. Pre: basic course in teaching language arts.

SE 434 EXTRACLASS ACTIVITIES IN SECONDARY SCHOOLS (2) II
Planning and supervising student government, dramatics, athletics, school journalism, and other activities.

SE 435 INTERMEDIATE SCHOOL CURRICULUM (2) II
Programs for the intermediate school; relationship of teachers, administrators, and parents; curriculum problems; evaluation. Pre: teaching experience. (Alt. yrs.; offered 1963–64.)

SE 436 SECONDARY SCHOOL CURRICULUM (2) I
Principles and techniques of curriculum improvement at the secondary school level. Pre: teaching experience.
SE 637  ART IN SECONDARY EDUCATION (3)
Principles of and problems in teaching art in the secondary school; current approaches in teaching art. Pre: SE 336 and consent of instructor. Course fee $7.50.

SE 672  TEACHING AIDS ON ASIA (2) I
Methods and materials in teaching about Asian nations, including the screening and suggested use of appropriate films and slides on each country, and a sampling of music and the visual arts. Pre: consent of instructor.

SE 690  INTERNSHIP, SECONDARY (14) I, II

SE 691  SEMINAR FOR INTERN TEACHERS (2) I, II
Problems arising from classroom experiences of intern teachers. Restricted to fifth-year students. To be taken concurrently with SE 690.

SE 699  DIRECTED RESEARCH (Ar.) I, II
Pre: consent of instructor and department chairman.

SE 733  SEMINAR IN CURRICULUM, SECONDARY (3) II
Advanced study in the development and improvement of the curriculum of the secondary schools. Pre: SE 636; consent of instructor. May be repeated once for credit.

SE 737  FOUNDATIONS IN ART EDUCATION (3)
Advanced study in the development and growth of art in secondary education. Pre: SE 336, 637, consent of instructor; desirable, Philosophy 500.
THE COLLEGE OF ENGINEERING prepares students for civil, electrical, mechanical, and general engineering.

**Admission and Degree Requirements**

The number of students admitted is limited. Selection is made on the basis of admission tests and high school records. The programs require special preparation in addition to the requirements for admission (pp. 16-22). Students who lack the required special preparation, or who are unable to carry heavy 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 of a curriculum;
2) have an aggregate of at least 130 semester hours of credit;
3) have a 2.0 grade-point ratio for all registered credits, and in the major field (see "Undergraduate Degree Requirements").

**Curricula**

Four-year curricula lead to the degree of bachelor of science in civil, electrical, general, or mechanical engineering. These curricula are designed as three integrated programs to prepare the student to undertake the responsibility of an engineer:

1) Humanistic and social studies, to promote an understanding of the responsibilities of a free man.
2) Mathematics, physical science, and engineering science, to promote an understanding of the sciences underlying engineering.
3) Engineering analysis and design, to promote specialization in one field.

The first-year courses are common to all curricula.
Common First Year

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</th>
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<tr>
<td>Chem 103 General Chemistry</td>
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<td>Chem 104 General Chemistry</td>
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<tr>
<td>GE 100 Orientation</td>
<td>0</td>
<td>Eng 102 Composition</td>
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<tr>
<td>GE 105 Engineering Graphics</td>
<td>3</td>
<td>Health &amp; Phys. Ed.</td>
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<td>Eng 101 Composition</td>
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<td>Math 141 Anal. Geom. &amp; Calculus</td>
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<td>Health &amp; Phys. Ed.</td>
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<td>AS 91 or MS 92, 102</td>
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<td>Math 140 Anal. Geom. &amp; Calculus*</td>
<td>3</td>
<td>Phys 170 General Physics</td>
<td>3</td>
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<td>Sp 140 Fund. of Oral Comm.</td>
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<td>Phys 171 General Physics Lab</td>
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<td>AS 102 or MS 91</td>
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<td><strong>Total</strong></td>
<td>16 or 17</td>
<td><strong>Total</strong></td>
<td>15 or 16</td>
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</table>

Civil Engineering Curriculum

SECOND YEAR

| CE 111 Surveying | 2 | CE 112 Surveying | 3 |
| CE 170 Applied Mechanics | 3 | CE 271 Applied Mechanics II | 3 |
| Eng 155 Literature | 3 | Hist 171 American History | 3 |
| Math 142 Calculus | 3 | Math 143 Calculus | 3 |
| Math 94 or MS 151, 93 | 1-0 | AS 151 or MS 152, 94 | 1 |
| Phys 172 General Physics | 3 | Phys 174 General Physics | 4 |
| Phys 173 General Physics Lab | 1 | | |
| **Total** | 15 or 16 | **Total** | 17 |

THIRD YEAR

| CE 220 Fluid Mechanics | 3 | CE 222 Fluid Mechanics II | 3 |
| CE 221 Hydraulic Lab | 1 | CE 274 Mechanics of Materials | 3 |
| CE 241 Mechanics of Materials Lab | 1 | CE 351 Soil Mechanics | 3 |
| CE 273 Mechanics of Materials | 4 | ME 231 Thermodynamics | 3 |
| EE 102 Electrical Science | 3 | Econ 140 Introduction | 3 |
| Eng 212 Adv. Expos. Writing† | 3 | Elective (Human. or Soc. Studies I) | 3 |
| Math Elective‡ | 3 | | |
| **Total** | 18 | **Total** | 18 |

FOURTH YEAR

| CE 300 Engineering Economy | 2 | GE 302 Contracts & Specif. | 2 |
| CE 331 Sanitary Engineering | 3 | CE 386 Structural Design or CE 326 Hydraulic Design | 4 |
| CE 360 Transportation Engineering | 3 | CE 388 Structural Analysis or CE 325 Hydrology | 3 |
| CE 380 Structural Design | 4 | Elective (Human. or Soc. Studies III) | 3 |
| CE 385 Structural Analysis or CE 321 Hydraulic | 3 | Elective (Human. or Soc. Studies IV) | 3 |
| Elective (Human. or Soc. Studies II) | 3 | Elective (Technical)§ | 3 |
| **Total** | 18 | **Total** | 18 |

*Math 103 may be required if math preparation is inadequate.
†Eng 210 may be substituted if taken in senior year.
‡Any math course numbered 200 or above.
§Any engineering course numbered 200 or above which is not in student's option, or any math or physics course numbered 200 or above. Requires adviser's approval.
## Electrical Engineering Curriculum

### SECOND YEAR

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
<th>SECOND SEMESTER</th>
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<tr>
<td>CE 170 Applied Mechanics</td>
<td>3</td>
<td>CE 271 Applied Mechanics II</td>
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<td>Econ 140 Introduction</td>
<td>3</td>
<td>EE 211 Circuit Theory I</td>
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<tr>
<td>Eng 155 Literature</td>
<td>3</td>
<td>Hist 171 American History</td>
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<tr>
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<td>AS 94 or MS 151, 93</td>
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<td>AS 151 or MS 152, 94</td>
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<tr>
<td>Phys 172 General Physics</td>
<td>3</td>
<td>Phys 253 Electrical</td>
<td>1</td>
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<tr>
<td>Phys 173 General Physics Lab</td>
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<td>Measurements</td>
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**Total** 16 or 17  
**Total** 17 or 18

### THIRD YEAR

*All electives require adviser's approval*

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<tr>
<td>CE 272 Mechanics of Materials</td>
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<tr>
<td>EE 212 Circuit Theory II</td>
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</tr>
<tr>
<td>EE 223 Circuits Laboratory</td>
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<tr>
<td>Math 401 Differential Equations</td>
<td>3</td>
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<tr>
<td>Phys 440 Electronics</td>
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<tr>
<td>Phys 350 Electricity &amp; Magnetism</td>
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**Total** 18

### FOURTH YEAR

*All electives require adviser's approval*

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<td>EE 322 Electives Lab I</td>
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<tr>
<td>EE 323 Electives Lab</td>
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<tr>
<td>Elective (Technical I)*</td>
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</tr>
<tr>
<td>Elective (Technical II)*</td>
<td>3</td>
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<tr>
<td>Eng 210 or 212</td>
<td>3</td>
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<td>Elective (Human or Soc. Studies II)</td>
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<tr>
<td>EE 373 Electives Lab II</td>
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<tr>
<td>Elective (Technical III)*</td>
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<tr>
<td>Elective (Technical IV)*</td>
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<tr>
<td>Elective (Human. or Soc. Studies IV)</td>
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<tr>
<td>ME 231 Thermodynamics</td>
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**Total** 17  
**Total** 18
General 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 111 Surveying</td>
<td>2</td>
<td>CE 271 Applied Mechanics II</td>
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<tr>
<td>CE 170 Applied Mechanics</td>
<td>3</td>
<td>EE 103 Electrical Science</td>
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<td>Eng 155 Literature</td>
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<td>Hist 171 American History</td>
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<td>Math 142 Calculus</td>
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<td>AS 94 or MS 151, 93</td>
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<td>AS 151 or MS 152, 94</td>
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<tr>
<td>Phys 172 General Physics</td>
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<td>Phys 174 General Physics</td>
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THIRD YEAR

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<tr>
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<tr>
<td>CE 241 Mechanics of Materials Lab</td>
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<td>CE 220 Fluid Mechanics</td>
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<td>CE 273 Mechanics of Materials</td>
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<td>CE 221 Hydraulics Lab</td>
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<td>ME 231 Thermodynamics</td>
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<td>EE 203 Electrical Engineering Lab</td>
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<td>Math 401 Differential Equations</td>
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<td>ME 232 Adv. Thermodynamics</td>
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<td>Phys 350 Electricity &amp; Magnetism</td>
<td>3</td>
<td>Econ 140 Introduction</td>
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<td>Elective (Human. or Soc. Studies II)</td>
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FOURTH YEAR

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<tr>
<td>GE 300 Engineering Economy*</td>
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<td>EE 221 Basic Electronics Lab</td>
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<tr>
<td>Eng 210 or 212</td>
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<td>ME 334 Mechanical Engineering Lab</td>
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<tr>
<td>EE 301 General Circuit Analysis*</td>
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<td>Elective (Human. or Soc. Studies IV)</td>
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<td>ME 333 Mechanical Engineering Lab</td>
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<td>Electives—12 credits (Schedule a, b, c, or d)</td>
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<td>ME 375 Heat Transfer</td>
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<tr>
<td>Phys 440 Electronics</td>
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<td>Elective (Human. or Soc. Studies III)</td>
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(a) EE 211, 212, 221, 223, 242, 351, 353; Phys 550.
(b) ME 121, 234, 341, 342, 365.
(c) CE 112, 242, 321, 331, 351, 385; GE 302.
(d) Bus 461, 462, 464; Math 471; GE 302.

*EE 211 may be substituted for those selecting Elective Schedule (a).
# Mechanical Engineering Curriculum

## SECOND YEAR

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>CREDITS</th>
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<tr>
<td>CE 170 Applied Mechanics</td>
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<td>CE 271 Applied Mechanics II</td>
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<tr>
<td>ME 121 Manufacturing Processes</td>
<td>3</td>
<td>EE 102 Electrical Science</td>
<td>3</td>
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<tr>
<td>Eng 155 Literature</td>
<td>3</td>
<td>Hist 171 American History</td>
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<tr>
<td>Math 142 Calculus</td>
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<td>Math 143 Calculus</td>
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<td>AS 151 or MS 152, 94</td>
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<tr>
<td>Phys 172 General Physics</td>
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<td>Phys 174 General Physics</td>
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<td>Phys 173 General Physics Lab</td>
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**FIRST SEMESTER**

- CE 170 Applied Mechanics 3
- ME 121 Manufacturing Processes 3
- Eng 155 Literature 3
- Math 142 Calculus 3
- AS 94 or MS 151, 93 0–1
- Phys 172 General Physics 3
- Phys 173 General Physics Lab 1

**SECOND SEMESTER**

- CE 271 Applied Mechanics II 3
- EE 102 Electrical Science 3
- Hist 171 American History 3
- Math 143 Calculus 3
- AS 151 or MS 152, 94 1
- Phys 174 General Physics 4

### THIRD YEAR

<table>
<thead>
<tr>
<th>CE 273 Mechanics of Materials 4</th>
<th>CE 220 Fluid Mechanics 3</th>
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<tbody>
<tr>
<td>CE 241 Mechanics of Materials. Lab 1</td>
<td>EE 203 Electrical Engineering Lab 1</td>
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<tr>
<td>ME 231 Thermodynamics 3</td>
<td>ME 232 Adv. Thermodynamics 3</td>
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<tr>
<td>Math 401 Differential Equations 3</td>
<td>ME 366 Materials Science 3</td>
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<tr>
<td>Elective (Human. or Soc. Studies I) 3</td>
<td>Econ 140 Introduction 3</td>
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<td>Elective (Human. or Soc. Studies II) 3</td>
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### FOURTH YEAR

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<tr>
<th>GE 300 Engineering Economy 2</th>
<th>ME 334 Mechanical Engineering Lab 1</th>
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<tr>
<td>EE 301 General Circuit Analysis 3</td>
<td>ME 374 Machine Design 3</td>
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<tr>
<td>ME 333 Mechanical Engineering Lab 1</td>
<td>ME 382 Power Plants 3</td>
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<tr>
<td>ME 371 Dynamics of Machinery 3</td>
<td>ME 390 Seminar 2</td>
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<td>ME 373 Machine Design 3</td>
<td>Elective (Human. or Soc. Studies IV) 3</td>
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<td>ME 375 Heat Transfer 3</td>
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<td>Elective (Human. or Soc. Studies III) 3</td>
<td>Elective (Technical)† 3</td>
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*Eng 210 may be substituted if taken in senior year.
†ME 341, 342; CE 274; Math 402; Phys 280.
Humanistic-Social Studies Electives

The Humanistic-Social Studies Program requires all students to complete one course each in literature, history, and economics, and four elective courses. The elective program is designed to require the student to complete two additional lower division courses (Electives I and II) and two upper division courses (Electives III and IV).

Humanistic-Social Studies Electives I or II: American Studies 120, Anthropology 150, Art 101, Drama 140, Geography 101, 151, Government 110, History 151-152, Music 160, Philosophy 100, 110, 150, Psychology 104, Religion 150, Sociology 151, Speech 150.

Humanistic-Social Studies Electives III or IV: Any course numbered 200 or above in anthropology, art, drama, English, economics, geography, government, history, music, philosophy, psychology, religion, sociology, or speech, except Economics 420, 421, Geography 255, Psychology 220, 226.

ENGINEERING COURSES

See p. 39 for a discussion of course descriptions.

Chemistry 104, English 102, and Speech 140, or equivalent, are prerequisite to all courses numbered 200 or above.

Students who register in courses for which they have not met all prerequisites may be required to withdraw at any time during the course. Prerequisites may be waived with written permission of the Dean of College.

Civil

Professors Daniel, Evans, Martin, Tinniswood; Associate Professors Chiu, Engman, Go, Haselwood, Lau, Mitsuda, Perry; Assistant Professors Antebi, Hummel, Yuen

CE 111 SURVEYING (2) I (1 L, 1 Lab)
Use of tape, level, and transit; horizontal and vertical control surveys; optical tooling; computations. Pre: Math 102; GE 101. Course fee $3.00.

CE 112 SURVEYING (3) II (2 L, 1 Lab)
Topographic mapping; curves; earthwork computations; hydrographic and city surveys; route problems. Pre: Math 103, 140; CE 111. Course fee $3.00.

CE 170 APPLIED MECHANICS I (3) I, II
Static analysis of particles, rigid bodies, frames and machines; friction. Introduction to dynamics. Pre: Math 141; Phys 170.

CE 220 FLUID MECHANICS (3) I, II
Properties of fluids, fluid statics and kinematics, momentum and energy equations, real fluid effects. Pre: CE 271 or Phys 310.
CE 221 HYDRAULICS LABORATORY (1) I
Experiments in laminar and turbulent flow in pipes and open channels; hydraulic measurements; hydraulic machinery. Pre: credit or concurrent registration in CE 220. Course fee $1.00.

CE 222 FLUID MECHANICS II (3) II
Elementary hydrodynamics, drag and lift forces, boundary layer, flow in conduits, similitude, fluid measurements. Pre: CE 220.

CE 241 MECHANICS OF MATERIALS LABORATORY (1) I (1 Lb)
Testing and observation of materials under various stress conditions. Projects and reports. Pre: credit or concurrent registration in CE 273. Course fee $4.00.

CE 271 APPLIED MECHANICS II (3) I, II
Kinematics and dynamics of a particle and vibrating systems. Kinetics of particles and rigid bodies. Dynamics of nonrigid systems. Pre: CE 170; Math 142.

CE 272 MECHANICS OF MATERIALS (3) II
Stress, strain, and deflection. Inelastic deformations, interaction curves, buckling phenomena. Introduction to energy methods. (For EE students only.) Pre: CE 170; Math 143.

CE 273 MECHANICS OF MATERIALS I (4) I, II (3 L, 1 Lb)
Elastic stress-strain relationships and the behavior of structural members under flexural, torsional, and axial loading. Pre: CE 170; Math 143.

CE 274 MECHANICS OF MATERIALS II (3) II
Inelastic behavior, unsymmetrical bending, curved beams, torsion, energy methods, buckling. Pre: CE 273.

CE 311 PHOTOGRAMMETRY (3) I, II
Basic principles; photographic equipment; control, method of compilation; mosaics. Pre: CE 112. Course fee $2.00.

CE 321 HYDRAULICS (3) I, II

CE 325 HYDROLOGY (3) II

CE 326 HYDRAULIC DESIGN (4) II (3 L, 1 Lb)
Hydraulic, structural, and economic considerations in design of dams, gates, canals, breakwaters, piers. Design project. Pre: CE 321, 380, and credit or concurrent registration in CE 325.

CE 331 SANITARY ENGINEERING (3) I
Design, construction, and maintenance of water works; water purification and control. Pre: CE 220.

CE 332 SANITARY ENGINEERING (3) II
Design, construction, and maintenance of sewage works; sewage and industrial waste treatment. Pre: CE 331.
CE 341  CIVIL ENGINEERING LAB (2) I
Experiments to extend the student's knowledge of mechanics of solids and fluids, and their properties. Course fee $5.00.

CE 351  SOIL MECHANICS (3) II (2 L, 1 Lab)
Soil classifications; basic elementary soil mechanics theory and practice. Pre: CE 273.

CE 360  TRANSPORTATION ENGINEERING (3) I
Introduction to geometric and functional planning and design of highways, airports, harbors. Pre: CE 351.

CE 362  ADVANCED TRANSPORTATION ENGINEERING (3) II
Planning, design, construction, and maintenance of urban streets and highways and jet airports; traffic studies and traffic-engineering. Pre: CE 360.

CE 364  SOILS AND FOUNDATION ENGINEERING (3) II
Application of soil mechanics to highways, airports, dams, foundations. Pre: CE 360.

CE 380  STRUCTURAL DESIGN (4) I (3 L, 1 Lab)
Design of elements of structures including steel, timber, reinforced concrete. Pre: CE 274.

CE 385  STRUCTURAL ANALYSIS (3) I, II
Plane frameworks, graphic statics, influence lines, deflection, stress analysis of indeterminate structures by classical methods. Pre: CE 274.

CE 386  STRUCTURAL DESIGN (4) II (3 L, 1 Lab)
Continuation of CE 380. Design of structural systems in timber, steel, concrete. Design project. Pre: CE 380 and credit or concurrent registration in CE 388.

CE 388  ADVANCED STRUCTURAL ANALYSIS (3) II
Analysis of indeterminate trusses, beams, rigid frames, arches, and space frames by classical methods, moment distribution, column analogy. Pre: CE 385.

CE 399  SPECIAL PROBLEMS (Ar.) I, II
Individual investigation in engineering as approved by instructor. Limited to seniors with 2.7 grade-point ratio, or 3.0 grade-point ratio in engineering.

CE 621  ADVANCED FLUID MECHANICS I (3) I
Equations of motion for real and ideal fluids. Principles of continuity, momentum, and energy. Laminar and turbulent flow. Stream functions and velocity potentials. Problems arising in hydraulic engineering, especially flow around structures and seepage flows. Pre: CE 321; Math 401 (or concurrent registration).

CE 622  ADVANCED FLUID MECHANICS II (3) II
CE 623 GROUND-WATER HYDROLOGY (3) I

CE 624 FLOW IN POROUS MEDIA (3) II
Applications of fluid mechanics to flow of single-phase and multi-phase fluids in porous media. Pre: CE 621.

CE 651 ADVANCED SOIL MECHANICS (3) I

CE 652 ADVANCED SOIL MECHANICS (3) II

CE 671 THEORY OF ELASTICITY (3) I

CE 672 PLATES AND SHELLS (3) II

CE 673 STRUCTURAL DYNAMICS (3) I
Free and forced vibration of systems with finite degrees of freedom. Continuous systems. Analysis of structural frames and components subjected to dynamic loads. Pre: consent of instructor.

CE 674 THEORY OF ELASTIC STABILITY (3) II

CE 681 ADVANCED INDETERMINATE STRUCTURES (3) I
Elastic center, column analogy, arches, influence lines. Use of symmetry and anti-symmetry. Pre: consent of instructor.

CE 682 NUMERICAL METHODS OF STRESS ANALYSIS (3) II

CE 683 ADVANCED REINFORCED CONCRETE DESIGN I (3) I

CE 684 ADVANCED REINFORCED CONCRETE DESIGN II (3) II

CE 687 SEMINAR (1) I
Selected topics in structural engineering. Pre: consent of instructor.
COLLEGE OF ENGINEERING

CE 688 SEMINAR (1) II
Selected topics in structural engineering. Pre: consent of instructor.

CE 800 THESIS RESEARCH

Electrical

Associate Professors GOTT, P. YUEN; Assistant Professors CHAN, K. NAJITA; Instructor NAKAGAWA; Lecturer CHOW

EE 102 ELECTRICAL SCIENCE (3) I, II (3 L)
Development of electrical science concepts from physics of electricity and magnetism. For non-electrical engineers. Pre: Math 142; Phys 172.

EE 203 ELECTRICAL SCIENCE LABORATORY (1) I, II (1 Lb)
Application of electric and magnetic field concepts to circuits, machines, and electronics. For non-electrical engineers. Pre: EE 102. Course fee $2.00.

EE 211 CIRCUIT THEORY I (3) II (3 L)

EE 212 CIRCUIT THEORY II (5) I (5 L)

EE 221 ELECTRONICS I (3) II (3 L)
Study of properties of electron tubes and semiconductor devices and their application as circuit elements. Pre: EE 211; Phys 440.

EE 223 CIRCUITS LABORATORY (1) I (1 Lb)
Laboratory for EE 212. Pre: EE 211; registration in EE 212. Course fee $3.00.

EE 232 TRAVELING WAVES AND NETWORKS LABORATORY (1) II (1 Lb)

EE 242 TRAVELING WAVES (3) II (3 L)
Analysis of distributed-parameter systems. Application to transmission lines and waves in gases, liquids, and solids. Pre: EE 211; Math 401; registration in Phys 550.

EE 301 GENERAL CIRCUIT ANALYSIS (3) I (3 L)
Analysis and synthesis of electrical networks and systems. For non-electrical engineers. Pre: EE 102, 203.

EE 321 ELECTRONICS II (3) I (3 L)
Theory and design of oscillators, waveforming circuits, modulators, demodulators, and logic circuits. Instrumentation. Pre: EE 212, 221.

EE 322 ELECTIVES LABORATORY I (1) I (1 Lb)
Laboratory for EE 362 and 372. Pre: registration in EE 362 or 372. Course fee $2.00.

EE 323 ELECTRONICS LABORATORY (1) I (1 Lb)
Laboratory for EE 321. Pre: registration in EE 321. Course fee $4.00.
EE 351 ELECTROMECHANICAL ENERGY CONVERSION (3) II (3 L)
Application of electric and magnetic field principles to energy flow between electrical and mechanical systems. A.c. and d.c. machines. Transformers. Pre: EE 211; Phys 350.

EE 352 SYNCHRONOUS MACHINES AND POWER SYSTEMS (3) II (3 L)
Analysis of rotating machines. Relationships of machine characteristics to power system characteristics. Pre: EE 242, 351, 362.

EE 353 ELECTROMECHANICAL ENERGY CONVERSION LABORATORY (1) II (1 Lb)
Experiments on electromechanical energy conversion using a generalized machine. Pre: registration in EE 351. Course fee $4.00.

EE 362 FEEDBACK CONTROL (3) I (3 L)
Concept, analysis, and synthesis of feedback control systems. Pre: credit or registration in EE 321, 351.

EE 372 MICROWAVES (3) I (3 L)
Theory and techniques for microwave frequencies. Tubes and systems. Pre: EE 242; Phys 550; registration in EE 321.

EE 373 ELECTIVES LABORATORY II (1) II (1 Lb)
Laboratory for EE 374 and 376. Field trips. Pre: registration in EE 374 or 376. Course fee $2.00.

EE 374 COMMUNICATION SYSTEMS (3) II (3 L)

EE 376 ELECTRONIC INFORMATION PROCESSING (3) II (3 L)

EE 396 PROJECT (2) I, II
Investigation of advanced engineering problems. Pre: senior standing.

EE 399 SPECIAL PROBLEMS (Ar.) I, II
Research or development problem. Pre: senior standing with 3.0 grade-point ratio in major field.

EE 601-602 ELECTROMAGNETIC THEORY AND APPLICATIONS (3-3) Yr. (3 L)
Solutions and applications of Maxwell's equations to radiation and propagation of electromagnetic waves. Pre: Phys 550; Math 401 or equivalent.

EE 603 ACTIVE NETWORK ANALYSIS (3) I (3 L)
Systems using active nonlinear, electron beam, magnetic, superconducting, and quantum-mechanical devices. Pre: EE 372, 374 or equivalents.

EE 604 MAGNETO-IONIC THEORY (3) II (3 L)

EE 605-606 NETWORK SYNTHESIS (3-3) Yr. (3 L)
Properties of driving-point and transfer immittances, lossless and lossy. Approximation techniques. Transfer function synthesis and techniques using active elements. Pre: EE 212 or equivalent.

EE 607 ENERGY-STATE DEVICES (3) I (3 L)
Devices using quantum-mechanical, electromagnetic, superconduction, and other physical phenomena. Feasibility. Pre: Phys 440, 550; EE 372 or equivalent.
EE 608 ANALYSIS OF NONLINEAR SYSTEMS (3) II (3 L)

EE 610 ADVANCED FEEDBACK CONTROL SYSTEMS (3) II (3 L)
Performance criteria, signal flow diagrams, nonlinear effects, describing functions, relay systems, sampled-data systems, adaptive control. Pre: EE 362 or equivalent.

EE 611 INFORMATION THEORY (3) II (3 L)
Application of probability to signals. Definition of information. Coding, sampling, filtering, and prediction. Pre: EE 212 or equivalent.

EE 621–622 ADVANCED MICROWAVE THEORY (3–3) Yr. (3 L)
Advanced topics in microwave theory. Pre: EE 372; Phy 550; or equivalents.

EE 697–698 SEMINAR IN ELECTRICAL ENGINEERING (1–1) Yr.
Pre: Graduate standing, consent of instructor.

EE 699 DIRECTED READING OR RESEARCH (Ar.) I, II
Pre: Graduate standing, consent of instructor.

EE 800 THESIS RESEARCH (Ar.) I, II
Pre: Candidacy for M.S. in E.E.

General

Senior Professor Holmes; Associate Professors Avery, Corba; Instructor Landstreet

GE 100 ENGINEERING ORIENTATION (0) I
Nature of the engineering profession and the aims of engineering education.

GE 101 ENGINEERING GRAPHICS (2) I (1 L, 2 Lb)
Basic fundamentals, applied geometry, orthographic and pictorial sketching, instrument drawing, and principles related to the graphic language of engineering. Course fee $2.00.

GE 102 ENGINEERING GRAPHICS (2) II (1 L, 2 Lb)
Working drawings, vector graphics, developments and intersections, graphs and charts, graphical algebra, and calculus. Pre: GE 101.

GE 105 ENGINEERING GRAPHICS (3) I, II (1 L, 2 Lb)
Graphic methods for space studies of points, lines and planes, working drawings, vector graphics, developments and intersections, graphs and charts, graphical algebra, and calculus. Pre: High school mechanical drawing. Not open to students who have credit in GE 101–102.

GE 300 ENGINEERING ECONOMY (2) I, II
Application of economic principles to engineering problems. Pre: Economics 140; senior standing.

GE 302 CONTRACTS AND SPECIFICATIONS (2) II
Business, legal, and ethical aspects of engineering; contracts and specifications with special reference to local requirements. Pre: senior standing.
Mechanical

Professor Downs; Associate Professors Chai, Stuiver; Assistant Professor Chou

ME 121 MANUFACTURING PROCESSES (3) I
Foundry, forging, die casting, welding, machine tool, and other allied processes.

ME 231 THERMODYNAMICS (3) I, II
Fundamentals of thermodynamics and their application to the efficient production and utilization of power. Pre: Chem 104; Phys 174; Math 142.

ME 232 ADVANCED THERMODYNAMICS (3) II
Applications of the Laws of Thermodynamics to combustion reactions, fluid flow, turbomachinery, gas cycles, vapor cycles, refrigeration, and jet propulsion. Pre: ME 231.

ME 234 MECHANICAL ENGINEERING LABORATORY (2) II (2 Lb)
Technique of engineering measurements and the applications of instrumentation to typical engineering problems. Pre: credit or registration in ME 232.

ME 333 HEAT POWER LABORATORY (1) I (1 Lb)
Use of mechanical, electrical, and electronic equipment in testing mechanical and thermodynamic machinery. Pre: ME 232 and 234. Course fee $5.00.

ME 334 HEAT POWER LABORATORY (1) II (1 Lb)
Use of mechanical and electronic equipment used in testing mechanical and thermodynamic machinery. Internal combustion engine tests. Pre: ME 333. Course fee $5.00.

ME 341 INTERNAL COMBUSTION ENGINES (3) I

ME 342 AIR CONDITIONING AND REFRIGERATION (3) II
Refrigeration and air conditioning apparatus and their application to industrial and residential use. Pre: ME 231.

ME 366 MATERIALS SCIENCE (3) II
Behavior of materials as determined by structure and environment. Interrelationships between microscopic and macroscopic structure and phenomenological properties.

ME 371 DYNAMICS OF MACHINERY (3) I

ME 373 MACHINE DESIGN (3) I (2 L, 1 Lb)

ME 374 MACHINE DESIGN (3) II (2 L, 1 Lb)

ME 375 HEAT TRANSFER (3) I
ME 382 POWER PLANTS (3) II

ME 390 SEMINAR (2) II
Survey of current research in mechanical engineering. Field trips and reports. Pre: senior standing.

ME 622 INTRODUCTION TO GAS DYNAMICS (3) II
The flow of gases using Mach number as the fundamental variable. Basic flow equations, effects of friction and heat transfer, plane shock theory, applications. Pre: CE 220.
COLLEGE OF
GENERAL STUDIES

The College of General Studies extends the services of the University to people whose educational needs cannot be served by the regular schedules or curricula of the degree-granting colleges. By providing facilities for instruction in the evenings at both the Honolulu and Hilo campuses, and in areas away from the University both day and night, the College enables many people other than regular day students to broaden their cultural backgrounds, gain an insight into the demands of responsible citizenship, and prepare themselves for competent participation in the business and professional affairs of the community.

Unclassified Students. Besides the regular and special programs listed below, the College administers the academic affairs of those undergraduate students who are not yet candidates for a degree in another college of the University. Unclassified students may be day or evening, full- or part-time. Students who have not decided which of the other colleges to enter, students planning to transfer to another school to complete their degree work, and students whose educational objectives do not include completion of a degree normally enroll as unclassified students.

Inasmuch as there is no required program of study, unclassified students have great latitude in the selection of day or evening courses; however, these students must comply with the general admission and other requirements (see pp. 16–22).

Evening Credit Courses. Concurrent with University regular and summer sessions, a group of basic courses, including nearly all the requirements for the first two years of any degree curriculum and advanced courses needed by substantial groups of evening students, particularly in business, are offered on the campus, usually after 5 P.M. Admission is governed by general University requirements, and regular residence credit is given, including graduate credit, where applicable. Evening students with full-time day employment often take two or more courses per semester.

Off-Campus Credit Courses. Accelerated programs of evening credit courses are offered four times a year at Hickam Field, Schofield Barracks, Kaneohe Marine Base, Barber’s Point, Fort Shafter, Tripler Hos-
pital, and other off-campus locations. Weekend credit courses, particularly in education, are offered by commuting faculty members on Kauai, Maui, Molokai, and Hawaii. Schedules for off-campus courses are arranged to fit the needs of students when such adjustments are academically acceptable.

In addition to services rendered 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.

**Evening Noncredit 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.

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 these courses.

**Conferences, Institutes, and Workshops.** A division of the College, the Conference Center, serves as a coordinator between the University and the community for framing and administering programs in various subject matter fields. For the most part, these academic programs are professional and postgraduate in character and are scheduled for relatively concentrated periods of time. The Center works closely with various public and private agencies on all levels of community activity and, on the campus, relies to a great degree on the advice of and cooperative working agreements with the several departments and divisions of the University having an interest in a given program. Services of the Center include assistance in planning educational conferences, determining who should attend, establishing advisory committees to work out program details, and preparing conference budgets. For these Center services, scheduling is kept as flexible as possible to accommodate requests as they arise from campus groups, private concerns, the cities and counties, the state and federal organizations operating within the state.

**Special Services.** Other special courses offering training in specific professional or vocational areas, preparing candidates for professional licensing examinations, or supplying University personnel to assist with special local problems are sponsored by the College as needs arise. Also, special, short lecture series are scheduled by the College in behalf of
both civilian and military personnel. It sponsors occasional radio and television broadcasts of a cultural character as well.

Announcements of schedules and other forms of service are issued approximately one month before each program begins.
THE COLLEGE OF NURSING programs prepare students for professional nursing, medical technology, and dental hygiene. The programs in nursing and medical technology lead to the degree of bachelor of science. The dental hygiene program is a two-year program.

Admission and Degree Requirements

Applicants must meet University admission requirements (pp. 16-22). Further selection is made on the basis of admission tests, high school or nursing school standing, and personal references.

In order to be eligible for the degree a student must:
1) Complete the course requirements of a curriculum;
2) have an aggregate of at least 130 semester hours of credit;
3) have a 2.0 grade-point ratio for all registered credits, and a "C" or better in each major course.

Nursing Curriculum

The baccalaureate program of the College 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 which may include the functional areas of supervision, teaching and administration.

FIRST YEAR

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187
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Program for Registered Nurses

Registered nurses, who meet admission requirements, may be granted up to 30 credits toward the degree for nursing courses completed in an accredited diploma or associate degree program in nursing. Such credit will be determined for each applicant by means of the Graduate Nurse Examination of the National League for Nursing and University administered tests. All courses of the fourth year must be completed in this College.

Medical Technology Curriculum

The medical technology curriculum provides for three years of course work on the campus and a fourth year of work in an approved hospital school of medical technology. Beginning with the summer session preceding the fourth year and continuing throughout the year, students register for Medical Technology 266, 267, and 268. Completion of this curriculum makes the student eligible for the bachelor of science degree and for the examination for certification as a medical technologist.

*All electives must be in liberal arts; those in third and fourth years, 200 or above.
FIRST YEAR

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SUMMER SESSION

Medical Technology 266—4 credits

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**Two-Year Program in Dental Hygiene**

This program is intended to qualify dental hygienists for positions with dentists or health departments and for admission to licensing examinations.

**FIRST YEAR**

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*Liberal arts other than physical sciences; those in third and fourth year, courses numbered 200 and above.
SECOND YEAR

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NURSING COURSES

See p. 39 for a discussion of course descriptions.

Dental Hygiene (DH)

Instructor KOCA

160 INTRODUCTION TO DENTAL HYGIENE (1) I
Orientation to the profession; relationship of dental hygienist to dental hygiene and dentistry; ethics and economics involved.

162 SURVEY OF DENTAL MATERIALS (1) II
Theory and application of various dental materials used in a dental office.

163 DENTAL HISTOLOGY AND EMBRYOLOGY (2) I
Formation, structure, and function of enamel, dentin, cementum, pulp, periodontium, alveolar process, gingiva.

164 ORAL HYGIENE (1) II
Principles of prophylactic care of the mouth with special attention to preventive and control measures of dental caries and adjacent-tissue degeneration.

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.

173 ORAL ANATOMY (2) I
Anatomy of the teeth; bones of the skull; muscles of mastication, tongue, face, pharynx; glands of the oral cavity; 5th, 7th cranial nerves; blood vessels of the head and neck.

174 TOOTH MORPHOLOGY (1) I
Drawing and carving of models of anterior and posterior teeth, showing general form, cusps, planes, and angles.

177 INTRODUCTION TO HUMAN PATHOLOGY (1) I
Basic causes of disease, their progress and termination. Emphasis on defensive mechanisms of the body. Pre: DH 162.
178 **ORAL PATHOLOGY (2) II**  
Study of oral diseases of interest to the dental hygienist.

179–180 **DENTAL HYGIENE AND PROPHYLAXIS (5–5) Yr.**  
Instruction and practice on manikin in operative technical procedures of instrumentation and polishing; clinical training in dental prophylaxis.

182 **PHARMACOLOGY (2) II**  
Derivation and effects of drugs most commonly used in dentistry. Relative values of germicides, antiseptics, disinfectants; analysis of formulae of dentifrices, mouth washes.

184 **ORTHODONTICS (1) II**  
Basic principles, normal occlusion, malocclusion, case analysis for classification, etiology of malocclusion, growth of the cranium, facial bones, tooth eruption.

186 **DENTAL ROENTGENOGRAPHY (2) II**  
A lecture-laboratory course in the study, technique and use of the roentgen ray in its application to dentistry.

188 **DENTAL PUBLIC HEALTH (1) II**  
Theory and practice of preventive dentistry with emphasis upon community dental health; role of the dental hygienist in dental public health.

190 **DENTAL OFFICE PROCEDURES AND DENTAL ASSISTING (2) II**  
Procedures and duties necessary to efficient dental practice; instruction and clinical assisting in general and specialized dentistry.

**Medical Technology (MT)**

**Instructor Nasse**

To meet the technical requirements for the Registry of Medical Technologists of the American Society of Clinical Pathologists, this sequence of courses continues for twelve calendar months commencing with the official opening of summer sessions.

266 **MEDICAL TECHNOLOGY (4)**  
Student technician training in a cooperating laboratory under the supervision of a qualified director. Offered only in summer sessions.

267–268 **MEDICAL TECHNOLOGY (12–12) Yr.**  
Student technician training in a cooperating laboratory under the supervision of qualified director. Pre: MT 266.

**Nursing (N)**

Professor V. Jones; Associate Professors Gross, E. R. Smith; Assistant Professors Adam, Canfield, Frojen, Ozaki; Instructors Gortner, Hee, Kuramoto, Lum, Meinhart, Najita, Sakai, Williams; Lecturer Hirschy

Registration is restricted to students preparing for nursing except by special permission.

110–111 **NURSING (8–8) Yr.**  
Study and supervised experience in total care of patients with medical and surgical conditions.
131-132 HUMAN RELATIONS IN NURSING (1-1) Yr.
Study and application of principles and methods of interviewing pertinent to nursing care. Emphasis on interpersonal relationships. Concurrent with N 110-111.

220-230 MATERNAL AND CHILD HEALTH NURSING (8-8) I, II
Study and supervised experience in total care of maternity patients, and of children from birth through adolescence.

300 PSYCHIATRIC NURSING (6) I, II
Mental health concepts in nursing and their significance to the nurse herself. Guided experience in total care of patients with mental illness.

340 PUBLIC HEALTH NURSING (6) I, II
Principles of public health nursing and guided experience, including home visiting, clinic services, school health programs, and use of community agencies.

345 ADVANCED NURSING (6) I, II
Identification and application of scientific principles in the provision for care of patients presenting complex nursing problems.

350 SOCIAL FORCES IN NURSING (3) II
Study of the forces which influence the development of nursing as a profession.

383 PUBLIC HEALTH (3) I
Principles of public health and preventive medicine; application in protecting the health of citizens through organized community effort.

399 DIRECTED READING (Ar.) I, II
(1) Public health nursing, (2) nursing service, (3) nursing education. Limited to seniors in nursing.
COLLEGE OF TROPICAL AGRICULTURE

The College of Tropical Agriculture prepares students for professional work in the fields of agriculture and home economics. There are three curricula in agriculture: agricultural technology, agricultural economics, and agricultural science. Agricultural technology has two options—general and tropical crop production. Agricultural science has six options—entomology, animal science, plant physiology, poultry science, soil science, and tropical horticulture.

Five curricula are offered in home economics: clothing design, general home economics, institutional management, home economics education, and foods and nutrition.

All curricula lead to the bachelor of science degree.

The College also includes the Hawaii Agricultural Experiment Station and the Cooperative Extension Service in Agriculture and Home Economics.

Admission and Degree Requirements

The requirements for admission are, in general, the same as those for the University (pp. 16–22). Students who lack some of this required preparation are unable to follow the regular programs and usually need more than four years to complete the degree requirements.

To be eligible for the degree a student must:

1) Complete the course requirements of a curriculum;
2) have an aggregate of at least 130 semester hours of credit;
3) have a 2.0 grade-point ratio for all registered credits, and in the major field (see “Undergraduate Degree Requirements”).

Curricula in Agriculture

The program is designed to give a knowledge of the fundamental principles underlying agriculture as a science, and to prepare for effective service in research, teaching, business, and industry, as well as in practical farming.

Summer practice work in the area of major interest may be required if, in the opinion of the adviser, such experience is necessary for reasonable competence.
Agricultural Technology

I General Agriculture

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FOURTH YEAR

In the fourth year the student takes courses necessary to complete the 130 credits required for graduation. His elective courses must include 9 credits in animal science, 9 credits in plant science, 6 credits in agricultural engineering, and 6 credits in agricultural economics.

II Tropical Crop Production

FIRST YEAR

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### THIRD YEAR

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**SUMMER PRACTICE IN INDUSTRY—10 weeks**

### FOURTH YEAR

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**Agricultural Economics and Agricultural Business**

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*Minor adjustments may be made in the agricultural economics or agricultural business curricula in special instances with the approval of the advisor.*
### Agricultural Economics

#### Third Year

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#### Fourth Year

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### Agricultural Business

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#### Fourth Year

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Electives are chosen with approval of the adviser. They must include 6 credits in agricultural economics, 9 in business and economics in addition to those specified, and 9 in social science other than economics.
Agricultural Science

**FIRST YEAR**

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**SECOND YEAR**

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**THIRD YEAR**

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**FOURTH YEAR**

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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 SCIENCE. Requirements:** Animal Science 141, 145, 242, 243, 244, 341; Microbiology 151; Zoology 206; and 16 credits from the following: Agricultural Biochemistry 302; Agricultural Economics 327;

ENTOMOLOGY. Requirements: Microbiology 151; Entomology 161, 361, 362, 372; and 15 credits from the following: Agricultural Engineering 131, 132; Botany 105, 460, 470, 553; Chemistry 132; Geography 420; Geology 150, 151; Horticulture 362, 463; Philosophy 430; Plant Pathology 310; Soil Science 482, 483; Zoology 401, 410, 416, 425, 431, 445; also one year of a foreign language: German, French, Spanish, Japanese, or Russian.

PLANT PHYSIOLOGY. Requirements: Botany 410, 460, 470; Chemistry 132; Mathematics 140, 144; and 24 credits as follows: 6 from Botany 103, 412, 418, 425, 553, 570-571, 572, 573; Plant Pathology 310; 6 from Anthropology 150, Economics 140, Philosophy 100; 12 from French 101-102, German 101-102, Russian 101-102.

POULTRY SCIENCE. Requirements: Animal Science 446; Microbiology 151; Poultry Science 172, 473, 474, 475; Zoology 161, 311; and 15 credits selected from the following: Agronomy 502; Agricultural Engineering 131, 132; Animal Science 141, 145, 442; Chemistry 132; Economics 140, 480; Entomology 372; Genetics 451; Zoology 410.

SOIL SCIENCE. Requirements: Agricultural Engineering 435; Chemistry 131, 132; Soil Science 399, 482, 483; and 18 credits from the following: Agronomy 502; Agricultural Engineering 431; Botany 161, 470, 570-571, 572, 573; Chemistry 271, 444, 551-552; Geography 101, 430; Geology 150, 151; Horticulture 162; Mathematics 103, 104; Microbiology 151, 251; Philosophy 350; Soil Science 484.

TROPICAL HORTICULTURE. Requirements: Horticulture 162; and 25 credits from the following: Agricultural Biochemistry 302; Agricultural Engineering 131, 132, 435; Botany 161, 410, 412, 418, 430, 460, 461, 470, 553, 570, 571; Chemistry 132; Entomology 161, 372; Genetics 451; German 101-102; Horticulture 161, 362, 369, 392, 453, 463, 464, 471, 494, 566; Mathematics 140, 141, 142; Microbiology 151; Plant Pathology 310; Soil Science 482, 483; Zoology 431.

Curricula in Home Economics

The home economics program combines a broad range of academic and professional courses and is designed to promote satisfying personal, home, and community life. It prepares students for homemaking and

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*Chemistry 141 and Agricultural Biochemistry 302 may substitute for Chemistry 143, and 144.*
professional careers. Students with academic degrees in home economics are qualified for opportunities in research, clothing design, teaching, dietetics, food service, in business, and as homemakers.

General Home Economics

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SECOND YEAR

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THIRD YEAR

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FOURTH YEAR

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Home Economics Education

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FIFTH YEAR

**College of Education Secondary Curriculum**

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Foods and Nutrition
and
Institution Management

*First two years same curriculum*

**FIRST YEAR**

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## FOODS AND NUTRITION

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## INSTITUTION MANAGEMENT

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### Clothing Design

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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

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*Not required if student has had two years of French in secondary school.
†Not required of men students. Business or art electives are substitutes.
study the latest methods and results of agricultural research. Close col-
laboration 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 and 
soil chemistry; 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 Sta-
tion with farms at Malama-Ki, Waiakea, Volcano, and Hamakua; 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 Waialae, 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 agricul-
ture in Hawaii and to the improvement of rural home life.

Agricultural Extension Service. The Service maintains personal con-
tacts with the rural population through its field staff of county farm 
agents, home demonstration agents, and their assistants, with the help 
of the specialists at the state headquarters at the University. The staff, 
77 in number, operates out of offices located as follows:

Oahu: Honolulu, Kaneohe, Wahiawa; Kauai: Lihue; Hawaii: Hilo, 
Naalehu, Kealakekua, Honokaa, Kohala; Maui: Kahului, Kula; Molokai: Kaunakakai.

Improved farm and home practices are taught by means of practical 
demonstrations before University Extension clubs of men and women, 
commodity groups, and 4-H clubs of boys and girls. This group instruc-
tion is supplemented by farm and home visits and personal conferences. 
Each year a 4-H Ahaolelo is 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. 39 for a discussion of course descriptions.

Agriculture (AG)

Senior Professor Rosenberg; 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 (Ar.) 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 AGRICULTURAL EXTENSION (3) II
Objectives and organization. Methods, selection, and training of voluntary leaders; basic principles in program development and appraisal.

Agricultural Biochemistry (AB)

Associate Professor Matsumoto; Assistant Professor Hylin

302 PRINCIPLES OF METABOLISM (3) I
A study of fundamental metabolic processes common to plants and animals. Pre: Chemistry 105-106 and 141, or consent of instructor.

Agricultural Economics (AEc)

Professors Peters, Philipp, Scott; Visiting Professor Korzan; Associate Professor Mollett; Assistant Professors Bahmetler, Keeler; Lecturers Baker, Wallrabenstein; Associate Specialist Ishida

120 AGRICULTURAL ECONOMICS (3) I
Introduction to economics of agricultural production, marketing, prices, income, and policy. Includes government policy and programs related to agriculture, land use, farm tenancy, and socio-economic problems of farmers in the nation and the world.

321 AGRICULTURAL PRICES (3) II (2 L, 1 Lb)
Factors affecting prices of agricultural products; evaluation of governmental price policy. Pre: a course in economics. (Alt. yrs.; not offered 1963-64.)

322 MARKETING AGRICULTURAL PRODUCTS (3) I (2 L, 1 Lb)
Problems, agencies, functions, costs, prices, regulations affecting marketing; proposed improvements. Pre: an introductory course in economics or consent of instructor.
327 FARM AND RANCH MANAGEMENT (3) I (2 L, 1 Lb)
Principles of organization and management of individual farms and ranches; choice of enterprises; farm planning; budgeting; business aspects; records; farm and plantation visits.

423 AGRICULTURAL COOPERATIVES (3) II
History; appraisal of methods and operations; problems of management, membership relations, accounts. Pre: consent of instructor. (Alt. yrs.; offered 1963-64.)

424 MARKETING OF TROPICAL AND SUBTROPICAL AGRICULTURAL PRODUCTS (3) I
Marketing system and market analysis for sugar, rice, pineapple, coffee, citrus, and other tropical and subtropical crops. Pre: principles of economics, or consent of instructor. (Alt. yrs.; offered 1963-64.)

425 MARKETING OF LIVESTOCK, POULTRY AND DAIRY PRODUCTS (3) II
Marketing systems and market analysis for livestock, poultry and dairy products. (Alt. yrs.; offered 1963-64.)

426 AGRICULTURAL ECONOMICS EXTENSION (3) II
Methods of disseminating agricultural economic information to extension agents, producers, manufacturers, distributors, and retailers. Includes methods of developing price and outlook reports and economic techniques in applied farm management. (Alt. yrs.; not offered 1963-64.)

428 PRODUCTION ECONOMICS (3) II
Economic analysis of agricultural production, including theory of the firm, resource allocation, production and cost functions, input-output analysis, farm size, enterprise combinations, tenure arrangements, risk, and decision making. Pre: AEc 327, or consent of instructor. (Alt. yrs.; not offered 1963-64.)

429 AGRICULTURAL POLICY AND PLANNING (3) I
The roles of government and private enterprise in agriculture. Pre: Economics 105-151, or consent of instructor. (Alt. yrs.; offered 1963-64.)

430 AGRICULTURAL FINANCE (3) I
Financing of agricultural production and marketing enterprises and operation of agricultural credit systems. Pre: AEc 327, or consent of instructor. (Alt. yrs.; offered 1963-64.)

431 FOREST ECONOMICS (3) II
Economic principles involved in the utilization of forest land and timber, and the distribution of forest products. Pre: consent of instructor. (Alt. yrs.; offered 1963-64.)

433 ADVANCED FARM MANAGEMENT AND PLANTATION ECONOMICS (3) II (2 L, 1 Lb)
Advanced work in management and organization of commercial farms; farm business analysis; plantation economics. Pre: AEc 327, or consent of instructor. (Alt. yrs.; offered 1963-64.)

624 MARKETING RESEARCH (3) II
Research methodology, analysis of data, presentation of findings. Original research project. Pre: AEc 321, 322, or consent of instructor.

625 ECONOMICS OF AGRICULTURE: TROPICAL COUNTRIES AND ASIA (3) II
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) II
Methods of collection of agricultural data for regular programs and for special purposes. Pre: Business 300, or consent of instructor. (Alt. yrs.; offered 1963-64.)

629 PRODUCTION ECONOMICS (3) I
Economics of resource allocation at the firm and industry levels. Advanced analytical techniques of analysis: linear programming; synthesis; budgeting; statistical analysis.

630 MARKET DEVELOPMENT FOR AGRICULTURAL PRODUCTS (3) II
Methodology for determining market potentials and methods and costs of market development for products of agricultural origin. Pre: AEc 322 or consent of instructor. (Alt. yrs.; offered 1963-64.)

631 SEMINAR: CONSUMER ECONOMICS AND FOOD DISTRIBUTION (3) II
Advanced study of consumer demand and food distribution, with emphasis on research methods. Pre: AEc 322 or consent of instructor. (Alt. yrs; offered 1963-64.)

632 ECONOMICS OF AGRICULTURAL PROCESSING INDUSTRIES (3) I
Economic studies of processing efficiency, economic feasibility of new processing methods, and the role of processing in the marketing of agricultural products. Pre: AEc 322 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

634 ADVANCED AGRICULTURAL PRICES AND STATISTICAL ANALYSIS (3) II
Research methodology in the analysis of agricultural prices and other statistical data in agriculture, including techniques for estimating prices and determination of factors affecting prices. Pre: basic courses in prices and statistics. (Alt. yrs.; not offered 1963-64.)

636 SEMINAR: AGRICULTURAL POLICY (3) II
Economic analysis of agricultural policy at state, national, and international levels, with particular reference to the influence of policy on economic development in agriculture. Pre: AEc 429 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

637 ECONOMICS OF AGRICULTURAL RESOURCE DEVELOPMENT (3) II
Theory of the economics of agricultural resource development, economic development of agriculture in relation to other sectors of the economy; an economic evaluation of domestic and international problems of agricultural development in emerging and underdeveloped countries. Pre: AEc 428 or consent of instructor. (Alt. yrs.; offered 1963-64.)

638 SEMINAR: LAND USE IN DEVELOPING COUNTRIES (3) I
The role of the pattern of land use on agricultural economic development and the welfare of rural people in emerging agricultural nations. Pre: Business Economics 430 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

639 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: AEc 430 or consent of instructor. (Alt. yrs.; offered 1963-64.)

699 DIRECTED RESEARCH (Ar.) I, II
Pre: candidacy for the M.S. degree; consent of instructor.
Agricultural Engineering (AE)

Professor Kinch; Assistant Professors Van't Woudt, Wang

131-132 INTRODUCTION TO MECHANIZED AGRICULTURE (3-3) Yr. (2 L, 1 Lb)
Basic principles of mechanized agriculture, with applications to field and farm-stead equipment.

431 AGRICULTURAL POWER AND EQUIPMENT (3) I (2 L, 1 Lb)
Operation, adjustment, selection, and maintenance of farm and plantation power and machine units. Pre: AE 131 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

435 FARM IRRIGATION (3) II (2 L, 1 Lb)
Maintenance of water balance, water conveyance and measurement on the farm, irrigation methods. Pre: AE 132 or consent of instructor. (Alt. yrs.; not offered 1963-64.)

631 ANALYSIS OF IMPLEMENT DESIGN (3) I (2 L, 1 Lb)
Application of machine design principles and the basic soil, crop requirements in solving typical equipment design problems. Pre: Mechanical Engineering 374 or equivalent. (Alt. yrs.; offered 1963-64.)

635 FARM IRRIGATION SYSTEM DESIGN (3) II (2 L, 1 Lb)
Design based on water requirements; design of water conveyance and diversion structures and of application methods. Irrigation economics. Pre: Civil Engineering 321 or equivalent. (Alt. yrs.; offered 1963-64.)

637 INSTRUMENTATION (3) I (2 L, 1 Lb)
Dynamic response of sensing elements; automatic control theory; thermoelectric temperature measurement; strain gauge instrumentation. Pre: Mathematics 142, Physics 180-181 or equivalent.

638-639 TOPICS IN TROPICAL AGRICULTURAL ENGINEERING (2-2) I, II
Two-semester cycle; soil conservation and irrigation under tropical conditions, equipment design for tropical crops, field engineering on the plantation, tropical fruits, and nut processing equipment. Pre: consent of department chairman.

699 DIRECTED RESEARCH (Ar.) I, II

Agronomy and Soil Science

Senior Professor G. D. Sherman; Professor Young; Associate Professor Fox
Assistant Professors Kanehiro, Moore, Rotar, Takahashi, Uehara; Instructor Ikawa

AGRONOMY (AGR)

501 TROPICAL CROP PRODUCTION (3) I
Current agricultural practices in the production of sugar cane, pineapple vegetables, fruits, and forage in the tropics. Course fee $2.00.

502 PRINCIPLES OF AGRONOMY (3) II (2 L, 1 Lb)
Field crop production, ecology, geography. Pre: Botany 101; Chemistry 104 or equivalent.

503 RANGE MANAGEMENT (3) II
Origin, establishment, inventory, utilization, and management of pasture and range forage. Emphasis on applications in the tropics. Pre: Botany 101. (Alt. yrs.; offered 1963-64.)
### SOIL SCIENCE (SS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>481</td>
<td>SOILS (4) I (3 L, 1 Lb)</td>
<td>Origin, development, properties, and management of tropical soils; classification of Hawaiian soils.</td>
<td>Chemistry 104. Course fee $3.00.</td>
</tr>
<tr>
<td>482</td>
<td>SOIL FERTILITY (3) II</td>
<td>Soil composition and fertility. Special attention to field trials, soil tests, and foliar diagnosis in determining fertilizer requirements.</td>
<td>SS 481</td>
</tr>
<tr>
<td>483</td>
<td>SOIL CHEMISTRY (3) II (1 L, 2 Lb)</td>
<td>Study of soil reaction, availability of plant nutrients, and chemical analyses of soils.</td>
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<tr>
<td>484</td>
<td>SOIL PHYSICS (3) II (2 L, 1 Lb)</td>
<td>Physical properties of soils; structure and moisture relationships.</td>
<td>Physics 161 or 181; SS 481. (Alt. yrs.; not offered 1963-64.)</td>
</tr>
<tr>
<td>486</td>
<td>SOIL FORMATION (3) I</td>
<td>Soil-weathering and soil-forming processes on the basis of modern pedologic principles.</td>
<td>Pre: consent of instructor.</td>
</tr>
<tr>
<td>487</td>
<td>SOIL CLASSIFICATION (3) II</td>
<td>Comprehensive study of the genesis of soils and the various systems of classification, with special reference to tropical soils. Lectures and field work.</td>
<td></td>
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<tr>
<td>488</td>
<td>SOIL SCIENCE SEMINAR (1) I, II</td>
<td>Review of recent findings in soil science research in the fields of soil chemistry, physics, classification, fertility, bacteriology, and technology. Pre: graduate standing.</td>
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<tr>
<td>489</td>
<td>ADVANCED SOIL FERTILITY (4) I (2 L, 2 Lb)</td>
<td>Identification of soil secondary minerals with special emphasis on clay.</td>
<td>Geology 240 or consent of instructor.</td>
</tr>
</tbody>
</table>
690 ADVANCED SOIL CHEMISTRY (3) I
A critical study of methods of soil analysis and the chemical properties of soils.

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

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

Animal Science (AS)
Professor Wayman; Associate Professors Cobb, Koshi, Otagaki; Assistant Professor Stanley; Instructor Iwanaga; Lecturer Lynd

141 ANIMAL HUSBANDRY (3) II (2 L, 1 Lb)
Study of the important domestic animals, their origin, distribution, and economic importance with an introduction to feeding, breeding, and management for each species.

145 FEEDS AND FEEDING (3) I (2 L, 1 Lb)
Basic principles of feeding farm animals; composition and nutritional value of feeds; nutritional requirements of dairy cattle, beef cattle, swine and sheep; balancing rations for specific productive purposes. Pre: Chemistry 104.

242 BEEF PRODUCTION (2) II
Economical production of beef cattle; organization of the enterprise, breeds, selection of breeding stock, handling and feeding of animals of different ages on the range and in the feedlot. Pre: AS 141.

243 DAIRY HUSBANDRY (3) II
Principles involved in the economical production of milk; breeds of dairy cattle, selection, raising young animals; breeding, care, housing, and management of milking herd; factors affecting the quantity and quality of milk produced. Pre: AS 141.

244 SWINE PRODUCTION (2) I
Principles of efficient pork production including breeds, breeding, feeding, management, and marketing. Pre: AS 141.

341 LIVESTOCK MANAGEMENT (4) (5 L, 5 Lb FOR 9 WEEKS)
Assigned problems and practical experience in management of livestock; housing, handling, feeding, and judging swine, beef, and dairy cattle. Required for animal science majors during summer between junior and senior years.

442-443 PHYSIOLOGY OF DOMESTIC ANIMALS (4-4) Yr. (3 L, 1 Lb)
The organ systems of the body, their anatomical arrangement, structure and function. Emphasis will be placed on most important species.

444 ANIMAL NUTRITION (4) II (2 L, 2 Lb)
Digestion and metabolism of carbohydrates, proteins, fats, minerals, vitamins, antibiotics, and hormones; nutrient needs for body processes and productive functions. Pre: AS 145, AB 302. Course fee $5.00.
ANIMAL BREEDING (3) I
Application of genetic principles to the improvement of livestock. Pre: Genetics 451 or consent of instructor.

ANIMAL DISEASES AND THEIR CONTROL (3) I (2 L, 1 Lb)
Disease problems of livestock and poultry; prevention, control, and eradication. Pre: AS 141; PS 172, and consent of instructor.

SEMINAR IN ANIMAL SCIENCE (1) I, II
Topics of current interest and current research related to nutrition, genetics, and physiology. Pre: consent of instructor. (May be repeated.)

RUMINANT NUTRITION (2) II
Physiology and nutrition of the ruminant including microbiology of the rumen, carbohydrate utilization and production of volatile fatty acids, protein metabolism, absorption of nutrients, metabolic processes, normal and abnormal functions within the rumen. Pre: AS 442-443, 444. AB 302. (Alt. yrs.; not offered 1963-64.)

PHYSIOLOGY OF REPRODUCTION AND MILK SECRETION (3) I
Factors responsible for the differentiation, development, and growth of the reproductive systems of higher vertebrates; artificial insemination; anatomy and function of the mammary system with emphasis on physiological and biochemical aspects.

ADVANCED ANIMAL BREEDING (2) II

DIRECTED RESEARCH (Ar.) I, II
(1) Genetics; (2) nutrition; (3) physiology; (4) management.

Entomology (Ent)

Senior Professors BESS, HAMBY; Professors RUTESCHY, M. SHERMAN; Associate Professor NAMBA; Assistant Professors HABECK, HARAMOTO, MITCHELL, TAMASHIBO

GENERAL ENTOMOLOGY (4) I, II (2 L, 2 Lb)
Structure, habits, biology, and classification of insects; insects characteristic of Hawaii. Course fee $3.00.

INSECT MORPHOLOGY (3) I (2 L-Lb)
Comparative and gross morphology; homologies of structures; anatomy; development in representative groups. Pre: Ent 161. Course fee $1.00.

SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)
Classification of insects; orders and families. Use of taxonomic tools. Pre: Ent 361. Course fee $2.00.

ECONOMIC ENTOMOLOGY (4) II (2 L, 2 Lb)
Insect pests; principles of chemical, biological, and cultural control. Laboratories on Hawaiian insects of households, plants, and animals. Pre: Ent 161; Chemistry 104. Course fee $3.00.

MEDICAL AND VETERINARY ENTOMOLOGY (3) I (2 L, 2 Lb)
662 ADVANCED SYSTEMATIC ENTOMOLOGY (3) II (2 L-Lb)
Classification of special groups. Nomenclatorial problems; international code. Pre: Ent 362. Lab fee $1.00.

663 SCALE INSECTS (3) I (2 L-Lb)
Coccids of Hawaii. Taxonomy, techniques, economic importance, control. Pre: Ent 161; desirable: Botany 460. Course fee $5.00.

664 IMMATURE INSECTS (3) II (2 L, 2 Lb)
Identification, structure, literature, and economic significance. Emphasis on the Holometabola. Course fee $5.00.

671 INSECT ECOLOGY (3) I (2 L, 1 Lb)
Insects as living units in an environment of physical and biotic factors. Pre: Ent 362.

672 ACAROLOGY (3) II (2 L, 2 Lb)
Taxonomy, biology, and ecology of mites. Emphasis on medically and agriculturally important species. Pre: Ent 362. Lab fee $5.00.

673 INSECT PATHOLOGY (3) II (2 L, 1 Lb)
Diseases of insects; histopathology; microbe agents and biological control. Pre: Ent 161.

675 BIOLOGICAL CONTROL OF PESTS (3) I (2 L, 1 Lb)

680 INSECT TOXICOLOGY (4) I (2 L, 2 Lb)
Principles of chemical control. Relationship of toxicology and physiology to use of insecticides. Pre: Ent 372; Chemistry 141.

686 INSECT-TRANSMITTED DISEASES OF PLANTS (3) II
Problems of insect transmission of plant disease.

697 ENTOMOLOGY SEMINAR (1) I, II
Current entomological literature. Reviews and reports. Required of graduate students in entomology.

699 DIRECTED RESEARCH (Ar.) I, II
Directed research and reading in various fields of entomology.

Food Science and Technology (FS)
Professor Edward Ross; Assistant Professors Allen, Frank, Yamamoto

601-602 PRINCIPLES IN FOOD SCIENCE AND TECHNOLOGY (3-3) Yr.
Integration of physical, chemical, and biological concepts to formulate basic principles in food science and technology; the scientific basis of food preservation. Pre: general physics, biochemistry, and microbiology.

610 TROPICAL FOOD PROCESSING (3) I (1 L, 2 3-Hr Lb)
Applied principles of processing and preservation; unit operations in canning, freezing, dehydration, and chemical preservation of tropical foods; practical sanitation procedures. Pre: consent of instructor.
611 TROPICAL FOOD PRODUCTS (2) II (1 L, 1 3-Hr Lb)
   Procedures for evaluating quality. Examination of tropical food products by
   adapting standard laboratory methods. Experimental test methods in new product
   development. Pre: consent of instructor.

620 SEMINAR IN FOOD SCIENCE (1-1) Yr.
   Special topics, reports, and informal discussion of graduate student research.
   Pre: consent of instructor.

699 DIRECTED RESEARCH (Ar.) 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 Tull, Umbel; Assistant Professors Eder
Heinrick, Mackay, Roniger; Instructors Emery, Foner

100 ORIENTATION IN HOME ECONOMICS (1) I (1 L, 1 Lb)
   Factors contributing to success in college and development of habits for effective
   living. Open to freshman in HE.

103 CHILD STUDY AND OBSERVATION (3) I, II (2 L, 1 Lb)
   Principles of development and guidance of children. Observation and participa-
   tion in the nursery school and other situations involving children. Pre: Psychology
   102 or 104.

110 AESTHETICS OF CLOTHING AND PERSONAL APPEARANCE (3) I, II (2 L, 1 Lb)
   Individual analysis; principles of color, design, grooming, wardrobe planning.
   Personality projection through clothing. Open to freshman and sophomore women.
   Course fee $3.00.

112 CLOTHING CONSTRUCTION (2) I (2 Lb)
   Selection and use of equipment and commercial patterns. Principles of fitting.
   Course fee $2.00

113 FAMILY CLOTHING PROBLEMS (2) II (2 Lb)
   Socioeconomic aspects, selection, conservation, and construction of clothing for
   the family. Pre: 112. Course fee $2.00.

114 TEXTILE FABRICS (2) I, II
   Fibers, yarns, fabric construction and finishes as related to selection, use, and
   care of textile fabrics. Open to all students. Course fee $2.00.

115 BLOCK PATTERN DESIGNING (2) II (2 Lb)
   Development of master pattern blocks and their manipulation in designing
   women's and children's apparel. Clothing design majors only. Course fee $2.00.

117 FASHION FUNDAMENTALS (2) I
   Factors determining fashion; characteristics of selected designers; organization,
   structure, techniques, terminology of fashion industry.

118 COSTUME DESIGN AND SKETCHING (3) II (2 L, 1 Lb)
   Development of originality through sketching the fashion figure. Sources of design
   inspiration. Clothing design majors only. Alt. yrs. Pre: Art 112.
120 INTRODUCTION TO FOODS (3) I, II (1 L, 2 Lb)
   Basic principles of food preparation. Course fee $8.00.

122 MEAL MANAGEMENT (3) I (1 L, 2 Lb)
   Selection and purchase of food and the planning, preparation, and serving of
   meals. Pre: HE 120. Course fee $8.00.

123 ADVANCED FOODS (3) II (2 L, 2 Lb)
   Principles and technique that have a role in food preparation. Comparative
   cookery with emphasis on the physical and chemical variables in food. Pre: HE
   120, Chemistry 106. Course fee $8.00.

126 INTRODUCTION TO NUTRITION (2) I, II (2 L)
   Factors involved in nutrition. For nonmajors.

214-215 CLOTHING DESIGN AND CONSTRUCTION (3-3) Yr. (2 Lb)
   Designing apparel by draping and pattern blocking. Industry methods of pro-

216 ADVANCED CLOTHING (3) I, II (3 Lb)
   Principles of flat pattern blocking applied in adapting commercial patterns to
   the individual; consideration of fitting problems and fabric selection. Pre: HE 113
   or consent of instructor. Course fee $4.00.

217 ADVANCED PATTERN DESIGNING (3) II (3 Lb)
   Creative designing through flat pattern blocking; advanced construction techni-

218 HISTORIC WESTERN COSTUME (2) II
   Survey of historic Western costume, showing how fashion has reflected the

219-220 CREATIVE PROBLEMS IN COSTUME DESIGN (3-3) Yr. (3 Lb)
   Designing for seasonal markets, size ranges, price levels, and style lines. Pre:
   HE 118, 215. Course fee $4.00.

221 FOOD PREPARATION (3) I, II (2 3-Hr Lb)
   Problems in preparation of adequate meals; practical experience in meal plan-
   ning, preparation, and service. Not open to HE majors. Course fee $8.00.

234 INSTITUTIONAL FOOD PRODUCTION (3) I (1 L, 2 Lb)
   Preparation and service of food in quantity; menu planning; cost, use, and care
   of equipment. Pre: HE 122–123.

235 INSTITUTIONAL FOOD PRODUCTION AND PURCHASING (3) II (1 L, 2 Lb)
   Preparation and service of food in quantity; cost, use, and care of equipment.
   Also emphasizes food selection and procurement.

236 INSTITUTIONAL ADMINISTRATION (3) II
   Organization and management of food service in various types of institutions.
   Pre: 234.

238-239 INSTITUTIONAL PURCHASING (3-3) Yr.
   Food and equipment specifications and requirements for various types of insti-
   tutions. Pre: credit or concurrent registration in HE 234.
240 PRINCIPLES OF NUTRITION (3) I (2 L, 1 Lb)
Basic principles of nutrition, quantitative study of food materials. Pre: Chemistry 106, Zoology 111 or 115. Course fee $8.00.

250 HOME MANAGEMENT (3) II (3 L)
Management for individuals and families through decision making and organization.

251 HOUSEHOLD EQUIPMENT (2) II (1 L, 1 Lb)
Selection, use, care, and repair of household appliances and equipment. Demonstration techniques.

252 FAMILY HOUSING AND HOME FURNISHINGS (3) I, II (2 L, 1 Lb)
Evaluation of housing for family living. Selection, use, and arrangement of furnishings and accessories in the home. Pre: Art 104 or 131. Course fee $5.00.

258 HOME MANAGEMENT RESIDENCE (4) I, II
Supervised residence laboratory in home living. Students share subsistence cost. Pre: senior standing; HE 250.

260 FAMILY ECONOMICS (2) I

262 FAMILY RELATIONSHIPS (3) I, II
A study of the interrelationships of the individual and his family through the various stages of the life cycle. Pre: Psychology 102 or 104 and Sociology 151.

270 HOME ECONOMICS EDUCATION (3) II
Curriculum content, teaching procedures and current educational philosophies and practices in home economics education. Pre: Psychology 102 or 104.

301 TEACHING HOME CARE OF THE SICK (2) II
Designed to meet requirements of American Red Cross as instructor in home care. Methods of teaching; practice in class. Pre: consent of instructor.

340 HOSPITAL DIETARY MANAGEMENT (4) I, II
Experience in all phases of dietary department operation in an approved institution. Pre HE 234, 443, 445; consent of instructor.

399 DIRECTED READING OR RESEARCH (Ar.) I, II
(1) Agricultural extension, (2) child development, (3) clothing selection or construction, (4) consumer problems, (5) dietary problems, (6) experimental cookery, (7) historic costume or design, (8) home economics education, (9) home management, (10) nutrition, (11) related art, (12) textiles, (13) institutional management. Limited to senior majors with 2.7 grade-point ratio, or 3.0 grade-point ratio in home economics.

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. Alt. yrs.

441 FOOD HABITS IN HAWAII (3) II (1 L, 2 Lb)
443 ADVANCED NUTRITION (3) II (2 L, 1 Lb)

445 DIET AND DISEASE (3) (2 L, 1 Lb)
Diet therapy under abnormal conditions. Pre: credit or concurrent registration in HE 443. Course fee $5.00.

447 SEMINAR IN NUTRITION (1) II
Study and discussion of significant topics and problems in the field of nutrition. May be repeated. Pre: consent of instructor.

470 SPECIAL PROBLEMS IN HOME ECONOMICS (2) I, II
Development of teaching material. Class and individual problems selected according to the needs of the fifth-year students in home economics education.

651 DIETARY STUDIES (Ar.) I
Individual, group, family, and/or institutional studies of the nutritive value of diets. Pre: HE 443; consent of instructors.

652 LABORATORY METHODS IN NUTRITION (3) I
Experiments; vitamin determinations; food analyses; basal metabolism; balance experiments with animals or humans. Pre: HE 443; Chemistry 132, 171. Course fee $10.00.

699 DIRECTED RESEARCH (Ar.) I, II
(1) Nutritional investigations; animal and human feeding experiments. Pre: HE 443 and consent of instructor. Lab fee $3.00 per credit hour; (2) agricultural extension; (3) clothing and textiles; (4) foods and nutrition; (5) home economics education; (6) home management; (7) institutional management. Pre: consent of department chairman and instructor.

Horticulture (H)

Carnegie Visiting Professor RICK; Professors HAMILTON, KAMEMOTO, McGUIRE, WARNER; Associate Professors BREWBAKER, CLAY, GILBERT; Assistant Professors MURASHIGE, NAKASONE, ROMANOWSKI

101 GENERAL HORTICULTURE (2) I
Horticulture and horticultural research intended for students who want a general knowledge but who do not plan to specialize in these fields.

161 PRINCIPLES OF PLANT PROPAGATION (3) I (2 L, 1 Lb)

162 PRINCIPLES OF HORTICULTURE (3) I (2 L, 1 Lb)
Relationships of plant structures, nutrients, environment, and cultural methods to plant growth. Pre: Botany 101; credit or concurrent registration in Chemistry 104.

362 PRINCIPLES OF TROPICAL POMOLOGY (3) II (2 L, 1 Lb)
Botany, distribution, and basic requirements of tropical fruit crops. Pre: H 162; Botany 101. Course fee $1.00.

369 ORNAMENTAL PLANT MATERIALS (3) II
Lawns, ground covers, vines, shrubs, herbaceous plants, and trees in Hawaii. Pre: H 162; Botany 460; or consent of instructor.
392 COMMERCIAL VEGETABLE PRODUCTION (3) I (2 L, 1 Lb)
Production methods and current problems from choosing seed to marketing. Emphasizes top ten Hawaiian vegetables. Pre: H 162; credit or concurrent registration in Zoology 161. Course fee $3.00.

453 PRINCIPLES OF PLANT BREEDING (3) II (2 L, 1 Lb)
Cyto genetics, hybridization, and selection in the improvement of plants. Pre: Genetics 451.

463 PRINCIPLES OF FLORICULTURE (3) I (2 L, 1 Lb)

464 ORCHIDOLOGY (3) II (2 L, 1 Lb)
Classification, culture, cytogenetics, and breeding of orchids. Pre: Botany 101; Genetics 451.

471 POSTHARVEST PHYSIOLOGY (3) II (2 L, 1 Lb)
Handling and storage of horticultural crops. Pre: H 162 or consent of instructor. (Alt. yrs.; offered 1963-64.)

494 SYSTEMATIC VEGETABLE CROPS (3) II (2 L, 1 Lb)
Adaptation, qualities, disease and insect resistance, taxonomic comparison of types grown in Hawaii; pedigrees and breeding of major varieties. Pre: H 162.

566 ADVANCED TROPICAL POMOLOGY (3) II (2 L, 1 Lb)
Origin, culture, and management of fruit and nut crops commercially important in Hawaii. Pre: H 362 or consent of instructor.

603 EXPERIMENTAL DESIGN (2) II (1 L, 1 Lb)
Use of statistical methods and experimental designs in plot technique and agricultural research. Pre: Zoology 431, 432.

611 ADVANCED PLANT BREEDING (3) I (2 L, 1 Lb)
Breeding systems and methods, field plot and cytogenetic techniques in plant improvement. Pre: H 453.

666 RADIATION BIOLOGY (3) I
Types and sources of radiation; effects of irradiation on living organisms; applications in agricultural research. Pre: consent of instructor.

667 HORTICULTURE SEMINAR (1) I, II
Presentation of reports upon research or reviews of current literature in horticulture.

668 GROWTH REGULATORS IN HORTICULTURE (3) II

691 CROP ECOLOGY (3) II (2 L, 1 Lb)
Climatic, edaphic, and biotic factors influencing tropical and subtropical crops; instrumentation and data interpretation. Pre: 162 or consent of instructor.

699 DIRECTED RESEARCH (Ar.) I, II

711 SPECIAL TOPICS IN EXPERIMENTAL HORTICULTURE (Ar.)
Lecture series on recent advances in horticultural research with detailed study of specific areas of this field. Intended for plant science graduates. Pre: consent of staff.
Nutrition (N)
Associate Professor LICHTON; Assistant Professors HILKER, STANDAL; Instructor WENKAM

601–602 HUMAN NUTRITION (3–3) I, II (2 L, 1 Lb)
Fundamental concepts of human nutrition. Lecture and quantitative laboratory studies of the biochemistry and physiology of nutrition and certain diseases of nutritional origin. Pre: consent of instructor.

621 TOPICS IN NUTRITION (2) I, II
Reports and discussion of a topic of current interest in nutrition such as infant and child nutrition, trace elements, nutritional diseases. Pre: graduate standing.

651 DIETARY STUDIES (Ar.) I, II
Individual, group, family and/or institutional studies of the nutritive value of diets. Pre: N 601–602.

652 LABORATORY METHODS IN NUTRITION (3) I, II
Experiments: food analysis, balance experiments with animals or humans, vitamin determinations. Pre: Chemistry 271; consent of department chairman.

699 DIRECTED (Ar.) I, II
Pre: consent of department chairman.

701 SEMINAR (1) I
Reports and discussion of special topics and graduate student research. Pre: consent of instructor.

Plant Pathology (PP)
Associate Professors GOTO, ISHII; Assistant Professors ARAGAKI, HINE, HOLTZMANN

310 PRINCIPLES OF PLANT PATHOLOGY (3) I (2 L, 1 Lb)
Disease in plants; emphasis upon infection and development in relation to environment; epidemiology; methods of appraisal; control. Pre: Botany 101.

610 PRINCIPLES OF PLANT DISEASE CONTROL (3) II (2 L, 1 Lb)
Methodology and application of plant disease control. Pre: PP 310. (Alt yrs.; offered 1963–64.)

620 PLANT PATHOLOGY TECHNIQUES (3) I (2 L, 1 Lb)
Laboratory and greenhouse methods for the study of plant diseases; isolation, culture, and inoculation; pathological histology, and photography. Pre: PP 310; Microbiology 151; or consent of instructor. Lab fee $5.00. (Alt. yrs.; not offered 1963–64.)

625 ADVANCED PLANT PATHOLOGY (2) II
Analysis of basic concepts of plant diseases; emphasis on physiology of parasitism, etiology, and epidemiological principles. Pre: PP 310, 610; or consent of instructor. (Alt. yrs.; not offered 1963–64.)

660 SEMINAR (1) I, II
Seminars in contemporary research. Reviews and reports.

699 DIRECTED RESEARCH (Ar.) I, II
Pre: candidacy for the M.S. degree; consent of instructor.
Plant Physiology
Professor COOIL, 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 570-571 ADVANCED PHYSIOLOGY (3-3) Yr.**

**BOTANY 572 TECHNIQUES IN PHYSIOLOGY (2) I (2 Lb)**

**BOTANY 573 TECHNIQUES IN PHYSIOLOGY-BIOCHEMISTRY (2) II (2 Lb)**

**BOTANY 612 ADVANCED BOTANICAL PROBLEMS (Ar.) I, II**

**BOTANY 675 PHYSIOLOGY SEMINAR (2) II**

**BOTANY 699 DIRECTED RESEARCH (Ar.) I, II**

**Poultry Science (PS)**
Professor HENRY; Associate Professor ERNEST ROSS; Assistant Professors HERRICK, PALAFOX

**172 POULTRY HUSBANDRY (3) I (2 L, 1 Lb)**
Introduction to poultry husbandry. Course fee $2.00.

**472 ADVANCED POULTRY PRODUCTION (3) II (2 L, Lb)**
Poultry housing, management, and production practices in warm climates. Pre: PS 172. (Alt. yrs.; offered 1963-64.)

**473 POULTRY BREEDING (3) II (2 L, 1 Lb)**
Breeding principles in the improvement of poultry. Breeding programs under Hawaiian conditions. Pre: PS 172; Genetics 451. (Alt. yrs.; not offered 1963-64.)

**474 POULTRY NUTRITION (3) I (2 L, 1 Lb)**
Principles of poultry nutrition; formulation of poultry rations with local feeds. Pre: PS 172. (Alt. yrs.; not offered 1963-64.)

**475 INCUBATION AND HATCHERY MANAGEMENT (3) II (2 L, 1 Lb)**
Principles and practices in incubation and brooding; chick embryology. Pre: PS 172.

**601 SEMINAR IN POULTRY SCIENCE (1) I, II**
Current trends and problems in poultry science.

**699 DIRECTED RESEARCH (Ar.) I, II**
GRADUATE SCHOOL

The Graduate School provides opportunities for further study, research, and professional training to students who have earned a bachelor's degree from an accredited institution of higher learning. The graduate program is not, however, merely an extension of work at the undergraduate level. More rigorous academic standards are applied and a greater degree of independence in the pursuit of knowledge is required. Special emphasis is placed on the cultivation of scholarly attitudes and methods of research.

The University offers graduate work leading to:

1) The doctor of philosophy in agricultural economics, anthropology, biochemistry, botany, chemistry, entomology, genetics, geological sciences, history, horticulture, meteorology, microbiology, philosophy (Western, Asian, and comparative), physics, political science, psychology, soil science, and zoology;

2) the master's degree in agricultural economics, agricultural engineering, agronomy, animal science, anthropology, art, Asian studies, biochemistry, botany, business administration, chemistry, civil engineering, drama and theatre, economics, education, electrical engineering, English, entomology, food science, French, genetics, geography, geology, German, history, horticulture, Japanese, linguistics, mathematics, meteorology, microbiology, nutrition, oceanography, overseas operations, Pacific islands studies, philosophy, physics, plant pathology, poultry science, psychology, public health, social work, sociology, soil science, speech, teaching of English as a second language, and zoology.

3) the professional certificate for teachers in the employ of the state Department of Public Instruction (see p. 147).

Students may likewise earn graduate credit at the University for transfer to other institutions.

*For School of Social Work see Graduate Bulletin or School of Social Work Bulletin.
Complete information concerning admission, procedures, and requirements is given in the Graduate Bulletin, available upon request from the office of the Graduate School.

The following list of courses is for those departments which offer only graduate degrees. Courses given by departments which offer both undergraduate and graduate degrees are listed under the various colleges.

See p. 39 for a discussion of course descriptions.

Biochemistry and Biophysics (BB)

Professor Winnick; Associate Professor Yasunobu; Assistant Professors Hall, McKay, Mower

601-602 is prerequisite for all other courses in the graduate program.

271 ELEMENTS OF BIOCHEMISTRY (4) I (3 L, 1 Lb)
Lectures and laboratory exercises on the composition of biological substances and their transformations in animals and man. Pre: Chemistry 103-104, 143-144, or equivalent. Course fee $12.00.

601–602 GENERAL BIOCHEMISTRY (3-3) Yr.
Structure, chemistry, and metabolism of the important components of living organisms. Pre: Chemistry 143-144. Recommended: Chemistry 551-552.

611–612 BIOCHEMISTRY LABORATORY (2-2) I, II
Both physico-chemical and metabolic experiments to illustrate the principles of BB 601-602. Course fee $12.00 per semester.

621 CHEMISTRY OF THE PROTEINS (2) I
Structure, chemistry, and physico-chemical aspects of amino acids, peptides, and proteins.

622 METABOLISM AND BIOSYNTHESIS OF PROTEINS (2) II
Metabolism of the amino acids, and the mechanisms of peptide and protein formation, within the cell and in vitro.

651 ADVANCED ENZYMEOLOGY (2) I
Structure, active centers, and mechanisms of enzyme catalysis; enzyme kinetics; evolutionary considerations.

680 SURVEY OF INTERMEDIARY METABOLISM (2) II
Dynamic aspects of the metabolism and interrelationships of tissue constituents, with emphasis on the critical evaluation of recent literature.

691–692 SPECIALIZED INSTRUMENTATION AND METHODOLOGY (2-2) Yr.
The use of modern physical and metabolic laboratory equipment for research training. Course fee $12.00.

699 DIRECTED RESEARCH (Ar.) I, II
Students may register on approval of the department.
GRADUATE SCHOOL

711  NUCLEIC ACIDS AND VIRUSES (2) I

720  MOLECULAR GENETICS AND COMPARATIVE BIOCHEMISTRY (2) II
Genetic regulation of protein synthesis and metabolic pathways, at the molecular and cellular levels. Evolutionary and comparative aspects of molecular structures.

750  SPECIAL TOPICS IN BIOPHYSICS (2) II
Selected phases of physico-chemical biology, and the application of physical principles to biological problems.

791–792  SEMINAR (1) I, II
Weekly discussions and reports on selected subjects and current advances in biochemistry and biophysics.

800  THESIS RESEARCH (Ar.) I, II
Students may register on approval of the department.

Genetics (G)

Senior Professor Snyder, Visiting Professor Beckman; Professor Morton, Assistant Professor J. B. Smith

321  HUMAN HEREDITY (3) I
Principles of heredity by way of pedigree and population analysis; applications to human welfare.

451  PRINCIPLES OF GENETICS (4) I (3 L, 1 Lb)
Introduction to genetic systems; microbes to man. Pre: one semester of biological science. Course fee $2.00.

518  CELLULAR GENETICS (3) II
Cellular (and microbial) genetic systems interpreted in terms of coding, replication, and transfer. Pre: 451, Chemistry 144.

618  CYTOGENETICS (3) II (2 L, 1 Lb)
Correlation of genetic and cytological phenomena. Pre: 451; Botany 518 preferred. Course fee $4.00.

625  ADVANCED TOPICS IN GENETICS (2) II
Advanced treatment of frontiers in genetics by visiting scholars. Pre: graduate standing in genetics or consent of instructor.

650  POPULATION GENETICS (3) II
Mathematical, observational, and experimental results bearing on genetic analysis of populations. Pre: 451 or 321, Mathematics 472.

654  GENETICS SEMINAR (1) I, II
Research and topical literature reports in genetics. May be repeated. Graduate standing in genetics or consent of instructor.
699 DIRECTED RESEARCH (Ar.) I, II
    Pre: graduate candidacy; consent of instructor. Course fee $2.00.

799 DIRECTED RESEARCH (Ar.) I, II
    Pre: candidacy for Ph.D. degree, consent of instructor. Course fee $2.00.

Interdepartmental Courses

600 DIRECTED RESEARCH (Ar.) I, II

Overseas Operations Program

Professors Stalker, Allison

601-602 INTERNSHIP IN OVERSEAS OPERATIONS (6)
    Three to six months of active duty with either public or private agencies in Asia and the Pacific. Limited to M.A. candidates in OOP.

699 DIRECTED READING (3-3) Yr.
    Selected readings on American, Asia, and regional specialties. Comprehensive examination on all reading. Limited to M.A. candidates in OOP.

See also the descriptions of the following courses under the listings of their respective departments:

AGRICULTURAL ECONOMICS 625 ECONOMICS OF AGRICULTURE:
    TROPICAL COUNTRIES AND ASIA (3) II

ANTHROPOLOGY 501 THE AMERICAN IN FOREIGN CULTURES (3) II

ECONOMICS 606 THEORY OF ECONOMIC DEVELOPMENT (3) I

ECONOMICS 610 SEMINAR IN ECONOMIC DEVELOPMENT (3) II

GOVERNMENT 631 SEMINAR IN AMERICAN FOREIGN SERVICE (3) II

GOVERNMENT 632 GOVERNMENT AGENCIES OVERSEAS (3) II

PHILOSOPHY 630 SEMINAR IN DIALECTICAL AND HISTORICAL MATERIALISM (3) I

Public Health (PH)

Senior Professor Lee; Visiting Professor Ryckman; Professors Lovett, Worth; Lecturers McMorrow, Schnack, Tokuyama, Shepard

601-602 PRINCIPLES AND PRACTICES OF PUBLIC HEALTH (3-3) Yr.
    Objectives of public health and development of efforts towards accomplishing these objectives.

610 INFECTIOUS DISEASES OF MAN IN THE PACIFIC AREA (3) I
    Systematic presentation of existing knowledge of important infectious diseases in the Pacific area.
625 BIOSTATISTICS (3) I
Analysis, evaluation, interpretation, and uses of statistics.

626 INTRODUCTION TO VITAL STATISTICS (3) II
Registration and census methods, population composition, interpretation of natality, morbidity, and mortality rates.

630 PUBLIC HEALTH NUTRITION (2) I
Organization and administration of nutritional services in the public health program.

636–637 ENVIRONMENTAL HEALTH (2–2) Yr.
Organization and administration of public health engineering and sanitation services.

640 PUBLIC HEALTH EDUCATION (2) II
Principles underlying health education techniques, concepts, and objectives.

651 EPIDEMIOLOGY AND EPIDEMIOGRAPHY OF THE PACIFIC (3) II
Basic epidemiologic principles, methods, and their application with particular reference to geographic patterns of diseases in the Pacific area. Pre: PH 625 or equivalent. May be taken concurrently.

660–661 COMMUNITY MENTAL HEALTH (2–2) Yr.
Cultural, social, and other environmental factors affecting mental health including organization, administration, and promotion of mental health services in the community.

670 MEDICAL ASPECTS OF DISABILITY (3) I
Systematic presentation of medical conditions causing disability. Pre: consent of instructor.

675 EFFECT OF ENVIRONMENT ON PERSONAL HEALTH (3) II
Relationships between the physical, chemical, and biological factors in the environment and the personal health of man.

690 SEMINAR ON COMMUNITY HEALTH PROBLEMS (1) I, II
Principles of health conservation and disease prevention in family and community.

691 SEMINAR ON INTERNATIONAL HEALTH PROBLEMS (1) I, II
Principles of health conservation and disease prevention among nations. Pre: consent of instructor.

692 SEMINAR ON SCHOOL HEALTH SERVICES (1) I, II
Practical aspects of the organization and administration of school health services.

710 PUBLIC HEALTH ADMINISTRATION (3) I, II
Organization, functions, and activities of health agencies with field experience. Pre: consent of instructor.

Social Work (SW)
Professors HANDLEY, JAMBOR; Associate Professors COCHRAN, MERRITT, WALSH, ZALOHA; Lecturer CODY

300 THE FIELD OF SOCIAL WORK (3) I, II
Nonprofessional orientation course intended to acquaint the student with the philosophy, scope, and aims of social work. Pre: junior standing.
301 SOCIAL WELFARE AS A SOCIAL INSTITUTION (3) II
Purpose and philosophy governing the establishment and operation of social welfare programs. The interrelationship of social, cultural, political, and economic factors in the development of social welfare. Open to seniors.

605 SOCIAL CASEWORK (2) I
Introduction to the basic principles and processes of social casework.

606 SOCIAL CASEWORK (2) II

608 SOCIAL GROUP WORK (2) I
Introduction to the basic principles and processes of group work.

609 SOCIAL GROUP WORK (2) II
Continuation of 608. Emphasis upon understanding the individual in groups, and skill in use of the helping process. Concurrent with SW 660-661. Pre: SW 608.

610-611 HUMAN GROWTH AND BEHAVIOR (3-3) Yr.
Designed to provide a synthesized understanding of physical, mental, and emotional growth, with due regard to social and cultural influences on individual development.

612 GROUP WORK PROGRAM ACTIVITIES (1-1) Yr.
The program as a tool in meeting individual and group needs. To be taken concurrently with SW 660-661.

615 COMMUNITY ORGANIZATION (2) II
Methods and processes of community organization in social work.

626 TREATMENT OF JUVENILE DELINQUENCY (2) II
Social work practice in relation to problems of juvenile delinquency.

627 SOCIAL SERVICES (2) I
Income maintenance programs in public and private social welfare fields.

628 SOCIAL SERVICES (2) II
Social Services (other than income maintenance) with emphasis on selected programs such as those in the children's field, the health field, corrections, etc.

652 SOCIAL STATISTICS AND RESEARCH (2) II
Problems and procedures in research related to social work.

653 LEGAL ASPECTS OF SOCIAL WORK (2) I
Problems in judicial administration and substantive law in relation to human problems, and social welfare programs.

656 SOCIAL WELFARE—ITS ORGANIZATION AND ADMINISTRATION (2) I
Principles and problems of social agencies with respect to structure and operation.

660-661 SUPERVISED FIELD WORK (3-3) Yr.
University units in public and private agencies. Concurrent with a method course (casework, group work, or community organization). Limited to full-time students.
760-761  ADVANCED SUPERVISED FIELD WORK (4-4) Yr.
        To be taken concurrently with an advanced course in social work method (casework, group work, or community organization). Limited to full-time students.

765  ADVANCED SOCIAL CASEWORK (2) I
        Case discussion of generic casework concepts as they apply in work with emotionally disturbed individuals. Concurrent with SW 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: SW 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 SW 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 (2) II
        Basic problems and policies in the major fields of social welfare.

785  METHODS OF SUPERVISION IN SOCIAL WORK (2) II
        Supervision in social work as it relates to casework and group work. Open to agency workers who are potential or actual supervisors. Pre: consent of instructor.

790  CULTURAL FACTORS IN SOCIAL WORK PRACTICE (2) II
        Significance of psychocultural factors in personality development and behavior. Pre: SW 611.

798-799  SEMINAR IN RESEARCH (3-3) Yr.
        Principles of objective fact-finding, primary and secondary sources of social data; preparation of a report or thesis.
THE CENTER for Cultural and Technical Interchange between East and West was established in 1960 by the U.S. Congress and officially came into being when a grant-in-aid agreement was signed by the Department of State and the University of Hawaii.

The primary objective of the Center is to develop and improve mutual understanding among the peoples of Asia, the Pacific area, and the United States. To achieve this goal, the Center has three major programs: an Institute for Technical Interchange, an Institute of Advanced Projects, and Student Programs.

**Institute for Technical Interchange**

Through this Institute, the Center offers more than 100 on-the-job and in-service technical training programs. Emphasis is placed on 4-12-month group training, especially in the fields of middle management, vocational education, educational communications, teacher preparation and leadership, police organization and administration, tourism and hotel management, and various aspects of tropical agriculture. Other areas of technical interchange are also under consideration.

These programs, designed to meet the needs of the participants and their countries, are conducted primarily in cooperation with community agencies of the State, both private and governmental. Academic work in connection with these programs is usually done at the University.

Training programs sponsored by ITI emphasize technical interchange in which participants from several nations contribute to projects.

Except for a limited number of scholarships in these special interchange areas and pilot projects, other grants administered by ITI come from organizations such as the Agency for International Development (AID), Food and Agricultural Organization (FAO), World Health Organization (WHO), UNESCO, private foundations, and others. Information for grants should be obtained from the USAID missions in your country or representatives of the sponsoring agencies listed above. Write to the Vice-Chancellor, Institute for Technical Interchange, East-West Center, University of Hawaii, Honolulu 14, Hawaii, for information on special programs.
Institute of Advanced Projects

The Institute conducts its program at the professorial and higher professional level. The Institute sponsors research and promotes the dissemination of information through the exchange of persons as well as materials. Each year a number of distinguished scholars from Asia, the Pacific area, and the United States accept the Institute’s invitation to spend six months to a year on research and writing. In addition, a limited number of grants are made to doctoral candidates whose theses will be in the area of cross-cultural relations or international development. To support its research program, the Institute is rapidly building a large Research Collection which already has over 120,000 books and 5,500 reels of microfilm.

A number of conferences and symposia are sponsored each year by the Institute to discuss problems and projects of mutual concern to Asians and Americans. These conferences are usually held at the Institute but are also held in Asia and the mainland United States. The Institute undertakes projects to translate scholarly works, as well as scientific documents and source materials. These projects involve principally the translation of Asian materials into English. Abstracts and annotated bibliographies in international development and cross-cultural relations are also prepared. As another means to promote the dissemination of information, the Institute operates the East-West Center Press and is establishing a department to inventory and catalogue research and exchange activities pertaining to Asia and the Pacific area.

Student Programs

Students (primarily graduate) are offered both regular and special University programs. These provide an opportunity for studies, research, special conferences, and seminars in many fields.

Scholarships. Young men and women possessing a high degree of leadership potential and scholastic ability and giving evidence of real interest in the goals of the Center may qualify for scholarships which provide transportation to and from Honolulu, tuition and books, housing and meals, accident and health insurance, and a monthly incidentals allowance. The scholarships include an expense-paid mainland United States or Asia study grant. Most scholarships are for 21 or 24 months.

Scholarships for American students are for graduate study at the University of Hawaii. Students may enroll in a regular graduate curriculum in the social sciences or the humanities with special reference to Asia or the Pacific; or they may enter the Asian Studies Program, the Pacific Islands Studies Program, or the Overseas Operations Program. Also available are programs in certain fields of science unique to the
University and its geographical location which, together with language study, are designed to prepare students for work abroad.

Scholarships for Asian and Pacific students are adequate for those who plan to work toward an M.A. degree, but are not usually sufficient for those wishing to earn a Ph.D. degree. The University awards the masters degree in 51 fields and the doctorate in 18 fields. Students may undertake an advanced degree program or do special work in a field as an unclassified graduate student. An undergraduate student may study in any of the 67 departments of the University of Hawaii.

Field Study Grants. The Asia study grant provides opportunity to study in Asia for those students in good standing who indicate their seriousness, maturity, and ability. The length of time spent in an Asian country varies with individual programs. Generally, students seeking advanced degrees request up to one semester for research purposes. Certain students whose primary goal is language study may be permitted to spend a longer period overseas in recognized full-time Asian language programs. Allowances for the student who is on an Asia study grant are intended to be equivalent to those received while the student is attending the University of Hawaii. The United States mainland study grant, principally for the student in good standing from Asia or the Pacific, provides an opportunity for special study on the mainland United States. This study is usually planned to take place during the summer, after two semesters have been spent at the University of Hawaii. In special instances, students are given the mainland study grant during the regular session, when they may enroll in a mainland university or college for special programs.

English Language Institute. Courses at the University of Hawaii are conducted in English, and most textbooks and reference materials are in English. English is also the language of the community. An effective practical control of both oral and written English is thus necessary for every student. The Institute offers noncredit courses for all students and trainees whose native language is not English so that they may acquire as readily as possible the knowledge they seek.

Students whose native language is not English are required to take an examination one to three weeks before the beginning of each semester and the summer session. No student may register in an Institute course unless assigned by the Institute. Special fees are charged for these courses.

Courses

See p. 39 for a discussion of course descriptions.

Assistant Professors Dickinson, McCabe; Instructors Aitken, Collier, Dotson, Dullaghan, Elliott, Kim, Kop, J. Mark, N. Roberts, Seglem, Soong, Steinberg, Topping
50  ENGLISH AS A SECOND LANGUAGE (0) I, II
Intensive practice in the fundamentals, oral and written. Meets 4 hours daily, Monday through Friday; an additional hour of laboratory work daily is required. For full-time ELI students.

60  INTERMEDIATE ENGLISH AS A SECOND LANGUAGE (0) I, II
Practice in reading, writing, conversation. Review of pronunciation and grammar as needed. Meets 2 hours daily, Monday through Friday; additional laboratory work required. For half-time ELI students.

70  ADVANCED ENGLISH AS A SECOND LANGUAGE (0) I, II
Meets 3 hours weekly; additional laboratory hours may be assigned.

80  WRITING PROGRAM FOR FOREIGN STUDENTS (0) I, II
Practice in English composition for foreign graduate students; undergraduates by special permission. Students may enroll only by approval of ELI, but may be recommended for the course by advisers or major professors. Three hours a week. Course fee $25.00.

Institute of American Studies. The noncredit seminars conducted for Center grantees by the Institute of American Studies are designed as a bridge that will enable Asians and Americans to develop the spirit of intercultural understanding recognized as one of the basic functions of the Center. Both groups of students play a vital role in the seminars by providing sources of information and guidance and by their critical and constructive comparisons of the various Asian societies with the differing cultures found in American society. Attendance at the seminars is required as a partial fulfillment of the Center scholarship grant. Participation in each seminar will be noted on the academic records of the students.

The Institute of American Studies also offers a film series, a lecture and visual arts program, and other nonacademic activities for grantees. A browsing room and library of paperback books are also available.

Courses

See p. 39 for a discussion of course descriptions.

SEMINAR:  ASIA–AMERICA 1 (0) I
A comparative study of basic Asian and American institutions and peoples at an elementary and contemporary level, with special reference to the problems introduced by industrialization and urbanization.

SEMINAR:  ASIA–AMERICA 2 (0) II
A broad view of mainland America, primarily for Asian students, that will enable 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
An evaluation by Asian students of their American experiences and by American students of their Asian experiences. This seminar will offer a forum for a free exchange of ideas and impressions gained on the Field Study Program.
General Information

Faculty. The Center does not have a separate teaching faculty; rather its faculty consists of the members of the University faculty. Visiting distinguished professors are brought to Hawaii on grants for varying periods.

East-West Center Buildings. Facilities include residence halls for scholarship students; apartments for visiting scholars; quarters for technical trainees and conference participants; an administration building, cafeteria, and restaurant; a 750-seat theater-auditorium; an information center; lounges; seminar and conference rooms.

Asian-Pacific Students. Information about how to apply for Center scholarships may be obtained from the nearest American Embassy (USIS) or Consulate, or by writing to the Vice-Chancellor, Student Programs, East-West Center, University of Hawaii, Honolulu 14, Hawaii.

American Students. Obtain information from the Vice-Chancellor, Student Programs, East-West Center, University of Hawaii, Honolulu 14, Hawaii.

Senior Scholars. Obtain information and application blanks from the Director, Institute of Advanced Projects, East-West Center, University of Hawaii, Honolulu 14, Hawaii.

Technical Trainees. Obtain information from the USOM chief or write to the Vice-Chancellor, Institute for Technical Interchange, East-West Center, University of Hawaii, Honolulu 14, Hawaii.
FACULTY AND STAFF
# Board of Regents

<table>
<thead>
<tr>
<th>Name</th>
<th>Term Expires</th>
<th>Position/Office</th>
</tr>
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<tbody>
<tr>
<td><strong>ABRAHAM K. AKAKA</strong></td>
<td>1692</td>
<td>Pastor, Kawaiahao Church, Honolulu</td>
</tr>
<tr>
<td><strong>HERBERT C. CORNUELLE, Chairman</strong></td>
<td>1964</td>
<td>President, Dole Corporation, Honolulu</td>
</tr>
<tr>
<td><strong>R. BURL YARBERRY, ex officio</strong></td>
<td></td>
<td>Superintendent, Department of Education, Honolulu</td>
</tr>
<tr>
<td><strong>ROBERT L. HIND, Jr.</strong></td>
<td>1962</td>
<td>Manager, Keauhou Ranch, Kona, Hawaii</td>
</tr>
<tr>
<td><strong>ROBERT H. HUGHES</strong></td>
<td>1965</td>
<td>Dept. Head, Hawaiian Commercial &amp; Sugar Co., Ltd., Puunene, Maui</td>
</tr>
<tr>
<td><strong>ARTHUR D. LEWIS</strong></td>
<td>1964</td>
<td>President, Hawaiian Airlines, Honolulu</td>
</tr>
<tr>
<td><strong>GEORGE H. McPHERSON</strong></td>
<td>1966</td>
<td>President, McPherson Concrete Products, Inc., Honolulu</td>
</tr>
<tr>
<td><strong>PETE T. OKUMOTO</strong></td>
<td>1965</td>
<td>Physician and Surgeon, Hilo, Hawaii</td>
</tr>
<tr>
<td><strong>L. Q. PANG</strong></td>
<td>1963</td>
<td>Physician and Surgeon, Honolulu</td>
</tr>
<tr>
<td><strong>MORRIS S. SHINSATO</strong></td>
<td>1963</td>
<td>Attorney, Lihue, Kauai</td>
</tr>
<tr>
<td><strong>THOMAS H. HAMILTON, ex officio</strong></td>
<td></td>
<td>President of the University, Honolulu</td>
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## Former Presidents

<table>
<thead>
<tr>
<th>Name</th>
<th>Term</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JOHN W. GILMORE</strong></td>
<td>1908–1913 (Deceased)</td>
<td>B.S.A. 1898, M.S.A. 1906, Cornell</td>
</tr>
<tr>
<td><strong>ARTHUR L. DEAN</strong></td>
<td>1914–1927 (Deceased)</td>
<td>B.A. 1900, Harvard; Ph.D. 1902, Yale; LL.D. 1947, Hawaii</td>
</tr>
<tr>
<td><strong>DAVID L. CRAWFORD</strong></td>
<td>1927–1941</td>
<td>B.A. 1911, LL.D. 1933, Pomona; M.A. 1912, Stanford; LL.D. 1957, Hawaii</td>
</tr>
<tr>
<td><strong>ARTHUR R. KELLER</strong></td>
<td>1941–1942 (Acting)</td>
<td>LL.B. 1907, National University Law School; M.S. 1916, Massachusetts Institute of Technology</td>
</tr>
<tr>
<td><strong>PAUL S. BACHMAN</strong></td>
<td>July 1, 1955–January 9, 1957 (Deceased)</td>
<td>B.S. 1922, Ohio State; M.A. 1925, Ph.D. 1927, University of Washington</td>
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<tr>
<td><strong>WILLARD WILSON</strong></td>
<td>1957–1958 (Acting)</td>
<td>B.A. 1929, Occidental College; M.A. 1930, Columbia; Ph.D. 1939, Southern California; LL.D. 1961, Occidental College</td>
</tr>
</tbody>
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Administration, 1962-63

THOMAS H. HAMILTON, Ph.D., President
WILLARD WILSON, Ph.D., Provost
THOMAS NICKERSON, B.A., Assistant to the Provost
WILLIAM M. WACHTER, M.S., Administrative Vice-President
CHARLES A. ENGMAN, JR., M.S., Assistant Administrative Vice-President
ROBERT F. ELLIS, Assistant Vice-President, Budget and Business Affairs
KEITH SNYDER, B.A., Assistant Vice-President, Auxiliary Enterprises
GEORGE K. TANABE, C.P.A., Comptroller
JOHN B. FERGUSON, Ph.D., Director of Institutional Research
BRUCE E. WHITE, Ph.D., Vice-President and Dean of Faculties
FRANCIS E. CLARK, Ed.D., Assistant Dean of Faculties
ALEXANDER SPOEHR, Ph.D., Chancellor of the East-West Center
Y. BARON GOTO, Sc.D., Vice-Chancellor, Institute for Technical Interchange
EDWARD W. WEIDNER, Ph.D., Vice-Chancellor, Institute of Advanced Projects
JOHN R. HENDRICKSON, Ph.D., Vice-Chancellor of Student Programs
HENRY BIRNBAUM, Ph.D., Vice-Chancellor of Administration
ROBERT W. HIATT, Ph.D., Dean of the Graduate School and Director of Research
LEONARD D. TUTHILL, Ph.D., Assistant Dean of the Graduate School
ALLAN F. SAUNDERS, Ph.D., Dean of the College of Arts and Sciences
JOHN P. HOSIHR, Ph.D., Assistant Dean of the College of Arts and Sciences
EDWIN C. PENDLETON, Ph.D., Acting Dean of the College of Business Administration
HUBERT V. EVERLY, Ph.D., Dean of the College of Education
OTTO J. BEYERS, Ed.D., Assistant Dean of the College of Education
WILFRED J. HOLMES, M.S., Dean of the College of Engineering
NICHOLAS B. COBRA, M.Ed., Assistant Dean of the College of Engineering
EDMUND F. SPELLACY, Ph.D., Dean of the College of General Studies
ROGER L. MOSELEY, M.B.A., Assistant Dean of the College of General Studies
VIRGINIA A. JONES, M.Ed., Dean of the College of Nursing
MORTON M. ROSENBERG, Ph.D., Dean of the College of Tropical Agriculture*

*Also designated as Director of the Hawaii Agricultural Experiment Station and Director of the Cooperative Extension Service.
SHOSUKE GOTO, Ph.D., Assistant Dean of the College of Tropical Agriculture
G. DONALD SHERMAN, Ph.D., Associate Director, Hawaii Agricultural Experiment Station
DALE N. GOODELL, M.S., Associate Director, Cooperative Extension Service
HAROLD M. BITNER, Ph.D., Dean of Student Personnel
SHUNZO SAKAMAKI, Ph.D., Dean of the Summer Session
SHIRO AMIOKA, Ph.D., Assistant Dean of the Summer Session
CARL G. STROVEN, Ph.D., Librarian
KAORU NODA, Ph.D., Director of the Hilo Campus

Officers of Special Units

EDWARD T. WHITE, M.A., Director, Office of Admissions and Records
SPENCER W. TINKER, M.S., Director, Waikiki Aquarium
HORACE F. CLAY, Ph.D., Director, H. L. Lyons Arboretum
LOTHAR G. WINTER, Ph.D., Director, Bureau of Business Research
SHELLEY M. MARK, Ph.D., Director, Economic Research Center
DONALD I. DICKINSON, M.A., Acting Director, English Language Institute
HAROLD S. ROBERTS, Ph.D., Director, Industrial Relations Center
FREDERICK K. NUNNS, M.S., Director, Land Study Bureau
KENNETH K. LAU, LL.M., Director, Legislative Reference Bureau
HERBERT B. WEAVER, Ph.D., Director, Psychological Research Center
FREDERICK Y. SMITH, M.S.J., Director, Office of Publications and Information
BERNHARD L. HORMANN, Ph.D., Director, Romanzo Adams Social Research Laboratory
KATHARINE N. HANDLEY, M.S.W., Director, School of Social Work
RICHARD K. C. LEE, M.D., Director of Public Health and Medical Activities
MERLE ANSBERRY, Ph.D., Director, Speech and Hearing Clinic

Emeriti

Andrews, Carl B., Professor Emeritus of Engineering
   B.S. 1908, M.S. 1909, C.E. 1917, Rose Polytechnic Institute; M.S. 1928, Massachusetts Institute of Technology
Bennett, J. Gardner, Professor Emeritus of Engineering
   B.S. 1912, Cornell College; B.S. in C.E. 1918, C.E. 1925, Wisconsin
Bice, Charles M., Senior Specialist Emeritus in Poultry Husbandry
   B.S. 1927, Wisconsin
Bilger, Earl M., Professor Emeritus of Chemistry  
B.S. 1920, M.A. 1921, Wesleyan; Ph.D. 1925, Yale

Bilger, Leonora N. (Mrs. Earl M.), Professor Emeritus of Chemistry  
B.A. 1913, M.A. 1914, Ph.D. 1916, Cincinnati

Brown, Hubert E., Professor Emeritus of Health and Physical Education  
B.P.E. 1920, M.P.E. 1927, Springfield College; Ph.D. 1940, New York

Carter, Walter, Professor Emeritus of Entomology  
B.S. 1923, Montana; M.S. 1924, Ph.D. 1928, Minnesota

Edmondson, Charles H., Professor Emeritus of Zoology  
Ph.D. 1903, M.S. 1904, Ph.D. 1906, Iowa

Eller, Willard H., Professor Emeritus of Physics  
B.S. 1914, Ph.D. 1928, California; M.S. 1925, University of Washington

Gruelle, Katherine B. (Mrs. Laurence N.), Professor Emeritus of Home Economics  
B.S. 1917, Ohio State; M.A. 1925, Columbia

Henke, Louis A., Professor Emeritus of Agriculture  
B.S. 1912, M.S. 1923, Wisconsin

Kahananui, Dorothy (Mrs.), Associate Professor Emeritus of Music  
B.S. 1931, New York; M.Ed. 1936, Hawaii

Krauss, Frederick G., Professor Emeritus of Agriculture  
S.C.D. (Hon.) 1921, Hawaii

Kuykendall, Ralph S., Professor Emeritus of History  
B.A. 1910, College of the Pacific; M.A. 1921, California; L.H.D. 1956, Hawaii

Leebrick, Karl C., Professor Emeritus of Government  
B.S. 1911, M.S. 1913, Ph.D. 1916, California

Livesay, Thayne M., Dean Emeritus, College of Arts and Sciences  
B.A. 1971, Pacific University; M.A. 1921, Ph.D. 1931, University of Washington

Miller, Carey D., Professor Emeritus of Nutrition  
B.A. 1917, California; M.S. 1922, Columbia

Pecker, Irving O., Professor Emeritus of Romance Languages  
B.A. 1912, Boston

Poole, Charles F., Professor Emeritus of Agriculture  
B.S. 1920, M.S. 1926, Hawaii; Ph.D. 1930, California

Porteus, Stanley D., Professor Emeritus of Psychology  
S.C.D. (Hon.) 1933, Hawaii

St. John, Harold, Professor Emeritus of Botany  
B.A. 1914, M.A. 1915, Ph.D. 1917, Harvard

Sinclair, Gregg M., President Emeritus  
Degrees listed under Former Presidents

Wadsworth, Harold A., Dean Emeritus, College of Agriculture  
B.S. 1916, California

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Visiting Faculty, 1963-64

Dickerson, William E., Ph.D., Visiting Professor of Accounting (first semester)  
Professor of Accounting, Ohio State University
Ellsworth, P. T., Ph.D., *Carnegie Visiting Professor of Economics* (first semester); *Visiting Professor of Economics* (second semester)
Professor of Economics, University of Wisconsin

Fergusson, Francis, B.A. *Carnegie Visiting Professor of Drama and Theatre* (second semester)
Professor of Comparative Literature, Rutgers, The State University

Gunderson, Robert G., Ph.D., *Visiting Professor of Speech* (second semester)
Professor of Speech, Indiana University

Miller, Herbert E., Ph.D., *Visiting Professor of Accounting* (second semester)
Professor of Accounting, Michigan State University

Read, Clark P., Ph.D., *Carnegie Visiting Professor of Zoology* (first semester)
Professor of Biology, Rice Institute

Stene, Edwin O., Ph.D., *Carnegie Visiting Professor of Political Science* (second semester)
Professor of Political Science, University of Kansas

Thomas, Lawrence G., Ph.D., *Carnegie Visiting Professor of Education* (first semester)
Professor of Education, Stanford University

**Instruction, 1962–63**

Abbott, Agatin T., *Professor of Geology*
B.A. 1939, Minnesota; Ph.D. 1952, University of Washington

Abe, Chieko, *Instructor in Home Economics and Assistant Food Supervisor*
B.S. 1954, Hawaii

Abrums, Tom E., *Instructor in English*
B.A. 1932, M.A. 1937, Colorado

Acosta, Joseph, *Assistant Professor of Education*
B.A. 1954, Fresno State; M.A. 1958, University of the Philippines

Adam, Leona R., *Assistant Professor of Nursing*
B.S. 1944, Indiana

Adams, Carl W., *Assistant Professor of Meteorology*
B.S. 1940, U.S. Naval Academy; M.S. 1951, U.S. Naval Postgraduate School

Adler, Jacob, *Professor of Accounting and Finance*
B.S. 1933, Chicago; M.S. 1956, Ph.D. 1959, Columbia; C.P.A., Hawaii

Agpalsa, Elaine E. (Mrs. Maximo), *Instructor in Education*
B.Ed. 1952, M.Ed. 1959, Hawaii

Ah Cook, Master Sergeant Almon L. F., *Instructor in Military Science*

Aidlin, Jerome, *Instructor in Art*
B.F.A. 1962, Cleveland Institute of Art

Aitken, Emma A., *Instructor in Home Economics*
B.S. 1943, College of Medical Evangelists

Aitken, Robert, *Instructor, English Language Institute*
B.A. 1947, M.A. 1950, Hawaii (first semester)
Akamine, Ralph N., Lecturer in Dental Hygiene
D.D.S. 1946, Washington University; M.S. 1951, Illinois (second semester)

Akita, George, Assistant Professor of History and Asian Studies
B.A. 1951, Hawaii; M.A. 1953, Ph.D. 1960, Harvard

Alden, Robert P., Lecturer in Personnel and Industrial Relations
(first semester)

Alexander, Aaron J., Instructor in English
B.S. 1951, City College of New York; M.A. 1953, Harvard

Allison, John M., Professor of Government
B.A. 1927, LL.D. 1959, Nebraska

Alm, Julie N. (Mrs. Richard S.), Instructor in Education
B.S. 1943, M.A. 1947, Minnesota

Alm, Richard S., Professor of Education
B.S. 1942, M.A. 1948, Ph.D. 1954, Minnesota

Amioka, Shiro, Assistant Professor of Education
B.Ed. 1949, M.Ed. 1952, Hawaii; Ph.D. 1959, Illinois

Anderson, C. Webster, Associate Professor of Art
B.A. 1933, California; M.A. 1953, California at Los Angeles

Anderson, Ronald S., Professor of Education
B.A. 1929, M.A. 1946, Stanford; Ph.D. 1952, California

Andrewsen, Velma F. (Mrs. Richard), Instructor in Civil Engineering
B.S.C.E. 1960, Hawaii; M.S.C.E. 1962, Purdue

Ansberry, Merle, Professor of Speech
B.A. 1929, M.A. 1931, California; Ph.D. 1937, Wisconsin

Antebi, Joseph, Assistant Professor of Civil Engineering

Aoki, Mitsuo, Associate Professor of Religion
B.A. 1940, Drury College; B.D. 1943, Chicago Theological Seminary

Aragaki, Minoru, Assistant Professor of Plant Pathology
B.S. 1950, M.S. 1954, Hawaii

Arapoff, Nancy (Mrs. Peter), Lecturer, English Language Institute
B.A. 1952, California at Santa Barbara (second semester)

Arapoff, Peter M. A., Instructor in English
B.A. 1956, Northeastern; M.A. 1959, California

Arkoff, Abe, Associate Professor of Psychology
B.A. 1946, M.A. 1948, Ph.D. 1951, Iowa

Artola, George T., Assistant Professor of Asian and Pacific Languages
B.A. 1941, Brooklyn College; M.A. 1950, Ph.D. 1953, Johns Hopkins

Artola, Virginia V. (Mrs. George T.), Lecturer in Spanish and Latin
B.A. 1937, M.A. 1941, Brooklyn College

Asato, James K., Instructor in Health and Physical Education
B.S. 1952, Hawaii; M.S. 1956, Illinois

Aspinwall, Dorothy B. (Mrs. Albion N.), Professor of European Languages
B.A. 1933, M.A. 1939, Alberta; Ph.D. 1948, University of Washington

Asuncion, Medina A., Lecturer in Tagalog
B.S.E. 1954, Far Eastern University (second semester)
Aten, Donald G., Instructor in Education  
B.S. 1956, Hawaii; M.A. 1957, Columbia

Autrey, Lt. Colonel Paul, Associate Professor of Military Science  
B.S. 1941, Auburn (effective January 16, 1963)

Avery, Don E., Associate Professor of Engineering  
B.S. 1937, M.E. 1950, University of Washington

Avery, Donald M., Lecturer in Management  
B.A. 1943, Stanford (second semester)

Backus, Joseph M., Assistant Professor of English  
B.A. 1949, Allegheny College; M.S. 1954, Columbia; M.A. 1957, Ph.D. 1961, California

Baker, J. B., Assistant Professor of Education  
B.S. 1933, Adrian College (effective Dec. 1, 1962)

Banner, Albert H., Professor of Zoology  
B.S. 1935, Ph.D. 1943, University of Washington; M.S. 1940, Hawaii

Barkley, Richard A., Lecturer in Oceanography  
B.S. 1950, Louisiana State; M.S. 1958, Ph.D. 1960, University of Washington (second semester)

Barmettler, Edmund R., Assistant Professor of Agricultural Economics  
B.S. 1952, M.Ed. 1953, California at Davis; Ph.D. 1958, Ohio State

Barrera, Sergeant Victor M., Instructor in Military Science

Bartos, Otmar J., Assistant Professor of Sociology  
B.A., M.A. 1954, Colorado; Ph.D. 1958, Yale

Batra, Shanti (Mrs. Vir), Lecturer in Botany  
M.S. 1942, Calcutta University (India), Ph.D. 1951, Cornell (first semester)

Beamer, Martha F. (Mrs. Milton D., Jr.,), Assistant Professor of Health and Physical Education  
B.Ed. 1952, M.Ed. 1960, Hawaii

Bedford, Norton M., Professor of Accounting  
B.B.A. 1940, M.B.A. 1947, Tulane; Ph.D. 1950, Ohio State (second semester)

Bell, Donald W., Assistant Professor of Real Estate  
B.S. 1943, Montana State

Bell, Lloyd F., Lecturer in Mathematics  
B.S. 1944, U.S. Naval Academy; M.S. 1952, Ph.D. 1961, Stanford

Bell, Thelma Lee (Mrs. S. A.), Associate Professor of Home Economics  
B.S. 1930, North Texas State College; M.A. 1935, Ph.D. 1961, Texas Woman's University

Bennett, Hannah Lou, Assistant Professor of Education and Principal, Preschool  
B.S. 1939, Northwest Missouri State College; M.A. 1947, Ohio State

Bentley, Lucie F., Associate Professor of Speech and of Drama and Theatre  
B.A. 1928, Stanford; M.A. 1933, Cornell

Berger, Leslie R., Assistant Professor of Microbiology  
B.S. 1950, Cincinnati; M.S. 1953, University of Washington; Ph.D. 1957, California at Davis

Berkell, Edward I., Instructor in Spanish  
B.A. 1943, Queens College; M.A. 1952, Miami
Bernatowicz Albert J., Associate Professor of Botany
B.A. 1948, Clark; M.A. 1952, Ph.D. 1953, Michigan

Bertrand, Raoul, Associate Professor of French
M.A. 1927, Aix Marseilles University

Bess, Henry A., Senior Professor of Entomology
B.S. 1927, Alabama Polytechnic Institute; M.S. 1931, Florida; Ph.D. 1934, Ohio State

Beyers, Otto J., Professor of Education

Bilous, Carolyn B. (Mrs. Nicholas), Assistant Professor of Education
B.S. 1938, Temple; M.A. 1949, Columbia

Bilsborrow, Eleanor J., Assistant Professor of Speech
B.A. 1937, Colorado State College of Education; M.A. 1942, Stanford; Ph.D. 1957, Denver

Bitner, Harold M., Professor of Psychology
B.S. 1941, State Teachers College, Shippensburg, Pennsylvania; M.A. 1945, Duke; Ph.D. 1951, Ohio State

Black, Glenn L., Assistant Professor of Hotel Management
B.S. 1940, Iowa State; M.S. 1950, California at Los Angeles (second semester)

Black, Iva R. (Mrs. A. Duane), Instructor in Speech (Hilo)
B.S. 1954, M.A. 1960, Northwestern

Boatman, Elsie M. (Mrs.), Professor of Home Economics and Director of Food Service
B.S. 1924, M.S. 1931, Iowa State

Bonner, Barbara A., Instructor in Education
B.S. 1954, M.A. 1956, Ohio State

Booth, Master Sergeant John H., Instructor in Military Science

Borges, Frederic W., Assistant Professor of Mathematics
B.A. 1943, Brooklyn College; M.A. 1948, Columbia

Bouslog, Charles S., Professor of English
B.A. 1934, Indiana; M.A. 1948, Ph.D. 1951, Harvard

Bouslog, Nobuko S. (Mrs. Charles S.), Lecturer in Mathematics
B.Ed. 1941, California at Los Angeles

Bowers, Neal M., Professor of Geography
B.S. 1938, Western Michigan College of Education; M.A. 1939, Ph.D. 1951, Michigan

Boyce, Barbara K., Instructor in Speech
B.A. 1950, Hunter College; M.A. 1951, State University of Iowa (first semester)

Boyer, William H., Assistant Professor of Education
B.A. 1948, Oregon; M.Ed. 1952, Colorado; Ed.D. 1956, Arizona State

Boylan, Colonel Vincent L., Professor of Military Science
B.S. 1939, U.S. Military Academy

Brantley, L. Reed, Professor of Chemistry
A.B. 1927, California at Los Angeles; M.S. 1929, Ph.D. 1930, California Institute of Technology

Breneman, Lucille (Mrs. A. D.), Assistant Professor of Speech
B.A. 1935, Baylor; M.A. 1949, Hawaii

Brewbaker, James L., Associate Professor of Horticulture
B.A. 1948, Colorado; Ph.D. 1952, Cornell
Briley, Frank E., Assistant Professor of Education  
B.S. 1948, North Carolina State College; M.Ed. 1952, North Carolina

Brissenden, Paul F., Lecturer in Personnel and Industrial Relations  
A.B. 1908, Denver; A.M. 1912, California; Ph.D. 1918, Columbia (second semester)

Britton, Major Albert J., Assistant Professor of Air Science  
B.A. 1958, New Hampshire

Britten, Edward J., Professor of Agronomy  
B.S. 1940, M.S. 1941, Saskatchewan; Ph.D. 1944, Wisconsin

Brixey, Stephen S., Instructor in Mathematics  
B.A. 1926, M.A. 1929, Oklahoma

Brondstein, Arthur J., Associate Professor of Speech  
B.A. 1934, City College of New York; M.A. 1936, Columbia; Ph.D. 1949, New York (second semester)

Brosnahan, Leger N., Assistant Professor of English  
B.A. 1951, Georgetown; M.A. 1952, Ph.D. 1958, Harvard

Brown, Dorothy S. (Mrs.) Assistant Professor of English  
B.A. 1934, Hawaii; M.A. 1935, Stanford; Ph.D. 1956, University of Washington

Brown, Ronald R., Instructor in Chinese  
B.A. 1953, Hawaii

Bruhn, William J., Jr., Instructor in Health and Physical Education  
B.Ed. 1957, Hawaii

Buchele, Robert B., Professor of Management  
A.B. 1938, Columbia; M.B.A. 1938, Harvard; Ph.D. 1951, Chicago (second semester)

Burgess, Sara A. (Mrs. Jess H., Jr.), Instructor in Speech  

Burkett, George I., Instructor in European Languages  
B.A. 1941, M.A. 1950, Oklahoma; Diploma 1948, Paris

Bushnell, Kenneth W., Instructor in Art  
B.A. 1956, California at Los Angeles; M.F.A. 1961, Hawaii

Bushnell, Oswald A., Professor of Microbiology  
B.S. 1934, Hawaii; M.S. 1935, Ph.D. 1937, Wisconsin

Cahill, Robert S., Assistant Professor of Government  
B.A. 1954, Reed College; M.A. 1961, Ph.D. 1962, Oregon

Cammack, Floyd M., Assistant Professor of Anthropology  
B.A. 1954, Kentucky; B.A. 1956, M.A. 1960, Oxford; M.S. 1957, Columbia

Campbell, Robert L., Assistant Professor of Education  
B.S. 1946, Illinois Institute of Technology; M.Ed. 1951, Louisiana State

Canfield, Claire, Assistant Professor of Nursing  

Canfield, Grant W., Lecturer in Personnel and Industrial Relations  
B.S. 1949, M.B.A. 1958, Southern California (second semester)

Cannelora, Louis, Lecturer in Real Estate  
LL.B. 1938, Hastings College of Law (second semester)

Carlson, David S., Assistant Professor of Management  
B.S. 1951, M.B.A. 1956, Wayne

Carpenter, Gilbert F., Associate Professor of Art  
B.A. 1942, Stanford
Carr, Albert B., Jr., Assistant Professor of Education  
B.S. 1950, Iona College; M.A. 1951, Ed.D. 1958, Columbia

Carr, Elizabeth B. (Mrs.), Professor of Speech  
B.A. 1924, M.A. 1940, Oklahoma; Ph.D. 1953, Louisiana State

Carr, Norma (Mrs. Albert B., Jr.), Lecturer in Spanish  
B.S. 1951, College of the City of New York; M.A. 1954, Columbia

Cathcart, Staff Sergeant Matthew E., Instructor in Air Science

Caughey, William A., Instructor in Civil Engineering  
B.S. 1927, M.S. 1929, Toledo

Chaffee, Margaret H., Lecturer in Psychology  
B.A. 1961, Washburn University of Topeka (first semester)

Chai, Hi Chang, Visiting Associate Professor of Mechanical Engineering  
B.S. 1953, Texas; M.S. 1954, Ph.D. 1957, Ohio State (second semester)

Chamberlain, Theodore K., Assistant Professor of Geology  
B.S. 1952, New Mexico; M.S. 1953, Ph.D. 1960, California Scripps Institution of Oceanography

Chan, Kwok-Long, Assistant Professor of Electrical Engineering  
B.S. 1955, University of Hong Kong; M.S. 1958, Ph.D. 1963, Stanford

Chang, Chia-Ling, Assistant Professor of Education  
B.A. 1948, M.Ed. 1950, Smith College

Chang, Lynette Y. (Mrs. Kingsley Y. T.), Instructor in Education  
B.Ed. 1954, M.Ed. 1960, Hawaii

Chang, Raymond M., Instructor in Physics  
B.A. 1951, Hawaii; M.S. 1953, New York

Chang, Thomas, Lecturer in Educational Psychology  
B.A. 1947, Hawaii; M.A. 1950, Columbia; Ph.D. 1957, Ohio State (second semester)

Chang, Walter T., Instructor in Education  
B.A. 1945, San Jose State College; M.A. 1959, San Francisco State College

Chang, Winona L. (Mrs. Charles K. C.), Instructor in Education  
B.Ed. 1949, Hawaii; M.Ed. 1957, Boston

Chao, Shan Hsing, Assistant Professor of Mathematics  
B.S. 1943, National Sun Yat-sen University; M.S. 1960, Oklahoma

Char, Beverly F., Assistant Professor of Mathematics  
B.A. 1954, Vassar

Char, Evelyn L. (Mrs. Vernon), Instructor in Nursing  
B.S.N. 1957, Hawaii; M.S.N. 1958, Boston

Charlot, Jean, Senior Professor of Art  
D.F.A. 1946, Grinnell College; LL.D. 1956, St. Mary's College

Cheng, Ch'eng-K'un, Professor of Sociology  
B.A. 1932, Yenching; M.A. 1937, Ph.D. 1945, University of Washington

Ching, Barbara K. (Mrs. John K. C.), Instructor in Physics  
B.A. 1959, M.S. 1961, Hawaii (first semester)

Ching, Donald K. F., Lecturer in Personnel and Industrial Relations  
B.A. 1951, Hawaii (second semester)

Chirol, Laure L. (Mrs.), Instructor in French  
LL.R. 1944, University of Strasbourg; M.A. 1956, California at Los Angeles
Chiu, Arthur N. L., *Associate Professor of Engineering*
  B.A., B.S. 1952, Oregon State; M.S. 1953, Massachusetts Institute of Technology; Ph.D. 1961, Florida

Chiu, Wan-Cheng, *Professor of Meteorology*
  B.S. 1941, National Central University; M.S. 1947, Ph.D. 1951, New York

Chock, Alvin K., *Lecturer in Botany*
  B.A. 1951, M.S. 1953, Hawaii (first semester)

Chou, James C. S., *Assistant Professor of Engineering*
  B.S. 1941, National Institute of Technology (China); M.S. 1949, Georgia Institute of Technology

Chow, Alfred V., *Lecturer in Electrical Engineering*
  B.S. 1953, California; M.S. 1958, California at Los Angeles

Christopher, Phoebus M., *Instructor in Chemistry*
  B.A. 1949, Rutgers; M.S. 1954, Newark College of Engineering

Chu, George W., *Professor of Microbiology and Zoology*
  B.A. 1928, Lingnan; M.S. 1931, Yenching; Sc.D. 1934, Johns Hopkins

Chui, Edward F., *Assistant Professor of Health and Physical Education*
  B.S. 1947, M.A. 1948, Iowa

Chun, Alfred V., *Lecturer in Electrical Engineering*
  B.S. 1953, California; M.S. 1958, California at Los Angeles

Clark, Francis E., *Professor of Education*
  B.S. 1930, Maryville College; M.Ed. 1941, Hawaii; Ph.D. 1948, Colorado

Clark, Richard H., *Assistant Professor of Mathematics*
  B.S. 1940, Yale; M.A. 1949, Michigan

Clark, Tony L., *Instructor in Physics (Hilo)*
  B.S. 1959, M.A. 1962, University of Washington

Clay, Horace F., *Associate Professor of Horticulture*
  B.S. 1950, Hawaii; M.S. 1952, Massachusetts; Ph.D. 1958, Chicago

Clyton, Robert W., *Senior Professor of Education*
  B.A. 1926, Maryville College; M.Ed. 1941, Hawaii; Ph.D. 1946, Northwestern

Cobb, Estel H., *Associate Professor of Animal Science*
  B.S. 1948, Oklahoma State; M.S. 1952, Ph.D. 1958, Iowa State

Cochran, Evelyn H., *Associate Professor of Social Work*
  B.A. 1927, Mississippi; M.A. 1932, Tulane

Cochran, Jerry G., *Lecturer in Educational Psychology*
  A.B. 1950, M.A. 1952, San Francisco State College

Cody, William J. T., *Lecturer in Social Work*
  M.D. 1951, Tufts (first semester)

Coller, Richard W., *Lecturer in Anthropology (Hilo)*
  B.A. 1948, Minnesota; M.A. 1951, Hawaii; Ph.D. 1959, Minnesota (second semester)

Coller, Roy W., *Instructor, English Language Institute*
  B.S. 1950, Ohio State; M.A. 1958, University of the Pacific

Collins, DWane R., *Professor of Education*
  B.A. 1930, State College of Iowa; M.S. 1938, State, University of Iowa; Ed.D. 1941, Columbia

Collins, Myrtle T. (Mrs. DWane), *Instructor in Education*
  B.A. 1937, State College of Iowa; M.A. 1960, Colorado College
Congdon, Charles F., Assistant Professor of Statistics
B.S. 1934, State Teachers College, West Chester, Pennsylvania; M.Ed. 1940, Hawaii; M.B.A. 1953, Columbia

Contois, David E., Assistant Professor of Microbiology
B.A. 1950, California at Los Angeles; M.S. 1952, Hawaii; Ph.D. 1958, California

Converse, Major Stanley P., Assistant Professor of Military Science
B.Ed. 1959, Omaha

Cook, Bruce J., Professor of Plant Physiology
B.S. 1936, Washington State; M.S. 1939, Hawaii; Ph.D. 1947, California

Contois, David E., Assistant Professor of Microbiology
B.A. 1950, California at Los Angeles; M.S. 1952, Hawaii; Ph.D. 1958, California

Cook, Sergeant Clark, Instructor in Military Science

Cooper, Tom S., Assistant Professor of Botany
A.B. 1950, Denison; M.S. 1955, Ph.D. 1958, State University of Iowa

Corba, Nicholas B., Associate Professor of Engineering Graphics
B.S. 1940, California State College, California, Pennsylvania; M.Ed. 1952, Pittsburgh

Corbin, Donald A., Associate Professor of Accounting and Business Economics
B.S. 1942, M.B.A. 1943, Ph.D. 1954, California

Cowling, Cedric B., Assistant Professor of History
B.A. 1948, M.A. 1950, Stanford; Ph.D. 1956, Wisconsin

Cox, J. Halley, Professor of Art
B.A. 1933, San Jose State College; M.A. 1937, California

Craig, Paul G., Professor of Economics
B.A. 1950, Otterbein College; M.A. 1951, Ph.D. 1953, Ohio State (first semester)

Crain, Major Forest B., Assistant Professor of Air Science
B.A. 1947, M.A. 1948, Texas

Croskey, Elizabeth P. (Mrs. F. Deal), Instructor in Education
B.A. 1931, Smith; M.A. 1933, Columbia

Crossley, John B., Professor of Education
B.A. 1929, Pomona; M.A. 1940, Claremont; D.Litt. 1945, Howard; Ed.D. 1950, California at Los Angeles

Crowell, David H., Professor of Psychology
B.A. 1941, Drew; Ph.D. 1950, Iowa

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<tr>
<th>Name</th>
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<th>Degrees and Institutions</th>
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</thead>
<tbody>
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Yagi, Sergeant First Class Seisuki, **Instructor in Military Science**

Yamamoto, George K., **Assistant Professor of Sociology**  
B.A. 1947, M.A. 1949, Hawaii

Yamamoto, Harry, **Assistant Professor of Food Science**  
B.S. 1955, Hawaii; M.S. 1958, Illinois; Ph.D. 1962, California at Davis

Yamamoto, Stanley I., **Instructor in Education**  
B.Ed. 1952, Hawaii

Yamamura, Douglas S., **Professor of Sociology**  
B.Ed. 1938, M.Ed. 1951, Hawaii; Ph.D. 1949, University of Washington

Yamashita, Pearl N. (Mrs. Paul T.), **Instructor in Education**  
B.Ed. 1942, Hawaii; M.A. 1948, State University of Iowa

Yamauchi, Hiroshi, **Assistant Professor of Mathematics**  
B.S. 1947, Hawaii; M.A. 1948, Ph.D. 1950, Harvard

Yang, Sarah L. (Mrs.), **Assistant Professor of Education**  
B.A. 1931, Colorado State College of Education; M.Ed. 1952, Hawaii

Yasuda, Kenichiro K., **Assistant Professor of Japanese**  
B.A. 1945, University of Washington; D.Litt. 1956, Tokyo

Yasunobu, Kerry T., **Associate Professor of Biochemistry**  
B.S. 1950, Ph.D. 1954, University of Washington

Yates, W. Ross, **Instructor in General Science**  
B.A. 1956, Municipal University of Omaha
Yoshimori, Alice S., *Instructor in Education*  
B.Ed. 1949, Hawaii; M.A. 1958, Connecticut

Younge, Otto R., *Professor of Agronomy*  
B.S. 1924, M.S. 1929, Alberta; Ph.D. 1934, Minnesota

Yuen, Jack K., *Assistant Professor of Engineering*  
B.S. 1951, Hawaii

Yuen, Paul C., *Associate Professor of Electrical Engineering*  
B.S. 1953, Chicago; M.S. 1955, Ph.D. 1960, Illinois Institute of Technology

Zaloha, Anne B., *Associate Professor of Social Work*  
Ph.B. 1925, Chicago; M.A. 1930, Northwestern

Zane, Ah Chong, *Assistant Professor of Education*  
B.A. 1942, Santa Barbara State College; M.Ed. 1947, Missouri

Zeitlin, Harry, *Associate Professor of Chemistry*  
B.A. 1937, Harvard; M.S. 1948, Ph.D. 1951, Hawaii

College of General Studies 1962–63

Fleece, Jeffrey A., *Associate Specialist*  
B.A. 1941, Central College, Missouri; M.A. 1942, Vanderbilt; Ph.D. 1952, Iowa

Lhotka, Jana Kristofova (Mrs.), *Junior Specialist (Program Director, Kwajalein Center)*  

Marutani, Herbert K., *Junior Specialist*  

*Moseley, Roger L., Assistant Dean*

Rosenberg, Doris Martin (Mrs. Morton M.), *Assistant Specialist*  
B.S. 1952, New York; M.S. 1959, Boston

Sakai, Hester H., *Assistant Specialist*  
B.B.A. 1953, M.B.A. 1954, Hawaii

*Spellacy, Edmund F., Dean*

Office of Student Personnel 1962–63

Aimoto, Dorothy R., *Junior Specialist in Student Personnel (East-West Center Housing Counselor)*  
B.Ed. 1956, Hawaii

Allen, James G., *Director of Student Residences*  
B.S. 1949, Wisconsin; M.S. 1954, Ph.D. 1960, Iowa State

*Bitner, Harold M., Dean of Student Personnel*

Clark, Genevieve, *Assistant in Student Personnel, Student Activities*  
B.A. 1962, Hawaii

Denny, James M., *Assistant Specialist in Student Personnel, Counseling and Testing Center*  
A.B. 1951, Oberlin College; Ph.D. 1958, Western Reserve

*Degrees listed under “Instruction.”*
Donahoe, Betty J. (Mrs. Peter A.), Junior Specialist in Student Personnel (Hilo) (first semester)
B.A. 1956, University of Washington; M.Ed. 1960, Harvard

Durkee, Peter E., Assistant Specialist in Student Personnel
B.A. 1953, M.A. 1957, Colgate

Fujikawa, Wallace A., Resident Manager, High-Rise Residence Hall

Fujita, George Y., Assistant Specialist in Student Personnel, Counseling and Testing Center
B.Ed. 1954, M.Ed. 1958, Hawaii; Ph.D. 1981, Minnesota

Fujitani, Shigeaki, Junior Specialist in Student Personnel, Counseling and Testing Center
B.A. 1955, Hawaii; M.A. 1957, New York

Greene, Edward C., Jr., Assistant Specialist in Student Personnel (Veterans’ and Selective Service Advisor, Financial Aids)
Ph.B. 1928, M.F. 1932, Yale

Hogle, Frances deV. (Mrs.), Resident Manager, Gateway House

Iams, Ruth W. (Mrs. James P.), Assistant Specialist in Student Personnel, Counseling and Testing Center
Ph.D. 1933, Chicago; M.A. 1952, Hawaii

Kim, Henry H., Junior Specialist in Student Personnel (Housing)
B.A. 1960, Hawaii

*Lovett, E. D., Director of Student Health Service

McArdle, H. Roy, Assistant Specialist in Student Personnel (Graduate Placement Counselor)
B.S. 1941, Columbia

McIntyre, Veta F., Head Resident, Frear Hall
B.A. 1928, Michigan

McPherson, Mary Lou (Mrs.), Assistant Specialist in Student Personnel, Bureau of Student Residences
B.S. 1933, Kansas State; M.A. 1955, Missouri

Meriwether, Joan R., Resident Manager, Low-Rise Residence Hall
B.A. 1955, Washington

Michel, John, Director, Counseling and Testing Center
B.A. 1950, Lehigh; M.A. 1951, Georgia; Ph.D. 1958, Texas

Mjedloff, Olga, Junior Specialist in Student Personnel (Assistant Foreign Student Adviser)
B.A. 1941, California; M.A. 1948, George Washington

Nakagami, Miyoko, Junior Specialist in Student Personnel (Assistant Foreign Student Adviser)
B.Ed. 1938, Hawaii; M.A. 1954, Columbia

Pauling, Linus C., Jr., Specialist in Student Personnel (Psychiatrist)
M.D. 1952; Harvard

Pisciotte, Joseph P., Head Resident, Johnson Hall

Prentice, Yuriko (Mrs. Lee), Director, Bureau of Student Activities
B.A. 1955, Hawaii

*Degrees listed under “Instruction.”
Stanley, Susan E., Assistant in Student Personnel, Counseling and Testing Center
A.B. 1960, Mount Holyoke College

Tatham, Clifford B., Assistant in Student Personnel, Counseling and Testing Center
B.A. 1960, Kansas

Tom, Juliette Y. L., Junior Specialist in Student Personnel (ASUH Executive Secretary)
B.A. 1955, Colorado State

Wery, Katherine H. (Mrs. Clay H.), Junior Specialist in Student Personnel (Part-time Employment)
B.A. 1944, Westhampton College

White, Edward T., Director, Office of Admissions and Records
B.A. 1936, M.A. 1939, Columbia

Will, Caroline F. (Mrs. Richard Y.), Junior Specialist in Student Personnel, Counseling and Testing Center
B.A. 1953, Minnesota; M.A. 1959, Hawaii

Wong, Carolina D. (Mrs. Ronald H. L.), University Physician
M.D. 1941, University of Santo Tomas

Wong, Lawrence Y. W., University Physician
B.S. 1951, M.S. 1953, M.D. 1958, Michigan

Zeigler, A. Lee, Assistant Specialist in Student Personnel (Foreign Student Advisor)
B.A. 1949, Stanford; M.S. 1950, New York

Library 1962-63

Bell, Janet E., Assistant Library Specialist
B.A. 1932, Hawaii; B.S.L.S. 1933, University of Washington

*Cammack, Floyd M., Assistant Librarian

Chong, Elizabeth F. Y., Junior Library Specialist
B.A. 1950, Hawaii; M.S.L.S. 1952, Illinois

Crozier, Virginia, Junior Library Specialist
B.A. 1931, Pomona College; B.S.L.S. 1932, Emory

Halsted, Clarissa H. (Mrs.), Junior Library Specialist
Ph.B. 1929, Chicago

*Ikeda, Hiroko, Assistant Library Specialist

*Nunn, G. Raymond, Director of Oriental Library

Saito, Shiro, Junior Library Specialist
B.Ed. 1951, Hawaii; M.A. 1956, Minnesota

Smith, Margaret H., Junior Library Specialist
Ed.B. 1936, Hawaii; M.A. 1937, Columbia; B.L.S. 1938, Pratt Institute

*Stroven, Carl G., Librarian

Wilson, Donald G., Assistant Library Specialist
B.A. 1952, Redlands; M.A. 1958, California at Los Angeles; M.S.L.S. 1960, Southern California

*Degrees listed under “Instruction.”
Wright, Joyce M., *Assistant Library Specialist*
B.A. 1938, (French), B.A. 1939 (Librarianship), University of Washington

**Hawaii Agricultural Experiment Station 1962-63**

Akamine, Ernest K., *Assistant Plant Physiologist*
B.S. 1935, M.S. 1941, Hawaii

Alicata, Joseph E., *Parasitologist*
B.A. 1927, Grand Island College; M.A. 1928, Northwestern; Ph.D. 1934, George Washington

Allen, Lyle, *Assistant Food Technologist*
B.S. 1952, California State Polytechnic; M.S. 1958, Ph.D. 1962, Illinois

Arakagi, Minoru, *Assistant Plant Pathologist*
*Effective March 1, 1963*

Awada, Minoru, *Assistant Plant Physiologist*
B.S. 1938, M.S. 1949, Hawaii

Barmettler, Edmund R., *Assistant Agricultural Economist*

Bess, Henry A., *Senior Entomologist*
Bowers, Francis A., *Assistant Horticulturist*
B.S. 1924, Hawaii

Brewbaker, James L., *Associate Horticulturist*

Britten, Edward J., *Agronomist*

Clements, Harry F., *Senior Plant Physiologist*
B.S. 1924, M.S. 1925, Wisconsin; Ph.D. 1929, Chicago

Cobb, Estel H., *Associate Animal Scientist*

Cool, Bruce J., *Plant Physiologist*

Fox, Robert L., *Associate Soil Scientist*

Foytik, Jerry, *Agricultural Economist*
A.B. 1936, M.A. 1940, Ph.D. 1949, California

Frank, Hilmer A., *Assistant Food Technologist*

Fukunaga, Edward T., *Associate Horticulturist*
B.S. 1934, M.S. 1935, Hawaii

Gilbert, James C., *Associate Horticulturist*

Goto, Shosuke, *Associate Plant Pathologist*

Green, Richard E., *Assistant Agronomist*
B.S. 1953, Colorado State; M.S. 1957, Nebraska; Ph.D. 1962, Iowa State

Habeck, Dale H., *Assistant Entomologist*

Hamilton, Richard A., *Horticulturist*

Haramoto, Frank H., *Assistant Entomologist*
B.S. 1949, M.S. 1953, Hawaii

Hardy, D. Elmo, *Senior Entomologist*

Herrick, Raymond B., *Assistant Poultry Scientist*

Hilker, Doris M., *Assistant Nutritionist*

Hine, Richard B., *Assistant Plant Pathologist*

*Degrees listed under "Instruction."
Holtzmann, Oliver V., Assistant Plant Pathologist

Hylin, John W., Assistant Biochemist

Ikawa, Haruyoshi, Junior Soil Scientist
  B.S. 1951, M.S. 1956, Hawaii

Ishii, Mamoru, Associate Plant Pathologist

Izuno, Takumi, Assistant Horticulturist
  B.S. 1950, Hawaii; Ph.D. 1960, Minnesota

Kamemoto, Haruyuki, Horticulturist

Kanehiro, Yoshinori, Assistant Soil Scientist

Kawanishi, Clinton Y., Assistant in Entomology
  B.A. 1961, Hawaii

Kawano, Yoshihiko, Junior Chemist
  B.S. 1943, Nihon University; M.S. 1957, Hawaii

Keeler, Joseph T., Assistant Agricultural Economist

Kinch, Donald M., Agricultural Engineer

Lichton, Ira J., Associate Nutritionist
  Ph.D. 1949, Chicago; B.S. 1950, M.S. 1951, Ph.D. 1954, Illinois

Lockhart, James A., Associate Plant Physiologist

Matsumoto, Hiromu, Associate Biochemist

Matsusaka, Yoshito, Junior Soil Scientist
  B.S. 1930, M.S. 1952, Hawaii

McConnell, Douglas J., Assistant Agricultural Economist

Mitchell, Wallace C., Assistant Entomologist
  B.S. 1942, M.S. 1949, Ph.D. 1955, Iowa State College

Mollett, John A., Assistant Agricultural Economist

Moore, Duane G., Assistant Soil Scientist
  B.S. 1953, M.S. 1955, Ph.D. 1960, Wisconsin

Morita, Kiyoichi, Assistant in Animal Science
  B.S. 1953, Hawaii

Murashige, Toshio, Assistant Horticulturist

Nakamura, Martha T. (Mrs. Edward H.), Junior Soil Scientist
  B.A. 1948, M.S. 1957, Hawaii

Nakasone, Henry Y., Assistant Horticulturist

Nakata, Shigeru, Assistant Plant Physiologist
  B.S. 1946, M.S. 1949, Hawaii

Namba, Ryoji, Associate Entomologist

Nishida, Toshiyuki, Associate Entomologist
  B.S. 1941, M.S. 1947, Hawaii; Ph.D. 1953, California

Otagaki, Kenneth K., Associate Animal Scientist

Palafox, Anastacio L., Assistant Poultry Scientist

Peters, Charles W., Agricultural Economist
  B.S. 1932, M.S. 1939, Oregon State

Philipp, Perry F., Agricultural Economist

*Degrees listed under "Instruction."
Plucknett, Donald L., Assistant Agronomist
B.S. 1953, M.S. 1957, Nebraska; Ph.D. 1961, Hawaii

*Putman, Edison W., Associate Plant Physiologist

Raabe, Robert D., Plant Pathologist
B.S. 1948, Ph.D. 1951, Wisconsin

Rogers, Bruce J., Associate Plant Physiologist
B.S.F. 1949, M.S.F. 1950, California; Ph.D. 1954, California Institute of Technology

Romanowski, Roman R., Assistant Horticulturist

*Rosenberg, Morton M., Director

*Ross, Edward, Food Technologist

*Ross, Ernest, Associate Poultry Scientist

Rotar, Peter P., Assistant Agronomist
B.S. 1955, M.S. 1957, Washington State; Ph.D. 1960, Nebraska

Rutschky, Charles W., Entomologist
B.S. 1943, Pennsylvania State; Ph.D. 1949, Cornell

*Scott, Frank S., Agricultural Economist

Sheehan, Thomas J., Associate Horticulturist
A.B. 1948, Dartmouth College; M.S. 1951, Ph.D. 1952, Cornell

*Sherman, G. Donald, Associate Director and Senior Soil Scientist

*Sherman, Martin, Entomologist

Smith, Richard F., Assistant Biochemist
B.S. 1950, M.S. 1952, Ph.D. 1962, Arizona

*Standal, Bluebell R. (Mrs. S. W.), Assistant Nutritionist

*Stanley, Richard W., Assistant Animal Scientist

Takahashi, Makoto, Assistant Agronomist
B.S. 1928, M.S. 1937, Hawaii

*Tamashiro, Minoru, Assistant Entomologist

Tanaka, Jack S., Junior Horticulturist
B.S. 1951, M.S. 1960, Hawaii

Trujillo, Eduardo E., Assistant Plant Pathologist
B.S.A. 1956, M.S. 1957, Arkansas; Ph.D. 1962, California

*Uehara, GorO, Assistant Soil Scientist

*van’t Woudt, Bessel D., Assistant Agricultural Engineer

*Wang, Jaw-Kai, Assistant Agricultural Engineer

*Warner, Robert M., Horticulturist

*Wayman, Oliver, Animal Scientist

Wenkam, Nao (Mrs. R.), Junior Nutritionist
B.S. 1948, M.S. 1950, Chicago

Williams, David D. F., Assistant Horticulturist
B.Sc. 1952, Reading University (England); Ph.D. 1961, Wisconsin

*Yamamoto, Harry Y., Assistant Food Technologist

*Younge, Otto R., Agronomist

*Degrees listed under “Instruction.”
Cooperative Extension Service 1962–63

Akana, David, County Agent, South Oahu
B.S. 1932, Hawaii; M.S. 1950, California
Allen, Levice (Mrs. Bob), Assistant Specialist in Clothing
B.S. 1937, Alabama; M.A. 1948, Columbia (effective Jan. 1963)
Aoki, George M., Associate County Agent, Hilo
B.S. 1950, Hawaii
Billings, Beatrice E., Home Economist, Honokaa–Kohala
B.S. 1930, Cornell; M.A. 1935, Columbia
Blalock, John R., County Agent, Molokai
B.S. 1946, M.S. 1948, Massachusetts
Boyer, Jere, Assistant Specialist in Agricultural Economics
B.S. 1955, M.S. 1957, Arizona
Bradshaw, Blaine, Assistant Specialist in Extension (Rural Area Development)
B.S. 1939, M.S. 1962, Wyoming
Chong, Wing You, Associate County Agent, East Hawaii
B.S. 1943, California
Chun, Edwin Y., County Agent, South Oahu
B.S. 1933, Hawaii
Clay, Horace F., Associate Specialist in Horticulture
Doi, M. James, Assistant County Agent, Maui
B.S. 1942, Hawaii
Doue, Stephen M., Assistant Specialist in Agricultural Economics
B.A. 1947, M.A. 1959, Hawaii
Furr, Richard D., Area Specialist in Livestock
B.S. 1958, Sam Houston State; M.S. 1959, Ph.D. 1961, Oklahoma State
Garcia, Clarence W., Assistant County Agent, Kohala
B.S. 1958, Hawaii
Gascon, Helen C. (Mrs. Joseph E., Jr.), Assistant County Home Economist
B.S. 1953, M.S. 1959, Hawaii
Gitlin, Harris M., Assistant Specialist in Agricultural Engineering
B.S. Agr. 1940, B.Agr.Engr. 1941, Ohio State; M.S. 1962, Michigan State
Goodell, Dale N., Associate Director
B.S. 1942, Iowa State; M.S. 1952, Minnesota
Gutierrez, Jean (Mrs. Frank), Assistant Specialist in Extension
B.S. 1950, M.A. 1957, Hawaii
Hansen, Harry L., County Agent, Kauai
B.S. 1942, Nevada
Harrell, Gertrude P. (Mrs.), State Extension Home Economist
B.S. 1927, Georgia State College for Women; M.A. 1949, Columbia
Higaki, Tadashi, Assistant County Agent, Hilo
B.A. 1958, M.S. 1961, Hawaii
Hiroshige, Herbert M., Assistant Specialist in Agricultural Economics
B.S. 1934, California; M.A. 1950, Hawaii

*Degrees listed under “Instruction.”
Hole, Phyllis A. (Mrs. Douglas), Assistant County Home Economist
B.S. 1937, Utah State; M.S. 1961, Wisconsin

Honma, Haruo, County Agent, West Oahu
B.S. 1940, Hawaii; M.Ed. 1951, Colorado State; M.S. 1959, Michigan State

Horio, Arleen Y., Assistant County Home Economist
B.S. 1962, Hawaii

Hubbard, James C., Assistant Home Economist
B.A. 1956, B.S. 1960, Washington State

Hugh, Williams I., Assistant Swine Specialist
B.S.A. 1949, British Columbia; M.S. 1951, Ph.D. 1953, Minnesota

Hunter, Miller T., County Agent, Maui
B.S. 1940, M.S. 1952, Missouri

Ishida, Jack T., Associate Specialist in Agricultural Economics
B.A. 1942, M.A. 1947, Hawaii; Ph.D. 1960, Purdue

Ito, Mable I. (Mrs. George T.), County Home Economist, Maui
B.S. 1941, Hawaii

Iwane, John Y., County Agent, Kona
B.S. 1940, Hawaii

Kamisato, Jane S., Assistant County Home Economist
B.S. 1956, Kansas State; M.S. 1962, Maryland

Kitagawa, Yukio, Assistant County Agent, West Oahu
B.S. 1955, Hawaii

*Koshi, James H., Area Specialist in Dairy Science

Kumabe, Bunki, County Agent, East Oahu
B.S. 1942, Hawaii; M.S. 1953, Missouri

Lenk, Sachiko (Mrs. John), Home Economist, Kona
B.S. 1949, Hawaii; M.S. 1957, Pennsylvania State

Lyman, Clarence, Specialist in Pasture Management
B.S. 1938, M.S. 1941, Hawaii

Maruyama, Charles I., County Agent, Maui
B.S. 1935, Hawaii; M.S. 1962, Washington State

Matsumoto, Dan K., Associate County Agent, Honokaa
B.S. 1951, Hawaii; M.S. 1961, Michigan State

Matsumoto, Eleanor A., Specialist in Home Economics
B.S. 1941, Hawaii; M.A. 1953, Columbia

Matsuura, Minoru, County Agent, Kohala
B.S. 1938, Hawaii

McCall, Wade W., Associate Specialist in Soil Management
B.S. 1942, M.A. 1947, Florida; Ph.D. 1953, Michigan State

*McHenry, Silas L., Associate Specialist in Poultry Husbandry

McMillan, Roger F. (Miss), Associate Home Economist, East Oahu
B.S. 1944, Georgia

Mihata, Keichi, County Agent, East Oahu
B.A. 1935, Hawaii

Miyabara, Jean S., Assistant Home Economist
B.S. 1960, Mankato State College

*Degrees listed under "Instruction."
Nakagawa, Yukio, Assistant Specialist in Horticulture  
B.S. 1940, Hawaii

Nakasato, Masaru George, County Agent Supervisor  
B.S. 1951, Hawaii; M.S. 1961, Oregon State

Okagawa, Tomoyuki, Assistant County Agent, South Oahu  
B.S. 1954, Hawaii

Orr, Kathryn J., Assistant Specialist in Foods and Nutrition  
B.S. 1945, California; M.S. 1949, Michigan State

Ota, Robert M., County Agent, Hilo  
B.S. 1950, Colorado State; M.S. 1959, Purdue

Penner, Ruth T., Associate County Home Economist, South Oahu  
B.S. 1943, Tennessee

Reid, Vera Y., Assistant Specialist in Home Management  
B.S. 1942, Alabama Polytechnic Institute; M.S. 1959, Florida State

Riley, Merrill K., County Agent, East Oahu  
B.S. 1927, Colorado College; M.S. 1929, South Dakota State College

Schwartz, Lillian R. (Mrs.), County Home Economist, West Oahu  
B.S. 1931, Hastings College; M.S. 1961, Michigan State

Shaddick, Phyllis Ann, Assistant County Home Economist  
B.S. 1958, Florida State

Shibuya, Irene T. (Mrs.), Associate County Home Economist, West Oahu  
B.S. 1952, Hawaii

Shigeta, Daniel T., County Agent, Kula, Maui  
B.S. 1950, Hawaii

Shigeta, James Y., Associate Specialist in Club Work  
B.S. 1951, Maryland; M.S. 1958, Wisconsin

Shirakawa, Takumi, County Agent, Naalehu  
B.S. 1948, Hawaii

Stormont, John L., Specialist in Club Work  
B.S. 1928, Illinois; M.Ed. 1954, Cornell

Sturdevant, Janice M. (Mrs. James), Assistant Home Economist  
B.S. 1955, Simmons College; M.A. 1958, Columbia

Takahashi, T. Francis, Assistant County Agent, Kauai

Takei, Shiro, Assistant Specialist in Agricultural Economics  
B.S. 1938, Hawaii; M.S. 1960, Michigan State

Tanaka, Marlene M., Assistant County Home Economist  
B.S. 1962, Hawaii

Tanaka, Tokushi, Assistant Specialist in Poultry Science  
B.S. 1948, M.S. 1953, Hawaii

Tashiro, Gladys (Mrs. Ben), Assistant County Home Economist

Teho, Fortunato, Assistant Specialist in Visual Aids  
B.S. 1927, Hawaii

Tisher, Mildred E., Home Economist, Molokai  
B.A. 1940, South Dakota State
Tolleth, Dorothy E., *Home Economist, Kauai*
B.S. 1929, Idaho

Vollrath, Harvey M., *Specialist in Animal Husbandry*
B.S. 1929, Colorado State; M.S. 1948, Minnesota

Yamamoto, Tamao, *Assistant County Agent, South Oahu*
B.S. 1957, Oregon State

Yee, Warren Y. J., *Assistant Specialist in Horticulture*
B.S. 1942, Hawaii; M.S. 1959, Purdue

Yonamine, Charles N., *Assistant County Agent, West Oahu*
B.S. 1951, California State Polytechnic College

Young, Helen B. (Mrs. J. Bryant), *Associate Home Economist*
B.A. 1921, Tennessee

**Hawaii Marine Laboratory**

*Banner, Albert H., *Director*

Helfrich, Philip, *Assistant Marine Biologist, and Assistant Director*
B.S. 1951, Santa Clara, Ph.D. 1958, Hawaii

**Legislative Reference Bureau 1962-63**

Bloede, V. Carl, *Associate Researcher*
B.A. 1940, Dartmouth College; LL.B. 1950, Baltimore

Dinell, Tom, *Director*
B.A. 1948, Brown; M.P.A. 1950, Michigan

Gotanda, Yukio, *Assistant Researcher*
B.A. 1950, Hawaii; M.S.W. 1956, Michigan; LL.B. 1958, Wisconsin

Hoppes, Muriel, *Junior Research Librarian*
B.A. 1956, Carleton College; M.A. 1959, Chicago

Kobayashi, Hanako, *Junior Research Librarian*
B.A. 1954, Hawaii; M.S. 1958, Simmons College

Kosaki, Mildred E. (Mrs. Richard H.), *Assistant Researcher*
B.Ed. 1944, M.Ed., 1949, Hawaii

*Lau, Kenneth K., *Professor of Business*

Meriwether, Michael A., *Assistant Researcher*
B.A. 1955, Reed College (effective July 1, 1963)

Putman, Patricia K., *Assistant Researcher*
B.A. 1944, LL.B. 1956, California

Spitz, Allan A., *Assistant Researcher*
B.A. 1952, New Mexico; M.A. 1954, Michigan State

Terauchi, Mildred M. (Mrs.), *Junior Researcher*
B.A. 1960, Hawaii; M.P.A. 1961, Syracuse

*Degrees listed under “Instruction.”*
Land Study Bureau 1962–63

Baker, Harold L., *Land Economist*
B.S. 1939, Utah State Agricultural College; M.S. 1942, California

Fujimura, Faith N. (Mrs. Thomas H.), *Junior Specialist in Cartography*
B.A. 1950, Hawaii

Hogg, Howard C., *Junior Economist*
B.S. 1959, M.S. 1960, Oregon State College

Kuwahara, Iwao, *Junior Researcher*
B.A. 1950, Hawaii

Murabayashi, Edwin T., *Junior Specialist in Land Classification*
B.S. 1956, Washington State

Nelson, Larry A., *Assistant Specialist in Land Classification*
B.S. 1955, Iowa State College; M.S. 1958, Texas Agricultural and Mechanical College; Ph.D. 1961, North Carolina State College

Nunns, Frederick K., *Director and Researcher*
B.S. 1932, North Dakota Agricultural College; M.S. 1934, State College of Washington; M.S. 1943, Wisconsin

Ryan, Thomas M., *Junior Specialist in Land Classification*
B.S. 1954, California Polytechnic College; M.S. 1955, Ohio State (effective February 1, 1963)

Sahara, Tamotsu, *Specialist in Land Classification*
B.S. 1948, Hawaii

Vargha, Louis A., *Associate Researcher (Urban Economics)*
B.S. 1954, M.S. 1957, Michigan State

Economic Research Center 1962–63

Brownell, Ruth, *Junior Economist*
B.A. 1936, American International College

Chong, Ethel C. (Mrs. Wilfred V. G.), *Junior Economist*
B.B.A. 1955, Hawaii

*Craig, Paul G., *Research Associate*
(until March 1963)

Graybeal, Ronald S., *Junior Economist*
B.A. 1957, Western Maryland College; M.A. 1959, Stanford

Gutmanis, Ivars, *Assistant in Research*
B.A. 1960, Hawaii

*Hung, Fred C., *Associate Economist; Acting Director (effective Jan. 1963)*

*Kendrick, John W., *Research Associate (Sept. 1962 to Jan. 1963)*

*Mark, Shelley M., *Director (On leave, from Jan. 1963)*

*McGuire, Joseph W., *Research Economist*
B.B.A. 1955, Hawaii; M.A. 1961, Wisconsin

Ono, Mitsuo, *Assistant Economic Statistician*
B.A. 1950, Hawaii; M.S. 1954, Columbia

*Degrees listed under “Instruction.”*
Oshima, Harry T., Research Economist
Wallenstein, Beatrice, Assistant in Research
M.A. 1951, University of Geneva, Switzerland (effective Jan. 15, 1963)
Wang, Sarah C., (Mrs. James), Assistant in Economics
B.A. 1956, Miami University
Weaver, Gary W., Consultant

Affiliate Graduate Faculty*

Anderson, E. J., Ph.D., Head, Pathology Department
Pineapple Research Institute

Ayres, A. S., Ph.D., Senior Agronomist, Experiment Station
Hawaiian Sugar Planters' Association

Balock, John W., B.S., Entomologist
Fruit Fly Laboratory, U.S. Department of Agriculture

Barkley, Richard Andrew, Ph.D., Chief, Oceanography Investigation
Honolulu Biological Laboratory, Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service

Baver, Leonard D., Ph.D., Director, Experiment Station
Hawaiian Sugar Planters' Association

Bernstein, Leo, M.D., Director
State Department of Health

Bloom, Bernard L., Ph.D., Psychologist
State Hospital

Chang, Jen hu, Ph.D., Climatologist
Hawaiian Sugar Planters' Association

Chang, Thomas M.C., Ph.D., Director of Guidance
State Department of Education

Connor, Angie, M.D., Executive Officer, Mental Retardation Division
State Department of Health

Cushing, Robert L., M.S., Director
Pineapple Research Institute

Darroch, J. G., M.S., Principal Statistician, Experiment Station
Hawaiian Sugar Planters' Association

Dull, Gerald G., Ph.D., Chemist
Pineapple Research Institute

Duncan, Richard A., M.S., Head, Field Engineering Department, and
Chief Engineer
Hawaiian Sugar Planters' Association

Ekern, Paul C., Ph.D., Soil Physicist
Pineapple Research Institute

Farden, Carl A., B.S., Statistician
Pineapple Research Institute

Finney, Joseph C., Ph.D., M.D., Research Director
Division of Mental Health, State Department of Health

*Members of cooperating institutions available for service on graduate committees. They do not offer courses at the University.
Force, Roland W., Ph.D., Director
Bernice P. Bishop Museum

Gortner, Willis A., Ph.D., Head, Chemistry Department
Pineapple Research Institute

Gowing, Donald P., Ph.D., Plant Physiologist
Pineapple Research Institute

Gressit, J. Linsley, Ph.D., Entomologist
Bernice P. Bishop Museum

Gudeman, Howard E., Ph.D., Director, Psychological Services and Training
State Hospital

Halperin, Sidney L., Ph.D., Clinical Psychologist
Tripler General Hospital

Hanson, Noel S., Ph.D., Principal Scientist—Weed Control, Experiment Station
Hawaiian Sugar Planters' Association

Harris, Yeuell Y., Ed.D., Staff Specialist, Research and Statistics
State Department of Education

Hart, William E., M.S., Research Engineer
Hawaiian Sugar Planters’ Association

Heinicke, Ralph M., Ph.D., Director of Chemistry and Food Research
Hawaiian Pineapple Co.

Hilton, H. Wayne, Ph.D., Principal Chemist, Experiment Station
Hawaiian Sugar Planters’ Association

Ito, K., M.S. Associate Entomologist
Pineapple Research Institute

Johannessen, George A., Ph.D., Head, Plant Breeding Department
Pineapple Research Institute

Joyce, C. R., Ph.D., Medical Entomologist
U.S. Public Health Service

Keiser, Irving, B.S., Entomologist
Fruit Fly Laboratory, U.S. Department of Agriculture

Kern, Jerome, Ph.D., Research Bacteriologist
National Institutes of Health

Kerns, Kenneth R., M.S., Plant Breeder
Pineapple Research Institute

Klemmer, H. W., Ph.D., Microbiologist
Pineapple Research Institute

Koike, Hideo, Ph.D., Associate Pathologist, Experiment Station
Hawaiian Sugar Planters’ Association

Kondo, Yoshio, Ph.D., Malacologist
Bernice P. Bishop Museum

Krauss, Beatrice, M.S., Plant Physiologist
Pineapple Research Institute

Lange, Arthur H., Ph.D., Associate Plant Physiologist
Pineapple Research Institute

Leeper, Robert W., Ph.D., Organic Chemist
Pineapple Research Institute
Magnuson, John J., Ph.D., Chief, Behavior Program
Honolulu Biological Laboratory, Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service

Marr, John, M.A., Hawaii Area Director
Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service

Mink, John F., M.S., Hydrologist-Geologist
Board of Water Supply, City and County of Honolulu

Mitchell, Wallace C., Ph.D., Entomologist
Fruit Fly Laboratory, U.S. Department of Agriculture

Nickell, Louis G., Ph.D., Principal Physiologist and Biochemist, Experiment Station
Hawaiian Sugar Planters' Association

Paty, Jeanne E., M.P.H., Health Education Officer
State Department of Health

Payne, John H., Ph.D., Principal Technologist, Experiment Station
Hawaiian Sugar Planters' Association

Price, Saul, B.S., Research Meteorologist
Pacific Supervisory Office, U.S. Weather Bureau

Quate, Larry, Ph.D., Entomologist
Bernice P. Bishop Museum

Radewald, John D., Ph.D., Associate Pathologist
Pineapple Research Institute

Rosen, Leon, M.D., Head, Pacific Research Section
National Institute of Allergy and Infectious Diseases

Sakimura, K., Entomologist
Pineapple Research Institute

Sanford, Wallace G., Ph.D., Plant Physiologist and Head, Agronomy Department
Pineapple Research Institute

Schmidt, Carl T., Ph.D., Entomologist
Pineapple Research Institute

Seckel, Gunter R., M.S., Oceanographer
Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service

Sinoto, Yoshihiko, Sc.D., Fellow in Anthropology
Bernice P. Bishop Museum

Smith, Donald H., Ph.D., Soil Chemist
Pineapple Research Institute

Spiegelberg, Carl H., Ph.D., Pathologist
Pineapple Research Institute

Stanford, George, Ph.D., Principal Agronomist, Experiment Station
Hawaiian Sugar Planters' Association

Stephenson, John R., M.D., Physician
Department of Pediatrics, Straub Clinic

Steiner, Loren F., M.S., Entomologist in Charge
Fruit Fly Laboratory, U.S. Department of Agriculture

Strasburg, Donald W., Ph.D., Fishery Research Biologist
Honolulu Biological Lab., Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service
Sund, Kenneth A., Ph.D., Senior Chemist, Experiment Station
Hawaiian Sugar Planters' Association

Tribble, Roy T., M.S., Agricultural Engineer
Pineapple Research Institute

Wallrabenstein, Paul P., Ph.D., Agricultural Statistician-in-Charge
Statistical Reporting Service, U.S. Department of Agriculture

Warner, John N., Ph.D., Senior Geneticist, Experiment Station
Hawaiian Sugar Planters' Association

Wilcox, Kingston S., Ph.D., Director
Bureau of Laboratories, State Department of Health

Wilson, Nixon A., Ph.D., Acarologist
Bernice P. Bishop Museum

Wismer, Chester A., Ph.D., Senior Pathologist, Experiment Station
Hawaiian Sugar Planters' Association

Yoder, Paul E., Ph.D., Virologist
State Department of Health

Young, H. Y., M.A., Chemist
Pineapple Research Institute
### SUMMARY OF ENROLLMENT FOR 1962–63

#### Graduate School

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced degree candidates</td>
<td>795</td>
<td>781</td>
</tr>
<tr>
<td>Five-year diploma candidates</td>
<td>228</td>
<td>177</td>
</tr>
<tr>
<td>Unclassified</td>
<td>691</td>
<td>713</td>
</tr>
<tr>
<td>Professional Teaching Certificate</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,728</strong></td>
<td><strong>1,699</strong></td>
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</table>

#### College of Arts and Sciences

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>365</td>
<td>341</td>
</tr>
<tr>
<td>Juniors</td>
<td>451</td>
<td>472</td>
</tr>
<tr>
<td>Sophomores</td>
<td>621</td>
<td>589</td>
</tr>
<tr>
<td>Freshmen</td>
<td>1,034</td>
<td>917</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,471</strong></td>
<td><strong>2,319</strong></td>
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#### College of Engineering

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>154</td>
<td>137</td>
</tr>
<tr>
<td>Juniors</td>
<td>172</td>
<td>157</td>
</tr>
<tr>
<td>Sophomores</td>
<td>185</td>
<td>176</td>
</tr>
<tr>
<td>Freshmen</td>
<td>254</td>
<td>210</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>775</strong></td>
<td><strong>680</strong></td>
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#### College of Education

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>355</td>
<td>302</td>
</tr>
<tr>
<td>Juniors</td>
<td>339</td>
<td>336</td>
</tr>
<tr>
<td>Sophomores</td>
<td>421</td>
<td>413</td>
</tr>
<tr>
<td>Freshmen</td>
<td>480</td>
<td>461</td>
</tr>
<tr>
<td>Classified Professional Certificate</td>
<td>43</td>
<td>58</td>
</tr>
<tr>
<td>Professional Teaching Certificate</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,646</strong></td>
<td><strong>1,571</strong></td>
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#### College of Tropical Agriculture

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>51</td>
<td>48</td>
</tr>
<tr>
<td>Juniors</td>
<td>73</td>
<td>71</td>
</tr>
<tr>
<td>Sophomores</td>
<td>74</td>
<td>84</td>
</tr>
<tr>
<td>Freshmen</td>
<td>82</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>280</strong></td>
<td><strong>273</strong></td>
</tr>
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#### College of Business Administration

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>176</td>
<td>136</td>
</tr>
<tr>
<td>Juniors</td>
<td>216</td>
<td>221</td>
</tr>
<tr>
<td>Sophomores</td>
<td>272</td>
<td>277</td>
</tr>
<tr>
<td>Freshmen</td>
<td>377</td>
<td>364</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,041</strong></td>
<td><strong>998</strong></td>
</tr>
</tbody>
</table>

#### College of Nursing

<table>
<thead>
<tr>
<th>Category</th>
<th>1ST Semester</th>
<th>2ND Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Juniors</td>
<td>62</td>
<td>61</td>
</tr>
<tr>
<td>Sophomores</td>
<td>61</td>
<td>69</td>
</tr>
<tr>
<td>Freshmen</td>
<td>78</td>
<td>81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>253</strong></td>
<td><strong>261</strong></td>
</tr>
</tbody>
</table>

**Total Degree and Diploma Candidates** ........................................... 7,438 7,001

**College of General Studies (Total in credit courses)** ............... 2,185 1,895

**Hilo Campus** ......................................................................... 399 392

**Grand Total in Credit Courses** .............................................. 11,734 11,060
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