The Berkeley campus is planning on entering on a quarter system commencing with the Fall Quarter, September, 1966. The Winter Quarter will begin in early January and the Spring Quarter in late March or early April. When a Summer Quarter is inaugurated, it will commence about the middle of June.
GENERAL CATALOGUE

1965-1966

fall and spring semesters
Calendar*

1965

Fall Semester, 1965–1966

(14 weeks and 3 days of instruction)

March 1, Monday
Admission to Undergraduate Status: Persons planning to enter the undergraduate colleges or schools for the first time in regular session in September, 1965, must have filed applications for admission with the Admissions Officer by this date. This deadline applies to applicants in regular, limited, or special status including applicants for a second bachelor’s degree or intercampus transfer.

May 17, Monday
Last day for filing credentials and applications with the Dean of the Graduate Division for admission to graduate standing for the fall semester.

July 15, Thursday
Last day for filing applications with the Dean of the Graduate Division for readmission to graduate standing for the fall semester.

Sept. 6, Monday
Last day for filing applications for readmission to undergraduate status with the Registrar.

Sept. 9, Thursday
Examination in English for foreign students 1 to 4 p.m., 101 California Hall.

Sept. 11, Saturday
Subject A Examination, 9 a.m. to 12 m.

Sept. 13, Monday
Labor Day—an academic and administrative holiday.

Sept. 14, Tuesday
Registration of students, graduate and undergraduate, in departments at Berkeley for courses of the fall semester.

Sept. 15, Wednesday
Advance enrollment. Assignment to sections.

Sept. 14, Tuesday to Sept. 17, Friday
Chemistry 1A and 4A Placement Examinations will be taken by each applicant for admission at the time he leaves his request for enrollment, 9 a.m. to 4 p.m., 224 Latimer Hall.

Sept. 16, Thursday
Instruction begins.

Sept. 15, Wednesday
Foreign Language Placement—Achievement Tests, 1:30 to 3:30 p.m.

Sept. 16, Thursday
Fall semester begins.

Sept. 17, Friday
Instruction begins.

Sept. 20, Monday
Last day for filing applications in candidacy for all master’s degrees to be conferred in January, 1966; office of the Dean of the Graduate Division, 250 Sproul Hall. All signatures required upon these applications must be obtained in advance.

Oct. 1, Friday
Last day for filing announcement of candidacy for a bachelor’s degree to be conferred in January, 1966; before 4:30 p.m. at the office of the Registrar, Sproul Hall.

Oct. 4, Monday
Last day for filing applications in candidacy for all doctoral degrees to be conferred in January, 1966; office of the Dean of the Graduate Division, 250 Sproul Hall. All signatures required upon these applications must be obtained in advance.

For undergraduate students, last day to file petitions to add or drop courses. After this date, upon written petition duly approved by the dean of the appropriate college or school, an undergraduate student may discontinue attendance in a course, although without permission to drop the course from the study list. Normally, F will be assigned as the final grade in such discontinued courses.

Importance of early application: In order to give time for necessary correspondence and for due notice to applicants who may be required to take examinations for admission, applications and credentials should be forwarded to the Admissions Officer at the earliest possible date.
Oct. 15, Wednesday  
Last day for filing applications and credentials for admission to undergraduate status for the spring semester, 1966, with the Admissions Officer.

Oct. 22, Friday  
For graduate students, last day to file petitions to add or drop courses. After this date, upon written petition duly approved by the Dean of the Graduate Division, a graduate student may discontinue attendance in a course, although without permission to drop the course from the study list. Normally, F will be assigned as the final grade in such discontinued courses.

Oct. 23, Saturday  
Last day to file application to take an Engineering examination for admission in the spring semester, 1966.

Nov. 5, Friday  
Last day for filing in final form with the committees in charge, theses for doctoral degrees to be conferred in January, 1966.

Nov. 6, Saturday  
Engineering examinations.

Nov. 15, Monday  
Midterm reports due in Registrar's Office.

Nov. 25, Thursday  
Last day for filing credentials and applications with the Dean of the Graduate Division for admission to graduate standing for the spring semester.

Nov. 26, Friday  
Last day for filing applications with the Dean of the Graduate Division for readmission to graduate standing for the spring semester.

Nov. 25, Thursday to Nov. 27, Saturday  
Last day for filing applications for readmission to undergraduate status with the Registrar.

Dec. 10, Friday  
Thanksgiving holiday—academic and administrative.

Dec. 13, Monday  
Fall recess—an academic holiday.

Dec. 20, Monday to Jan. 1, Saturday  
Last day for filing applications for fellowships and graduate scholarships for 1966–1967.

Dec. 24, Friday  
Christmas recess—an academic holiday.

Dec. 25, Saturday  
Christmas holiday—academic and administrative.

Dec. 31, Friday  
New Year's holiday—academic and administrative.

Jan. 1, Saturday  
Instruction resumes.

Jan. 3, Monday  
Last day for filing theses with the Dean of the Graduate Division for doctoral degrees to be conferred in January, 1966.

Jan. 5, Wednesday  
Last day for students enrolled in the current semester to file applications for undergraduate scholarships for 1966–1967.

Jan. 10, Monday  
Instruction ends.

Jan. 15, Saturday  
Final examinations in departments at Berkeley.

Jan. 17, Monday to Jan. 26, Wednesday  
Fall semester ends.

Jan. 26, Wednesday  
Last day for filing theses with the Dean of the Graduate Division for master's degrees to be conferred in January, 1966.

1965  
Spring Semester, 1966

(14 weeks and 4 days of instruction)

Oct. 15, Wednesday  
Last day for filing applications and credentials for admission to undergraduate status for the spring semester, 1966, with the Admissions Officer.
Nov. 15, Monday  Last day for filing credentials and applications with the Dean of the Graduate Division for admission to graduate standing for the spring semester.

Dec. 10, Friday  Last day for filing applications for fellowships and graduate scholarships for 1966–1967.

Dec. 15, Wednesday  Last day for filing applications with the Dean of the Graduate Division for readmission to Graduate Standing for the spring semester.

Last day for filing applications for readmission to undergraduate status with the Registrar.

1966

Jan. 27, Thursday  Examination in English for foreign students, 1 to 4 p.m., 101 California Hall.

Jan. 29, Saturday  Spring semester begins.

Jan. 31, Monday  Subject A Examination, 9 a.m. to 12 m. Foreign Language Placement—Achievement Tests, 1:30 to 3:30 p.m.

Jan. 31, Monday  Registration of students, graduate and undergraduate in departments at Berkeley for courses of the spring semester.

Feb. 1, Tuesday  Advance enrollment. Assignment to sections.

Feb. 2, Wednesday  Instruction begins.


Feb. 18, Friday  Last day for filing applications in candidacy for all master's degrees to be conferred in June, 1966; office of the Dean of the Graduate Division, 250 Sproul Hall. All signatures required upon these applications must be obtained in advance.

Feb. 21, Monday  Last day for filing announcement of candidacy for a bachelor's degree to be conferred in June 1966; before 4:30 p.m. at the Office of the Registrar, Sproul Hall.

Feb. 22, Tuesday  Washington's Birthday—an academic and administrative holiday.

Feb. 25, Friday  Last day for filing applications in candidacy for all doctoral degrees to be conferred in June, 1966; office of the Dean of the Graduate Division, 250 Sproul Hall. All signatures required upon these applications must be obtained in advance.

For undergraduate students, last day to file petitions to add or drop courses. After this date, upon written petition duly approved by the dean of the appropriate college or school, an undergraduate student may discontinue attendance in a course, although without permission to drop the course from the study list. Normally, F will be assigned as the final grade in such discontinued courses.

March 1, Tuesday  Last day for filing applications and credentials for admission to undergraduate status for the fall semester, 1966, with the Admissions Officer. This deadline applies to applicants in regular, limited, or special status, including applicants for a second bachelor's degree or intercampus transfer.

March 11, Friday  For graduate students, last day to file petitions to add or drop courses. After this date, upon written petition duly approved by the Dean of the Graduate Division, a graduate student may discontinue attendance in a course, although without permission to drop the course from the study list. Normally, F will be assigned as the final grade in such discontinued courses.
March 19, Saturday

Last day for filing in final form with the committees in charge theses for doctoral degrees to be conferred in June, 1966.

March 21, Monday

Last day to file application to take an Engineering examination for admission in the fall semester, 1966.

April 1, Friday

Midterm reports due in Registrar’s Office.

April 2, Saturday

Engineering examinations.

April 4, Monday to April 9, Saturday

{ Spring recess—an academic holiday.

April 8, Friday

An academic and administrative holiday.

May 9, Monday

Last day for filing in final form with the committees in charge, theses for master’s degrees to be conferred in June, 1966.

May 16, Monday

Last day for filing credentials and applications for admission to graduate standing with the Dean of the Graduate Division for the fall semester, 1966.

May 19, Thursday

Last day for filing theses with the Dean of the Graduate Division for doctoral degrees to be conferred in June, 1966.

May 28, Saturday

Instruction ends.

May 30, Monday

Memorial Day—an academic and administrative holiday.

May 31, Tuesday to June 9, Thursday

{ Final examinations in departments at Berkeley.

June 9, Thursday

Last day for filing theses with the Dean of the Graduate Division for master’s degrees to be conferred in June, 1966. Spring semester ends.

First Summer Session, 1966

June 20—July 29

June 18, Saturday

{ Registration of students.

June 20, Monday

Instruction begins.

July 4, Monday

Independence Day—an academic and administrative holiday. Instruction ends.

Second Summer Session, 1966

August 1—September 9

July 30, Saturday

{ Registration of students.

Aug. 1, Monday

Instruction begins.

Sept. 5, Monday

Labor Day—an academic and administrative holiday. Instruction ends.
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The University of California

THE REGENTS OF THE UNIVERSITY

EDMUND G. BROWN*  
Governor of California and President of The Regents

EDWARD W. CARTER  
Chairman of The Regents

CLARK KERR*  
President of the University

EDWIN W. PAULEY
Cornelius J. Haggerty
DONALD H. MCLAUGHLIN
Mrs. Dorothy B. Chandler
Mrs. Randolph A. Hearst
SAMUEL B. MOSHER
JOHN E. CANADAY
PHILIP L. BOYD
GLENN M. ANDERSON*  
Lieutenant-Governor of California

NORTON SIMON
WILLIAM E. FORBES

WILLIAM M. ROTH
JESSE M. UNSRUH*
Speaker of the Assembly

MRS. EDWARD H. HELLER
FREDERICK G. DUTTON
THEODORE R. MEYER*
President of the Mechanics’ Institute

MAX RAFFERTY*
State Superintendent of Public Instruction

JESSE W. TAPP*
President of the State Board of Agriculture

WILLIAM K. COBLENTZ
LAURENCE J. KENNEDY, JR.
W. THOMAS DAVIS*
President of the Alumni Association of the University of California

PRINCIPAL OFFICERS OF THE REGENTS

THOMAS J. CUNNINGHAM  
General Counsel of The Regents

MISS MARJORIE J. WOOLMAN  
Secretary of The Regents

ROBERT M. UNDERHILL  
Treasurer of The Regents, Emeritus

OWSLEY B. HAMMOND  
Treasurer of The Regents

MEMBERS OF THE PRESIDENT’S CABINET AND COUNCIL OF CHANCELLORS

President of the University  
Clark Kerr

President of the University, Emeritus  
Robert Gordon Sproul

Vice-President of the University  
Harry R. Wellman

Vice-President of the University, Emeritus, and Dean of the College of Agriculture, Emeritus  
Claude B. Hutchison

Vice-President—Administration  
Earl C. Bolton

Vice-President—Business  
Elmo R. Morgan

Vice-President—Executive Assistant  
Eugene C. Lee

Vice-President—Finance

University Dean of Academic Personnel  
Sidney S. Hoos

University Dean of Academic Planning  
Robert D. Tschirgi

* Ex Officio.
University Dean of Agriculture and Director of the Agricultural Experiment Station
Maurice L. Peterson

University Dean of Educational Relations
Frank L. Kidner

Dean of University Extension
Paul H. Sheats

University Dean—Research
Everett Carter

Chancellor at Berkeley
Martin Meyerson (Acting)

Chancellor at Davis
Emil M. Mrak

Chancellor at Irvine
Daniel G. Aldrich, Jr.

Chancellor at Los Angeles
Franklin D. Murphy

Chancellor at Riverside
Ivan H. Hinderaker

Chancellor at San Diego
John S. Galbraith

Chancellor at San Francisco
John B. deC. M. Saunders

Chancellor at Santa Barbara
Vernon I. Cheadle

Chancellor at Santa Cruz
Dean E. McHenry
THE UNIVERSITY

Established on March 23, 1868, as a land-grant institution and state university, the University of California in less than a century has grown into a statewide institution comprising nine campuses, six major research stations, nine agricultural field stations, fifty-three agricultural extension offices, and a number of other components located throughout the state. The University itself is part of a coordinated system for public higher education that embraces the state’s more than sixty junior colleges and sixteen state colleges.

Approximately 50,000 students are enrolled on the large campuses at Berkeley and UCLA, at smaller ones at Davis, Riverside, San Diego, and Santa Barbara, and at the Medical Center at San Francisco.

Faced with enrollments expected to double by 1970, the University is carrying out plans to make the smaller campuses large, and to develop two entirely new general campuses, Santa Cruz and Irvine.

The University performs many services in addition to its regular program of instruction. It is the primary state-supported academic agency for research. It provides many public services including medical and dental clinics, informational services for agriculture, a program of adult education, public lectures, educational motion pictures, and a broad program of business and professional conferences and institutes.

ADMINISTRATION

The organization and government of the University of California is entrusted, under the State Constitution, to a corporate body titled The Regents of the University of California. The Board of Regents is composed of twenty-four members, sixteen appointed by the Governor of the State for sixteen-year terms and eight who are members because of offices they hold. These ex officio members are the Governor, the Lieutenant-Governor, the Speaker of the Assembly, the President of the State Board of Agriculture, the President of the Mechanics’ Institute, the President of the Alumni Association, the State Superintendent of Public Instruction, and the President of the University. The Regents have “full powers of organization and government, subject only to such Legislative control as may be necessary to insure compliance with the terms of the endowments of the University and the security of its funds.”

The President of the University is the executive head of the University in all its departments and all is campuses. He is appointed by the Regents and is directly responsible to them. The President and his staff, with headquarters in University Hall at Berkeley, direct the development of major policy for the University.
The Chancellor is the chief administrative officer on the campus and administers the organization and operation of the campus.

To participate in the administration of academic matters, the Regents have established an Academic Senate, consisting of the faculty and certain of the administrative officers. The Senate, subject to the approval of the Regents, determines conditions for admission of students, and for granting certificates and degrees. It authorizes and supervises all courses of instruction in the academic and professional schools and colleges and exercises general supervision of the discipline of students.

Graduate Divisions, each administered by a Graduate Dean responsible to the Chancellor, are established on the Berkeley (including Mt. Hamilton), Davis, Los Angeles, Riverside, San Diego, San Francisco, and Santa Barbara campuses. These Graduate Divisions have curricula leading to the degrees Master of Arts, Master of Science, Doctor of Philosophy, and such other graduate degrees as from time to time may be approved.

A BRIEF HISTORY

Three separate movements resulted in the establishment of the University—one originating in state action, one in private initiative, and one in federal legislation.

State action had its inception in the Constitutional Convention of 1849, which incorporated into the Constitution recognition of the need and provision for a state university.

Private action began when a group of Congregationalists and Presbyterians, led by the Reverend Henry Durant, opened the Contra Costa Academy in Oakland in 1853, and two years later incorporated the College of California. In 1857 the College began negotiations for land north of Oakland, and ten years later the name of Berkeley was given to the townsite near this tract.

Federal action began in 1853 when Congress bestowed upon the State 46,000 acres of public lands, proceeds of the sale of which were to be used for a “seminary of learning.” In 1862, the Morrill Act offered a grant of 150,000 acres of public lands to each of those states which would establish a college teaching agriculture and the mechanic arts. Taking advantage of these grants, the California Legislature in March 1866 established an “Agricultural, Mining, and Mechanic Arts College.”

The new college had funds, but no campus. The College of California had an adequate site, but limited funds. Accordingly, the College of California offered to give the State its buildings and lands, provided that a “complete university” would be established which would teach the humanities as well as agriculture and mechanics. The offer was accepted by the Legislature, the act of March 1866 was repealed and a new act passed which created the University of California. This act was signed
by Governor H. H. Haight on March 23, 1868, a date celebrated each year as Charter Day. The University opened its doors in September, 1869, at the College of California site in Oakland, while buildings were being erected on the permanent campus at Berkeley. Instruction began on the Berkeley campus in September, 1873.

Other campuses were added to the University in the following order:

1873—The San Francisco Medical Center: founded as the College of Medicine; combined in 1898 with the Colleges of Dentistry and Pharmacy; School of Nursing established in 1939.

1905—The Davis Campus: established as the University Farm; organized as a branch of the College of Agriculture, 1922; School of Veterinary Medicine opened, 1948; College of Letters and Science opened, 1951; authorized as general campus, 1959.

1907—The Riverside Campus: established as the Citrus Experiment Station; College of Letters and Science added, 1954; authorized as a general campus, 1959.

1912—The San Diego Campus (formerly the La Jolla Campus): founded as the Scripps Institution of Oceanography; School of Science and Engineering established in 1958; currently being expanded into a general campus.

1919—The Los Angeles Campus: originally the Los Angeles State Normal School, became part of the University as the Southern Branch; designated as the University of California at Los Angeles, 1927; School of Medicine opened, 1951.

1944—The Santa Barbara Campus: originally Santa Barbara State College, became part of the University as Santa Barbara College; authorized as a general campus in 1958.


The major research laboratories of the University are Lick Observatory and Mount Hamilton, the Ernest O. Lawrence Radiation Laboratory at Berkeley and Livermore, the Los Alamos Scientific Laboratory at Los Alamos, New Mexico, the White Mountain Research Station in Mono County, and the Richmond Field Station. Additionally, the California Agricultural Experiment Station conducts research at four campuses and at a number of field stations located throughout the state.
The Berkeley Campus

GENERAL ADMINISTRATIVE OFFICERS

Acting Chancellor:
Martin Meyerson, M.C.P.

Vice-Chancellors:
O. W. Campbell, A.B., Vice-Chancellor—Business and Finance
Lincoln Constance, Ph.D.
Alan W. Searcy, Ph.D.
Alex C. Sherriffs, Ph.D., Vice-Chancellor—Student Affairs

Special Assistant to the Chancellor:
Joseph R. Mixer, M.B.A.

Registrar:
Clinton C. Gilliam, A.B.

Admissions Officer:
F. Theodore Malm, Ph.D.

Dean of Students:
Betty Neely, M.A., Associate Dean of Students—Dean of Women
Arleigh T. Williams, M.A., Associate Dean of Students—Dean of Men

DEANS OF THE COLLEGES AND SCHOOLS AND
GRADUATE DIVISION

College of Agriculture:
E. Gorton Linsley, Ph.D.

College of Chemistry:
Robert Connick, Ph.D.

College of Engineering:
George J. Maslach, B.S.

College of Environmental Design:
Martin Meyerson, M.C.P.

College of Letters and Science:
William B. Fretter, Ph.D.

School of Business Administration and Graduate School of Business Administration:
John W. Cowee, LL.B., Ph.D.

School of Criminology:
Joseph D. Lohman, M.A.

School of Education:
Theodore L. Reiff, Ph.D.

School of Forestry:
John A. Zivinouska, Ph.D.

School of Librarianship:
Raynard C. Swank, Ph.D.

School of Law:
Frank C. Newman, A.B., LL.B., LL.M., J.S.D.

School of Optometry:
Meredith Morgan, Ph.D.

School of Public Health:
Charles E. Smith, M.D., D.P.H.

School of Social Welfare:
Milton Chernin, Ph.D.

Graduate Division, Berkeley:
Sanford S. Elberg, Ph.D.
THE CAMPUS COMMUNITY

The Berkeley campus, oldest and largest in enrollment in the multi-campus University of California, is located in the city of Berkeley, across the bay from San Francisco. Residential areas and business districts of Berkeley (population, 111,000) border the campus on three sides. On the hills above the campus are the Ernest O. Lawrence Radiation Laboratory, Memorial Stadium, Strawberry Canyon Recreational Area, and the University's Botanical Garden. San Francisco Bay, its bridges and attendant cities, can be seen from many vantage points on the campus. Despite urban surroundings, however, much of the campus has retained a park-like atmosphere. Picturesque footbridges span Strawberry Creek in numerous places. Footpaths lead through wooden glens past a variety of shrubs, trees, and flowers.

The surrounding nine-county region, known as the Bay Area, is widely acclaimed for its cultural activities. Few American cities offer the attractions of San Francisco, with its museums, galleries, exhibits, concerts, bookstores, opera, theaters, and its cosmopolitan personality. The Berkeley campus is itself a cultural center, as are a number of other colleges and universities in the Bay Area, offering students and public a diversified program of lectures, plays, art exhibits, and concerts.

San Francisco may be reached by bus or car in about thirty minutes; Oakland in twenty minutes. Sierra ski resorts and other recreational facilities in California may be reached in a morning’s drive. Several ocean beaches are less than an hour away.

Extracurricular activities on the campus are varied. There are more than a hundred active student organizations on the campus, including honor societies, service societies, professional, departmental, and special interest clubs, five publications, and musical and dramatic organizations. In athletics, the Berkeley campus fields teams in a score of major and minor sports, and offers an extensive program of intramural athletics as well.

Two campus units—the Strawberry Canyon Recreational Area and the Student Center—provide excellent facilities for recreational and social activities. The Student Center serves as a focal point for campus life. Operated by the Associated Students of the University of California, it has meeting rooms for student activities; lounges; a student store; snackbar; ballroom; bowling alley; crafts room; and a variety of other features. A Dining Commons, part of the same complex, offers food at moderate prices.

Berkeley has a temperate climate favorable for academic activity, with average temperatures ranging from 50 degrees in winter to 70 degrees in summer. Extremes of temperature are rare and of short duration. The average annual rainfall, from 22 to 24 inches, occurs principally from December through March.
University Extension

University Extension makes available the resources of the University on a statewide basis to individuals and organizations. Extension programs are organized around the following educational aims:

1. The intellectual and cultural development of adults.
2. The dissemination of new knowledge resulting from teaching and research activities within the University.
3. The continuing education of scientific, technical, and professional personnel.
4. The development of special educational programs for public and private organizations and agencies.
5. Public affairs education through programs designed to aid adults in meeting their responsibilities as citizens.

A variety of methods are used to implement these aims: classes, discussion groups, correspondence courses, conferences, institutes, short courses, lectures, motion picture production, broadcast educational television, and vocational counseling and testing (Los Angeles only).

Veterans may use the educational benefits available to them under federal and state laws to enroll in University Extension classes, provided the classes are part of their prescribed and recognized objectives approved by the Veterans Administration.

For detailed information, write or telephone the University Extension office on any campus of the University or at the following additional locations: 813 South Hill Street, Los Angeles, California 90014 (MAdison 3-6123); 1221 Fourth Avenue, San Diego, California 92101 (BEImont 2-7321); Room 15, Buena Park High School, 10th and Magnolia, Buena Park, California 90620 (LAmbert 6-3397); San Francisco Extension Center, 55 Laguna Street, San Francisco, California 94102 (UNderhill 1-6833); 3620 B West 182nd Street, Torrance, California 90500 (DAvis 3-4773).

Summer Sessions

Summer Sessions are held each year on the campuses at Berkeley, Los Angeles, Santa Barbara, and Davis. Admission to the exercises of the Summer Sessions is limited to students who are currently in good standing on any campus of the University of California or at another college or university, to applicants under twenty-one years of age who are graduates of high schools or other secondary schools, and to qualified applicants over twenty-one years of age. Courses of instruction leading to baccalaureate and advanced degrees are offered.

Two six-week sessions will be offered on the Berkeley campus during 1965. The first began June 21 and the second will begin August 2. The SUMMER SESSIONS BULLETIN is available in February of each year, upon request from the Office of the Summer Sessions, 1 Sproul Hall, University of California, Berkeley, California 94720.
Survey of Curricula and Degrees Conferred

The following descriptions will suggest the scope of the undergraduate, professional, and graduate programs of instruction and degrees offered in the schools and colleges of the University at Berkeley. A more complete description of their programs will be found on pages 64–140.

Undergraduate Colleges

College of Letters and Science

The College of Letters and Science is a four-year undergraduate, nonprofessional college. The faculty of the College believes that the student who completes the program of the College will have developed (a) an awareness, some understanding, and an appreciation of the intellectual achievements of mankind; (b) an awakened intellectual interest in man and the nature of the world in which he lives; (c) an aroused curiosity about some specific body of knowledge which he will be prepared to continue to cultivate throughout his adult life; (d) a disciplined and intellectual approach to the problems of individuals and society; and (e) a preparation (broadly conceived) for the career he makes for himself. The framework of requirements is sufficiently broad so that within it the student may pursue his specific intellectual interests, whether for their own sake or as preparation for advanced study.

College of Agriculture

Major subjects offered on the Berkeley campus are restricted mainly to the biological, physical, and social science fields of agriculture rather than majors in production areas. Many students take their first two years of a four-year College of Agriculture program at any of the University campuses where undergraduate work is offered, at a junior college, or at a state college, after which they transfer to the University campus where major work in their specialty is offered.

College of Chemistry

In this College, the student may choose a program in basic chemistry or a program in chemical engineering.

College of Engineering

The engineering student at Berkeley may select from programs of studies dealing with the following branches: aeronautical sciences, ceramic, civil, electrical, engineering science, geological, industrial,
materials science, mechanical, mineral, petroleum, naval architecture, or nuclear engineering. (See pages 72–80 for more detailed listing.)

**College of Environmental Design**

This College was established in 1959 to include programs of study dealing with Architecture, Landscape Architecture, and City and Regional Planning. It offers a five-year undergraduate, professional curriculum in architecture, and a four-year undergraduate, professional curriculum in landscape architecture. Study in city and regional planning follows a prescribed two-year graduate program of courses.

**Professional Curricula**

Most of the professional curricula offered by the University on the Berkeley campus are based on two or more years of undergraduate work. Curricula that may be completed at Berkeley include architecture, business administration, city and regional planning, criminology, education, engineering, forestry, journalism, landscape architecture, law, librarianship, optometry, public health, and social welfare. Medicine, nursing, dentistry, dental hygiene, and pharmacy can be completed at San Francisco. Veterinary medicine must be completed at Davis.

**Graduate Curricula**

On the Berkeley campus, graduate instruction is offered by eleven professional schools and colleges, and by some eighty departments and groups of departments. In certain fields of study, facilities for research are supplemented by the Institutes of Business and Economic Research, Engineering Research, Governmental Studies, Human Development, Industrial Relations, International Studies, Personality Assessment and Research, Social Sciences, Transportation and Traffic Engineering, and many laboratories.

The Graduate Division at Berkeley has jurisdiction over graduate activities of the University of California on the campus at Berkeley. Exercising regulative and coordinating functions in the Graduate Division is the Graduate Council of which the Dean of the Graduate Division is ex officio a member.

**Degrees Awarded**

More than 290,000 degrees and certificates have been granted by the University of California to students on its various campuses since it was established. Candidates for degrees must satisfy academic and residence requirements as set forth in the announcements of the schools and colleges, and of the Graduate Division.
The prospective student is advised before entering the University to give careful attention to determining the major field of study in which he wishes to receive a degree and to plan his curriculum beginning with his freshman year to facilitate completion of courses necessary for obtaining the degree. The scope of degrees offered by the University of California gives the student a wide choice, whether his goal is that of obtaining a broad, liberal education, or preparing for a specialized role in lay or professional life.

Undergraduate Degrees

On the Berkeley campus the degree of Bachelor of Arts (A.B.) is offered in organized major programs in the College of Letters and Science. However, superior students may be permitted to prepare individual major programs, upon approval by the Executive Committee of the College.

The degree of Bachelor of Science (B.S.) is offered on the Berkeley campus in the Colleges of Agriculture, Chemistry, and Engineering, and in the Schools of Business Administration, Forestry, Optometry, and Public Health.

The degrees of Bachelor of Arts (A.B.) and Bachelor of Science (B.S.) are offered on the Berkeley campus in the School of Criminology.

The degrees of Bachelor of Architecture (B.Arch.) and Bachelor of Landscape Architecture (B.L.A.) are offered in the College of Environmental Design.

Descriptions of the Departmental programs are listed under the various Departments of Instruction and in the respective college and school announcements.

Graduate Degrees

In the Graduate Division, the degree of Master of Arts (M.A.) is conferred in more than fifty fields of study, and the Master of Science (M.S.) degree is conferred in more than nineteen fields of study. The Doctor of Philosophy (Ph.D.) degree is conferred in more than seventy-five subjects.

In addition, curricula are offered at Berkeley leading to the master's degree in architecture, bioradiology, business administration, city planning, criminology, education, engineering, forestry, journalism, landscape architecture, library science, optometry, public health, social welfare, and to the doctoral degree in criminology, education, engineering, library science, public health, and social welfare. Law degrees conferred are those of bachelor, master, and Juris Scientiae Doctor.

For more detailed information, the student will wish to consult more specialized publications, particularly the announcements of the several schools and colleges, obtainable on request from the Dean of the school or college.
Preparation for University Curricula

Undergraduate

For a description of preparatory subjects recommended or required for admission to the University as an undergraduate, see pages 19–31, “Requirements for Admission.”

Graduate

The preliminary training of the candidate for the degree of Master of Arts or Master of Science should be substantially the equivalent of that represented by the corresponding bachelor’s degree of the University.

A prospective candidate for the degree of Doctor of Philosophy must hold a bachelor’s degree from one of the colleges of this University or from another recognized institution, based upon a curriculum that shall have included all requirements in the department of his major subject. In addition, his record must show high scholarship.

For more complete information regarding graduate study and research at the University of California at Berkeley, write for the brochure, Admission to Graduate Study, Graduate Division, Berkeley. Address the Dean of the Graduate Division, University of California, 250 Sproul Hall, Berkeley, California 94720.

Professional

For information of a detailed nature regarding preparation for study in the professional schools and colleges, write for the announcements of the various schools and colleges. For undergraduate information, address the dean of the school or college; for graduate information, address the Dean of the Graduate Division, as above.
Admission in Undergraduate Status

The admission requirements of the University are based on two principles: first, that the best assurance of success in the University is shown by high quality of scholarship in previous work and, second, that the study of certain specified subjects will give the student both good preparation for study in the University and reasonable freedom in choosing his field of specialization.

Application for Admission

Applications should be filed with the Office of Admissions, 127 Sproul Hall, University of California, Berkeley, California 94720. An application form will be supplied by the Office of Admissions upon request. The application must be filed between October 1 and March 1 for the fall semester and between March 1 and October 1 for the spring semester. Applicants are urged to file early in the application period.

Admission requirements are uniform on all campuses of the University. Admission to the University entitles the student to attend the campus of his choice if the required facilities are available. Since applications will be processed and acted upon in only one Office of Admissions, applications should not be directed to more than one campus.

If after an applicant has filed for admission his plans change and he prefers to register on a different campus, he must write to the Director of Admissions, University Hall, University of California, Berkeley, California 94720, indicating the campus where he now wishes to register and the reason for his change. His records will be transferred to the campus he wishes to attend provided facilities are available there. Such requests must be received at least three weeks before registration, and preferably before the filing deadlines given above.

Application Fee

Each applicant for admission is required to pay a nonrefundable fee of $5 when an application is filed. Remittance by bank draft or money order payable to The Regents of the University of California must be attached to the application.

To avoid unnecessary delays in the processing of his application, the applicant is urged to apply early in the filing period.

* These filing periods apply to all undergraduate applicants (regular, special, limited, second degree, and intercampus transfers).
Transcripts of Record

Each applicant is responsible for requesting the graduating high school and each college attended to send promptly official transcripts of record directly to the Office of Admissions.

Those applying as entering freshmen should ask the high school to submit preliminary transcripts showing the complete record through the sixth semester and listing courses in progress or planned. In every case, a final transcript including a statement of graduation will be necessary.

Transcripts from the last college attended should include a statement of good standing or honorable dismissal. A preliminary transcript should show work in progress.

Transcripts presented become the property of the University and will not be returned.

Notification of Admission

Applicants will be notified of their eligibility status on or about the dates listed below. Those who are admitted will be required to return an Acceptance of Admission form, together with a nonrefundable fee of $25.00, which will be credited to the incidental fee if the student registers in the semester or quarter for which he applied.

\[\text{Dates for Notification of Admission—1965-1966}\]
- Fall Semester —April 15, 1965
- Spring Semester—December 15, 1965

Failure to Register

An applicant who is not eligible for admission or one who has been admitted but does not register in the semester for which he applied, and who thereafter desires to attend the University, must submit a new application for admission with a $5 fee. The new application will be acted upon in the light of current availability of facilities and current admission requirements.

Subject A: English Composition*

The University requires every accepted student to pass an examination in English composition (the Subject A examination) or to complete in college an acceptable course of at least 3 units in English composition with a satisfactory grade. Students who enter the University with credentials showing the completion elsewhere of acceptable college-level training in composition or a score of at least 600 in the College Entrance Examination Board Achievement Test in English Composition (see pages 24 and 25 for dates) taken after they have completed the eleventh

* See also, page 51.
grade are considered to have met the Subject A requirement. All other students are required to take the examination given by the University. Although it is not a condition of admission, it must be taken at the opening of the semester of first attendance if not taken previously. Students who neither pass the examination nor meet the requirement in one of the above ways will be required to take the noncredit course in English composition during the first semester of residence, for which a fee of $35 is charged.

**Vaccination Certificate**

Every new student and every student returning to the University after an absence of one or more semesters must present at the time of medical examination by the University Medical Examiners a certificate establishing the fact that he has been successfully vaccinated against smallpox within the last three years. A form for this purpose is sent routinely to all new students. Vaccination should be completed before registration.

**Intercampus Transfer**

An undergraduate student who is registered on any campus of the University, or who was previously registered in a regular session of the University and has not since been registered in another institution may apply for transfer to another campus of the University by filing the proper forms on the campus where he was last registered in regular session. The intercampus transfer application forms and application for transcript of record forms may be obtained from the Office of the Registrar and must be filed with that office by March 1 for the fall semester and by October 15 for the spring semester.

**Preparation for University Curricula**

In addition to the high school subjects required for admission to the University, certain preparatory subjects are recommended for many University curricula to give the student an adequate background for his chosen field of study. Lack of a recommended high school course may delay graduation from the University. Details of these recommendations will be found in the bulletin, _Prerequisites and Recommended Subjects_, which is ordinarily in the hands of high school and junior college counselors and which may be obtained from the Office of Admissions or the University Dean of Educational Relations, 570 University Hall, University of California, Berkeley, California 94720.

All students should pursue a full program of academic subjects during their senior year in high school.
A student needing additional preparation is advised to attend one of the many excellent California junior colleges. There he can take courses applicable toward the requirements of the college or school of the University in which he wishes to enroll.

ADMISSION TO FRESHMAN STANDING

An applicant for admission to freshman standing is one who has not registered in regular session in any college-level institution since graduation from high school.

If at the time of high school graduation the applicant does not meet the requirements given below for admission to freshman standing or does not qualify by examination he must meet the requirements for admission to advanced standing (see page 25). An exception to this regulation will be made only if the student's deficiency was the result of his having omitted one or more required high school subjects. Such a student can sometimes remove the deficiency during the summer; he should consult in advance the Office of Admissions.

If the applicant has registered in a junior college, a four-year college, a university, extension classes of college level, or any comparable institution since graduating from high school, he is subject to regulations governing admission in advanced standing.

Requirements for Admission to Freshman Standing

Applicants for admission to freshman standing must meet the requirements listed below. Special requirements for nonresident applicants will be found on page 26.

Graduation from High School

An applicant who has been graduated from a high school listed in Public and Private High Schools in California with College Preparatory Programs Accredited by the University of California will be admitted to the University upon the completion of prescribed courses with the required scholarship average.

An applicant who has been graduated from a California school not appearing in the above publication will, upon request to the Office of Admissions on the campus where he wishes to register, be instructed as to the procedure to follow. When a resident of California has been graduated from a high school outside California, the acceptability of the record is determined by the Office of Admissions.

Subject Requirements

a. History, 1 unit.

This must consist of 1 unit of United States history, or \( \frac{1}{2} \) unit of
ADMISSION TO FRESHMAN STANDING

United States history and ½ unit of civics or American government.

b. English, 3 units.
   These must consist of six semesters of English composition, literature, and oral expression.

c. Mathematics, 2 units.
   These must consist of two semesters of algebra and two semesters of plane geometry or an integrated two-year course covering the same material. Advanced algebra and trigonometry may be substituted for algebra, and trigonometry and solid geometry for plane geometry.

d. Laboratory Science, 1 unit.
   This must consist of an eleventh- or twelfth-grade year course in one laboratory science. Both semesters must be in the same subject field.

e. Foreign Language, 2 units.
   These must be in one language. Any foreign language with a written literature is acceptable.

f. Advanced Course, 1 (or 2) units.
   This must be chosen from one of the following:
   Mathematics, a total of 1 unit composed of second-year algebra, solid geometry, trigonometry.
   Foreign language, either 1 additional unit in the same foreign language offered under e or 2 units of another foreign language.
   Science, 1 unit of either chemistry or physics in addition to the science offered under d.

Electives
   Additional elective units to complete the minimum of 15 standard entrance units are also required.

Scholarship Requirements

At least a grade B average is required in courses taken after the ninth year used to meet the subject requirements. Grades received in electives or in courses taken in the ninth year or earlier are not used in computing this average. Subject requirements are satisfied by courses in which a grade of C or higher has been assigned. Grades are considered on a semester basis except from schools that give only year grades.

In determining the grade B average, a grade of A in one course will be used to balance a C in another, but an A grade may not be used to compensate for D, E, or F grades.

Courses taken in the ninth year or earlier in which a grade of D or lower is received may be repeated to establish subject credit.

Courses taken after the ninth year in which a grade of C or lower is received may be repeated to establish subject credit or to improve scholarship. Grades earned in the first repetition may be used to satisfy scholarship; grades of C or higher in additional repetitions will satisfy the subject requirement but will not be counted higher than a C grade in scholarship computation.
Courses may be repeated in an amount not to exceed 2 units of the a to f pattern.

Minor Deficiencies
The Admission Officer has authority and responsibility for waiving minor deficiencies when justified by unusual academic records or recommendations.

ADMISSION BY EXAMINATION
An applicant who is ineligible for admission to freshman standing and who has not attempted college work subsequent to high school (except during the summer session immediately following high school graduation) may qualify for admission by examination.

The University does not offer entrance examinations but accepts the results of examinations given by the Educational Testing Service for the College Entrance Examination Board.

To qualify by examination, the applicant must present scores in the Scholastic Aptitude Test (S.A.T.) and three Achievement Tests. The three Achievement Tests are to include English composition and one from each of the following two groups:

1. Social Studies and Foreign Languages.

The tests must be taken after completion of the first half of the eleventh grade. The first repetition of a test will be accepted, but the verbal and mathematics scores on the Scholastic Aptitude Test must be from the same sitting. The total score on the Scholastic Aptitude Test must be at least 1000; the scores on the three Achievement Tests must total at least 1650, and the score on any one Achievement Test must not be less than 500.

An applicant who has graduated from an unaccredited high school may qualify by examination under the foregoing rules.

For admission of nonresident applicants by examination, sees page 27.

Arrangements to take the tests should be made with the Educational Testing Service, P.O. Box 1025, Berkeley, California 94701, or P.O. Box 592, Princeton, New Jersey 08540. The fees are to be paid to the Educational Testing Service. Scores will be regarded as official only if they are received by the Office of Admissions directly from the Educational Testing Service.

Test Dates Application Deadlines
Saturday, November 6, 1965..................October 9, 1965
(S.A.T. given in California only)
Saturday, December 4, 1965..................November 6, 1965
ADMISSION TO ADVANCED STANDING

An applicant who has registered in a junior college, a four-year college, a university, extension classes of college level, or any comparable institution since graduation from high school is subject to regulations governing admission to advanced standing. The applicant may not disregard his college record and apply for admission to freshman standing.

Requirements for Admission to Advanced Standing

An applicant for admission to advanced standing must meet the requirements listed below. These requirements apply to California residents; for special requirements for nonresident applicants, see page 27.

The requirements for admission to advanced standing vary in accordance with the high school record of the applicant. Each applicant however, must present from the last accredited college or university attended a statement of good standing and an academic record with a grade-point average of C (2.0) or better. If the record established in any one accredited institution is below a C (2.0) average, an additional unit and scholarship requirement may be imposed on subsequent credit completed to offset the deficit incurred. In addition, the applicant must meet one of the following conditions:

1. An applicant who was eligible for admission to the University in freshman standing (see page 22) may be admitted at any time he has established an overall grade-point average of C (2.0) or better.

2. An applicant who was ineligible for admission to the University in freshman standing, but whose only deficiency arose from not having studied one or more of the required high school subjects, may be admitted when the following conditions are met:

* The grade-point average is determined by dividing the total number of acceptable units attempted into the number of grade points earned on those units. Courses completed with a grade lower than C may be repeated, but the units and grade points count each time the course is taken. Scholarship standard is expressed by a system of grade points and grade-point averages in courses acceptable for advanced standing credit in the University of California. Grade points are assigned as follows: for each unit of A, 4 points; B, 3 points; C, 2 points; D, 1 point; E and F, no points.
a. He has established an overall grade-point average of C (2.0) or better.

b. He has satisfied, by appropriate courses with a grade of C or better the subject requirements for admission to freshman standing (see page 22).

Exception: Deficiencies in subject requirements will be waived in an amount not exceeding 2 high school units if the applicant has established a minimum of 56 acceptable units passed with a grade-point average of 2.4 or better. Subject deficiencies in excess of 2 units must be satisfied.

3. An applicant who was ineligible for admission to the University in freshman standing because of low scholarship or a combination of low scholarship and incomplete subject preparation (omission, or by grades of D or lower) may be admitted when the following conditions are met:

a. He has established a minimum of 56 acceptable units passed with a grade-point average of 2.4 or better.

b. He has satisfied, by appropriate courses with a grade of C or better, subject requirements for admission to freshman standing (see page 22) except that subject deficiencies will be waived in an amount not exceeding 2 high school units.

Deficiencies

In the case of a student who is technically ineligible for admission to the University, the Admissions Officer has authority and responsibility to consider other evidence of ability to pursue University work.

Credit for Work Taken In Other Colleges

The University grants unit credit for courses appropriate to the curriculum in the University that have been completed in colleges and universities accredited by appropriate accrediting associations.

As an integral part of the system of public education of California, the University accepts, at full unit value, approved transfer courses completed with satisfactory grades in the public junior colleges of the state. Frequently, students who intend to complete their advanced studies at the University will find it to their advantage to complete the first two years of their college course in one of the many excellent California public junior colleges. After a student has earned 70 units acceptable toward a degree no further unit credit will be granted for courses completed at a junior college.

The decision regarding the acceptability of extension courses taken at an institution other than the University rests with the Office of Ad-
missions. The decision regarding the applicability of such course work in satisfaction of degree requirements rests with the faculty of the particular school or college in which the student plans to enroll.

REQUIREMENTS FOR NONRESIDENT APPLICANTS

It has been necessary to place some limitation on enrollment of applicants who are not residents of California, and, therefore, only those of exceptional promise will be eligible for admission. The regulations below are designed to admit out-of-state applicants whose standing, as measured by scholastic records, is in the upper half of those who would be eligible under the rules for California residents.

Requirements for Freshman Standing

Graduation from High School

The acceptability of records from high schools outside California will be determined by the Office of Admissions.

Subject Requirements

The same subject pattern as for California residents is required (see page 22).

Scholarship Requirements

The scholarship requirements for a nonresident applicant are the same as those for a resident (see page 23) except that the scholarship average must be 3.4 or higher in the required high school subjects.

Admission by Examination

A nonresident applicant who is ineligible for admission to freshman standing and who has not attempted college work subsequent to high school (except during the summer session immediately following high school graduation) may qualify for admission by examination (see page 24). The requirements for a nonresident are the same as those for a resident applicant except that the total score on the Scholastic Aptitude Test must be at least 1100 and the scores on the three Achievement Tests must total at least 1725. The score on any one Achievement Test must not be less than 500.

Requirements for Advanced Standing

In addition to the regular admission requirements (see page 25), a nonresident applicant for admission to advanced standing must have maintained a grade-point average of 2.8 or higher in college subjects
attempted and acceptable for transfer credit. If the applicant did not have at the time of high school graduation an average of 3.4 or higher in courses satisfying the required subject pattern, he must present a minimum of 56 units passed with a grade-point average of 2.8 or higher.

**ADMISSION TO SPECIAL STATUS**

Special students are students of mature years who have not had the opportunity to complete a satisfactory high school program or who have not completed a substantial amount of college work and who by reason of special attainments may be prepared to undertake certain courses in the University toward a definite and limited objective. No person under twenty-one years of age will be admitted as a special student, or will an applicant be admitted directly from high school. Only cases of unusual merit will be considered. A personal interview is usually required before final action in any individual case can be taken.

Conditions for admission are assigned by the Admissions Officer and are subject to the approval of the dean of the college or school in which the applicant plans to study. Admission is for a specified time only and a prescribed scholarship average must be maintained.

An applicant for special status must submit transcripts of record from all schools attended beyond the eighth grade. He may also be required to take the examination in Subject A.

The University has no special courses. A special student may be admitted to those regular courses for which, in the judgment of the instructor, he has satisfactory preparation. A special student will seldom be able to undertake the work of the engineering and professional colleges or schools.

An applicant will not be admitted to special status for the purpose of making up requirements for admission to the University as a regular student.

**ADMISSION TO LIMITED STATUS**

Students in limited status are those with a bachelor's degree who are not candidates for an advanced degree or those without a bachelor's degree who have completed a substantial amount of college work with a satisfactory scholarship average and who by reason of special attainments may be prepared to undertake certain courses in the University toward a definite and limited objective. An applicant for limited status must submit transcripts of record from all schools attended beyond the eighth grade. The applicant may also be required to take the examination in Subject A.

Conditions for admission are assigned by the Admissions Officer and are subject to the approval of the dean of the college or school in which
ADMISSION OF BACHELOR’S DEGREE APPLICANTS

The applicant plans to study. Admission is for a definite period, and a prescribed scholarship average must be maintained.

An applicant will not be admitted to limited status for the purpose of raising a low scholarship average.

ADMISSION OF APPLICANTS WITH BACHELORS’ DEGREES

Ordinarily, an applicant with a bachelor’s degree substantially equivalent to the bachelor's degree granted by the University of California should apply for admission to graduate status. An applicant with a superior record may occasionally qualify as a student in limited status or, after a complete change of objective, as an undergraduate seeking a second baccalaureate. In either case, the previous scholarship record must be such as to indicate very strong probability of academic success. Admission is subject to the approval of the Admissions Officer and of the dean of the school or college in which the applicant plans to enroll.

ADMISSION OF APPLICANTS FROM OTHER COUNTRIES

The credentials of an applicant for admission from another country in either undergraduate or graduate standing are evaluated in accordance with the general regulations governing admission. An application, official certificates, and detailed transcripts of record should be submitted to the Office of Admissions several months in advance of the opening of the semester in which the applicant hopes to gain admission. Doing so will allow time for exchange of necessary correspondence and, if the applicant is admitted, will help him in obtaining the necessary passport visa.

An applicant from another country whose native language is not English may be admitted only after demonstrating that his command of English is sufficient to permit him to profit by instruction in the University. An applicant’s knowledge of English is tested by an examination given by the University. Admission of an applicant who fails to pass this examination will be deferred until he has acquired the necessary proficiency in the use of English.

A student from a country where the language is not English is given college credit in his own language and its literature only for courses satisfactorily completed in his country at institutions of college level, or for upper division or graduate courses taken in the University of California or in another English-speaking institution of approved standing.

A student who is outside the United States and applies for admission to the lower division of the College of Engineering must pass with satis-
factory scores the College Entrance Examination Board Scholastic Aptitude Test (verbal and mathematics sections) and achievement examinations in English composition, physics, and advanced mathematics. If he does not present satisfactory scores in these tests he will not be able immediately to undertake courses in the College of Engineering even though he is admitted to the University. Arrangements to take the tests in another country should be made directly with the Educational Testing Service, P.O. Box 592, Princeton, New Jersey 08540. The fee for these examinations should be sent to the Educational Testing Service, not to the University. The applicant should request that his scores in the tests be forwarded to the Office of Admissions.

The acquisition of health insurance is a condition of registration at the University of California for all foreign students except those in the United States on permanent immigration visas. Information about health insurance programs available will be sent to foreign students with the application for admission. For some campuses appropriate application forms will be included; on other campuses the application is a part of the registration procedure. For details, see page 36.

Foreign Student Adviser

An adviser is available to assist foreign students in all matters pertaining to their attendance at the University. It is urged that every student from another country, upon his arrival at the University, consult the foreign student adviser, International House.

ENGINEERING EXAMINATIONS

All students who plan to register in either the lower division or the upper division of one of the Colleges or Schools of Engineering must take an engineering qualifying examination. Application forms will be supplied by the Office of Admissions upon request.

The Lower Division Engineering Examination is an aptitude test that contains sections on technical vocabulary, mathematical reasoning, and scientific relationships. A satisfactory score on this examination is prerequisite to the standard pattern of courses in the lower division of the Colleges of Engineering; consequently, students who do not achieve a satisfactory score will not be able to begin the usual pattern of courses and therefore will require more than four years to graduate.

The Upper Division Engineering Examination is an achievement test that includes sections on English, mathematics, chemistry, physics, and lower division engineering subjects. It is required of all students who seek upper division status in one of the Colleges or Schools of Engineering, including those from the lower division of the University. The score on this examination is used in conjunction with the student’s college record to determine the eligibility status of the student planning
to enroll in the upper division engineering program offered by the University.

Both examinations are given on announced dates at various test sites throughout the state.

The appropriate examination should be taken the semester preceding the one in which the applicant plans to register. Formal application for admission to the University as well as the application to take the test must be filed before the date scheduled for the examination.
General Regulations and Miscellaneous Information

Tuition

Tuition is free to every student who has been a legal resident of the State of California for a period of more than one year immediately preceding the opening day of the semester during which he proposes to enroll. Every student who has not been a legal resident of the State for said period is classified as a nonresident and is subject to payment of a nonresident tuition fee. A student entering the University for the first time should read carefully the rules governing the determination of residence as quoted below so that he may be prepared in the event of nonresident classification to pay the required tuition fee. Every entering student and every student returning to the University after an absence is required to make a Statement as to Residence when he registers upon a form which will be provided for that purpose and his status with respect to residence will be determined soon after registration by the Attorney in Residence Matters.

The eligibility of a student to register as a resident may be determined only by the Attorney in Residence Matters. If the student is in doubt about his residence status, he may communicate with that officer at 590 University Hall, University of California, Berkeley, California 94720.

Students classified as nonresidents are required to pay a tuition fee of $400 each semester. This fee is in addition to the incidental fee, Student Union, and ASUC fees. (Exemption from payment of the nonresident tuition fee may be granted to an unmarried minor whose parent is in the active military service of the United States and is stationed in California on the opening day of the semester during which the minor proposes to attend the University. Information concerning waiver of the nonresident tuition fee for graduate students is available from the office of the Dean of the Graduate Division.

Rules Governing Residence

Residence is acquired through the combination of physical presence in California together with the intention of remaining in the state into the indefinite future. As a general rule, the residence of an unmarried minor student is determined by the residence of his father. Once acquired, residence must be maintained for at least one year immediately prior to the opening day of the semester of attendance before the student is eligible to be classified as a resident for tuition purposes.
The residence classification of each student is determined in accordance with Section 244 of the California Government Code, Sections 23054, 23055 and 23057 of the California Education Code and the Standing Orders of the Regents.

The attention of the prospective alien student is directed to the fact that he is a nonresident unless, in addition to the general residence requirements for tuition purposes, he has been admitted to the United States for permanent residence in accordance with all applicable laws of the United States. The attention of the prospective student who has not attained the age of twenty-two and whose parents are not California residents and the attention of the veteran who was not a resident of California at the time of his entrance into the Armed Forces is directed to the fact that presence in California for more than one year does not, of itself, entitle the student to classification as a resident.

Every student who is classified as a resident but who becomes a nonresident of California is obliged to notify the Attorney in Residence Matters at once. Application for a change of classification with respect to a previous semester will not be received under any circumstances.

A person incorrectly classified as a resident student is subject to reclassification as a nonresident. If the incorrect classification resulted from concealed facts or untruthful statements made by him, the student then shall be required to pay all tuition fees which would have been charged to him as a nonresident student. He shall also be subject to such discipline as the President of the University may approve.

**ROUTINE OF REGISTRATION**

Every student who desires to undertake any work or examination leading to a degree from the University of California must register with the Registrar for such work or examination. Such registration must be accepted by the proper faculty before the work proposed is undertaken.

Students of good standing carrying a limited amount of regular classwork may be permitted on the basis of private study outside of University classes to take certain University examinations for the purpose of gaining advanced standing, but the authorization of the proper faculty must be obtained by written petition before preparation for the examination is begun.

**Dates.** The student should consult the Registration Circular for the semester he plans to attend, to acquaint himself with the dates upon which students are required to register and file study lists. Students who are in good standing and who will be continuing into the next semester in the same status may register by mail. Beginning with the fall semester, 1965, it is planned to register by mail new undergraduates
and those former students who are returning to the University in the same status after an absence. The student must have been notified of his admission or readmission prior to July 15 in order to register by mail. Instructions for registering by mail will be furnished the student by the Registrar. Details for registering in this way for the spring semester, 1966, will not be available until after the opening of the fall semester.

Late Registration. Every student who fails to register during the scheduled period is charged a fee of $10 for lateness. Moreover, the late registrant is subject to unusual difficulty in arranging a suitable program of studies and may not plead lateness as an excuse if, subsequent to late registration, he is found to be deficient in his work.

In no event will a student be permitted to register for a semester after Friday of the first week of instruction. If a prospective entrant or re-entrant seeks to register late, it will be necessary for him to qualify for admission or readmission ten days before the proposed date of registration.

The names of students who fail to comply with regulations governing registration will not appear on class rolls.

Filing of Study Lists. At the beginning of each semester every student files a detailed list of courses to be pursued during the semester. The blank form of study list for this purpose and instructions concerning the times and places for filing are provided by the Registrar at the time of registration. The study list, to be accepted, must bear the approval of a faculty adviser or other specified authority. No person will be admitted as a student to any course except as authorized by the official study list, subject to the approval of the appropriate study-list officer.

Failure to file the study list on the scheduled date makes the student liable for a fee of $10 for lateness. No study list may be filed after Friday of the third week of instruction.

Student Responsibility. The presentation of a study list by a student and its acceptance by the college is evidence of an obligation on the part of the student to perform faithfully the designated work to the best of his ability. Withdrawal from, or neglect of, any course entered on the study list, or a change in program without the formal permission of the dean of the college, makes a student liable to enforced withdrawal from the University, or to appropriate disciplinary action.

Program Changes. After study cards are filed, program changes may be made only by formal petition, which must be approved by the instructor concerned and by the dean or other proper officer of the student’s college.

Required Work. Every regular student must include in his study list all required work of the college appropriate to the year of his course
and must comply with the study-list limits observed by the various colleges. For detailed regulations, see the announcement of the respective college or school.

Authority of the Instructors. No student will be permitted to enter upon or to continue the study of any subject if, in the opinion of the instructor, he lacks the necessary preparation to ensure competent work.

Every student is required to satisfy the instructor in each of his courses of study, in such ways as the instructor may determine, that he is performing the work of the course in a systematic manner. Instructors may report to the Dean of Students the names of those students whose attendance or work is unsatisfactory.

Other General Requirements. The student should note further University regulations concerning the requirements in scholarship, and the requirements for candidacy for degrees. The student should plan his program of studies carefully in relation to these requirements, and consult promptly with his adviser or the dean of his college or school concerning any irregularities in the program that may require special approval.

Extension Enrollment. A student may enroll concurrently in resident and extension courses only when the entire program has received the approval of the proper dean or study-list officer and has been registered with the Registrar before the work is undertaken.

Medical and Physical Examination Requirements. All students who are new to the Berkeley campus, as well as students returning after an absence of more than five years are required to have a medical examination at the Student Health Service. Registration at the University is invalid without completion of medical examination requirements.

Students notified of admission for the fall semester before August 15 will be mailed a Student Health Service appointment. Examinations begin the Thursday prior to registration and continue through registration week only. New students who do not receive an appointment by mail must obtain an appointment at Cowell Memorial Hospital, Room 104, beginning August 23, 1965, or at the Student Health Service Window, Room 13, Sproul Hall (September 7, 1965 to September 17, 1965 only). Appointments for the spring semester will be mailed to students on request or may be obtained at Cowell Memorial Hospital, beginning January 10, or at the Student Health Service Window, Sproul Hall, beginning January 24 through February 3 only. Spring examinations are held the Friday and Saturday following registration. Students who are holders of nonimmigrant visas are requested to make their appointments at Cowell Memorial Hospital.
Students returning to the University after an absence of five years or less must report to Room 104, Cowell Memorial Hospital for a medical evaluation. For the fall semester, medical evaluations for students in this category begin August 16, 1965; for the spring semester, January 3, 1966.

Reduced fee program students (new and returning only) are not required to complete the medical examination, but must report to Cowell Hospital, Room 104, for tuberculosis screening and smallpox vaccination clearance prior to registration.

Tests for tuberculosis are a part of the examination and/or evaluation of all new and returning students. A smallpox vaccination within three years is expected also, and a form for this purpose is furnished by the University. However, international certificates, Armed Services immunization records, Public Health department certificates and statements by private physicians are acceptable in lieu of the University form.

Before coming to the University, every student is urged to have his own physician examine him for fitness to carry on University work and to correct defects capable of remedial treatment, such as diseased tonsils or imperfect eyesight. Applicants who have contagious diseases may be excluded.

Foreign Student Health Insurance. The acquisition of health insurance under a group insurance policy made available to the University is a condition of registration for all students on nonimmigrant visas. The premium for the full academic year is $25, payable in two installments: $10 in the fall semester and $15 in the spring semester, which includes coverage for the summer months. The care provided will be supplemental to the campus student health service. Students must enroll in the insurance plan and pay the installments of $10 and $15 at the time of registration.

Physical Education—Orientation Meeting. All undergraduate students are required, at the time of first registration in the University, to attend a meeting conducted by the Department of Physical Education regarding participation in physical education activities and athletics. At this meeting, students will learn of the opportunities to participate in organized courses of the department, in intramural athletics, in intercollegiate athletics, and in nonorganized recreational activities.

FEES* AND EXPENSES

Typical Budget for an Undergraduate Student. It is extremely important that students carefully consider the total financing of their education to the completion of their degree objective. If funds will be needed in excess of those that can be provided by the student and his family,
the student should make the necessary applications well in advance, with particular attention to the early deadline dates of scholarships and long-term loans. Although each student must determine his own budget in keeping with his needs and resources, the University can provide the following as a guide for undergraduate students. Room and board (twenty meals a week) for two semesters in a University residence hall costs, on the average, $880. Additional funds should be budgeted to cover miscellaneous costs of participation in student activities and life in the residence halls, and should the student wish to remain on campus during the recesses, which are not included in his residence contract, he should take this into account. These supplementary room-and-board costs, plus residence halls membership fees, will average about $100 a year. Books, supplies, and miscellaneous items, including Associated Students fees of $11 per year, Student Union fees of $12 per year, and one round-trip from home to campus, will amount to about $500 annually. The incidental fee is $220 a year. (Students who are classified as nonresidents pay an additional $800 a year.) Thus a typical budget for an undergraduate student who is a resident of California and who lives in a University Residence Hall will approximate $855 a semester or $1,710 a year. Board and room costs for students making alternative housing arrangements will, of course, vary (see pages 44–46), and students who live in their own homes and commute to the campus will need to take this into account. In addition, students who can reduce the amount spent for miscellaneous items will need considerably less than the typical budget mentioned above.

Incidental Fee: $110 per Semester. This fee, payable at time of registration, covers services other than teaching facilities, such as laboratory costs, athletic and gymnasium facilities and equipment; counseling and placement service; and such consultation, medical advice, and hospital care or dispensary treatment as can be provided by the Student Health Service. Payment of the incidental fee by check, draft, or money order must be for the exact amount, and must be made payable to The Regents of the University of California.

No part of this fee is remitted to students who do not make use of all or any of these privileges, except as noted below under "Refunds."

Tuition: (for Nonresident Students Only). Students classified as nonresident students are subject to a tuition fee of $400 each semester. This fee, payable at time of registration, is in addition to the incidental fee required of all students.

For a full statement concerning rules governing residence, see page 32.

Foreign Student Health Insurance: $25 for a full academic year. The acquisition of health insurance is a condition of registration for all stu-
Students on nonimmigrant visas. The premium is payable in two installments: $10 in the fall semester and $15 in the spring semester, which will also include coverage for the summer months. A more detailed statement will be found on page 36.

**Books and Stationery.** Costs for books and stationery are:

- In liberal arts courses, $80 to $90 a year average.
- In preprofessional and professional schools, $50 to $200 a year.

More exact information may be obtained by writing to the school or department in which the student is interested.

**Shoes.** Women students taking physical education are required to buy shoes that cost between $4 and $7.50.

**Membership in ASUC:** $5.50 Each Semester. This fee, payable at time of registration, entitles undergraduate students to reduced rates on certain student activities, including dances, dramatic presentations, and musical productions; to a subscription to the *Daily Californian*, the student newspaper; to use of the Student Union; and to active participation in student government, including the privilege of voting and holding office. Graduate students pay a fee of $2.25 each semester for the *Daily Californian* and for the use of the nonrevenue-producing areas of the Student Union.

**Athletic Privilege Card (Voluntary):** $10 Yearly. This card permits free admission to most athletic contests, and reduced admission to others.

**Student Union Fee:** $6 per Semester. Each undergraduate and graduate student must pay a Student Union fee of $6 per semester to provide funds to amortize a portion of the construction cost of the new Student Union.

**Fees in the Professional Schools and Colleges.** Complete information is given in detail in the announcements of the colleges and schools. These publications may be obtained upon request from the dean in charge.

**Subject A Course Fee.** Students failing the required examination in Subject A must pay a fee of $35 for the course in Subject A (see page 52).

**Living Expenses.** Room and board is the main expense item for students living away from home. A detailed statement of prices will be found on pages 44–46 under “Living Accommodations.”

**Refunds.** Students withdrawing with official approval during the first few weeks of the semester may obtain a refund of part of the fees enumerated above. For a schedule of refunds and other information, obtain the circular **STUDENT FEES AND DEPOSITS** from the Registrar.
FINANCIAL AIDS FOR STUDENTS

Scholarships, Prizes, and Loans

Scholarships, prizes, and loan funds, established through the generosity of alumni and friends of the University, are available to undergraduate and graduate students in accordance with conditions laid down by the donors.

Scholarships

A circular giving information about undergraduate scholarships may be obtained from the Committee on Undergraduate Scholarships and Honors, 2536 Channing Way, Berkeley, California 94720. Awards are made on the basis of scholarship, financial need, and character and promise. An over-all grade average of B is the minimum required for consideration for a scholarship. A minimum of 12 units a semester must be carried by holders of undergraduate scholarships.

Undergraduate applications for the succeeding academic year or any quarter thereof must be filed between December 1 and January 10 by students in residence and by entering students between December 1 and February 15. Application forms may be obtained from the Committee beginning in mid-November. Completed applications must be presented in person or postmarked to the Committee not later than the above dates.

Entering scholarship applicants must also file, by February 1, a Parents' Confidential Statement with the College Scholarship Service, P.O. Box 1025, Berkeley, California 94701 (or P.O. Box 176, Princeton, New Jersey 08540, if the applicant lives in Eastern United States), specifying that a financial need analysis be sent to the University of California, Berkeley, California 94720. Parents' Confidential Statement forms may be obtained from the high school or junior college counselor, or, if unavailable locally, from College Scholarship Service.

Fellowships

Information about fellowships for graduate students may be obtained from the Committee on Fellowships and Graduate Scholarships, Room 225 Sproul Hall, University of California, Berkeley, California 94720.

Fellowships and graduate scholarships are ordinarily awarded as a mark of honor, on the basis of scholarship. Holders are expected to devote all their time to graduate study and research. Applications must be filed with the Committee on Fellowships and Graduate Scholarships on or before December 10 preceding the academic year for which awards are to be made.
Prizes

A complete list of available prizes, together with regulations governing each competition, may be obtained from the office of the Committee on Prizes, Room 15, 2620 Bancroft Way, Berkeley, California 94720, or from the Registrar.

Of particular interest to new undergraduates are the Edward Frank Kraft Scholarship Prizes for Freshmen. A number of scholarship prizes of $50 are awarded to those freshmen students who have attained the highest scholastic records in their first semester of attendance at the University. In awarding the prizes, the Committee gives additional consideration to the achievement of those students who complete more than the minimum number of units during that semester.

Loans

University and National Defense Education Act loan funds are administered in the Office of the Dean of Students. Applicants for University loans must have a creditable scholarship record and must present a satisfactory repayment program. Students are not eligible for University loans in their first semester of residence. The National Defense Education Act Loans are to be used only as a supplement to the family and student contributions to meet a reasonably normal budget. Applicants must be United States citizens or nationals of the United States. The maximum loan that any undergraduate student may obtain is $1,000 for one academic year or $500 for one semester and the total at the undergraduate level may not exceed $5,000. The maximum loan allowed by law for graduate or professional students is $2,500 per year or $1,250 per semester and the total amount allowed any one student under this act cannot exceed $10,000. It also anticipates that both the student and his family bear, as their circumstances permit, a reasonable amount of the “educationally related costs.” Repayment may be extended over a period not to exceed twelve years after the recipient withdraws or graduates. Up to 50 per cent of the loan may be canceled at the rate of 10 per cent for each year of full-time teaching in public or nonprofit private schools from the elementary through the university level. Deadline dates for returning completed applications are: April 1 for all summer loans; May 1 for loans to be used in academic year September–June; December 1 for loans to be used during spring semester only. Application forms are available six weeks prior to these deadline dates at the Office of Special Services, Room 309 Sproul Hall, University of California, Berkeley, California 94720.

Aids for Veterans

Most of the educational benefits for veterans under federal or California state programs have now expired. Students with questions con-
cerning these programs should contact the Dean of Students—Special Services, Room 307 Sproul Hall or the federal or state offices whose addresses are given below.

Veterans' Dependents

Students wishing to enroll under the provisions of Public Law 634 (War Orphans) or Public Law 361 (Children of Totally Disabled Veterans), respectively, should first obtain from the United States Veterans Administration a Certificate of Education and Training which should be filed with the Dean of Students—Special Services after completion of registration and filing of the study list. These students must be prepared to pay all fees and educational costs at the time of registration as education and training allowances are paid to the student by the Veterans Administration. The first monthly payment will normally be received 60 to 75 days after compliance with the above.

Additional information may be obtained from offices of the United States Veterans Administration located as follows: San Francisco Regional Office, 49 Fourth Street, San Francisco, California 94103; Los Angeles Regional Office, 1380 South Sepulveda Boulevard, Los Angeles, California 90025.

The State Offices of Veterans Affairs also have information concerning the waiver of fees for children of certain disabled veterans. Office addresses are: State Department of Veterans Affairs, Division of Educational Assistance, P. O. Box 1559, Sacramento, California 95807; or 350 McAllister Street, San Francisco, California 94102; or 542 South Broadway, Los Angeles, California 90013.

Selective Service

Students subject to Selective Service regulations are required to keep their local Boards informed of all changes which might affect their draft classification. This can be done through the Office of the Dean of Students—Special Services, Room 311 Sproul Hall. Forms entitled “Selective Service Information” are included in the registration packet. Male students aged 18 through 25 inclusive should complete the forms during registration. One card will be sent to the student’s Local Board by the Supervisor of Special Services after confirming the student has filed his study list for a full program of academic work.

Undergraduates must be enrolled for a minimum of 12 units in any one semester but should complete their degree requirements in the normal time of 8 semesters. To qualify as a full-time graduate student, the student must be registered, actually spend full time on his studies, and meet the criteria generally applied for normal progress toward the degree—that is, two years or less for the master’s degree and five years or less for the doctor’s degree (including time spent working toward the
master's degree, if taken). Any change of status during the semester, such as dropping of courses or withdrawal, should be reported to the Local Board through the Office of Special Services.

Students desiring deferment on the basis of enrollment in the University ROTC programs should consult the proper ROTC department.

Military Training

The Morrill Act of July 2, 1862, creating the system of Land-Grant institutions, of which the University of California is one, required those institutions to offer military training courses. Military training at the University of California is offered on a voluntary and selected basis. Both basic and advanced courses in The Reserve Officers’ Training Corps (ROTC) are given in the departments of Air Science, Military Science, and Naval Science. The United States government furnishes arms, equipment, uniforms, and textbooks for students formally enrolled in military training courses.

Through arrangements with the Army, Navy, and Air Force, reserve officer training is offered in the lower division (basic course) and in the upper division (advanced course). Successful completion of the advanced ROTC course and attainment of a bachelor's degree qualify the student for a commission. Courses in Air Science, Military Science, and Naval Science are described in the course section of this bulletin and in the SCHEDULE and DIRECTORY. Students not enrolling in military courses may replace them with elective courses.

Air Science

The Air Force Reserve Officers’ Training Corps offers two programs through which students may become eligible for appointment as a commissioned officer in the U. S. Air Force. One is a four-year program in which the student is enrolled in Aerospace Studies for eight semesters, designed for the four-year student on campus. The other is a two-year program designed primarily for transfer students who attended institutions which did not offer ROTC courses. This program is open to students who have four semesters remaining before receiving a degree, and requires the student to attend a six-week Basic Field Officer Course at an Air Force base during the summer prior to formal enrollment in advanced officer courses. The six-week summer course takes the place of the basic officer courses the student was unable to pursue while in lower division.

The lower division basic officer course consists of Air Science 1A and 1B and Air Science 21A and 21B. Concurrent with Air Science 1 and Air Science 21, respectively, students must satisfactorily complete an elective course chosen from the following: any lower division course of
2 or more units value in astronomy, business administration, chemistry, economics, engineering, English, geography, geology, history, mathematics, philosophy, political science, psychology, sociology or statistics.

The upper division advanced officer course is offered to selected students who have completed the lower division Air Science curriculum or the six-week summer Basic Field Officer Course, Air Science 22. Each student receives approximately $1,000 for the two years of advanced training plus uniforms and educational materials.

Successful completion of the Advanced Officer Course and the award of a bachelor’s or advanced degree qualifies the student for appointment as a Second Lieutenant in the Air Force Reserve. Students designated “Distinguished Air Force Graduate” are eligible for appointment as Second Lieutenants in the Regular Air Force. Qualified AFROTC graduates are encouraged to apply for graduate education under Air Force auspices.

**Military Science**

After completion of the basic two-year course, selected students may take the advanced two-year course, including a six-week summer camp program, and receive approximately $1,100 for the two years. Successful completion of this course and the award of a bachelor’s degree qualify the student for appointment as a Second Lieutenant in the United States Army Reserve. Students designated as “Distinguished Military Students” may apply for commissions in the Regular Army.

**Naval Science**

The Naval ROTC is made up of two types of students: *contract* and *regular* students. *Candidates* for enrollment in the *contract* program are selected locally by the Chairman of the Department of Naval Science from voluntary applicants at the beginning of the fall semester within a quota established by the Navy Department. Regular NROTC students are selected by the Navy Department on the basis of an annual nationwide competitive examination. Successful candidates are sent to a university or college where tuition, books, and certain other fees are paid for by the Navy. Regular students take the same naval science courses as the contract students, except that they must complete three summer cruises, whereas contract students complete only one summer cruise. Upon successful completion of 24 units of naval science courses and the award of a bachelor’s degree, regular students are commissioned Ensign, USN, or Second Lieutenant, USMC, and contract students are commissioned Ensign, USNR, or Second Lieutenant, USMCR. Students completing an upper division Supply Officers’ course are commissioned as Ensign, Supply Corps, upon graduation. Qualified engineering students may apply for com-
missions in the Naval Civil Engineering Corps. After graduation, contract students are required to serve three years on active duty and regular students to serve four years on active duty.

For further information and application, students should consult the Chairman, Callaghan Hall, not later than the week of registration.

LIVING ACCOMMODATIONS

Rules Governing Living Accommodations

Admission to the University does not automatically reserve living accommodations. Students must make their own housing arrangements.

Undergraduate students must file residence cards at time of registration. Any change of address during the semester must be filed in the Office of the Registrar. Men students may live in any accommodations they chose. Every undergraduate woman under twenty-one years of age not living at home or in University approved housing must have her college residence approved by her parent or guardian and filed with the Dean of Women. At the time of registration, the student will be given a Residence Card which she must send to her parent or guardian for signature, indicating such approval. The Residence Card, bearing this signature, is then returned to the Dean of Women.

Men or women intending to participate in rushing are not encouraged to apply for accommodations in University residence halls and other approved houses.

Types of Living Accommodations Available

To help students find the housing they desire, the University maintains Housing Services at 2620 Bancroft Way, Berkeley, California 94720. Lists of approved boarding and lodging houses for men and women, information about University Village, Albany, for married students, and applications for University residence halls may be obtained from the Housing Services.

The Housing Services also maintains card files of accommodations for single men, for single women, and for married students. No listings are accepted which are restricted because of race, color, or creed. These accommodations have not been inspected. Students must call in person at the Housing Services to make arrangements for rentals through the card file.

Students are advised to find their living accommodations well in advance of the opening of the semester.
Residence Halls for Single Men and for Single Women

Privately Operated Residences

These have been inspected and meet the University's standards of adequacy, safety, and sanitation. Each is exclusively for men or women, and is supervised by a head resident or "housemother." All are within walking distance of the campus.

Most privately operated houses require contracts either for a semester or academic year. Contracts in writing should cover terms of payment, indicating whether or not rent is to be paid during vacation periods. Laundry privileges available, number of meals served per day, and any other matters which would affect the business relations of householder and student, should be stated. Students are urged to read contracts with care.

Prices in University approved residences are between $800 and $1,000 for the academic year. In most boarding houses these prices do not include lunches and Sunday meals which usually cost an additional $125 to $150 a semester.

Prices in University approved cooperative residence halls are approximately $282–$295 a semester for men, and approximately $280–$310 a semester for women, plus five to seven hours of work a week. Three meals a day, seven days a week, are served in cooperative halls. There are four cooperative halls for 408 men, and five for 245 women, accommodating 653 students.

Residence Halls Owned and Operated by the University

The University maintains nine residence halls for 1,750 undergraduate men, and ten residence halls for 1,600 undergraduate women. Rates range from $860–$940 for the academic year, with some single rooms at $100 additional per year.

Applications are available beginning the first Monday in April for the fall semester, and the first Monday in November for the spring semester. Students who are interested in applying for the halls should request applications before these dates. Applications are obtained and accepted by mail only. Assignments will be based on the applicant's class, home address, hall choice, and admission to the University. When an assignment can be made the applicant will be asked to complete and return a contract with a $25 deposit and a $75 initial payment on the contract. Students may pay in full in advance or complete payment in three installments during the semester.

Students who are planning to participate in rushing at the beginning of the fall semester should not apply for accommodations in a University residence hall. Residents of the halls may not participate in
rushing during the year except at the periods specified by the Dean of Students.

University Residence Halls for Women

Stern Hall accommodates 137 undergraduate women in single and double rooms. The Fernwald Halls, Mitchell, and Peixotto, accommodate a total of 116 undergraduate women. These residents have the option of having lunch at the Dining Commons in the Student Union. Cheney, Cunningham, Davidson, Freeborn, Spens-Black, and Ida Sproul, accommodate 210 in each hall. All rooms are double.

University Residence Halls for Men

Bowles Hall accommodates 204 men in suites for four. Smyth Hall accommodates 200 men in double rooms. Residents have the option of having lunch in the Dining Commons of the Student Union. Deutsch, Ehrman, Griffiths, Norton, Priestley, and Putnam, accommodate 210 in each hall. All rooms are double.

Note: Richards-Oldenberg, one of the Fernwald-Smyth group of halls, is a coeducational hall. The Richards wing is for 78 women, the Oldenberg wing for 80 men.

University Village Housing for Married Students

The University maintains 919 apartments in University Village, Albany. Application may be made by calling in person or writing to the Housing Services, 2620 Bancroft Way, Berkeley, California 94720, where a waiting list is maintained. In section A of the village, there are older units, both furnished and unfurnished, which rent for $43–$77 a month. In section B of the village, there are 500 new one- and two-bedroom apartments, all unfurnished, which rent for $80–$100 a month.

International House

Although primarily a residential and social center for American and foreign upper division and graduate students, International House will give careful consideration to applications from all foreign and American students. Applications and requests for information should be sent directly to International House, University of California, Berkeley, California 94721.

Fraternities and Sororities

Membership in fraternities and sororities is by invitation after a period of "rushing." General information, about average monthly rates, and initiation and pledge fees may be obtained by calling in person at
the Office of the Dean of Students, 201 Sproul Hall. Rushes are not encouraged to sign contracts with the University residence halls and may not sign contracts with other approved houses.

*Men students* should request a rushing registration form from Interfraternity Council, Office of the Dean of Students. Temporary living arrangements at hotels or with friends should be made for the rushing period.

*Women students* may obtain general information by writing to the Dean of Women. Housing arrangements for the rushing period must be made through the Panhellenic Association, Office of the Dean of Students.

**THE UNIVERSITY LIBRARY**

The Library on the Berkeley campus consists of the Main Library, 20 branch libraries, and a number of special libraries. The 3,000,000 volumes in the collections constitute one of the most distinguished research libraries in the United States. More than 38,000 periodicals and serials are received currently, exclusive of government documents.

The Main Library houses the general bibliographical aids to research and the bulk of the humanities and social science collections. In addition to the General Reference Service which gives assistance in the use of the Library's catalogs and reference material, special services are offered by the Documents Department which has extensive collections of the official publications of the United States, state and foreign governments, and international government organizations; the Map Room; the Newspaper and Microcopy Room; and the Rare Books Department. The Bancroft Library of Californian, western American, and colonial Latin-American history contains more than 140,000 volumes, 4,500,000 manuscripts, and 150,000 other items. Also located in the Main Library are the Reserve Book Room and the Morrison recreational reading room.

Branch libraries, located near the departments whose faculty and students use them most, include the Biology, Public Health, Education-Psychology, and Optometry libraries; the Agriculture, Entomology, and Forestry libraries; the Engineering, Earth Sciences, Astronomy-Mathematics-Statistics, Physics, Chemistry, and Biochemistry libraries; the Environmental Design, Music, and Art-Anthropology libraries; the Graduate Social Science, Social Welfare-Criminology, and Library School libraries; and the East Asiatic Library with 250,000 volumes of Chinese, Japanese and Korean material.

Principal special libraries are those of the School of Law, the Institute of Governmental Studies, the Giannini Foundation of Agricultural Economics, the Institute of International Studies, the Institute of Transportation and Traffic Engineering, and the Institute of Industrial Relations.
Registered students may draw books and periodicals from the University Library, according to the regulations of the various units, by presenting their registration cards.

STUDENT PERSONNEL SERVICES

Student Health Service

The Student Health Service is made possible by student payments as part of the incidental fee and is not a total health insurance plan; therefore, the services are limited by the staff and facilities available. The purpose of the Health Service is to conserve the time of students for classwork and studies by preventing and treating acute illnesses.

Each student paying the full incidental fee is entitled to such medical care as the Health Service is staffed and equipped to provide, from the first day of the semester in which he registers to the last day of the semester, or to the date of official withdrawal.

During any semester, hospital care for a period up to thirty days, and surgical treatment within certain limitations, will be given upon the recommendation of the Director of the Student Health Service. No responsibility, with the exception of emergency care or first aid, will be assumed for the correction of chronic physical defects or illnesses present at the time of entrance to the University; for injury or illness under treatment elsewhere, or for remedial defects where medical or surgical treatment is not immediately necessary and may be postponed to avoid interruption of class work. For industrial injuries covered by compensation insurance, only first aid will be rendered.

At the time of their medical and physical examination, entering students are given a booklet describing fully the services available through the Health Service.

Dental Service

Emergency and routine consultations are given during the hours of 8–10:30 a.m. and 1–3:30 p.m. All general dentistry, cleaning, treatments, X rays, and consultations are subject to a schedule of rates of payment approved by the President of the University.

Optometry Clinic

Under the direction of the Dean of the School of Optometry, the Optometry Clinic provides free eye examinations for students and the general public. If glasses are prescribed, a charge is made for them.

Counseling Center

Vocational, educational, and personal counseling is offered by the Counseling Center of the University to all regularly enrolled students.
The student may meet with professionally trained and experienced counselors to discuss his choice of academic major or future vocation; his ability to complete the work necessary for a degree in a chosen field; how to study more effectively; his adjustment to college life; how his personal interests and aptitudes relate to the requirements of a vocational field, or what opportunities are available in the field. The Counseling Center provides complete aptitude and psychological testing, as well as an extensive library of occupational information.

Further inquiry or appointments may be made at the Counseling Center in Building T-5, just north of the Campanile Esplanade.

Student and Alumni Placement Center

The Student and Alumni Placement Center serves students of the University who wish to obtain part-time, temporary or summer employment, and/or odd jobs. Applicants should present a current registration card or letter of admission from the University. Class schedules should be arranged before seeking employment. Students are advised to avoid part-time work during their first semester unless it is absolutely necessary.

Many part-time employment opportunities are available to Berkeley campus students. Jobs for men include gardening, maintenance, night watchman, dishwashing, and waiting on table. Women find employment in house-cleaning, baby-sitting, and waiting on table. For both men and women, stores in the campus area offer a limited number of sales and inventory-checking positions. Some office positions are available, particularly for women with good secretarial skills. Students in science and engineering are eligible for positions as laboratory assistants on and off the campus.

Room and board jobs in private homes usually offer room and board, bus fare, and $10 a month in exchange for eighteen hours of work a week; some offer room and board and bus fare in exchange for fifteen hours of work a week.

The Placement Center also engages actively in the full-time placement of University of California graduates from all campuses. Seniors and graduate students should register with the Center early in their final year of study. Alumni are eligible and encouraged to make use of the Center's services.

The Center arranges on-campus interviews for degree candidates with employer representatives who visit the campus each fall and spring. Throughout the year the Center receives information on a wide range of employment opportunities.

With the exception of recognized legal holidays, the Center is open for interviews from 9 to 11 a.m. and from 1 to 4 p.m., in South Hall Annex and South Hall Basement, just west of the Campanile.
Office of Educational Placement

The Office of Educational Placement recommends graduates, students, and former students for teaching, administrative, supervisory and research positions in universities, colleges, junior colleges, high schools and elementary schools in this country and abroad. The Office registers candidates and assembles information into confidential files concerning the background, training, and professional experience in order to match qualifications of its candidates with specifications of available positions. Placement interviewers counsel candidates, communicate with employers, arrange interviews, and make recommendations for positions.

The University reserves the right to recommend only those persons who are considered to be fully qualified.

Inquiries concerning educational placement services should be directed to the Office of Educational Placement, University of California, Berkeley, California 94720.

Recreational Facilities

To meet diverse student needs, the University offers excellent facilities for sports and recreation including five outdoor pools for recreational swimming, eight handball and five squash courts, and special exercise rooms. Outdoor facilities include several athletic fields, horse-shoe and volleyball courts, and twenty-eight tennis courts, fifteen of which are new.

Harmon Gymnasium and swimming pool, courts, and sports fields are available to all men students. Further information may be obtained from the Secretary, 103 Harmon Gymnasium.

Women students use Hearst Gymnasium rooms and swimming pools, courts, sports fields, and equipment. The Women’s Athletic Association, the ASUC, and the Department of Physical Education cooperate in furthering opportunities for participation in a wide variety of activities.

The Strawberry Canyon Recreational Area, which opened in 1959, is for the use during leisure hours of members of the University of California community at Berkeley. It consists of the Elise and Walter Haas Clubhouse, Lucie Stern Pool, lounging space, play areas and a barbecue-picnic area. Further information may be obtained from the Coordinator of Recreation, 143 Harmon Gymnasium.

Campus Dining

The Dining Commons offers a variety of food services and is operated by the University for students, faculty, and academic and non-academic employees of the University. An estimated 45,000 meals per week are served in the Cafeteria, the Terrace, and the Golden Bear res-
taurant. More than 85,000 persons each week use the combined facilities of the Cafeteria, the Terrace, the Golden Bear Restaurant, and the Bear's Lair for both meals and snacks. The Commons also operates a catering service for special affairs and student activities groups on the campus, inside and outside the Student Center.

University Police

The University of California Police Department was established by the California State Legislature, and has equal powers and authority as municipal, county, and state police agencies. This department has sole responsibility for the enforcement of state and federal law on the University campus, and its police jurisdiction extends one mile beyond the exterior boundary of the campus and in or about other grounds and properties of the University of California. The University Police also operate a Lost and Found service, 12 m. to 4:00 p.m. Police Headquarters are in 2 Sproul Hall.
Regulations and Requirements for Degrees

Subject A: English Composition

To test ability to write English without gross errors, the Examination in Subject A is given at the opening of each semester and summer session. Every undergraduate entrant (with the exceptions noted below) must take the examination at time of first registration. A second examination for late entrants is given not later than two weeks after the first examination; for this, a fee of $1 is charged.

Results of the first examination are made known prior to the date set for filing of study lists. Papers submitted are rated as “passed” or “not passed.” Every student who does not pass the examination, or who is not present at the examination, must immediately enroll in a course of instruction in Subject A, three hours weekly for one semester, without unit credit toward graduation. If the student fails in the course, he must repeat it in the next succeeding semester of his residence in the University. A fee of $35 is charged each time the student takes the course, and must be paid before filing of study list. Should the student maintain a grade of A in the course, he may be permitted to withdraw with credit for Subject A upon recommendation of the Committee on Subject A. The Subject A requirement must be satisfied before the bachelor’s degree will be granted.

A student who, at any time, has failed in the University examination in Subject A may not take a second examination except that if he has subsequently taken and passed an equivalent college course elsewhere, he may apply to the Committee on Subject A for special permission to take the examination again.

Exceptions: An entering student will be exempt from the examination in Subject A if he

(a) has received a satisfactory rating in the College Entrance Examination Board English Achievement Test taken after completion of the eleventh grade in high school;

(b) has passed an examination in Subject A given by the University at Los Angeles or given under the jurisdiction of the University at various centers in the state annually in the spring; or

(c) enters the University of California with credentials showing the completion with a grade not lower than C of one or more acceptable college courses in English composition (totaling at least 3 semester units, or the equivalent, of transferable college credit).
Exemption from the Subject A requirement as provided above will be determined by the Admissions Officer, who will notify the student whether or not he must take the examination.

American History and American Institutions

All students who are candidates for the bachelor's degree must demonstrate a knowledge of (1) American History and (2) the principles of American Institutions under the Federal and State Constitutions. Students on the Berkeley campus may meet the requirement in the following ways:

1. **By passing an examination in each of these subjects.** The examinations, as well as official review sessions, are given on the campus at Berkeley once each semester. Students who plan to take either or both examinations must give written notice of their intention at the beginning of the semester in which the examination or examinations are to be taken, either in Harmon Gymnasium at the time of registration or during the first two weeks of the semester at the office of the Supervisor of American History and Institutions.

2. **By receiving credit for one semester of work in one course in each of the following two groups:**

   **History:** 8B, 17A or 17B, H17A or H17B, 17C or 17D, 33A or 33B, English 33A or 33B, Political Science 33A or 33B, or any upper division course in American History.

   **Institutions:** Political Science 1, 33A, 33B, 100, 101, 102, 113, 157A, 157B. The normal course to satisfy the Institutions area of the requirement by those not majoring in Political Science on the Berkeley campus will be Political Science 100.

3. (a) **By equivalence** granted for courses or examinations at collegiate institutions within the State of California on the basis of official credentials indicating satisfaction of the requirement.

   (b) **By other courses,** completed at institutions in California or elsewhere, that are equivalent to those on the approved list on the Berkeley campus.

   (c) **By University Extension class and correspondence courses.** Correspondence courses by University Extension may, in some cases, be used to satisfy the requirement, as may some class courses. Before undertaking a University Extension course to be offered in satisfaction of either area of the requirement, the student should consult the Supervisor of American History and Institutions as well as the dean of his college or school. Care should be taken by any student to secure the approval of the dean of his college or school before he enrolls in a University Extension course. The senior residence rule applies to all candidates for the bachelor's degree.
Foreign students studying at the University on F class (student) or J class (exchange visitor) visas should call at the American History and Institutions office to secure exemption from the requirement. They should bring their passports, visas and registration cards with them.

The American History and Institutions office is located in Room 204, Building T-9.

Candidacy for Degrees

The form for the announcement of candidacy for the bachelor's degree is to be filed with the study list at the beginning of the semester in which the work for the degree is expected to be completed. Announcements of candidacy will not be accepted in advance. For filing this announcement later than the final date appointed each semester, a fee of $3 is charged. See the Calendar in this publication or placards, bulletin boards, for details.

Of the final 30 units completed by each candidate for the bachelor's degree at Berkeley, 24 units must be earned in residence in the college or school in which the degree is to be taken. Not more than 12 of those 24 units may be completed in courses of a summer session.

An exception may be made for a student in the College of Engineering at Berkeley or Los Angeles, however. Upon the completion of the requirements of the junior year of that college, a student may complete the requirements of his senior year, not to exceed 36 units, in residence at Berkeley, Davis, or Los Angeles where the required courses are available. The student then may receive the Bachelor of Science degree in the College of Engineering in which he was enrolled prior to his transfer.

A further exception to the residence rule is made in the case of the candidate for the bachelor's degree who has been in active service in the armed forces of the United States during the year preceding the award of the degree. This student may be recommended for the degree after only one semester of University residence provided he completes during that semester at least 16 units of work or passes a comprehensive examination in his major or field of concentration.

Grades of Scholarship

In the University at Berkeley, the result of the student's work in each course, including courses in which credit is sought by examination, is reported in letter grades, which are defined as follows: Passing—A, excellent; B, good; C, fair; D, barely passing. Not passing—F, failure. Undertermined—I, incomplete. Other symbols used—P, passed without definite grading; S, satisfactory, without definite grading; U, unsatisfactory, without definite grading.
Grade I may be assigned by the instructor when the student’s work is of passing quality, but incomplete. It may be raised to a passing grade by completion of the unfinished portion of the work. Grade F may be raised only by repetition of the course.

Course reports filed by instructors at the end of each session are final, not provisional.

A student may obtain his scholarship grades at the end of the semester by calling in person at the time and place announced for their distribution, or by depositing a self-addressed stamped envelope at the Office of the Registrar.

Units of Credit

Credit for academic work undertaken at the University is evaluated in terms of units. The value of a course is reckoned at the rate of 1 unit for three hours’ work per week per semester on the part of the student. The credit value assigned to a course is not determined by the number of class meetings per week, but by the number of hours of work required of the student. For most courses, it is expected that the average student will spend two hours in preparation for one hour of lecture or recitation. A student who desires to make up any high school subject deficiency by offering work of college level can, in one University semester, earn credit equivalent to the credit of one year of work in high school.

Grade Points

The student must have obtained at least twice as many grade points as there are units in the total credit value of all courses undertaken in the University of California to qualify for the bachelor’s degree.

A numerical value, called grade points, is assigned to each scholarship grade for a more exact determination of a student’s scholarship. For each unit of credit, the scholarship grade A is assigned 4 points; B, 3 points; C, 2 points; D, 1 point; F and I, no points.

Degree Credit by Examination

Under certain conditions an undergraduate student may take examinations for degree credit either (a) in courses offered in the University, without formal enrollment in them, or (b) in subjects appropriate to the student’s curriculum but not offered as courses by the University. The student must be in residence, in good standing, and ordinarily must have at least a grade B average for all courses undertaken in the University.

Before the examination can be given, the student must make advance arrangements with the dean of his college or school and obtain the
approval of the dean and the instructor appointed to give the examination.

Application form for examinations may be obtained from the Registrar.

**Final Examinations**

Final examinations are obligatory in most undergraduate courses. Each course in which a final examination is not required is so indicated in the Schedule and Directory at the beginning of the semester in which the course is given. All examinations will, so far as practicable, be conducted in writing, and a maximum time will be assigned beforehand for each examination which no student will be allowed to exceed. The time for examination sessions will not be more than three hours. Leave to be absent from a final examination must be sought by written petition to the proper faculty.

If a final examination is one of the regular requirements in a course, there can be no individual exemption from the examination, except as provided in the preceding paragraph.

Any department may examine a student, at the end of the semester immediately preceding his graduation, in the major subject in which the department has given instruction; and a student to be examined in a major subject may, at the discretion of the department, be excused from all final examinations in courses in the department of the major subject in which he has been enrolled during the semester. Credit value may be assigned to this general examination in the major subject.

In the year courses of the professional curriculum in law, mid-year reports may be made without formal examinations, and these reports will be final.

Reexaminations are permitted only for the purpose of raising grade I (incomplete) to a passing grade. A student who receives any other grade is not allowed this privilege. For additional information, refer to “Removal of Deficiencies,” below.

Application for examination for advanced standing on the basis of work done before entrance to the University should be made to the Office of Admissions upon entrance to the University.

**Minimum Scholarship Requirements**

The following minimum provisions shall govern the scholastic status of students not subject to the jurisdiction of a graduate division.

**Probation.** A student shall be placed on probation if at the end of any term his grade-point average is less than 2 (C average), computed on

* Changes made after the publication of this catalogue will appear in the Supplementary Announcements to the Schedule and Directory and the General Catalogue, which will be available in September, 1965.
the total of all courses undertaken in the University, including courses graded incomplete.

Dismissal. A student shall be subject to dismissal from the University (a) if his grade-point average falls below 1.5 for any term, or (b) if after one term on probation he has not achieved a grade-point average of 2 (C average), computed on the total of all courses undertaken in the University, including courses graded incomplete.

A student who fails to meet the minimum scholastic requirements specified above is subject to such supervision as the faculty of his college or school may determine. The faculty or its designated agents may (1) dismiss such a student from the University; (2) suspend his dismissal, continuing him on probation; or (3) authorize the return on probation of a dismissed student.

In order to transfer from one campus of the University to another, or from one college or school to another on the same campus, a student who has been dismissed or is on probation must obtain the approval of the appropriate faculty, or its designated agent, to whose jurisdiction transfer is sought. Upon completion of the transfer the student is subject to the supervision provided for in the preceding paragraph.

Any student who receives a notice of dismissal from the University may petition the dean of his college or school for a hearing. Ordinarily, however, students dismissed for unsatisfactory scholarship will be excluded from the University for an indefinite period, with the presumption that their connection with the University will be ended by such exclusion.

Removal of Grade Deficiencies

The rules relating to the removal of deficiencies incurred in the University of California are in the process of revision. They will be printed in full in the Supplementary Announcements to the Schedule and Directory and the General Catalogue, which will be available at the Office of the Registrar at the beginning of the semester.

Student Conduct and Discipline

The University authorities take it for granted that a student enters the University with an earnest purpose and will so conduct himself. Unbecoming behavior or neglect of academic studies will result in curtailment or withdrawal of privileges or other action by the University authorities that they deem warranted by the student's conduct.

Leave of Absence and Honorable Dismissal

Absences of less than one full day are to be arranged by the student with his individual instructors; for absences of a longer period the stu-
dent must obtain permission from the Dean of Students. An excuse for absence is issued for less than five days; a brief leave of absence is issued for five days or more.

Withdrawal from the University

Prior to the end of a semester, an honorable dismissal will be granted the student upon the written approval of the dean of the school or college and the Dean of Students. Permission to withdraw from the University without scholarship penalty is not usually granted after the first few weeks of the semester except under unusual circumstances over which the student has no control. The student should notify the Registrar immediately in writing whenever circumstances prevent further class attendance.

Withdrawal at the Close of a Semester

Honorable dismissal may be granted, upon written petition, to a student in good standing. Students dismissed because of scholarship deficiencies, students on scholastic probation, and students under censure or suspension are not regarded as being in good standing.

All accounts due the University must be satisfactorily adjusted, and all University property returned (laboratory equipment, uniforms, gymnasium clothing and equipment, keys, books) before an honorable dismissal will be granted.

Discontinuance Without Notice

Discontinuance of work by the student without notice may result in curtailment or withdrawal of his registration privileges.

Change of College or Major

A student may be transferred from one college (major or department) of the University to another, except after the opening of the last semester in his senior year. Such transferral requires the approval of the dean or officer or committee of the college (or department) to which admission is sought.

Honors

For regulations concerning honors, see the sections explaining curricula in later pages of this publication and in announcements issued by the colleges and schools.

Transcript of Record

Upon application by the student, the Registrar will provide official transcripts of record for work undertaken in regular semesters or sum-
The charge for each transcript of every undergraduate, graduate or separate summer session record is $1, and the total amount due must accompany the application. The student is advised to make application well in advance of the time when an official transcript may be required.

### The Graduate Division

For information concerning all matters pertaining to the Graduate Division—admission, registration, credentials, fellowships and scholarships, degree requirements—See the **ANNOUNCEMENT OF THE GRADUATE DIVISION, BERKELEY**, available from the Dean of the Graduate Division, 250 Sproul Hall, University of California, Berkeley, California 94720.

### Education Abroad Program

The Education Abroad Program offers University of California students an opportunity to study overseas. The program's purposes are: (1) to enhance the student's general education, (2) to become fluent in a foreign language, (3) to gain experience under educational systems which differ from our own, and (4) to increase the student’s understanding of other peoples by becoming a participant for a year in another society.

The University operates study centers in George August University in Göttingen, Germany, University of Bordeaux in France, University of Padua in Italy, University of Madrid in Spain, and at International Christian University in Tokyo. New centers have been established for 1965–1966 at the Universities of Birmingham, Edinburgh; and Sussex in The United Kingdom; and the University of the Andes in Bogota, Colombia.

Except for International Christian University in Japan which is an English-speaking institution, and the universities in The United Kingdom, students are expected to have a speaking proficiency in the foreign language of the host country equivalent to a student earning a grade of B in the fourth semester language course at Berkeley.

Generally speaking, participants are required to have an overall B average. However, students whose overall average is below a B but whose recent academic work shows promise will be considered. Attention is given in screening to select students who seem capable of living a year abroad without unusual emotional or physical stress.

Participants spend from nine to eleven months abroad, beginning the year with a special language orientation program of six or seven weeks, a full academic year during which they can enroll in courses from a wide range of fields. Regular University lectures and seminars are supple-
mented by sessions in which students meet with tutors who supplement material presented in lectures. Vacation time is usually spent in travel.

The estimated total cost, including a modest allowance for spending money and vacation travel, ranges from $1,800 at Bordeaux to $2,400 at Goettingen. Loans, scholarships and grants-in-aid are available to enable all qualified students to participate.

This is not an exclusive for language but is part of the University of California curriculum. Students receive full unit credit for the work taken overseas towards the bachelor's degree. However, the number of courses they may take abroad in their major is subject to the approval of their department. Students may go abroad in their senior year, but will be expected to complete an additional semester in residence. Inquiries on the subject should be addressed to the Dean of student's college.

Students who are interested in participating in the program should consult their regular academic adviser. For additional information regarding study abroad, students may consult the following members of the Berkeley Committee for Education Abroad:

William McCormack, Associate Dean of Students, Chairman, Berkeley Committee for Education Abroad, 201 Sproul Hall.
Arnold Chapman, Associate Professor of Spanish, 4309 Dwinelle Hall.
Arnolfo Ferruolo, Professor of Italian, 5211 Dwinelle Hall.
Joseph Mileck, Associate Professor of German, 5309 Dwinelle Hall.
Douglas Mills, Associate Professor of Oriental Languages, 102 Durant Hall.
Walter Rex, Associate Professor of French, 4215 Dwinelle Hall.

STUDENT GOVERNMENT

Associated Students of the University of California (ASUC)

Each undergraduate student, upon enrolling in the University, becomes a member of the Associated Students of the University of California (ASUC), a nonprofit organization of and for the students. Democratically constituted and run, the ASUC has the privilege and the accompanying responsibilities of directing certain student activities. Membership in the ASUC, which is universal, costs $5.50 per semester. Each student is a voting member of the ASUC. There are eighteen elected officers and a number of appointed officers.

The ASUC Senate is the governing body, composed of twenty-one voting and three nonvoting members. The ASUC Cabinet plans and coordinates various activities and programs of the Association.
The New Student Center

The California Student Union and Dining Commons are the nucleus of the Student Center which includes the recently completed Student Office Building and will include the Theater-Auditorium for which working drawings now are in progress.

The Student Center is designed to provide adequate facilities for a variety of extracurricular activities. Through cultural, recreational, and social programs the Center can draw together all segments of the campus community on a common ground. Student government is allotted the primary responsibility for fulfilling this purpose. Thus, the Center represents an opportunity for students to build leadership abilities while developing the potentialities of the Center for the enjoyment of the entire University community.

The Student Union Building has six levels providing student lounges, quiet rooms, meeting rooms, banquet facilities, ballroom, arts activity center, meditation room, games room, ASUC store, information center, facilities for the ASUC musical organizations, bowling lanes, barbershop, and garage.

The Dining Commons, which is operated by the University, is described on page 50.

STUDENT ACTIVITIES

Sports Activities

Physical Recreation. Students have access to many types of facilities provided by the Department of Physical Education, can attend weekend co-recreation programs and participate in a variety of sports clubs.

Intercollegiate Athletics. This department is responsible for the program of competitive intercollegiate sports in which the University's intercollegiate teams compete on a league or conference basis with other collegiate institutions. More than 900 students participate in various varsity sports within this program. Many students unable to compete participate as student managers of these sports. Additional information may be obtained from the Department of Intercollegiate Athletics.

Intramural Sports for Men. Sponsored by the University and the ASUC, it includes twenty-two individual and team sports and attracts over 7,000 individual participants annually. Information at Intramural Office, 197 Harmon Gymnasium.

Women's Athletic Association. A program of intramural sports and sports clubs are sponsored by this Association, including sports days, aquacades, tournaments, and award events. WAA Adviser at 200 Hearst Gymnasium.
Special Interest Groups

Besides the regular ASUC-sponsored activities, there are over one hundred and fifty active, on-campus organizations. These groups are national and local service organizations, departmental clubs, professional fraternities, sports or hobby clubs, social and recreational clubs, and men’s and women’s honorary welfare activities.

Departmental Clubs and Professional Organizations. While the primary objective of these organizations is to further interest in academic and professional fields, the programs are built upon student interests and offer a variety of activities. There are more than sixty clubs and organizations with an average membership of between fifteen and one hundred students.

Honor Societies. Three scholastic honor societies have chapters at the University: Tower and Flame (lower division), Honor Students Society (upper division), and Phi Beta Kappa, oldest and most famous collegiate honor society. In addition there are more than thirty-five departmental, professional, and other scholastic honor societies with invitational membership based upon scholastic attainment.

Scholastic and Activity Honoraries. There are several societies on campus that invite to membership outstanding students who participate in extracurricular activities and who demonstrate superior scholarship. For women, they are: Panile, Prytaneum, Mortar Board, and Torch and Shield. For men: Winged Helmet, Skull and Keys, and Order of the Golden Bear. For men and women: Gavel and Quill, and California Club.

Other Clubs and Organizations. There are one hundred groups which do not lend themselves to any of the previous categories, but which are, nevertheless, important. These are athletic groups; service groups, fraternities, and sororities; foreign student societies; and social, hobby, and recreational groups.

Religious Activities

The University of California is a state-supported, nonsectarian institution; therefore, there is no chapel or regular religious activity on campus. There are, however, thirty-five or more churches and fifteen student clubs located within a few blocks, offering programs of interest to students of various creeds and nationalities.

Music, Drama, Debate

Diversified programs of activities in music, drama, and debate are offered by the ASUC and by the University.

Committee for Arts and Lectures. The University offers through this committee a large and varied program of concerts, lectures, plays and
art exhibitions throughout the year. Many events are free; when admission is charged special low rates are usually offered to students.

**Music.** For singers there are the Men's Glee Club, Women's Treble Clef Society, and The Collegian Singers. The University Chorus and the Repertory Chorus, open to both men and women, offer academic credits. The California Band offers students opportunities to play at numerous events. The University Concert Band and the University Symphony Orchestra offer academic credits and are open to any student who meets the demands of concert performance. Symphony Forum sponsors record concerts on campus and obtains San Francisco Symphony tickets for students at minimum prices.

**Dramatics, Radio, and Television.** Students may obtain training in every phase of the theater through dramatic activities. The largest single activity in this field is the University Theater. Orchesis conducts advanced work in creative modern dance. Radio-Television Theater provides training in all branches of radio and television production work.

**Debate.** Two debate teams sponsored by ASUC, Varsity Debate and University Roundtable, are nationally respected for their excellence. Varsity Debate is selective, but University Roundtable is open to all interested students.

**Publications**

Students who are interested in any phase of writing, journalism, art, advertising, or sales promotion may find a place on one of the five student-edited and student-managed campus publications. Valuable experience and an enlarged set of social contacts are available to students who find time to work on one of the following publications.

*The Daily Californian* has been continuously published since 1897 and is consistently ranked among the top college papers across the nation. *The Pelican* is a monthly humor magazine. *Blue and Gold*, the official yearbook, is published annually as a permanent record of the year's events. *The California Engineer* is a semitechnical magazine with articles of general interest. *Occident*, published once each semester, provides an outlet for the best creative writing produced on the campus. It is the oldest student-edited campus literary magazine on the Pacific Coast.

**The International Board**

Through member councils, the International Board extends the University's hand of welcome to students across the seas and promotes student understanding of international affairs. This is achieved through correspondence, foreign tours, sponsoring of cultural programs, and other activities. All of the groups welcome new members.
The College of Agriculture at Berkeley is as old as the University itself. The Organic Act passed by the Legislature on March 23, 1868, established the University and made the creation of the College of Agriculture the first duty of the Board of Regents. Since that time the College has grown into a University-wide organization known as the Division of Agricultural Sciences, within which the various fields of agricultural science operate. Agriculture today means much more than the growing of food and fiber; it is both a broad science and a big business, with numerous opportunities for the trained person. It includes all of the scientific, professional, and business occupations connected with the growing, processing, and distribution of farm products, and it is our nation's biggest single industry, employing 40 per cent of the 65 million people who work in the United States today. The agricultural graduate is no longer limited to a rural-area career, and many of the jobs attract women as well as men. The world now offers fascinating employment in research, industry, business, education, communications, conservation, recreation, and specialized services, as well as farming and ranching.

The Division of Agricultural Sciences has three functions: research, public service, and instruction. Activities in the areas of research and public service are conducted chiefly by the Agricultural Experiment Station and the Agricultural Extension Service. Instruction is the primary academic function of the College of Agriculture (now on four campuses—Berkeley, Davis, Los Angeles, and Riverside), the School of Forestry at Berkeley, and the School of Veterinary Medicine at Davis. The preforestry and preveterinary training required for admission to these two schools is administered by the College of Agriculture. See the School of Forestry section for further information; for details regarding veterinary medicine, see the ANNOUNCEMENT OF THE SCHOOL OF VETERINARY MEDICINE, obtainable without charge from the University of California, Davis.

Undergraduate Instruction

Undergraduate instruction offered in the College of Agriculture leads to a Bachelor of Science degree. In general, the student may take the first two years of a four-year College of Agriculture program on any campus of the University where undergraduate instruction is offered, or at any other accredited institution of higher learning.
Admission

Applicants for admission to the College of Agriculture must meet the requirements for admission to the University. As a part of, or in addition to, those subjects required for admission, it is recommended that prospective students have algebraic theory, ½ or 1 year; trigonometry, ½ year; physics, 1 year; chemistry, 1 year; and for those proposing to major in agricultural engineering, forestry, irrigation science, or range management, 1 year of mechanical drawing.

Requirement for Bachelor of Science Degree

The degree of Bachelor of Science is awarded to those candidates who:

(1) satisfy the general University requirements for graduation.
(2) satisfy the general requirements of the College of Agriculture, as follows:
   (a) at least 124 units of University work (not more than 4 units may be in lower division physical education courses);
   (b) 36 units of the above total in upper division courses (courses numbered 100–199);
   (c) 9 units of mathematics (matriculation work may be offered toward this requirement, counting each year of high school work as 3 units; trigonometry taken in high school is recommended as partial satisfaction of this requirement); and
(3) satisfy the requirements of a curriculum major in the College of Agriculture.

Beginning with the fall semester, 1965, a single curriculum in agricultural science will offer majors in:

- Agricultural Economics
- Agricultural Science
- Dietetics
- Entomology
- Food Science
- Genetics
- Nutrition
- Soils and Plant Nutrition

Related curricula in range management, preforestry, and preveterinary will continue to be offered. There is no common program of study for the first two years in the College of Agriculture; each major has its own requirements. See the Announcement of the College of Agriculture, Berkeley, for detailed information.

As soon as the student has selected a major, he obtains the name of his adviser from the office of the Dean of the College of Agriculture. This adviser must be consulted each semester for guidance in following the requirements of the major chosen. Students who are unable to meet the suggested programs of study during the first two years may take
some of the requirements in their junior or senior years. It should be noted, however, that any great departure from the recommended programs may delay graduation beyond the normal four-year period.

**Graduate Instruction**

Graduate instruction is under the jurisdiction of the Dean of the Graduate Division. In addition to studying with a well-qualified faculty, the graduate student majoring in one of the agricultural sciences is afforded the opportunity of working with members of the research staff of the Agricultural Experiment Station. A number of research assistantships are available to outstanding students. These involve half-time employment during the two regular semesters and full-time work during the summer recess. Fellowships, graduate scholarships, and teaching assistantships are also available.

Work may be pursued in fields leading to the degrees of Master of Science and/or Doctor of Philosophy, as follows:

- Agricultural Chemistry ........................................ Ph.D.
- Agricultural Economics ....................................... M.S. and Ph.D.
- Entomology .................................................... M.S. and Ph.D.
- Food Science .................................................... M.S.
- Genetics .......................................................... M.S. and Ph.D.
- Nutrition .......................................................... M.S. and Ph.D.
- Parasitology ..................................................... M.S. and Ph.D.
- Plant Pathology .................................................. M.S. and Ph.D.
- Plant Physiology ................................................ M.S. and Ph.D.
- Range Management .............................................. M.S.
- Soil Science ..................................................... M.S. and Ph.D.

For information concerning all matters pertaining to graduate instruction at Berkeley, see the **ANNOUNCEMENT OF THE GRADUATE DIVISION, BERKELEY.**

Inquiries concerning the teaching of agriculture in the secondary schools should be addressed to the Department of Agricultural Education, University of California, Davis.

**Libraries**

The Agriculture Library in 40 Giannini Hall, and the Entomology Library, a branch of the Agriculture Library in 112 Agriculture Hall, are accessible to both undergraduate and graduate students. The Giannini Foundation Library, available to graduate students, is in 254 Giannini Hall. Departmental libraries are also maintained for the use of staff and qualified students.
Research Facilities

In addition to the usual indoor laboratories, the teaching departments of the College of Agriculture have greenhouses and open land plots for research projects on the Oxford Tract in Berkeley and at the Gill Tract in Albany. The facilities and staff of the Giannini Foundation of Agricultural Economics are also available to graduate students. The Foundation conducts research in such fields as natural resources, farm management and production, land economics and conservation, marketing, agricultural statistics and prices, agricultural policy, and commodity studies.

Student Activities

Students in the College of Agriculture participate not only in the general student affairs of the University but also in activities of their own. Departmental clubs, social as well as professional in character, are open to both graduate and undergraduate students.

The informal atmosphere of the College of Agriculture encourages a friendly student-faculty relationship.

In this College, the student may choose a program in basic chemistry or a program in chemical engineering.

The curriculum in basic chemistry, leading to the degree of Bachelor of Science, is designed to give a broad foundation upon which to build a professional career in chemistry, either in research or in the application of chemistry to technological problems. The basic chemistry major prepares the student directly for industrial employment in laboratory synthesis, quality control, research on physical and chemical properties of material and product development. Students with high academic achievement are also well equipped to enter graduate study programs leading to advanced degrees. In electing the basic chemistry curriculum, the student should be fairly certain that his educational objectives involve chemistry as the core of his professional interest.

A major in chemistry is also offered in the College of Letters and Science for students who wish to combine a moderate specialization in chemistry with a more extensive program in the humanities and social sciences.

The four-year curriculum in chemical engineering, leading to the degree of Bachelor of Science, equips the student for professional work in the development, design, and operation of chemical processes and of process equipment. It includes extensive study of the theory of the operations of chemical engineering and the fundamentals of chemical
processes and prepares for employment in the organic chemical, petroleum, inorganic chemical, electrochemical, or related industries. Training by appropriate choice of elective courses is also provided for chemical engineers in the nuclear, ceramic, and biochemical industries. A five-year curriculum is provided for students who wish to include further electives in the humanities or social sciences in addition to more advanced work in chemistry and chemical engineering.

Requirements for the Degree Bachelor of Science

To graduate with the Bachelor of Science degree, the student must have satisfactorily completed a minimum of 124 units and also have satisfied the following specific requirements:

1. Mathematics 1A, 1B, 2A; or Mathematics 3A, 3B, 4A, 2A.
2. Physics 4A, 4B, 4C.
3. Chemistry 1A, 1B, 5, or Chemistry 4A–4B; Chemistry 12, 110A, 110B, 111, 112*, and two of the four courses† 104, 105, 106, 120.
4. Demonstration of reasonable proficiency in the use of English, as demonstrated by a grade of C or higher in English 1A or Speech 1A.
5. The general University requirement in American History and Institutions.
6. A program of 18 units of restricted electives in the humanities and social sciences (in addition to the foreign language requirement for students majoring in basic chemistry). The student should include at least one course in English or speech; one course in the social sciences†; and one course in fine arts, philosophy, or literature. A list of approved courses is provided by the College of Chemistry.
7. In addition to completing the specific requirements numbered 1 through 6, each student shall complete either the major in basic chemistry or the major in chemical engineering.

The major in basic chemistry requires a reading knowledge of scientific German for the work of the senior year. Satisfactory completion of German 1 and 2 will be deemed to meet this requirement.

Minimum Scholarship Requirements (see page 56).

Undergraduate Programs

Lower Division

The preparation of the student during the freshman and sophomore year in elementary chemistry, mathematics, and physics is care-
fully designed to allow flexibility in choosing between the chemistry and chemical engineering major at the beginning of the junior year. The suggested course program for the first two years may be taken either at Berkeley or at one of the junior colleges in the state.

**Minimum Lower Division Program**

The following typical program includes the required preparation for advanced courses.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Fall Units</th>
<th>Spring Units</th>
<th>Sophomore Year</th>
<th>Fall Units</th>
<th>Spring Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1A–1B or 4A–4B</td>
<td>5</td>
<td>5</td>
<td>Chemistry 5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 1A–1B</td>
<td>4</td>
<td>4</td>
<td>Chemistry 110A</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Physics 4A</td>
<td>4</td>
<td>4</td>
<td>Mathematics 2A</td>
<td>4</td>
<td>.</td>
</tr>
<tr>
<td>*Restricted Elective</td>
<td>3</td>
<td>3</td>
<td>Physics 4B–4C</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>.</td>
<td>Restricted Elective</td>
<td>3</td>
<td>.</td>
</tr>
<tr>
<td>§Chemical Engineering I43 or elective</td>
<td>.</td>
<td>3</td>
<td>§Chemical Engineering</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Elective</td>
<td>.</td>
<td>3</td>
<td>Elective</td>
<td>.</td>
<td>3</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td><strong>16</strong></td>
<td>14–17</td>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Upper Division Programs**

Upon entering the junior year the student should choose between the major in basic chemistry and the major in chemical engineering.

The student must have completed the specific requirements in the normal curriculum for the first two years, or their equivalent, in order to obtain upper division standing.

Students with a grade-point average below 2.5 in the lower division chemistry, mathematics, and physics courses are seldom successful in the upper division of the College of Chemistry. Admission of students with a lower grade-point average to the upper division of the College of Chemistry requires special approval of the Dean of the College, who may require a comprehensive examination.

**Honor Students in the Upper Division.** Students who in the first two years of their college work have attained an average of at least three grade points for each unit undertaken will receive honorable mention with junior standing. These students are entitled to register as candidates for honors. After the first semester of the junior year, the Committee on Honors of the College of Chemistry will determine which students shall remain in the honors group and which students shall be promoted thereto. Honor students will be given a larger share of personal instruction and a greater opportunity to choose courses and work.

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* Normally English 1A or Speech 1A is taken the first semester.
† Not required for students who complete Chemistry 4A–4B.
§ Chemical Engineering 143 is required only for chemical engineering students. Those majoring in basic chemistry may substitute an elective. Students planning to take upper division biochemistry courses should include one of the following courses in the sophomore year: Bacteriology 1, Physiology 1, or Zoology 1.
within courses, in the manner best suited to individual needs and aims. Students not in the honors group will not, except in unusual circumstances and with the express permission of the instructor, be permitted to enroll for honors courses (marked H) or for undergraduate research. Students will not ordinarily be recommended for honors at graduation unless their work includes advanced courses approved by the committee. Normally these courses are Chemistry 114H and 180H for students in basic chemistry and either Chemical Engineering 149H or Chemical Engineering 180H for students in chemical engineering. Subject to the approval of the study-list adviser and of the instructor in the course concerned, students in honors status have the privilege of taking each semester one course not offered by them in satisfaction of subject requirements for the curricula of the College of Chemistry in which they shall be marked “passed” or “not passed.” In calculating the grade-point standing, units gained in this way are not counted. Students in the honors group in basic chemistry should confer with Mr. Jura, 117 Lewis Hall, with respect to their plans for the last two years of college work. Those in the curriculum in chemical engineering should confer with Mr. Tobias, 101D Gilman Hall. The list of students upon whom honors and highest honors are conferred appears in the annual Commencement Program.

Major in Basic Chemistry

Upon entering the upper division the student (in consultation with his adviser) should prepare a comprehensive program for the remaining two years of study. Such programs must include physical chemistry (9 units), advanced inorganic chemistry (6 units), organic chemistry (5 units), and a minimum of 17 additional units of upper division courses in chemistry and related fields. At least 8 of the 17 units should be in chemistry courses.

Curriculum in Chemical Engineering

The curriculum includes the subjects common to all engineering curricula, together with thorough fundamental training in chemistry, and specialized advanced courses in chemical engineering.

The course work of the junior and senior year includes physical chemistry (9 units), organic chemistry (3 or 5 units), course work in various fields of engineering (15 units total), and specified courses in chemical engineering (15 units additional). The balance of the student’s program is taken up with advanced technical electives. Typical programs meeting these requirements are given in the Announcement of the College of Chemistry.
Graduate Programs

Graduate study and research may be pursued in the departments of chemistry and chemical engineering. The degree of Master of Science, Master of Arts, Doctor of Philosophy or Doctor of Engineering may be obtained on completion of the requirements set up for these degrees. Further details are given in the Announcement of the College of Chemistry.

Admission Requirements

Freshmen

Students wishing to enter the College of Chemistry must fulfill the general requirements for admission to the University. The high school program of students entering the College of Chemistry should include: physics (1 unit); chemistry (1 unit); mathematics, including trigonometry and two years of algebra (3½ units); foreign language, preferably German, French, or Russian (2 units). Further advanced mathematics and German are desirable. Mechanical drawing is recommended, particularly for those electing the chemical engineering curriculum. Students with deficiencies in this preparation will not be prepared to follow a normal program in the College of Chemistry and cannot complete the program in the normal time.

Admission in Advanced Standing

See page 25, "University Admission Requirements."

Admission in Graduate Standing

Admission to graduate work requires a distinguished record of undergraduate scholarship. The laboratory space available for advanced study and research is limited. Additional information may be obtained from the brochure, Admission to Graduate Study, Graduate Division, Berkeley.

Facilities

The College of Chemistry occupies a group of buildings at the east end of the Berkeley campus.

The freshman chemistry and organic chemistry laboratories are located in the recently completed Latimer Hall, which also houses the administrative offices of the College of Chemistry and the Department of Chemistry. This building contains in addition the Chemistry Library of periodicals and texts relating to chemistry and chemical engineering, and laboratories for graduate research in organic, inorganic, and some fields of physical chemistry.
Laboratories for analytical chemistry, advanced inorganic chemistry, physical chemistry, instrumental analysis, and microchemistry are housed in Lewis Hall. This building also contains laboratories for graduate research in physical and analytical chemistry.

Offices and laboratories of the Department of Chemical Engineering are located in Gilman Hall.

Facilities for low temperature research are available in the Low-Temperature Laboratory adjacent to Gilman Hall.

The research laboratories are well-equipped for research in a variety of areas. The wide range of research activity in the departments is indicated by some of the topics currently under investigation: physical-chemical studies of substances at both very high and extremely low temperatures; rates and mechanisms of reactions, both organic and inorganic; applied chemical kinetics; spectroscopic investigations in all areas; investigations involving the use of radiochemical tracer techniques in the various branches of chemistry; the structures of natural products of biological interest; heat and mass transfer; and applied mathematics in chemical engineering.

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**COLLEGE OF ENGINEERING**

**General**

The College of Engineering at Berkeley offers a broad program of education in a variety of engineering fields. The instructional program in engineering at the University began in 1872 with the organization of the College of Civil Engineering at Berkeley. Since that time, instruction in engineering has grown to keep pace with state and national needs, and today includes all of the major fields of engineering. Engineering education at the University of California has made an important contribution to the rapid growth and leadership in the industrial development of the West. In the years ahead, there is every reason to expect continued leadership by the University in engineering for the rapidly expanding industrialization of the state and nation.

In California, engineering instruction is available at the University of California on its campuses at Berkeley, Davis, Los Angeles, and Santa Barbara. Programs in engineering instruction are starting on the Irvine and Santa Cruz campuses and a program in applied science is available on the San Diego campus. The state colleges and several of the privately supported institutions in California also offer instruction in engineering. The first two undergraduate years are available at most of the public junior colleges, of which there are over seventy throughout the state.

The programs of engineering education of the University of California, the state colleges, and the junior colleges are coordinated
under the Master Plan for Higher Education in California as embodied in the Donohoe Act of the 1960 State Legislature.

The public junior colleges in California have a distinctive role in higher education, which, as it relates to engineering, includes the following:

(a) preparation of students for transfer into the junior year of the University's programs of engineering;

(b) preparation of students for transfer to the engineering and applied science programs of the state colleges and of many private colleges and universities;

(c) one- and two-year programs that prepare students for a wide variety of semiprofessional and highly specialized technical positions.

Within the above framework, the University has developed strong undergraduate and graduate programs in all of the engineering branches at the Berkeley and Los Angeles campuses with special emphasis on preparation of students for the functions of design, development, and research, and for the pursuit of graduate study. The Davis college offers instruction in several of the major fields of engineering and the School of Engineering at Santa Barbara presently offers undergraduate programs in electrical and mechanical engineering. (Please see the bulletin of the College or School of Engineering prepared by each campus for full description of the program as offered by that campus.) The University has provided Engineering with highly qualified faculties in their respective fields and modern and complete laboratory, library, and study facilities. Graduate and advanced undergraduate students have the opportunity to participate with the faculty in the many programs of research and development that are undertaken to advance engineering knowledge and to serve the industry and government of the state and nation.

The educational programs of the four campuses are carefully planned to provide particular strength in certain areas on each campus and to avoid unnecessary duplication of instruction. Students who wish to take advantage of differences among the campuses may arrange an inter-campus transfer for appropriate portions of their study program.

**Undergraduate Programs**

Instruction in engineering is based upon a comprehensive basic training in physics and chemistry. Emphasis is also placed upon facility in mathematics, utilizing a strong core of mathematics throughout the first several years. The humanities and social sciences are an important fraction of the curricula.

The four-year curriculum is characteristic of the Colleges of Engineering at the University of California. Upon completion of an undergraduate curriculum the engineering graduate may elect to complete his
preparation for full professional status through professional experience in industry, agriculture, or government, or, if qualified, he may undertake graduate study leading to advanced degrees. In-service training, augmented by appropriate University Extension courses, speeds the attainment of professional status and is a natural extension of the undergraduate engineering curriculum.

The program of studies for the first two years in engineering is nearly common for all curricula. It is not necessary to decide upon a major field until the last half of the sophomore year, and transfers between some curricula can be made with little or no loss of time even into the junior year. As an aid to high school students who anticipate the study of engineering and to help junior college students who may wish to transfer to the University at the junior level, the common program for the first two years in engineering is designed for maximum flexibility in preparation for the various curricula in the upper division.

The lower division engineering program, for all curricula other than engineering science, is essentially the same and gives the beginning student the fundamentals in science, mathematics, and engineering which are essential as preparation for the professional studies of the upper division. The following lower division program of study should be completed in order to enter the upper division program in any of the available curricula:

<table>
<thead>
<tr>
<th>Lower Division Program</th>
<th>Fall</th>
<th>Spring</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 1A-1B</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1A-1B</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Engineering 27-28</td>
<td>2-3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Physics 4A</td>
<td>4</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science 1A-1B</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Military Science</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>16-17</strong></td>
<td><strong>18</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

* Three units for students intending to major in civil, industrial, and mechanical engineering; all others take two units.
§ Voluntary; if military science is not taken the equivalent units must be taken in electives.
† To be selected as follows for students intending to major in:
  - Civil Engineering—Engineering 10, Engineering Survey Measurements.
  - Electrical Engineering and Mechanical Engineering—Engineering 17, Introduction to Electronics Systems, Circuits, and Devices.
  - Ceramic Engineering and Metallurgy—Chemistry 5, Quantitative Chemical Analysis or Engineering 17, Introduction to Electronics Systems, Circuits, and Devices.
  - Geological Engineering and Mineral Exploration—Geology 5, General Geology or Engineering 17, Introduction to Electronics Systems, Circuits, and Devices.
  - Industrial Engineering and Petroleum Engineering—any technical elective.
† For selection of humanistic-social studies, see the ANNOUNCEMENT OF THE COLLEGE OF ENGINEERING.
The lower division program of study for engineering science provides special students with the opportunity for obtaining a broad background in the principal areas of engineering science and the related fields of mathematics and science. It is anticipated that many students entering this program will continue their education at the graduate level in one of the several fields of engineering or of science. Students wishing to enroll in an upper division program in any of the several areas of engineering science should have first completed the equivalent of the following lower division program:

<table>
<thead>
<tr>
<th>Lower Division Program—Engineering Science Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman Year</strong></td>
</tr>
<tr>
<td>Mathematics 1A–1B</td>
</tr>
<tr>
<td>Chemistry 1A–1B</td>
</tr>
<tr>
<td>Physics 4A</td>
</tr>
<tr>
<td>English 1A or Speech 1A</td>
</tr>
<tr>
<td>*Humanistic-Social Studies</td>
</tr>
<tr>
<td>Science</td>
</tr>
</tbody>
</table>

**Fall** | 17 | 18

Instruction beyond the first two years is offered in a wide variety of branches of engineering as indicated by the list that follows. Detailed statements concerning programs in these fields may be found in the Announcement of the College of Engineering, Berkeley. The Bachelor of Science (B.S.) degree is awarded for satisfactory completion of an undergraduate curriculum. In aeronautical sciences, naval architecture, and nuclear engineering, graduate instruction forms the major portion of the offerings.

**Aeronautical Sciences**

**Ceramic Engineering**

**Civil Engineering**

Construction—Transportation

Hydraulic Engineering—Sanitary Engineering—Water Resources

Soil Mechanics and Foundation Engineering

Structural Engineering—Structural Mechanics

Surveying—Geodesy—Photogrammetry

**Electrical Engineering**

Computer Sciences

Electronics, Fields, and Plasmas

Systems, Information, and Control

* Social Science 1A–1B recommended.

† Unrestricted Elective.

† Unrestricted for students who have completed three years of high school French, German, or Russian. All other students must complete French 2, German 2, or Russian 2.

† Engineering, physical sciences, life sciences, mathematics, statistics.

Note: students in Engineering Geoscience must take Geology 5, (4 units) and Geology 6 (4 units).
Requirements for Admission

Every applicant for admission to engineering must meet the general requirements for admission to the University (see page 22). For admission to graduate status see the Brochure, ADMISSION TO GRADUATE STUDY, GRADUATE DIVISION, BERKELEY, for details.

New students are accepted only at the beginning freshman and at the junior, senior, and graduate levels.

Students transferring from other colleges and universities to the University of California for the study of engineering should have adequate training in subjects basic to the level at which transfer is planned. The full senior year, comprising a minimum of 30 units, in all cases must be completed on the Berkeley campus.

Students who wish to transfer to the College of Engineering from a technical institute or a junior college technical education program will be expected to meet the existing University requirements for admission to the freshman year. In consultation with a faculty adviser, placement in engineering courses will be determined by the student’s previous scholarship record and his performance on an appropriate aptitude or achievement test. After he has demonstrated ability to do the work required in the College of Engineering with a satisfactory grade-point average, the College of Engineering will evaluate his noncertificate terminal courses and recommend transfer credit for them to the extent that they are found to have served the student as preparation for his advanced work in engineering.
Freshman students admitted to the University and electing the College of Engineering should note that they will not be able to start the regular Engineering course program unless their high school record includes the following recommended subjects in mathematics, science, and mechanical drawing, e.g., algebra, 2 units; plane geometry, 1 unit; trigonometry, ½ unit; physics or chemistry (preferably both), 1 unit; mechanical drawing, 1 unit.

Admission to the lower division of the College of Engineering does not necessarily imply admission to the upper division at some later time. For admission as a junior, every applicant must achieve a satisfactory score on the Upper Division Engineering Examination and must present record of satisfactory scholarship earned during his freshman and sophomore years. Furthermore, he must satisfy certain minimum subject matter requirements in mathematics, physics, chemistry, and engineering.

For details concerning the Engineering Examinations and the requirements for admission, see the Announcement of the College of Engineering, Berkeley.

Applicants who do not qualify for admission as freshmen may enroll in a junior college (or other appropriate college) and qualify for admission as juniors under the set of requirements listed for admission at this level.

**Work-Study Programs**

The cooperative work-study program is an optional program in which engineering students may alternate work and study periods to obtain actual industrial experience while studying for the Bachelor of Science degree. The program usually requires four and one-half to five years for completion. The number of students permitted in the program is not limited, but those selected must achieve good scholastic standing and be acceptable to the employing company.

The cooperative program offers many benefits to students. It provides an opportunity to see and participate in engineering functions and applications while studying for an engineering degree. It offers a means of getting actual on-the-job experience prior to graduation. There is an opportunity to obtain considerable financial assistance, although this is not a primary objective. The work experience assists the student after graduation in obtaining a high starting salary as well as a more advanced engineering position in industry.

Students who are interested in the cooperative program should apply to the College of Engineering, Berkeley. Comprehensive bulletins concerning the programs are available at the Dean's office.
Graduate Study

The fields of engineering have expanded so rapidly in recent years that it is no longer possible to cover in four years the whole of any field, including the more advanced and specialized phases. Industry demands highly trained men in whom the scientific attitude has been developed and who have demonstrated ability to pursue independent research. Institutions of learning are also asking for such men as teachers. Therefore, students who have distinguished themselves in their undergraduate curricula are encouraged to spend one or more years in graduate study.

Graduate study in engineering at Berkeley can be carried out in either of two general areas, that of advanced engineering science and that of advanced professional engineering. Completion of appropriate programs of study leads to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) for study in the engineering sciences and Master of Engineering and Doctor of Engineering for professional study. Qualified faculty and excellent research facilities are available for the graduate student who wishes to pursue advanced study in any one of the fields listed in the section on Undergraduate Programs.

Engineering Research

Engineering research at the University is closely integrated with graduate instructional programs and strongly influences the undergraduate programs. Engineering research programs are conducted under the direct supervision of faculty members. Some of the research is supported by University funds. Much of it is supported by grants and contracts with industrial organizations, foundations, and public agencies. The guiding principle that determines the nature of research support accepted is faculty-student cooperation: research activities not based on graduate student participation are discouraged.

It is the policy of the College to employ graduate and sometimes undergraduate students on a part-time basis in connection with research projects as the need arises. Over 500 students are currently so employed, in addition to research students supported by fellowships, traineeships, and other means.

Research activities at Berkeley and at the Richmond Field Station are coordinated by the Office of Research Services in the College of Engineering, which provides administrative support and services to both internally and externally supported research projects. Outside sponsorship of projects being carried out by individual engineering faculty members and by organized research units (see below) amounts to about $4.5 million annually. Additional funds are available to engineering pro-
fessors whose research projects are administered through units outside the College such as the Biomechanics Laboratory, the Computer Center, the Inorganic Materials Research Division of the Lawrence Radiation Laboratory, and the Space Sciences Laboratory. The organized research units in the College of Engineering are:

- Electronics Research Laboratory
- Sanitary Engineering Research Laboratory
- Hydraulic Engineering Laboratory
- Sea Water Conversion Laboratory
- Operations Research Center
- Structural Engineering Laboratory

An additional unit, set up by state law at Berkeley and Los Angeles, the Institute of Transportation and Traffic Engineering, conducts research related to the planning, design, and operation of highways, airports, and other transport facilities.

The Institute of Transportation and Traffic Engineering

State law provided for the establishment of this Institute, which has units on both the Berkeley and Los Angeles campuses. It conducts research related to the planning, design, and operation of highways, airports, and other transportation facilities. At Berkeley, most of its staff members serve on the faculty in the Division of Transportation Engineering of the Department of Civil Engineering, which offers graduate programs leading to master's and doctoral degrees. The individual graduate student can follow any of a wide range of interests through course selections in these programs. Institute research extends from the relatively precise applied sciences of materials and structures to such fields as transportation systems analysis and design, and engineering economics and administration. Some Institute research is independent, some in cooperation with outside agencies, such as the Federal Aviation Agency and the California Division of Highways. Many graduate students in Transportation Engineering study under fellowships or other awards; others participate in Institute research through part-time employment. The Institute maintains laboratories, field research equipment, and an outstanding research library.

Engineering Extension

Through University Extension, an extensive program of evening courses is offered by Engineering Extension throughout the State of California to provide employed graduate engineers with an opportunity for review or for systematic study in new fields and to give others who cannot attend regular University sessions an opportunity to obtain some
engineering undergraduate courses. These courses are available on the campuses of the University, in major cities, and in any community where a sufficient enrollment is assured. Instruction in both theory and practice is offered in various branches of engineering, such as civil, electrical, industrial, mechanical, naval architecture, nuclear engineering, and those offered by the Department of Mineral Technology.

Correspondence instruction is available in many subjects, and the number of such offerings increases each year.

Regular session students in the College of Engineering must receive written approval from the Dean of the College prior to enrolling in an extension course. Credit courses taken by others may be applied toward a B.S. degree upon enrollment as a regular session student and if approved by the Dean of the College.

Engineering Extension arranges technical conferences and engineering short courses that bring together special groups for brief periods to study pertinent engineering problems under the guidance of recognized authorities.

Student Activities and Services

Important activities of students, faculty, and professional engineers are conducted to supplement the program of studies. Objectives of these activities are to stimulate the growth of professional attitude in students and to advance student welfare.

Engineering student organizations and publications include several scholastic honor fraternities, general engineering societies, student chapters of most of the national professional societies, and weekly newsletters. The organizations hold technical and social meetings, conduct field trips, attend professional society meetings in nearby cities, advance student ethics and morale, and render services, such as tutoring, to students.

Students are assigned in small groups to faculty advisers who aid them in planning their study programs and in overcoming obstacles. Practicing engineers visit the campus regularly and are available for discussions with students.

The Engineering Library and other study facilities are provided for students to work singly and in groups. The student-faculty lounges provide a friendly social atmosphere. Instructors and advanced students are consulted regularly by beginning students for assistance in their studies.

Apart from University prizes and scholarships, other awards are conferred by the College of Engineering and by student and professional societies for outstanding performances in such areas as design or laboratory projects, leadership, and technical writing.
The College of Environmental Design was established in 1959 with the amalgamation of the departments of Architecture, City and Regional Planning, and Landscape Architecture. Since then additional functions related to allied disciplines and other fields have been added. The College now has some 915 undergraduates and 94 graduates in the three disciplines. With the recent move to Wurster Hall, the possibility of greater interplay of work in the same building that provides stimulus to each department has become a reality.

The College of Environmental Design has a unique name. As its name suggests, it promises a synthesis of the fields which deal with the functional and esthetic quality of man's surroundings. Education for these fields—architecture, landscape architecture, city and regional planning, and related disciplines—is undergoing a rapid metamorphosis at the University of California.

Among the most complex of the arts and professions taught at this University, the educational programs are drawing upon research in technology, decision theory, and human behavior and perception as the bases for their advancement. Our faculty increasingly emphasizes an intellectual as well as an intuitive approach. Both are necessary for creativity. By being part of a great university we can rely on the work in the humanities, the social and natural sciences, technology and other professions, with all of which the environmental design fields are linked.

Our graduate and undergraduate curricula are changing because man's environment is changing. More and more people in this and other countries live in large metropolitan areas. With a new level of social and physical mobility, their aspirations are changing too. The physical form as well as the institutions and services of the metropolitan areas will have to adapt to these new aspirations and to new human functions. It becomes ever more important, therefore, for the environmental design fields to deal with the whole fabric of the metropolitan region and its new scale.

To meet these new challenges, the architect and landscape architect need an undergraduate and graduate education much broader than in the past. This College focuses on the users of buildings and spaces. A user-oriented approach to architecture and landscape architecture requires an understanding of the cultures as well as the physiology and sense perceptions of man, of the values held and the choices made by the contemporary family, by the industrialist and the businessman, by the public official, and by the representatives of the arts and the institutions. It also requires that the environmental designer be self-conscious about and understand the design process.

One of the ways of learning about the needs and demands of the
users and the way physical forms have and have not provided for them, is to examine the environments man lived in at other times. In the last half century, architecture and landscape architecture broke with the aping of historical styles which dominated the fields for the previous hundred years in Europe and America. Contemporary function and technology became the new aims, and study of the past was neglected. In this College, we turn again to history, not as a source of empty style, but as a key to understanding the linkages among technology, concepts of beauty and physical form, and social and economic organization.

City and regional planning, the newest of the fields of environmental design, has been changing the most. Starting early in the century as a movement for civic beautification, it soon encompassed programs for social, economic, and governmental improvement of cities and for large-scale development of river valleys and regional resources. Housing, transportation, industrial and commercial development, facilities and services for education, recreation and health and sanitation, have all become the concern of the planner. In the last few years, his methods, originally derived from the architect's focus on an intuitive synthesis, have leaned more and more on quantitative analysis.

Our objective is to further this analytic orientation in city and regional planning and at the same time strengthen the earlier concentration on beauty and amenity. Similarly, in architecture and landscape architecture we are attempting to combine the three design principles of the ancient Romans: social and economic utility, technological soundness, and esthetic delight. We hope to have creative imagination, creative analysis, and visual as well as verbal talents meld in shaping an environment for man far different from and far superior to his present one.

Our efforts to achieve a more common core of method and knowledge for the environmental design fields has been furthered by the move in the fall of 1964 to Wurster Hall. It is named for William Wilson Wurster, the first dean of this College. The new building provides classroom, office, workshop, library and laboratory space for the departments of the school which were once separated in several buildings. A fourth department dealing with basic design and the history of the decorative arts has been moved into both the College and the building. This department, as its program evolves in collaboration with the College of Letters and Science, will add new dimensions to both the general education and the professional education we offer. Certainly in fields as broad as those of environmental design, general and professional education are not in conflict; they reinforce each other in understanding man's ideas and institutions, as well as in career preparation.

The new building also houses the recently established Institute of Urban and Regional Development and the Center for Planning and
Development Research. Though only two years old, the institute is already regarded as one of the outstanding programs in the country. A research laboratory will help strengthen our new education program in building technology which will be managed jointly with the College of Engineering. These new research activities are designed to add to the intellectual capital of the environmental design fields, to provide teaching materials and opportunities for student research, and, as a public service, to help improve the environment of our nation and its neighbors in the world, and in particular of this, the most rapidly urbanizing state.

The satisfactions of following careers in private practice, public service, teaching, or research in environmental design fields are immense. We like to think that among these satisfactions are those which come from students and faculty jointly exploring paths which lie at the boundaries between traditional and innovative scholarship.

Architecture

Informal architectural education began at the University of California in 1896 when Bernard R. Maybeck, architect, was engaged to teach instrumental drawing and descriptive geometry. Mr. Maybeck helped formulate the Hearst International Architectural competition for the Berkeley campus thus creating an outstanding environment for the architecture of the University. As a result of this competition John Galen Howard came to the University as a supervising architect and founded the Department of Architecture in 1903. This later became a school and in 1953 a college with the start of a five-year undergraduate curriculum. In 1959 the College of Environmental Design was established in which is included the Department of Architecture.

In architecture, the ideas and attitudes of the society find physical embodiment. To the architects of the society falls the satisfaction of seeing beliefs and understanding take physical form, to become the container for man's activities and the imprint of his society and himself on the face of the earth. In today's period of explosive growth this is a more challenging activity than ever before. Saving the earth becomes in some respects more difficult and more exciting than arriving at the moon. Providing for the physical needs of more and more people without destroying the individual's relation to the land, while maintaining his important sense of having some distinguishable place in the world, and giving him the chance to arrive at a perception of the physical order of things is a task which requires intellect and the highest level of creativity.

The architect, formerly standing somewhat apart from society, is now wrapped up in some of its central problems. To solve these problems he needs to discover and make maximum use of phenomenal amounts of information, with no guide but his own point of view to
resolve conflicts or establish a hierarchy of importances among the myriad physical and emotional functions which condition even the simplest inhabited structure.

Our education system in high school and college concentrates on developing the student's ability to write and to speak. It does almost nothing to develop his ability to see and to describe what he sees.

The architecture student, therefore, even if he has an extensive academic background, must usually start from the beginning learning to see things and to understand the processes that give them their shape, and to communicate this understanding by sketching, drawing, diagramming and simulating forms that exist already and forms that come to exist only in the architect's mind. A curious aspect of the outlook required of the architect, now as in the past, is the unembarrassed juxtaposition of concern for the closely finite, like doorknobs, with concern for the most general concepts, like the extent and importance of the public realm in a democratic society. A minor deficiency of temperature control or an uncomfortable spot of glare can prevent the user from understanding or enjoying an environment, however brilliantly it has been conceived. The architect's method of solving a problem is not unlike that of the scientist; he must start from an understanding of the problem and its pieces, from which he makes a leap to an idea, a hunch, a suspicion of how things might be brought together. This he follows with more gathering of information, its organization, its application, then the testing of the results, to see if they make sense. Admittedly, much of the environment takes shape without any idea, and methods for testing the solutions to architectural design problems have remained primitive. One of the most exciting activities in architecture now is research in methods of collecting and combining information, and testing solutions, so that architects, traditionally masters of the play of forms in light, may become masters as well of the increasingly urgent problems of making a more and more complex and difficult environment workable and fully habitable.

Undergraduate Curricula—Requirements for the Degree Bachelor of Architecture

The Department of Architecture offers a five-year curriculum leading to the professional degree, Bachelor of Architecture.

New students requesting advanced standing in architectural design, descriptive geometry, watercolor, pen and pencil drawing, and history of architecture courses offered by the department must present a comprehensive, well-organized exhibit of their work for evaluation by the faculty before Wednesday afternoon of registration week.

The following program includes the required preparation for ad-
Advanced courses in the curriculum for the Bachelor of Architecture degree.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Fall Units</th>
<th>Spring Units</th>
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</thead>
<tbody>
<tr>
<td>Subject A</td>
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<td>3</td>
</tr>
<tr>
<td>Amer. Hist. and Amer. Inst.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 3A-3B</td>
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<td>3</td>
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<td>Physics 2A</td>
<td>3</td>
<td></td>
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<tr>
<td>Physics 3A</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Architecture 1-2</td>
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<td>3</td>
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<td>Architecture 5</td>
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<td></td>
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<tr>
<td>Architecture 6-7</td>
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<td>2</td>
</tr>
<tr>
<td>Architecture 11</td>
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<td></td>
</tr>
<tr>
<td>Architecture 12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
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<td>3</td>
</tr>
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<tr>
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<tr>
<td>Physics 2B</td>
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<td>Physics 3B</td>
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<td></td>
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<td>Engineering 18A-18B</td>
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<td>3</td>
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<tr>
<td>Engineering 21</td>
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<td></td>
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<tr>
<td>English 1A or Speech 1A</td>
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<tr>
<td>Electives</td>
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<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

The Bachelor of Architecture degree will be recommended for students of the College who have successfully completed the prescribed undergraduate curriculum in architecture. For detailed information regarding the five-year curriculum, see the Announcement of the College of Environmental Design.

Graduate Curricula—Requirements for the Degree Master of Architecture

The degree of Master of Architecture will be recommended for students who have successfully completed a program established by the faculty of the Department of Architecture and approved by the Graduate Council. A minimum of one year of residence at Berkeley will be required.

A thesis option or an examination option may be selected by the student with the approval of the graduate adviser.

For detailed information regarding the admission requirements and prescribed curriculum for the Graduate Program in Architecture refer to the Announcement of the College of Environmental Design and the Announcement of the Graduate Division, Berkeley.

City and Regional Planning

The planning of cities is as old as urban civilization, but the present-day planning profession has emerged in response to the rapid growth, changing character, and critical problems of twentieth-century urban development. Planning has become an accepted function of government, both in overall terms and in connection with particular programs, while planning techniques are likewise employed by large-scale private developers. Theorists and researchers in other disciplines have become increasingly interested in urban problems, and their work, often in partnership with planners, is contributing to greater knowledge and more
sophisticated methods in planning practice. City and regional planning is a rapidly expanding field, with some 3,500 professionals in the United States, most of them members of the American Institute of Planners.

Characteristically, city, county, and metropolitan regional planning agencies are responsible for recommending guide lines for channeling the urban physical development of their respective jurisdictions. City planners are also relied upon in other types of public agency—including local, state and federal agencies dealing with highways, transportation, housing, urban renewal, public works, economic development, human and natural resources development, education, and health. A significant fraction of the profession engages in private consulting, to city planning and other governmental agencies, and to private firms of various sorts.

The city planner must be a broadly trained person, capable of interweaving exceedingly diverse strands of knowledge and creative insight. He must possess a sympathetic understanding of the nature and great potentials of urban and metropolitan life. He must have a basic comprehension of the community's economy, of its social and political structures, and of the processes and forces entwined in urban growth. He must be able to bring analysis to bear in providing professional counsel to key governmental decision makers.

The Department of City and Regional Planning was established on the Berkeley campus of the University in 1948 as an independent department. With the creation of the College of Environmental Design in 1959, the department became a constituent unit of the College. The curriculum is intended to serve primarily graduate students preparing for a career in the city planning field. Introductory courses are also offered for students in related fields at both the undergraduate and graduate levels.

The Master of City Planning Degree

The two-year graduate curriculum leading to the professional M.C.P. degree is geared to the emerging intellectual developments that have increasing significance for the city planning field, while also familiarizing students with our heritage and with current problems and practice.

Three programs are offered within the M.C.P. curriculum which permits students to pursue their interests, beyond the common core courses.

A Emphasis, urban physical planning, will provide an opportunity for the student to specialize in the preparation of a general physical plan for a city or a metropolitan region and in the various ways by which such a plan may be carried out. Work will range in scale from precise planning for small areas to broad-scale planning for entire metropolitan regions.
B Emphasis, housing, renewal, and development, will offer organized instruction dealing with substantive and programmative spheres of activity to which, increasingly, city planners are expected to contribute. This emphasis encompasses housing problems and policy, the improvement of central areas and the development of new communities.

C Emphasis, planning and programming for urban systems, deals with the construction and application of theoretical models and the symbolic simulation of urban systems, together with rational procedures for formulating improved decision-making approaches. Such an emphasis makes considerable use of mathematics and statistics and draws upon current developments in econometrics and regional science.

A well-prepared student can complete the program in two academic years, together with a three-month internship, preferably undertaken during the summer between the two graduate years. Some students may need to supplement their previous education; a few may be advised to or may elect to enter in February, devoting an initial semester to prerequisite courses.

For more detailed information regarding the admissions requirements and the prescribed curriculum for the Graduate Program in City and Regional Planning refer to the Announcement of the College of Environmental Design and the Announcement of the Graduate Division, Berkeley.

Landscape Architecture

Landscape architecture is the professional field concerned with the planning and design of the outdoor areas of the physical environment to obtain the most desirable relationships among land forms, open space, buildings, circulation, plantings, and other elements, from the standpoint of use and beauty.

Landscape architects work with city planners, architects, and engineers in determining the location of building groups, roads, and other man-made structures on specific sites; and with plant scientists and conservationists in solving larger problems of land use in relation to the forces of urbanization.

Many graduates engage in private practice, preparing plans and supervising construction and planting for private individuals and public agencies. Opportunities for employment exist in public offices such as park or recreation departments, school districts, redevelopment agencies, planning or highway departments, the National Park and National Forest services, and in agencies concerned with housing or public works, or other large-scale site developments.

An educational program in landscape architecture began at the University of California in 1913 in the College of Agriculture. In those early years much of the work of the department was directed to the problems
of rural communities. Since that time the department's work has changed in accordance with the growth of the field of landscape architecture itself and the increasingly urban needs of the environment. Thus emphasis has shifted toward major problems of adapting urban growth to the natural landscape, following trends in the field and in the state of California. It has similarly grown in size, and now includes about fourteen faculty members and a student body of approximately one hundred and twenty.

Instruction and research is concerned with all types of outdoor environmental problems in relation to people. Emphasis is placed on the study of the city and its open spaces, suburban neighborhoods, the natural landscape, the man-made landscape, and the outdoor recreational needs of people at both the urban and regional levels.

The Blake Estate, a ten-acre garden and landscape laboratory, less than four miles from the main campus, offers ample opportunity for field observation and experimentation in landscape architecture and related outdoor arts and sciences.

**Requirements for the Degree Bachelor of Landscape Architecture**

The curriculum of four years and one summer session leads to the professional degree of Bachelor of Landscape Architecture. The student's proposed study list must be submitted to the departmental adviser for approval and endorsement before it can be filed with the Registrar.

The following example program includes the required preparation for advanced courses in the curriculum for the Bachelor of Landscape Architecture degree.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Fall Units</th>
<th>Spring Units</th>
<th>Sophomore Year</th>
<th>Fall Units</th>
<th>Spring Units</th>
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<tbody>
<tr>
<td>Architecture 1, 23</td>
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<tr>
<td>Art 2A</td>
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<td>Art 14A</td>
<td>2</td>
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<tr>
<td>Economics 1A</td>
<td>3</td>
<td></td>
<td>Botany 1</td>
<td>5</td>
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</tr>
<tr>
<td>Engineering 21</td>
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<td>History 17A</td>
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<tr>
<td>English 1A-1B</td>
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<td>3</td>
<td>Lands. Architecture 1A-1B</td>
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<td>3</td>
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<tr>
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</tr>
<tr>
<td>Geology 10</td>
<td>3</td>
<td></td>
<td>Political Science 1</td>
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<tr>
<td>Lands. Architecture 2</td>
<td>2</td>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
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<tr>
<td>*Military Science</td>
<td>2</td>
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<td>*Military Science</td>
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<tr>
<th></th>
<th>Fall</th>
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<tbody>
<tr>
<td>Total</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

The degree of Bachelor of Landscape Architecture will be recommended for students of the College who have successfully completed the prescribed undergraduate curriculum in landscape architecture. For more detailed information regarding the full curriculum of four years and one summer session, see the ANNOUNCEMENT OF THE COLLEGE OF ENVIRONMENTAL DESIGN.

* Offered on a voluntary basis.
Requirements for the Degree Master of Landscape Architecture

The degree of Master of Landscape Architecture will be recommended for students who have successfully completed the graduate curriculum in landscape architecture.

The minimum requirements for the master’s degree are (a) residence of one year (b) completion of 20 units of approved upper division and graduate courses (including at least 8 units of Landscape Architecture courses in the 200 series) with an average grade of B or better and an acceptable thesis, or (c) completion of 24 units of approved upper division and graduate courses (including at least 12 units of Landscape Architecture courses in the 200 series) with an average grade B or better and the passing of a comprehensive final examination.

For more detailed information, see the ANNOUNCEMENT OF THE COLLEGE OF ENVIRONMENTAL DESIGN and the ANNOUNCEMENT OF THE GRADUATE DIVISION, BERKELEY.
a year or two in the College of Letters and Science, and then take professional studies, for example, in business administration or dentistry or pharmacy. But the great majority of undergraduates remain in the College of Letters and Science for the full four years. This College is stated to be nonprofessional in its objectives; how then does it prepare its students for their places in today’s world?

The College believes that it can accomplish this purpose if it requires (a) the attainment of a certain degree of proficiency in the use of English and at least one foreign language; (b) the exploration of the significant broad fields of human knowledge; and (c) the acquisition of a certain amount of specialized knowledge, of a limited but (so far as it goes) thorough command of one specific subject of knowledge. The Faculty of the College believes that the student who completes the program will have developed (a) an awareness, some understanding, and an appreciation of the intellectual achievements of mankind, (b) an awakened intellectual interest in man and the nature of the world in which he lives, (c) an aroused curiosity about some specific body of knowledge that he will be prepared to continue to cultivate throughout his adult life, (d) a disciplined and intellectual approach to the problems of individuals and society, and (e) a preparation (broadly conceived) for the career he makes for himself, whether he enters upon it directly after graduation or seeks further training in a graduate or professional school. The framework of requirements is sufficiently broad so that within it the student may cultivate his specific intellectual interests, whether for their own sake or as preparation for advanced study.

Classification of Students

Regular Students

Regular students are classified as freshman, sophomore (upon completion of 30 units), junior (upon completion of 60 units), or senior (upon completion of 90 units).

Special Students and Limited Students

Students admitted to the College in Special or Limited status are under the direct supervision of the Dean of the College. Study lists must be presented for approval each semester to the Dean in 210 Sproul Hall.

Preparation for Admission to Undergraduate Professional Schools

The Schools of Business Administration, Criminology, Dentistry, Nursing, Optometry, Pharmacy, and Public Health require 57–60 units of credit, including certain courses, for admission. The School of Med-
icine requires 90 units of credit. While a student is enrolled in the College he must select programs of study that will satisfy College requirements, but courses can be selected that will satisfy also prerequisites for admission to a school. However, if transfer to a school is not made at the end of the sophomore year (upon completion of 60 units of credit), the student must apply for and be accepted in a major for the A.B. degree in the College, and all subsequent programs must apply toward completion of that major. The specific requirements for admission to each school are set forth in the announcement of the school, which may be obtained from the Registrar. The dean of the school in which a student may be interested may be consulted for further information.

Summer Session and University Extension Courses

Students who desire to remove academic deficiencies in the summer session on any campus of the University, or to undertake courses in University Extension, should first consult the Dean of the College, 210 Sproul Hall.

Summary of Requirements for the A.B. Degree

General University Requirements

Subject A.
American History and American Institutions.

College of Letters and Science Requirements

For details of these requirements, see the Announcement of the College of Letters and Science.

Unit and Scholarship Requirements

Senior Residence Requirement

Breadth Requirements (Complete all).

1. Reading and composition .......................... 6 units
2. Foreign language (in one language) ............... 12 units
3. Natural science (including 2 units of laboratory, and at least 3 units in physical science (Group A) and 3 units in biological science (Group B)) .................. 12 units
4. Social Science ....................................... 12 units
5. Humanities .......................................... 12 units

Major Requirements (Complete one).

1. Départmental major.
2. Group major.
3. Field major.
4. Individual major.
Majors

Four types of major programs are available in the College of Letters and Science:

A. Departmental Major Programs. These are designed and administered by the separate departments. They are listed below, and each is described in detail under departmental headings. Departmental major programs lead naturally to graduate study, but this is not their only purpose or use: they also serve the student who has a strong interest in a particular subject but who does not intend to enter upon graduate study; such a student will be prepared to cultivate the subject as an intellectual interest in adult life.

B. Group Major Programs. These programs are described in the Announcement of the College of Letters and Science. They are interdepartmental programs. Some look forward to training in a graduate professional school; others reflect specialized interests somewhat broader in scope than those served by the departmental major.

C. Field Major Programs. Four field major programs have been established: (1) the Biological Sciences Field Major, (2) the Humanities Field Major, (3) the Physical Sciences Field Major, and (4) the Social Sciences Field Major. These programs are designed for students whose intellectual interests are of broader scope than are provided for in the major programs described above. The details of the field majors are given in the Announcement of the College of Letters and Science.

D. Individual Major Programs. Not all possible or desirable major programs are listed below. The College recognizes that there are a few superior students whose intellectual needs can be met better by an especially designed individual major program. A program of this type must be submitted to the Dean for approval by the Executive Committee of the College. The student should, of course, have sound reasons to justify his proposed program. The College recommends that he discuss his proposed program with one of the deans of the College before he formally submits it.
### List of Organized Majors

#### Departmental Majors
- Anthropology
- Art
- Astronomy
- Bacteriology
- Biochemistry
- Botany
- Chemistry
- Chinese. See Oriental Languages
- Classics
- Design
- Dramatic Art
- Economics
- English
- French
- Geography
- Geology
- Geophysics
- German
- Greek. See Classics
- History
- Italian
- Japanese. See Oriental Languages
- Latin. See Classics
- Linguistics
- Mathematics
- Mathematics for Teachers
- Music
- Near Eastern Languages
- Oriental Languages
- Paleontology
- Philosophy
- Physical Education
- Physics
- Physiology
- Political Science
- Psychology
- Scandinavian
- Slavic Languages and Literatures
- Sociology
- Spanish
- Speech
- Statistics
- Zoology

#### Group Majors
- Communication and Public Policy
- Comparative Literature
- Genetics
- Social Welfare

#### Field Majors
- Biological Sciences Field Major
- Humanities Field Major
- Physical Sciences Field Major
- Social Sciences Field Major

### Honors

Special programs for honor students will be established in connection with the major programs. These are described following the statement of requirements for each major. Interested students may inquire also of major advisers.

An honor student may enroll in an honors program in his elected major at any time not later than the first semester of his senior year, upon approval of his major adviser. In special cases, a student not an honor student may so enroll by permission of the major adviser and the Dean. Students enrolled in honors programs shall have all the privileges of honor students.
Recognition for Distinguished Scholarship

Appropriate recognition will be given to students who complete an honors program with a distinguished record and to students not enrolled in an honors program but whose general scholarship is superior.

The Honor List

Each semester an "Honor List" will be published. This list will include all students who have completed at least one semester of 12 units or more and have an average of B or better for all work undertaken in the College. Certain other students specially approved will also be included. The students whose names appear on the "Honor List" are known as honor students.

An honor student gains certain privileges not granted to other students. These privileges are described in the Announcement of the College of Letters and Science.

Letters and Science List of Courses

At least 108 units offered for the degree of Bachelor of Arts must be in courses chosen from the "Letters and Science List of Courses."

Courses not on the list, but taken for credit to satisfy a general University requirement established by the Board of Regents, will be accepted as equivalent to courses on the Letters and Science List up to a maximum of 8 units.

Any course not included on the "Letters and Science List of Courses," but required, or accepted, as part of a major or as a prerequisite therefore, shall, for students offering that major at graduation, but for no others, be treated as if it were on the "Letters and Science List of Courses."

Thirty-six units of upper division courses must be selected from the following list:

Agricultural Economics 25, 100A, 100B, 112A, 112B, 120, 175.
Anatomy. All undergraduate courses.
Anthropology. All undergraduate courses.
Architecture 121, 122, 126, 127, 128.
Art. All undergraduate courses.
Astronomy. All undergraduate courses.
Bacteriology and Immunology. All undergraduate courses.
Biochemistry. All undergraduate courses.
Biology. All undergraduate courses (see Botany and Zoology).
Botany. All undergraduate courses.
Business Administration 18, 100, 119, 150.
Chemistry. All undergraduate courses except 125, 125L.
City and Regional Planning. All undergraduate courses.
Classics. All undergraduate courses.
Comparative Literature. All undergraduate courses.
Design. All undergraduate courses.
Dramatic Art. All undergraduate courses; a total of not more than 8 units from courses 49 and 190 will be accepted as Letters and Science credit.
Economics. All undergraduate courses.
Education 100A and not more than 3 units from 105A–105B.
Engineering 3, 180.
English. All undergraduate courses.
Forestry 1, 103, 122, 125.
French. All undergraduate courses except 20.
Genetics. All undergraduate courses.
Geography. All undergraduate courses.
Geology and Geophysics. All undergraduate courses except 150.
German. All undergraduate courses.
Greek. All undergraduate courses.
History. All undergraduate courses.
Humanities. All undergraduate courses.
Italian. All undergraduate courses.
Journalism. All undergraduate courses except 131A, 131B, 152 and 181 series.
Latin. All undergraduate courses.
Linguistics. All undergraduate courses.
Mathematics. All undergraduate courses.
Medical Physics (see Physics).
Molecular Biology. All undergraduate courses.
Music. All undergraduate courses; a total of not more than 8 units from the following courses will be accepted as Letters and Science credit: 42, 43, 46, 48, 142, 143, 146, 148.
Near Eastern Languages. All undergraduate courses.
Optometry. (see Physiological Optics, below).
Oriental Languages. All undergraduate courses.
Paleontology. All undergraduate courses.
Philosophy. All undergraduate courses.
Physical Education 105, 130.
Physics. All undergraduate courses.
Physiology. All undergraduate courses.
Plant Nutrition 115, 117 (see Soils and Plant Nutrition).
Political Science. All undergraduate courses.
Psychology. All undergraduate courses except 104, 114, 116, 117, 118, 184, 185, 186, 187.
Sanskrit. All undergraduate courses.
Scandinavian. All undergraduate courses.
Social Science 1A–1B.
Social Welfare 100, 110A, 110B, H197A, H197B.
Sociology. All undergraduate courses.
Soil Science 110, 111, 112, 113, 114 (see Soils and Plant Nutrition)
Spanish and Portuguese. All undergraduate courses.
Speech. All undergraduate courses.
Statistics. All undergraduate courses.
Zoology. All undergraduate courses except 109, 119A, 119B, 120, 145, 146.
The School of Business Administration, established July 1, 1943, admits students of junior or higher standing, and offers curricula leading to the undergraduate degree of Bachelor of Science. The School replaced the College of Commerce which was founded in 1898. The College of Commerce, the second collegiate institution to be established in the United States to train students for business, was a pioneer in its field.

The primary purpose of the School is to prepare students for eventual responsible administrative and executive positions in business and government. Training is provided also for those who wish to equip themselves for the recognized, specialized, expert and professional types of employment, such as accounting, business research and statistics, operations research, advertising, real estate appraisal, and business and economic consulting.

Admission Requirements

General

Students transferring from one of the colleges or schools of the University must have attained at least junior standing and a grade C average.

Students transferring from colleges or schools other than the University of California must have attained at least junior standing and must meet the general admission requirements of the University (see pages 19-31).

Specific unit and curriculum requirements (for admission with junior standing from the College of Letters and Science or its equivalent):

1. English:
   (a) English 1A–1B or Speech 1A–1B and
   (b) Additional course in English composition, speech or literature.
2. One course chosen from the following:
   Mathematics 1A, 3A or 16A (may be counted toward natural science requirement below).
3. Statistics 2, 12 or Economics 2 (may be counted toward natural science requirement below).
4. 8 units of one language (see additional language required for graduation).
5. 6 units of natural science (at least one laboratory science course must be included).*

* This laboratory requirement may be satisfied by a one-year high school laboratory course in chemistry, physics, or advanced biology, but such a course does not reduce the unit requirement. If not met in high school, the laboratory requirement may be postponed until after admission to the school.
6. Social Science:
(a) Economics 1A–1B.
(b) Sociology 1 or Psychology 1A and one course from among the following: Anthropology 2A, 2B, Psychology 1A, 33, Sociology 1, 30.

7. Business Administration 1A–1B.

Note: All courses required for admission with the exception of Business Administration 1A–1B are consistent with the breadth requirements of the College of Letters and Science.

A limited number of admission requirements may be postponed until after admission to the School. Details may be worked out at the time of application.

Additional Breadth Requirements for the B.S. Degree:

1. Additional language: 6–8 units. This requirement may be satisfied by:
   a) Language courses, or
   b) Courses in such fields as geography, literature, or history relevant to the country whose language was studied in meeting the admission requirement, or
   c) Courses in mathematics and statistics beyond the required level, or
   d) A combination of the above alternatives. (If one language course is used in combination with one of the other alternatives, the language must be the one used in meeting the admission requirement.)

2. 6 units of additional natural science.

3. Additional social science: three courses from among the following areas: agricultural economics, cultural anthropology, economics, economic geography, history, political science, psychology, sociology.

Admission with Junior Standing from Colleges of Applied Sciences

Students may, if they prefer, elect to take their lower division work in one of the colleges of applied sciences. For instance, those looking forward to employment in the agricultural industries, or in business based closely upon these industries, might well take their lower division work in the College of Agriculture. Similarly, those wishing to work in the technical aspects of manufacturing or in industrial management could profitably spend their first two years in the College of Engineering. In general, students should choose that lower division preparation most closely related to the particular field and division of business administration they wish to enter. Students entering the School with junior standing in a college of applied science may obtain detailed information concerning admission requirements from the Dean of the School of Business Administration.
Admission with Advanced Standing

Advanced standing will be granted to students admitted to the School of Business Administration who have completed work that is (1) in excess of that required for junior standing and (2) equivalent to part of the requirements of the curriculum of the School. Some of the specific requirements of the School may be anticipated in the lower division.

Degree Requirements

In order to qualify for the degree of Bachelor of Science in the School, the student must have received 120 units of credit with at least a grade C average. The candidates shall also have maintained at least a grade C average in all upper division courses in business administration taken in residence at the University of California in satisfaction of the requirements for the degree of Bachelor of Science in business administration.

All candidates for the degree of Bachelor of Science entering the School of Business Administration with senior standing at the time of admission after attendance at other colleges or schools of this University or other institutions are required to have been enrolled during the senior or final year in resident courses of instruction in the School of Business Administration (Berkeley). At least 30 units, 24 of which must be in upper division business administration courses, should be completed in this period.

Specific requirements for the degree of Bachelor of Science are:

I. Basic Courses:

A. Required of all: Units

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>American History and American Institutions</td>
<td>0</td>
</tr>
<tr>
<td>*Business Administration 1A–1B (Principles of Accounting)</td>
<td>6</td>
</tr>
<tr>
<td>Business Administration 100 (Economics of Enterprise)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 101 (Business Fluctuations and Forecasting)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 118 (Legal Environment of Business)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 119 (Social and Political Environment of Business)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 131 (Corporation Finance)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 140 (Production Organization and Management)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 150 (Industrial Relations)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 160 (Marketing)</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 190 (Organization and Administration)</td>
<td>3</td>
</tr>
</tbody>
</table>

Basic courses: Total 33

* Admission requirement.
II. Field of Emphasis: Units

Six units beyond the basic course or courses in one field. 6

The following fields of emphasis are approved: accounting, administration and policy, finance, business statistics, international business, insurance and risk management, marketing, industrial relations and personnel management, managerial economics, production management, real estate and urban land economics, transportation and public utilities.

Students who do not wish to elect one of the above fields of emphasis may receive permission to (1) fulfill the requirements of the field in the Department of Economics, (2) elect special programs with the permission of the Dean.

III. Other Information:

It will be noted that the courses listed above under I and II total 39 units. In cases where some requirements are fulfilled by two-unit courses (for example, by Summer Session courses), thus reducing the total number of units in the basic courses and field of emphasis, additional upper division courses must be completed in business administration, or, with the permission of the Dean of the School, in closely related subjects, to raise the total to at least 38 units.

Alternate Curriculum in Quantitative Methods

The use of mathematical and quantitative methods in some areas of business and government has increased greatly with the development of computers and analytical procedures applicable to many business decisions. To meet the need for trained personnel in this area, an optional undergraduate curriculum in the School of Business Administration at Berkeley has been designed around mathematical and statistical procedures and training. It is recommended that the students become prepared in differential and integral calculus, vector and matrix algebra, and probability theory and statistics in addition to lower division requirements for their school or college. The appropriate courses in the University of California at Berkeley would include Mathematics 1A–1B, and Statistics 12 or the equivalent. The core business subjects in I above will be oriented to emphasize mathematical and empirical presentations and a special field of emphasis for this quantitative program is being offered. It is recommended that students interested in this curriculum consult the Dean of the School of Business Administration for assistance in preparing their lower division program.

Honors with the Bachelor’s Degree

Students whose work has been of marked excellence receive honors at graduation.
Graduate School of Business Administration

The Graduate School of Business Administration, established in August, 1955, offers curricula leading to the degree of Master of Business Administration. The programs of work for this degree afford opportunity for advanced and specialized training based either upon the fundamental curriculum for the degree of Bachelor of Science or upon the broader background of the Bachelor of Arts degree.

Admission to the Graduate School requires evidence of superior scholarship and an acceptable bachelor's degree. In evaluating applications, maturity, demonstrated capacity for leadership and intellectual activity of a high order will be taken into account.

The master's degree will require a minimum residence of two full semesters for those with a Bachelor of Science degree in business administration from the University of California, or its equivalent from some other institution. A minimum of four semesters is necessary for those with no previous work of any kind in business administration. In addition, a B average in all work undertaken since receipt of the bachelor's degree is required, as well as a comprehensive examination at the end of the program of study.

A special group of core courses is available, restricted to graduate students, for those with little or no background in business administration. This special group covers the first two semesters of work and includes the subject matter of the basic work in quantitative methods in business (economic analysis, statistics, accounting), in business law, in finance, in marketing, in production, and in industrial relations.

Those students who wish to prepare for high-level research positions in business and government, or for academic careers in schools of business or commerce, may pursue a program leading to the degree of Doctor of Philosophy in business administration.

For detailed information concerning the requirements and financial aid, see the Announcement of the Graduate School of Business Administration and the Announcement of the Graduate Division, Berkeley.

Facilities

Library

In addition to the unusually complete collections of trade journals, business periodicals, and statistical publications to be found in the Library's general collections, the student has access to a special library in business administration and economics established in 1949. At the present time, the Graduate Social Science Library is located in 30 Stephens Hall and is intended to serve the research, reserve, reference, and general needs of the faculty and mature students.
Alumni Association

Graduates of the School of Business Administration and the Graduate School of Business Administration continue an active interest in and support of the Schools, students, and fellow alumni through membership in the California Business Administration Alumni Association.

Student Organizations

Scholastic and professional fraternities and sororities, student chapters of the American Marketing Association, the Society for the Advancement of Management, and university clubs and societies offer many activities for the student in Business Administration to enrich his life, both on campus and in later years.

SCHOOL OF CRIMINOLOGY

The School of Criminology, established July 1, 1950, replaced the Bureau of Criminology, which was established in the Department of Political Science in 1939. The School is engaged in teaching and research in the sciences and arts that deal with the etiology, prevention, discovery, treatment, and control of crimes, criminals, and criminality.

The School of Criminology has two primary objectives: (1) to prepare students for teaching and for immediate service and eventual responsible administrative, executive, laboratory, and other professional positions in agencies (local, state, federal, and private) engaged in the administration of criminal justice or concerned with public safety, security, the prevention of criminality, and the apprehension and treatment of the criminal, and (2) to conduct research in the measurement, prevention, repression, detection, and treatment of criminality, and in the psychological aspects of public safety and security.

In the original design of the criminology curriculum instruction was divided into the three main branches of law enforcement, corrections, and criminalistics. Commencing with the academic year 1961–1962 this design was changed to provide two major programs: a major in criminalistics and a major in criminology. The curriculum for criminology majors consists of the following parts: (a) a group of seven basic and required courses totaling 32 units; (b) a series of twelve elective courses in the School of Criminology totaling approximately 34 units, at least 14 of which must be chosen; and (c) a list of recommended elective courses in other departments.

In addition, the graduate program offers curricula leading to the degrees of Master of Criminology and Doctor of Criminology. The programs afford opportunities for advanced study and research in the areas of the etiology of crime, criminalistics, law enforcement, and corrections.
Undergraduate Instruction

To be admitted to the School of Criminology, a student must have attained upper division standing and at least a C average in the College of Letters and Science or the equivalent elsewhere. The precriminology program should be directed toward the completion of the first requirement listed for the bachelor's degrees (see page 103).

Advanced standing will be granted to students admitted to the School of Criminology who have completed work which is (1) in excess of that required for junior standing, and (2) equivalent to part of the requirements of the School. Some of the specific requirements of the School may be anticipated in the lower division.

Two Programs of Study

The requirements for the bachelor's degrees in the School of Criminology are intended to provide all students with a broad knowledge of the causes, prevention, control, and treatment of criminality. Special attention is given to the social problems that arise from criminal activities and the methods used by modern society in coping with them.

Two distinct fields of study are provided. One of them deals with broad aspects of criminology and the application of the social sciences in this field of study which leads to the degree of Bachelor of Arts. The other field of study is criminalistics. It is concerned primarily with the application of the natural sciences to law enforcement and crime investigation and leads to the degree of Bachelor of Science. Completeness of training in either field requires a combination of social and natural sciences with emphasis on one or the other.

Students in general criminology are required to complete all the basic courses listed below. These courses provide a common basis of fundamental training on which the students may build to meet their specific interests and needs. At the time of entrance, students are expected to elect their major field of interest.

Undergraduate Curricula

Courses which must be completed for the Bachelor of Arts degree in Criminology include the following:

- Introduction to Criminology
- The Etiology of Crime: Sociological
- The Etiology of Crime: Psychological
- The Etiology of Crime: Psychiatric
- The Correctional and Penal System
- Fundamentals of Police Administration
- The Criminal Self and Criminal Careers
- The Criminal Law in Action
The balance of the requirements for the bachelor's degree in criminology may be selected from courses offered in the School of Criminology and courses offered in other schools and departments.

Courses which must be completed for the Bachelor of Science degree for students in the Criminalistics program include:

- Principles of Criminal Investigation
- Legal Medicine
- The Criminal Law in Action
- Microscopy and Microchemistry of Physical Evidence
- Quantitative and Instrumental Techniques
- Comparative Microscopy
- A Brief Survey of the Principles of Biochemistry
- Organic Chemistry
- Industrial Toxicology
- Optics and Metrology in Biology

For detailed information regarding the courses of the School of Criminology, see the Announcement of the School of Criminology.

As soon as the student has selected a curriculum, he obtains the name of his major adviser from the office of the Dean of the School of Criminology. This adviser must be consulted each semester for guidance in following the requirements of the curriculum chosen. Students who are unable to meet the suggested programs of study during the first two years may take some of the requirements in their junior or senior years. It should be noted, however, that any great departure from the recommended programs may delay graduation beyond the normal four-year period.

**Requirement for Bachelor of Arts Degree**

The Bachelor of Arts degree is awarded to those candidates who:
1. satisfy the general university requirements for graduation;
2. satisfy the general requirements of the School of Criminology as follows:
   - (a) completion of at least 120 units of credit; the final 24 units must be completed in the School of Criminology;
   - (b) completion of 32 units in basic criminology courses and at least 14 units in elective criminology courses.
   - (c) completion of approximately 12 units of recommended electives in other schools and departments.

**Requirement for Bachelor of Science Degree**

The Bachelor of Science degree is awarded to those candidates who:
1. satisfy the general university requirements for graduation;
(2) satisfy the requirements of the program in criminalistics as follows:
(a) completion of at least 120 units of credit;
(b) completion of 40 required units in the criminalistics program and 6 units of elective criminology courses.
(c) completion of 6 units of recommended electives in other schools and departments.
For further details, see the Announcement of the School of Criminology.

Graduate Instruction
Opportunity is offered for graduate study and independent research in criminology leading to the degree of Master of Criminology and the degree of Doctor of Criminology. Advancement to candidacy presupposes the completion of undergraduate requirements in criminology equivalent to those prescribed at the University of California. Except for making up deficiencies in the undergraduate requirements, the graduate student’s program may be planned largely to meet his individual needs and interests. The students who have completed the work for the bachelor’s degree in the School of Criminology should be able to complete the requirements for the degree of Master of Criminology in one year and the degree of Doctor of Criminology in three years.

The graduate curricula are intended to give qualified students the opportunity for further specialization in one of the several aspects of criminology in which they may have special interest and to prepare them for teaching. Although most students specializing in any given field will pursue somewhat similar programs of study, attempts are made to treat each graduate student individually and to introduce as much flexibility as possible into his course of study. An important requirement of each student’s program is the demonstration of his ability to initiate, pursue, and report on the investigation of significant problems in criminology. Each applicant for the degrees of Master of Criminology and the Doctor of Criminology is under the guidance of a graduate adviser who supervises and approves his program and guides him in his independent research.

Courses leading to the degree of Master of Criminology and the degree of Doctor of Criminology are as follows:
Crime and the Political Process
The Role of Scientific Evidence in the Administration of Justice
Latent Functions in Law Enforcement and Correction
Prediction Methods in Parole and Probation
Seminar in Experimental Criminology
Seminar in Community Approaches to Delinquency and Crime
Seminar in Problems of Criminal Responsibility
Seminar in Crime Investigation
Problems of Action Research in Criminology
Seminar in Police Administration
Seminar in Problems in Criminal Law Enforcement
(Open also to students in the School of Law)
Seminar in the Administration of Criminal Justice
Seminar in Advanced Psychologic Theory of Criminality
Seminar in Criminalistics
Seminar in the Correctional Treatment of Offenders
Principles of Counseling and Psychotherapy
Directed Group Study
Research and Special Study

For information pertaining to graduate instruction, see the Announcement of the School of Criminology and the brochure, Admission to Graduate Study, Graduate Division, Berkeley.

Student Activities

A chapter of Lambda Alpha Epsilon, a national law enforcement fraternity at the School, sponsors lectures, panel discussions and field trips of interest to criminology students throughout the academic year. In addition, the fraternity provides social activities and opportunities for students to meet and become acquainted with law enforcement officers and others in the San Francisco Bay Area who are professionally engaged in the administration of criminal justice.

Scholarships, Fellowships, and Loans

The University offers a number of undergraduate scholarships for which students in criminology may compete. Detailed information regarding these University scholarships may be obtained by writing to the Committee on Undergraduate Scholarships, 2620 Bancroft Way, Berkeley, California 94720.

The August Vollmer Memorial Scholarship Fund offers scholarships to undergraduate students on the basis of academic performance and need.

A certain number of special intern fellowships in criminology for field work in connection with graduate studies are available through the School. Inquiries should be directed to the Dean of the School.

A number of fellowships and graduate scholarships are also open to graduate students in criminology. For information and application forms, the applicant should address the Office of the Committee on Fellowships and Graduate Scholarships, 225 Sproul Hall, University of California, Berkeley, California 94720. Completed applications are due no later than December 10 for the ensuing year.
SCHOOL OF EDUCATION

The School of Education offers courses for students preparing for educational service in elementary schools, junior and senior high schools, and junior colleges and adult education agencies; for graduate students who are fitting themselves for supervisory or administrative positions in public schools; and for students who propose to teach in college or university departments of education, or to carry on research work in the field of education. Additional information may be obtained from the Office of the Dean of the School of Education, Tolman Hall.

Degrees and Credentials

Programs of study for graduate degrees are offered in the Department of Education.

Graduate. Various types of credentials and degrees are available in the Graduate Division through the School and Department of Education. The requirements may be met by several types of curricula.

A. Credentials

1. Teaching Credentials.† Candidates for state teaching credentials must hold a bachelor's degree with appropriate subject matter major and minors (not education) and must complete a program of professional education. Programs of courses are offered for the following teaching credentials:

The Standard Teaching Credential with a Specialization in Elementary Teaching
The Standard Teaching Credential with a Specialization in Secondary Teaching
The Standard Teaching Credential with a Specialization in Junior College Teaching

2. Higher Credentials. * Many educational positions require advanced preparation for other credentials. Those for which course work is offered are as follows:

The Standard Designated Services Credential with a Specialization in Pupil Personnel Services (pupil counseling, school psychometry and school psychology, school social work)
The Standard Supervision Credential for Supervision of All Services other than Health, Pupil Personnel, Libraries, Special Education, and Trade-Technical Industrial Education

† The following credentials will continue to be issued by the State Department of Education through September 14, 1966, to those who embarked upon programs by November 1, 1963: general elementary, general secondary.

* The following credentials will continue to be issued by the State Department of Education through September 14, 1966, to those who embarked upon programs by November 1, 1963: elementary school administration; secondary school administration; general administration; general pupil personnel services; librarianship.
The Standard Supervision Credential for Supervision of Health Services
The Standard Supervision Credential for Supervision of Library Services
The Standard Supervision Credential for Supervision of Pupil Personnel Services
The Standard Administration Credential

B. Degrees. Graduate study may be in either of two general areas.

1. Professional degrees. Student may complete a professional type of curriculum leading to the Ed.D. degree.
2. Academic degrees. Those who wish to do so may enroll in programs of study leading to the M.A. and Ph.D. degrees.

General Requirements

The student must satisfy the following general requirements to complete a curriculum leading to a recommendation for a teaching credential.

Scholarship. The School of Education will admit to candidacy for recommendation only those students who have maintained a grade-point average of not lower than 2.5 in all studies undertaken during the junior and senior years.

Oral English. The student must prove that he has a command of spoken English adequate to the purposes of instruction. He may satisfy this requirement by examination, by completing suitable courses in the Department of Speech, or by any other evidence satisfactory to the Committee on Admission to Supervised Teaching.

Health certificate. The student must take a medical examination and obtain a satisfactory certificate from the University Physician.

Citizenship. Each applicant for a credential is required by state law to be a citizen of the United States. Credentials can be issued and renewed for noncitizens who have filed their first papers of citizenship, for the maximum period of six years and one month beyond the date of entry into the United States for permanent residence, as stated on the Declaration of Intention. Credentials can also be issued and renewed for quota immigrants who file affidavits with the State Board of Education declaring that they will, at the first opportunity at which the applicable federal law permits, file a declaration of intention to become citizens. The applicant must submit with his application a letter from the Immigration and Naturalization Service which explains the reason why the Declaration of Intention cannot be issued.
Oath of allegiance. State law also requires each applicant for a credential to take an oath of allegiance to the United States and to submit identification cards showing fingerprints.

The Constitution of the United States. State law requires the completion of a course on the provisions and principles of the Constitution of the United States. This requirement may be satisfied by completing one of the following courses: Political Science 1, 100A, 113; or one of the following sequences: History 17A–17B, Political Science 157A–157B; or by passing an examination in American History and American Institutions.

Approval of Schedules

For information concerning credential requirements, the student should consult a counselor in the Student Personnel Office, 1615 Tolman Hall, as early as possible in his academic career.

Application for Admission

Each prospective candidate for a teaching credential must file an application for admission to graduate standing with the Dean of the Graduate Division, 250 Sproul Hall, by May 15 for the fall semester and November 15 for the spring semester. This application must be accompanied by the $5 application fee, which is payable to The Regents of the University of California. The entering graduate student must furnish complete transcripts of his college or university work both to the Dean of the Graduate Division and to the Director of Teacher Education in the School of Education when he files his office record card. On the basis of these records, the Dean of the Graduate Division issues a statement of the student’s official status.

Application for Credential and for Supervised Teaching

Detailed schedules of procedures may be obtained in 1615 Tolman Hall. Applications for supervised teaching (Education 320A, 320B, 320C, 323, 324, 330A, and 330C) must be made in 1615 Tolman Hall not later than November 15, 1965, for the spring semester, 1966, and not later than May 15, 1966, for the fall quarter, 1966. Exception to the foregoing shall be made only at the discretion of the Head of Teacher Education. Enrollment is limited to available facilities.

Students planning to enroll in supervised teaching (Education 320A, 320B, 320C, 323, 324, 330A, and 330C) should note that these are extra-session courses, in which instruction may begin with the opening of the semester in the public schools and may end at the close of the semester in the public schools. In the fall semester, 1965, instruction in these courses in many cases may begin as early as September 7, 1965, and may end about January 28, 1966; in the spring semester, in most cases instruction begins on January 31, 1966, and ends on June 17, 1966.
Application to the State Board of Education

The application to the State Board of Education for a teaching credential must be accompanied by a health certificate; duplicate personal identification (fingerprint) cards; and money order, or check for $10, the application fee, made payable to the California State Department of Education.

Renewal of Provisional Teaching Credentials

Provisional credentials are no longer issued, but a teacher who now holds a provisional credential may continue to renew it until he has completed the requirements for the regular credential.

Teachers who plan to renew provisional credentials should consult the Student Personnel Office of the Department of Education, 1615 Tolman Hall, in planning programs to meet credential requirements.

Research and Service

Educational research and service are related to the programs leading to the various degrees and credentials. Practically all types of educational research are conducted by members of the faculty. Some of the research is supported by University funds and some by grants from the federal government and from foundations.

The Field Service Center was organized to provide service and assistance to school systems. Graduate students are often able to take part in some of the activities of the Center.

The Center for the Study of Higher Education provides an opportunity for faculty and graduate students to study problems in the field of higher education.

The Education-Psychology Library offers extensive library facilities for students in both credential and degree programs. Important educational books and most educational journals are available in this library, which includes also an extensive curriculum service (especially useful for teachers in their student teaching programs).

In addition to the general University scholarships and fellowships available to graduate students, there are several special scholarships provided for candidates for teaching credentials. There are also numerous opportunities for financial assistance to graduate students in Education provided in the Department of Education. These include P.T.A. grants-in-aid for students planning to teach in California; teaching fellowships and assistantships; NDEA fellowships in counseling, in educational measurements and statistics, and in social foundations; special grants in the junior college leadership program; a number of internships in educational administration; research assistantships in the Center for the Study of Higher Education; assistantships in the Field Service Center; assistants to supervisors in teacher education; assistants in science education; and opportunities as readers for large classes.
University Extension

University Extension makes available an extensive program of studies, both by evening classes and by correspondence. Some courses, upon approval, may be used to complete requirements for the bachelor's degree and certain credentials. Extension courses are offered on the campus and in communities in which a suitable enrollment and competent instructors can be obtained.

Through University Extension the School of Education offers the graduate internship program for the preparation of secondary and junior college teachers.

The Department of Education, often with the help of Field Service or Extension, plans and administers special conferences to study educational problems under the guidance of recognized authorities.

Student Activities

Several student organizations hold regular social and professional meetings. A Student Personnel Service assists students in connection with certain technical matters concerning teaching credentials, and will refer students to faculty advisers for specific information about their programs. Faculty advisers are available for consultation concerning all credential and degree programs in the School of Education.

A student lounge provides an opportunity for students to meet in a friendly social atmosphere.

SCHOOL OF FORESTRY

The School of Forestry educates men for the profession of forestry through its undergraduate and graduate programs. The first forestry curriculum was offered on the Berkeley campus in 1915. Since that date some 1600 foresters have been graduated from the School. They have exercised strong leadership in the development of forest industries and public land management agencies both in California and throughout the nation. The undergraduate curriculum at the School remains the only accredited professional forestry program offered in the state.

The programs of the School of Forestry provide professional education that qualifies men to manage forest and related wildlands to produce up to their full capacity of wood, water, forage, wildlife, recreational benefits and other goods and services desired by mankind. They also provide opportunity for the study of such closely related fields as range management, forest entomology, forest pathology, and wood technology.
Undergraduate Programs

Forestry

To meet these educational goals the undergraduate forestry program is divided into three parts: (1) The first two years—the preforestry curriculum—provide a solid foundation in natural and social sciences, necessary if the forester is to become proficient in the many phases of his profession. This work may be taken at Berkeley, or at a junior college, state college, or other standard collegiate institution. (2) All forestry students must then complete the ten-week summer field program, Forestry 46, 47, 48, prerequisite to all required courses in the upper division forestry curriculum. It is offered only at the University's Forestry Camp at Meadow Valley, Plumas County. In addition to providing academic background essential to professional forestry courses, Forestry 46, 47, 48, give the student a broad picture of forestry practices and activities and often enable him to find out if his choice of forestry as a profession is a wise one. (3) The last two undergraduate years must be spent at Berkeley in the forestry curriculum, which provides the basic core of professional subject matter needed to insure thorough grounding in the principles of forestry.

Lower Division

A student who takes his pref orestry training at Berkeley is registered in the College of Agriculture during his freshman and sophomore years. On completion of the program outlined below, the student will have fulfilled all subject matter requirements for admission to the School of Forestry.

<table>
<thead>
<tr>
<th>Preforestry Curriculum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Botany (general botany)</td>
<td>5</td>
</tr>
<tr>
<td>2. Chemistry (general inorganic, and organic)</td>
<td>8</td>
</tr>
<tr>
<td>3. Engineering (plane surveying)</td>
<td>3</td>
</tr>
<tr>
<td>4. Economics (elements of economics)</td>
<td>6</td>
</tr>
<tr>
<td>5. Geology (structural)</td>
<td>3</td>
</tr>
<tr>
<td>6. Mathematics (beyond trigonometry)</td>
<td>3</td>
</tr>
<tr>
<td>7. Physics (general physics)</td>
<td>6</td>
</tr>
<tr>
<td>8. Statistical methods</td>
<td>3</td>
</tr>
<tr>
<td>9. Zoology (general biology)</td>
<td>3</td>
</tr>
<tr>
<td>10. A choice of English or speech</td>
<td>6</td>
</tr>
<tr>
<td>11. Electives</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

Upper Division

The degree of Bachelor of Science (B.S.) is awarded for completion of the forestry curriculum in the junior and senior years. This curriculum consists of a core of courses in professional forestry and related
sciences, a group of elective nontechnical courses designed to broaden the student's general education, and a group of elective technical courses chosen to give some depth of background in a particular phase of forestry. Among the elective technical options from which a student may choose are forest management, range management, wood utilization, forest recreation, and forest engineering. Details of the forestry curriculum in the upper division may be found in the ANNOUNCEMENT OF THE SCHOOL OF FORESTRY.

Range Management

Lower Division

Students may pursue the first two years of the curriculum at Berkeley, at Davis, or at other standard collegiate institutions that offer the required subjects as given below:

<table>
<thead>
<tr>
<th>Units</th>
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<tbody>
<tr>
<td>1. Botany (general botany)</td>
</tr>
<tr>
<td>2. Chemistry (general and organic chemistry)</td>
</tr>
<tr>
<td>3. Economics</td>
</tr>
<tr>
<td>4. Engineering (plane surveying)</td>
</tr>
<tr>
<td>5. English and/or speech</td>
</tr>
<tr>
<td>6. Physics (general physics)</td>
</tr>
<tr>
<td>7. Soil science or geology</td>
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<tr>
<td>8. Zoology (general zoology)</td>
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<td>9. Electives</td>
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Upper Division

The degree of Bachelor of Science in range management is offered jointly by the School of Forestry and the College of Agriculture at Berkeley and Davis.

The upper division portion of the range management curriculum provides intensive work in the principles of range management, agronomy, and animal husbandry, along with further training in related sciences. Details of the program may be found in the ANNOUNCEMENT OF THE SCHOOL OF FORESTRY. Range management students must spend either the junior or senior year in residence on the Davis campus in order to secure courses in agronomy and animal husbandry.

Graduate Study

Graduate study at the School of Forestry may be carried out in either of two general areas: that of broad professional study leading to the degree Master of Forestry (M.F.) or that of advanced study in a specialized field of forestry science leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.). Master of Science programs
are offered in forestry, wood technology, and range management. Candidates for the degree of Doctor of Philosophy may pursue programs either in forestry or in wood science and technology, or in fields basic to forestry such as agricultural economics, botany, entomology, genetics, plant pathology, plant physiology, soil science, and zoology. Guidance of such graduate studies is a major activity of the School. The faculty is active in research and has developed facilities that enable graduate students to attack a wide variety of problems. Further details of the graduate program may be found in the Announcement of the School of Forestry.

Admission to Forestry Curricula

Candidates for admission to the preforestry curriculum as freshmen must comply with the general University admission requirements. In order to fulfill all prerequisites for the work of the freshman year, students should include the following among the high school courses used to meet the University requirements:

- Algebra .............. 2 units
- Trigonometry ........... ½ unit
- Plane geometry ......... 1 unit
- Mechanical drawing ....... ½ unit

Two units of laboratory science (preferably chemistry and physics) are also strongly recommended.

For admission to the School of Forestry, students must have: (1) been admitted to the University; (2) achieved junior standing; (3) satisfactorily completed the subject matter requirements of the preforestry curriculum; and (4) attained a grade-point average of at least 2.0 (C average) in all college work previously undertaken. Students who meet all of the qualifications for admission save for a very limited number of subject matter requirements should consult the School of Forestry as to their eligibility.

Requirements for Graduation

In addition to meeting general University requirements for the degree Bachelor of Science, students must:

1. Remove any deficiencies in the following courses usually taken in high school: mathematics, three years, including plane geometry, algebra, and trigonometry; mechanical drawing, one-half year.

2. Complete at least 124 units of University work. Not more than 4 units may be in lower division physical education courses.

3. Satisfy the subject matter requirements of the preforestry and forestry curricula.

Facilities

Teaching facilities in Mulford Hall include workrooms for dendrology and wood technology, laboratories, statistical and drafting workrooms,
extensive herbarium and wood collections, and a forestry library. Greenhouses, nursery areas, and the 160 acres in Strawberry Canyon are among the specialized forestry facilities available at Berkeley.

*Camp Califorest* near Quincy in the heart of the Sierra is the site of the ten-week summer field program.

The 2,760-acre *Blodgett Forest* in El Dorado County, a well-stocked young-growth forest of pine and fir, is the site of active research by faculty and graduate students.

The *Forest Products Laboratory*, at the Richmond Field Station, was established in 1950 to conduct research in wood chemistry, pulp and paper, wood physics, and related applications to wood science and technology. It has excellent research facilities for investigation of a wide range of problems in these fields.

The *Wildland Research Center* of the Agricultural Experiment Station enables the School of Forestry faculty to participate with members of other departments in research in forestry, watershed protection, wildlife management, range management, recreation, and other aspects of wildland resource use. These research activities as well as those of the Forest Products Laboratory provide numerous opportunities for graduate student research and, frequently, for the employment of graduate and undergraduate students in research work.

**Student Activities**

The *Forestry Club*, established on the Berkeley campus in 1910, is the focus of student activities in the School. The group meets at monthly intervals for technical programs and conducts organized social, athletic, and other extracurricular activities. Members of the Club edit and publish the student annual *Timber*.

*Theta Chapter of Xi Sigma Pi*, national honorary forestry fraternity, is located at the School. This group provides counselling service for students, sponsors timely discussions, and promotes student academic achievement.

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**SCHOOL OF LAW**

The School of Law on the Berkeley campus of the University of California (The School of *Jurisprudence*, 1912–1950) was established in 1912, although professional degrees in law had been granted from 1903 upon the recommendation of the Department of Jurisprudence.

The aim of the School is not only to prepare students to practice law, but also to develop the scientific study of law and to further legal research. The School’s graduates are qualified to become applicants for admission to practice in any state of the United States.

The School is a member of the Association of American Law Schools and is on the approved list of the American Bar Association.
Preparation for the Study of Law

For the guidance of students who may become applicants for admission to the School, the essentials of a satisfactory prelegal education are summarized as follows:

1. The prelegal student should follow a plan of study which will assure adequate foundations for broad culture. Such a plan should include among its objectives: (1) a well-grounded facility in the use of English, written and spoken, and a wide acquaintance with the best of English literature; (2) a familiarity with at least the outlines of history and a thorough knowledge of the history of our own country and people; (3) an acquaintance with the great philosophers and an understanding of the progress and significance of philosophic thought; (4) a mastery of elementary logic and mathematics and some acquaintance with their application in contemporary life; (5) an introduction to science and an appreciation of its tremendous importance in the modern world; and (6) a thorough knowledge of the elements of social science, including the essentials of economics, government, psychology, and other important social studies. Foundations must be laid in high school for the study of English, history, mathematics, and natural science. The prelegal student normally will be well advised to defer philosophy and the social studies until he has entered college. If prelegal study is planned effectively, the foundations for a broad culture may be laid in high school and in the first two years of college.

2. The prelegal student should acquire the intellectual discipline and experience that are to be derived from intensive work for a substantial period of time in a selected field of study. This work should be carefully planned, and a special competence should be achieved in the selected field. It has often been found that a well-chosen group of courses in economics may be related effectively to later professional study in law. An effective preprofessional training may also be planned with emphasis upon political science, history, business administration, psychology, English, philosophy, or similar fields. Applicants interested in courses stressing international, historical, or comparative aspects of the law, or in the postgraduate program of the School in International Legal Studies, will find reading knowledge of a foreign language beneficial.

3. The prelegal student should begin the cultivation of professional standards of study as early as possible. Few ideas are more fallacious or harmful than the notion that it is possible to dawdle through high school and college and then make the adjustment to high standards promptly upon entering the professional school. Essential habits of concentration and effective methods of study must be acquired and developed during the prelegal years. Careful reading and constant exercise of practice in writing should be cultivated assiduously. Intelligently selected private reading should supplement the work of the
classroom at all times. The law as a process of social adjustment is reflected in all aspects of life, and the student who carelessly wastes the opportunities of his prelegal years cannot possibly present himself well prepared for professional training. A large proportion of failures in the professional school may be traced directly to the neglect of opportunities in high school and college. Distinguished achievement in high school and college is usually followed by distinction in the professional school and in later law practice.

It is strongly recommended that all students complete a basic undergraduate course in accounting, such as Business Administration 1A and 1B or Business Administration 10 offered by the University of California at Berkeley, or the equivalent.

It is suggested that every prelegal student learn to use a typewriter.

Copies of a memorandum (designed primarily for prelegal students at the University of California, Berkeley) entitled “Recommended Courses for Prelegal Students” may be obtained from the office of the Dean, School of Law, Berkeley, California 94720. Prelegal students are not required to discuss their programs with a prelegal adviser, but those who have special problems should not hesitate to seek advice at the School.

For additional information consult the Announcement of the School of Law.

The Law Curricula

Professional Curriculum

The professional curriculum of the School of Law leads to the degree of Bachelor of Laws (LL.B.).

The work of the first year is prescribed; the work of the second year is in part prescribed and in part elective. During the third year all courses are elective.

First-Year Curriculum


Second-Year Curriculum

The Legal Process. Business Associations; Corporations. Constitutional Law. Legal Accounting (limited to students who have not previously completed a basic accounting course). Security Transactions. Estates and Trusts. Income Taxation, I and II.
Third-Year Curriculum


Graduate Curriculum

The student who desires (1) to broaden his professional education by study of legal history, international and comparative jurisprudence, or the relations of law and other social sciences, or (2) to supplement his professional education by study of special subjects (e.g., taxation, labor law, international law, marital property, procedure, corporations), or (3) special training in preparation for law teaching, legal research, government service, or legislative drafting, may apply to become a candidate for the degree of Master of Laws (LL.M.) or the degree of Doctor of the Science of Law (J.S.D.).


Admission Requirements

Law School Admission Test

The School of Law cooperates with other law schools in requiring applicants for admission to take the Law School Admission Test, ad-
ministered by the Educational Testing Service. Testing centers have been established for the convenience of applicants in all parts of the country. The test is required of all applicants for admission to this School and should be taken during the academic year preceding the one for which admission is sought. All students who plan to apply for scholarships are urged to take the Law School Admission Test as early as possible.

The Educational Testing Service will supply each applicant with a bulletin of information giving details with respect to administration and including practice questions.

For permission to take the Admission Test, applicants should write to Law School Admission Test, Educational Testing Service, Princeton, New Jersey, requesting an application blank and bulletin of information listing places where the test may be taken and the dates on which the test will be given. At the applicant's request, his score will be reported not only to this law school but also to other law schools where he may be applying for admission. He will also receive an individual score report directly from the Educational Testing Service.

Admission to the Professional Curriculum

Applicants for admission to the professional curriculum of the School of Law must have received a bachelor's degree or an equivalent degree from a college or university of approved standing. The program of study leading to the degree should be substantial conformity with the essentials of a satisfactory prelegal education.

Applicants will be considered primarily on the basis of their potential ability to complete satisfactorily the course of study required for graduation from Boalt Hall, as measured by their undergraduate average and scores on the Law School Admission Test. In appraising a student's undergraduate average, his average in the work of the last two prelegal years will generally be considered more heavily than that of his earlier college work. Usually, higher than a grade B (3.0) average is a minimum prerequisite for admission to the law school. Applicants having somewhat less than a B average may be admitted if their scores on the Law School Admission Test, or other evidence, indicate a capacity for the work of the professional curriculum at Boalt Hall. Account may also be taken of a student's potential for public leadership or for exceptional accomplishments. Some applicants may be asked to present themselves at the School for personal interviews before admission is granted.

Applicants must also submit references from three disinterested and responsible persons to whom the applicant is well known. Wherever possible, the references should include faculty members under whom the applicant has studied while in college. All applicants are admitted
on a full-time basis and only in September. The School does not offer a part-time or evening program. Applications for admission to the fall semester, 1966, must be filed by May 1 of that year.

Admission to Advanced Standing

Applicants who have completed at least one year of work in another law school may be admitted to the second year of the professional curriculum with credit for not more than one year of such work if (1) before undertaking the study of law the applicant had received a bachelor's degree, or an equivalent degree from a college or university of approved standing, (2) the work has been completed in a school which is a member of the Association of American Law Schools, and (3) the work for which credit is sought has been of superior quality. The faculty reserves the privilege of prescribing further conditions for the granting of such credit and may, in its discretion, require examinations in subjects for which credit is sought. To be assured of satisfactory programs, students transferring from other law schools should plan to enter at the opening of the fall semester.

Students who have been disqualified at another law school will not be admitted to this School.

Admission to the Graduate Curriculum

Admission to the graduate curriculum, as a candidate for either the LL.M. or the J.S.D. degree, may be granted to any applicant who has had at least six years of resident study at approved colleges and law schools, who holds a professional degree from a law school approved by the American Bar Association, and who, in the opinion of the faculty, gives satisfactory evidence of capacity to complete the requirements for the degree; except that an applicant who has not received the A.B., B.S., or equivalent degree may be admitted only if the faculty concludes that his preparation in social sciences other than law has not been unreasonably limited. An applicant's capacity to complete the degree requirements generally must be evidenced by an academic record of distinguished past performance, although in appropriate cases admission as a degree candidate may be granted, in the discretion of the faculty, if there is other sufficient indication of such capacity.

In the discretion of the faculty admission to the graduate curriculum, though not as a candidate for a degree may also be granted in an appropriate case to an applicant who holds a professional degree from a law school approved by the American Bar Association and who, in the opinion of the faculty, gives evidence of capacity to continue advanced legal study successfully. An applicant so admitted may, after completion of one academic year of resident study, depending on his achievement and proved ability, be admitted as a candidate for the LL.M. or J.S.D. degree.
If the previous training of an applicant for admission to the graduate curriculum has been received in foreign educational institutions, he must present satisfactory evidence that his preparation and his capacity to undertake graduate study in this country are substantially equivalent to the requirements for graduates of an American college or university.

For detailed information concerning the admission procedure, refer to the Announcement of the School of Law. A copy of this publication may be obtained by writing to the Dean of the School of Law.

The Law Building

From 1911 until 1951 the School occupied Boalt Hall of Law, built as a memorial to Judge John H. Boalt with funds provided by his wife, Elizabeth Josselyn Boalt, supplemented by gifts from California lawyers. It was vacated by the School in October, 1951, and the School’s activities transferred to a new law building. This greatly enlarged facility preserves the name of Boalt Hall in the main classroom wing of its L shape. The other wing is known as the Garret W. McEnerney Law Library, after the late Regent Garret W. McEnerney of San Francisco, from whose estate a substantial portion of the total building fund was derived. The law building accommodates a greatly increased student body through expanded classroom, library reading room, and other facilities requisite to a modern law school. Special provision also has been made for student study carrels, typing areas, Law Review quarters, and lounges. In addition, a court room, the Luke Kavanagh Room, has been made possible through the estate of the late Luke Kavanagh, for many years a San Francisco court reporter.

The Law Library

The School’s Library contains material required for professional study as well as ample resources for research in important fields. Of the standard professional items, there are more than 185,000 selected volumes. There are in excess of 40,000 foreign monographs. The materials in American and British case and statute law collections are substantially complete. The Library has extensive holdings of Anglo-American legal periodicals and an outstanding collection of foreign periodicals. Working collections in the law of several of the more important foreign countries are sufficiently developed to facilitate effective comparative studies. Through the generosity of two members of the San Francisco Bar, the late William E. Colby, LL.D., and the late Lloyd M. Robbins, D.C.L., the Law Library has received an now maintains significant collections in the fields of mining law and canon law. The Library is amply equipped with the usual encyclopedias, digests, and other aids to legal investigation and research.

By designation of Chief Justice Earl Warren the Library is an official depository for the briefs and records of the United State Supreme
Court dating from 1936. In 1962 the Library became an official depository for California State legal documents under legislation approved by Governor Edmund G. Brown. The Honorable Jeffery Cohelan designated the Library as a depository for federal legal documents in 1963 and this program commenced in 1964. In addition, the Library receives all available records and briefs of appellate courts located in the State of California and has been designated a depository for Uniform Commercial Code publications.

There is also valuable material for the study of law and legal institutions in the University Library, in the libraries of the Bureau of International Relations, the Institute of Governmental Studies, the Institute of Industrial Relations, and in the Bancroft Library.

Basic instruction at the University of California toward a career in librarianship was offered by the Main Library as early as 1902, and continued intermittently until a Department of Library Science was organized in the undergraduate College of Letters and Science in 1918. Because of the faculty's firm and continuing belief that instruction in librarianship should be given after the baccalaureate degree, the Department of Library Science became the graduate School of Librarianship in 1926, offering a one-year curriculum leading to the degree of Bachelor of Library Science (1947–1954). (Before 1947 the School granted a certificate for completion of its first-year program. The two awards represent the same level of work accomplished and are on a par in all matters pertaining to employment, civil service, professional status, and salary.) The award for the first year of professional study, somewhat expanded, was changed to a Master of Library Science degree in 1955. Believing, further, that leaders in the profession require more advanced instruction, the faculty organized a curriculum leading to the degrees of Doctor of Library Science and Doctor of Philosophy, authorized by the University in 1954.

The School of Librarianship is accredited by the Committee on Accreditation of the American Library Association, and is a member of the Association of American Library Schools.

In 1937 the School was given an endowment grant of $150,000 by the Carnegie Corporation of New York.

Basic Curriculum

Master of Library Science

The School's first-year curriculum is designed to provide intelligent and well-informed municipal, county, college, university, school, children's, and special librarians. The 28-unit program for the Master
of Library Science degree (M.L.S.) requires two semesters plus one six-week summer session. Beginning in the fall, 1966, because of the change to the quarter system, four quarters will be required. The program must include the following courses: Introduction to Cataloging and Classification, Bibliography and Reference Materials, Selection and Acquisition of Library Materials, Development of the Book, Reference and Government Publications, Special Problems in Classification and Cataloging, and one in School Library Administration, Municipal and County Library Administration or College, University and Special Library Administration. The remaining courses may be elected in Librarianship, or in upper division or graduate courses in other departments, provided they are approved by the Dean as being acceptable to the individual's complete program.

Work for the degree must be completed with an average grade of at least B (3.0 grade points). Only courses acceptable for higher degrees and in which the student is assigned a grade of A, B, or C may be counted in satisfaction of the requirements. In exceptional cases credit obtained for comparable work indicating superior scholarship in a graduate school other than that of the University of California may, with the approval of the faculty of the School and of the Graduate Council of the Berkeley Division, be accepted to the extent of not more than four units toward fulfilling the minimum requirement for the degree.

Programs for Advanced Degrees

The following programs for doctoral degrees in librarianship are designed to provide interested students with advanced instruction in selected fields, to develop their ability to select and investigate significant problems in librarianship, and to stimulate the conduct of original research contributing to knowledge. Advanced instruction is offered in bibliography, cataloguing and classification, history of libraries, history of books and printing, public libraries and college and university libraries. Particular attention is paid to the integration of the student's curriculum with his previous training and experience, his present interests, and his professional aims.

Doctor of Library Science

A professional degree conferred in recognition of the candidate's command of a comprehensive body of professional knowledge and of his ability to initiate, organize, and pursue the investigation of significant problems in the field of librarianship. The candidate must have had professional experience. He may specialize in college and university libraries or public libraries. Although most dissertations written for the Doctor of Library Science degree will fall within one or another of these
two fields, the designation of fields of specialization does not preclude the writing of a dissertation which does not obviously fall in one field or the other.

**Advancement to Candidacy**

A student is advanced to candidacy for the Doctor of Library Science degree by the Graduate Council on the recommendation of the School of Librarianship after he has completed the following requirements: (1) He must have completed a minimum of two semesters in residence, after fulfilling all of the requirements for admission to the School of Librarianship noted on page 124, including the completion with at least a B grade the basic professional curriculum of a graduate library school of approved standing. (2) He must have passed an intensive written and oral examination, to be administered by the faculty of the School of Librarianship, in the field of librarianship appropriate to his dissertation. (3) His complete program, including a detailed outline of his proposed dissertation as candidate for the degree of Doctor of Library Science, must have been approved by the faculty of the School of Librarianship. (4) He may also be required to pass an examination in the reading knowledge of one or more foreign languages if, in the judgment of the faculty, such knowledge is essential to the successful completion of his proposed dissertation. (5) He must have shown evidence of having had a significant amount of successful professional experience.

**Requirements for Degree of Doctor of Library Science**

(1) The candidate must complete, before or after advancement to candidacy, an additional two semesters of resident graduate study at the University of California. (2) Graduate study after advancement to candidacy will be under the supervision of a five-man committee appointed by the Graduate Council of the Berkeley Division consisting of not more than four members from the Department of Librarianship, nor more than two members from other departments in fields related to the subject of his dissertation. Three members of this committee will be designated to supervise the dissertation. (3) He must have completed at least 36 units of graduate and upper division courses in Librarianship and other departments related to his field of study, in addition to those taken for the first professional degree, and in addition to the thesis course. (4) He must submit a dissertation which demonstrates his ability to conduct independent investigation and which contributes to knowledge, or organizes known facts to produce a result of importance and value, in the field of librarianship. (5) He must successfully defend his dissertation in an oral examination, and show his mastery of the field in which the dissertation is written.
Doctor of Philosophy

The candidate for this degree must demonstrate a command of a comprehensive body of academic and professional knowledge and a general grasp of the subject matter of a large field of study. He must also show a critical ability and power to analyze problems, as well as to coordinate and correlate data from a number of kindred disciplines. Through his dissertation the student must show the power to make an original contribution to the knowledge of his chosen field of study. He may specialize in bibliography, history of books and printing, history of libraries, or the library as a social institution, but his dissertation need not necessarily fall in one of these fields.

Requirements for Degree of Doctor of Philosophy

(1) General requirements concerning residence, foreign languages, program of study, candidacy, qualifying examinations, dissertation, and final examination (Plan A) are in the Announcement of the Graduate Division, Berkeley. (2) School of Librarianship requirements for admission (listed below), must have been met. (3) The qualifying examinations (in addition to tests of a reading knowledge of foreign languages) will include (a) an examination in the field in which the dissertation will be written, including the closely related subject field or fields outside the School of Librarianship; (b) an examination in one other of the fields in which the Ph.D. degree is offered in librarianship; and (c) an oral examination given after the written examinations have been passed.

For further information, see the Announcement of the School of Librarianship.

Admission Requirements

The requirements for admission are the Bachelor of Arts degree of the University of California or its equivalent, graduate standing in the University without deficiencies, and a college year of each of two modern foreign languages—preferably French and German. Complete transcripts of academic records must be submitted to the Dean of the School for determination of qualifications.

Applicants are required to take the Aptitude Test of the Graduate Record Examination and to have their scores sent to the School in time for evaluation before final action is taken on their applications.

No one should come to Berkeley without having previously made application to the School and having received notice of acceptance. Early application is desirable. Application blanks may be obtained from the Dean of the School and should be filed by graduates as soon as they
have decided to apply for admission and by undergraduates after they have completed the first semester of their senior year. Selection of students is based primarily on scholarship.

Applicants must also secure from the Dean of the Graduate Division, 250 Sproul Hall, University of California, Berkeley, California 94720, an application for admission to graduate standing. This application, accompanied by the application fee of $5.00 and complete official transcripts of record, must be filed with the Dean of the Graduate Division by May 15 for the summer session and for the fall semester, and by November 15 for the spring semester.

Any course in the curriculum is open to any graduate student who satisfies the instructor that he has the ability and prerequisites to undertake the work, even though he is not a candidate for a degree in this School and does not qualify for it.

Candidates for advanced degrees are subject to all general University regulations governing those degrees. See ANNOUNCEMENT OF THE GRADUATE DIVISION, BERKELEY.

Admission for Advanced Degrees

Before being admitted to the School, the candidate must be accepted in graduate standing, without deficiencies, in the University of California; must have been graduated with at least a grade B average from the basic professional curriculum in a graduate library school which is accredited by the American Library Association and approved by the University of California; must have had at least a college year in each of two modern foreign languages; and must take the Graduate Record Examination Aptitude Test. Professional library experience before undertaking advanced work is recommended.

Location and Facilities

The School is located on the fourth floor of the Main Library. The School's lecture and laboratory rooms are near the comprehensive bibliographical collections of the library, to which all students of the School have access.

The curriculum in optometry was established at the University of California in the Department of Physics in 1923 with the support of the California Optometric Association. Since that time, through amendment of the state law obtained by the Association, a portion of annual license fees paid by registered optometrists is used for "the advancement of optometrical research and the maintenance and support of
the department at the university in which the science of optometry is taught."

In 1941 a School of Optometry was established, authorized to administer a two-year curriculum in optometry leading to the degree of Bachelor of Science and the Certificate in Optometry. In 1948, the curriculum was expanded to three years leading to the degree of Master of Optometry at the end of the third year in the School.

Technically, optometry is applied physiological optics, the science dealing with all aspects of the anatomy, optics, physiology, and psychology of vision. Thus optometry is the art of the science of vision care. Included within the scope of the profession is the determination of the type and degree of visual anomalies and the correction of these by any process other than the utilization of drugs or surgery. Usually correction involves the use of lenses and/or visual training. Optometry is concerned with the fitting of contact lenses and various aids to enhance the visual performance of the near blind. In addition, optometry is also concerned with the visual factors contributing to safe and efficient performance on the part of individuals in school, in the various occupations, and on the highway. It is the profession dedicated to the attainment and maintenance of efficient, adequate, and comfortable vision.

Optometry is one of the professions included in the health care fields but it is completely independent. Vision plays an ever-increasing part in modern civilization, and as a consequence optometry is becoming more and more important to the welfare of mankind. It is recognized legally and controlled by law in all fifty states and the District of Columbia as well as by all the Provinces of Canada.

A career in optometry offers many opportunities for well-trained men and women. The services rendered are important, and there is an ever-increasing demand for these. The financial return is above the average for college graduates. In addition to private practice, there are opportunities in the armed services as commissioned officers, employment in industry in several capacities, and positions in both private and governmental clinics.

**Preparation for the Study of Optometry**

As is the case in most instances, the earlier an individual decides on his life work, the better. A high school student who is considering optometry as a career should seek advice from his high school counselors and he should also obtain help from advisers in the School of Optometry. In any event, a high school student contemplating optometry should include the following courses in his high school curriculum: algebra, geometry, trigonometry, chemistry, physics, English, mechanical drawing and, at least two or, if possible, three years of the same foreign language.
The School of Optometry is an upper division and graduate school in the University of California. This means that a student cannot be admitted to the School until he has at least attained junior standing in college. The preprofessional collegiate training necessary to attain junior standing (60 semester hours) can be completed at any recognized junior college, college or university.

The first two years of college study should include the following subjects (University of California course numbers are given in parentheses):

1. Three or four semester hours of bacteriology covering pathogenic types. Laboratory work should be included, if possible. (Bacteriology 2 and 4)
2. Five semester hours of general chemistry with laboratory. (Chemistry IA)
3. Three semester hours of organic chemistry. (Chemistry 8)
4. One year of English or speech, 6 semester hours. (English 1A–1B or Speech 1A–1B)
5. Three semester hours of analytical geometry, either separately or together with calculus. (Mathematics 3A or 16A) This presupposes that the student has already taken trigonometry in high school.
6. Three to five semester hours of physiology with laboratory. (Physiology 1, 1L) At the present time, a year of zoology (Zoology 1A–1B) may be substituted. Students are urged, however, to take physiology, when possible.
7. A year of general physics with laboratory, 6–8 semester hours. (Physics 2A–2B and Physics 3A–3B)
8. One year of psychology, 6 semester hours. (Psychology 1A, 33 or 1A–1B)

The courses listed above represent the minimum requirements for admission to the School of Optometry in regular status. Students are urged to note any additional requirements which may be established by the institution at which they take their preoptometry. For example, students planning to prepare for admission to the School of Optometry on a campus of the University of California are advised to take a minimum of two years or, when possible, three years of a single foreign language in high school. During their freshman and sophomore years, these students will be registered in the College of Letters and Science and will be expected to meet its requirements. Consequently they must complete a minimum of 12 units, including high school units, in a single foreign language.

In addition, students must show a certain minimum proficiency in writing and understanding English.
Undergraduate Admission

For admission to the fall semester, the student should write to the School of Optometry as early as possible for advice. If it appears that the student will meet the requirements for admission by August, he should request an Application for Admission to the University of California in the School of Optometry. This application must be filed by March 1 with the Office of Admissions, 127 Sproul Hall, together with a letter from a physician pertaining to the physical and mental health of the applicant.

Special Requirements for Admission

Admission to the School of Optometry except for physical handicaps is based on scholarship and may become limited. An applicant must have completed at least 60 units of college work, including the required courses, and must have a grade-point average of 2.0 (C) or better. Students transferring from a California junior college or four-year college, who were not eligible for admission to the University of California directly from high school, must have a 2.4 grade-point average. Applicants transferring as undergraduates from an out-of-state junior college or four-year college, must, in general, have a 2.8 grade-point average. Those who already have a baccalaureate degree will usually apply for admission as undergraduate students and will need only a 2.4 grade-point average. Under special circumstances a student may be admitted, at the discretion of the Dean, to the School of Optometry with one of the required courses deferred until after admission to the School. The only courses which may be deferred are bacteriology, one semester of psychology, or one semester of a foreign language.

For detailed information concerning the School of Optometry see the ANNOUNCEMENT OF THE SCHOOL OF OPTOMETRY, which may be obtained, without charge, from the School of Optometry.

The Optometry Curriculum

The program in optometry requires three years. The major portion of the first year is devoted to more advanced study of the basic sciences which form a background for optometry as a science. The second year is largely devoted to the study of the science of optometry and the acquisition of the necessary knowledge and skill required in a clinical science. The third, or graduate year, is devoted to the practice of optometry and the more detailed study of specialized areas of the field. Approximately one-half the third year is spent in clinic.

The degree of Bachelor of Science in optometry is awarded to those students who satisfactorily complete the second year in the School of Optometry. All students who complete the third or graduate year receive the Certificate of Completion in Optometry, which qualifies the student to take the state board examination in optometry in prac-
tically every state. Students who have maintained a 3.0 grade point average are eligible to take a comprehensive examination in optometry. If they pass this examination, they are awarded the Master of Optometry degree. It is probable that the curriculum in optometry will require four years starting with the class entering in September, 1966, and that the minimum grade-point average for admission will be 2.25.

Program in Physiological Optics

In addition to the program of study outlined above, leading to the Master of Optometry degree, there is a graduate program in physiological optics leading to the degree of Master of Science and the degree of Doctor of Philosophy. This graduate program is a joint undertaking in cooperation with other departments of the University and is designed to prepare students for a career in teaching or research in the science of vision.

For detailed information regarding admission and other requirements for graduate programs, refer to the Announcement of the School of Optometry, and the Announcement of the Graduate Division, Berkeley.

Facilities

The School of Optometry is located in the Optometry Building opposite the Cowell Memorial Hospital.

Facilities include an extensive optometry clinic comprising refracting rooms, well-equipped laboratories, and offices; the Optometry Library; seminar and lecture rooms; student locker rooms and lounge; and research rooms.

The School of Public Health was established by The Regents of the University in January, 1944.

Formal programs of graduate study are offered leading to the degrees of Master of Public Health, Doctor of Public Health, Doctor of Philosophy (in epidemiology, biostatistics and environmental health science), Master of Arts (in biostatistics) and Master of Science (in environmental health science). Education of undergraduates is provided in the several technical fields of public health and in preparation for graduate study. Among schools of public health this combination of undergraduate and graduate instruction is an unusual feature offering decided advantages to both groups of students.

Earl Warren Hall, completed in early 1955, houses the School of Public Health. It provides excellent facilities for graduate study and research and includes an extensive public health library containing the merged resources of the University and of the State Department of Public Health, located across the street.
The School of Public Health shares academic programs with the Schools of Medicine, Nursing, and Pharmacy of the San Francisco campus as well as with the other Schools and Colleges on the Berkeley campus. It also enjoys the benefits of a close working relationship with the State Department of Public Health, including its field training program, and of similar relationships with the Berkeley City Health Department and a number of other local health departments. Materials and facilities for teaching and research are easily accessible in a variety of clinics, hospitals, and other organizations in the East Bay area as well as in San Francisco.

**Educational Objectives**

The philosophy of the School is implied in the definition of health adopted by the World Health Organization, "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity," and in the definition by the American Medical Association as "the art and science of maintaining, protecting, and improving the health of the people through organized community effort."

As a profession, the field of public health offers a considerable variety of areas of activity. It draws upon a diversity of skills, often requiring several in the same individual, and upon a firm foundation in the basic physical, biological, and social sciences. The field embraces the traditional functions of protecting man from sickness and death through the sanitation of his intimate environment, the prevention of communicable diseases, and the organization and administration of measures to accomplish these ends. It embraces newer functions deriving from advances in medical science, through which earlier recognition of disease, more effective prevention or cure of illness, and the maintenance of conditions favoring optimum health for the population as a whole are becoming increasingly possible. The successful application of these measures is dependent upon the employment of mass methods because the problems themselves are those of whole communities or of large population groups. Their solution requires knowledge and skills somewhat peculiar to this activity.

Public Health must continue to develop in the field of the social sciences as well as in the medical sciences. It faces a future of probable growth in which it will have to include the training of professional people for administrative functions and leadership of a very complex nature. The public health of tomorrow will demand competent individuals in a variety of fields.

The educational objective of the School starts with the specific disciplines and subject areas that are basic to public health methods, such as the biological and social sciences and the specialized fields of sani-
tation, biostatistics, and epidemiology. However, it goes beyond these to include consideration of the total relation of man to both his person and his social environment and the effect of this relationship upon his physical and mental well-being.

The undergraduate student in public health should obtain a broad educational background upon which to build a mastery of his area of specialization.

A graduate student in public health may come to the School with a well-developed professional skill and frequently with qualifying experience. He should seek such further special skills as he may need. But in addition, and of even greater importance, he should also be given opportunity to acquire an understanding of the way or ways in which his particular skill fits into the total picture of public health activity, and of its place alongside the many other skills required, and an understanding of the relative importance of each. He should gain knowledge of mass behavior as it relates to health and of the administrative methods for working effectively within the framework of public health organization and opportunity.

In order to accomplish a purpose with so many aspects, the curriculum has been carefully planned. Units or parts of courses have been drawn from many different departments of the University and so integrated that the student may cover a great territory in a comparatively short time. A careful balance must be established between basic and theoretical studies on the one hand, and applied studies on the other. To accomplish this, the School presents a faculty qualified in a diversity of fields. In addition, it draws upon the faculties of other departments and units of the University, and upon persons who are close to the immediate problems and experiences of practice outside the University.

**Undergraduate Curricula**

The School of Public Health offers one undergraduate major curricula that leads to the degree of Bachelor of Science in biostatistics.

Undergraduate students who have satisfactorily completed at least 60 units of work in one of the colleges of the University, or transfer credit evaluated as equivalent, may apply for admission to a major in public health leading to the Bachelor of Science degree in biostatistics. Students are urged to report to the Dean's Office, School of Public Health, as early in their academic career as possible. Formal application for admission to the School of Public Health should be made by the beginning of the fourth semester (last semester of the sophomore year). Provisional admission will be made promptly pending satisfactory completion of the fourth semester.
Graduate Curricula

Degree of Master of Public Health

In general, the emphasis in the program leading to the degree of Master of Public Health is on administration, since students entering the School for this degree usually are well prepared in a related professional or scientific field. However, in instances where advanced technical knowledge peculiar to a specialized field of public health is needed, the student may devote a considerable part of his work to technical studies. Although students who are fully prepared may attain this degree after one year of study, it is not unusual for students to take one or two semesters of preparatory work before entering the curriculum leading to the master’s degree.

The diversified nature of public health work makes it necessary to offer several areas of specialization, including the following: public health administration, hospital administration, medical care administration, health education, maternal and child health (including school health), public health social work, public health laboratory, public health engineering, sanitary science, epidemiology, biostatistics, occupational health, public health nursing administration, public health nutrition, and radiological sciences. Also, a number of other special fields of study are recognized in which both specialized technical and administrative instruction are indicated, such as: behavioral sciences in public health, mental health, dental health, cancer control, chronic disease control, tuberculosis control, and venereal disease control. The curricula for these additional areas will be developed as need and experience indicate.

In addition to the academic requirements, candidates for the Master of Public Health degree must complete a period of approved field experience unless their previous experience renders this requirement unnecessary.

Degree of Doctor of Public Health

This is a professional degree conferred in recognition of the candidate’s command of a comprehensive body of technical knowledge in the field of public health and its related disciplines, and his ability to initiate, organize, and pursue the investigation of significant problems in public health. Admission is based upon prior completion, with an outstanding scholastic record, of courses equivalent to those required for the Master of Public Health degree at the University of California; capacity for leadership in the field of specialization; and intellectual capacity to pursue independent work.

Degree of Master of Arts

Graduate work in biostatistics leading to the degree of Master of Arts is offered under the direction of the Group in Biostatistics com-
posed of members of the faculties of the Division of Biostatistics of the School of Public Health and the Department of Statistics.

**Degree of Doctor of Philosophy**

Graduate work is offered in epidemiology leading to the degree of Doctor of Philosophy. Graduate work in biostatistics leading to the degree of Doctor of Philosophy is offered under the direction of the Group in Biostatistics composed of members of the faculties of the Division of Biostatistics of the School of Public Health and the Department of Statistics.

**Residency in Epidemiology**

The division of epidemiology conducts a two-year residency training program for partial satisfaction of the requirements for certification by the American Board of Preventive Medicine. The residency may be accomplished as part of the academic programs leading to the degree of Doctor of Philosophy or the Doctor of Public Health degree in epidemiology. Alternatively, selected candidates may enter a residency program emphasizing training in field research methods utilizing the facilities of the Berkeley campus and including experience in one of a number of cooperating research centers.

**Degrees of Master of Science and Doctor of Philosophy in Environmental Health Sciences**

Graduate work is offered in environmental health sciences leading to the degrees of Master of Science and Doctor of Philosophy. Specialization within the general field of environmental health sciences is provided in industrial hygiene and air resources, radiological health, and environmental biology.

Further information regarding these curricula may be obtained by addressing an inquiry to the Dean’s Office, School of Public Health, University of California.

**Admission**

Formal application for admission must be made by all those desiring to enter the School of Public Health. Generally students are admitted only for the fall semester because of course arrangements, but they may be admitted at other times to make up prerequisites. The deadline for all graduate applications is May 15.

Enrollments are limited by the physical capacity of the School and frequently a considerable time is required to process graduate applications. In general, applications are acted upon in the order in which they are received. Applicants should plan to apply well in advance even though there may be doubt as to whether or not they will be able to enroll, as in cases when there are delays in fellowships. Should an
applicant find his plans have changed so that he cannot enroll, he should notify the School of Public Health as soon as possible in order that someone from the alternate list may be admitted.

**Fellowships and Scholarships**

*University fellowships and graduate scholarships* are awarded as a mark of honor, on the basis of distinguished scholarship. Students holding these are expected to devote all their time to graduate study and research in the University. A complete list entitled *Fellowships and Graduate Scholarships* is available from the Committee on Fellowships and Graduate Scholarships, 225 Sproul Hall, on the Berkeley campus of the University. Applications must be filed with the committee no later than December 10 for the ensuing academic year. Special attention is called to the Dr. E. E. Dowdle Research fellowships.

**Undergraduate Scholarships**

Information about undergraduate scholarships at Berkeley may be obtained from the Committee on Undergraduate Scholarships, 2620 Bancroft Way, Berkeley, California 94720. Special attention is called to the undergraduate scholarships in biostatistics on the Berkeley campus. Holders of undergraduate scholarships must carry a minimum of 12 units a semester.

A few grants-in-aid are available to undergraduate students in biostatistics on application directly to the Dean of the School of Public Health, University of California, Berkeley, California 94720.

**Public Health Traineeships and Grants-in-Aid for Graduate Students**

A number of traineeships and grants-in-aid are available to U. S. citizens for graduate education in public health. Before consideration can be given to any application for a traineeship or grant-in-aid the student must qualify for admission to the Graduate Division of the University of California and to the School of Public Health.

Applications for these awards should be addressed to the Dean of the School of Public Health, University of California, Berkeley, California 94720.

**United States Public Health Service Traineeships.** Traineeships in the general field of Public Health are made available from funds provided to the School by the United States Public Health Service. Awards may be made to persons with prior bachelor, master, or doctoral degrees.

**Behavioral Sciences.** Traineeship awards are available from funds provided by the National Institute of Mental Health for anthropologists, psychologists, and sociologists interested in the behavioral sciences curriculum or postdoctoral research training.
Biostatistics Awards. Several awards are available to graduate students working for the M.P.H., Dr.P.H., M.A., or Ph.D. degrees in biostatistics. A few are available also to undergraduate students in biostatistics.

Epidemiology Traineeships and Grants-in-aid. Traineeships are available to graduate students working for the M.P.H., Dr.P.H., or Ph.D. degrees in epidemiology, and for persons in the epidemiology residency training program. A few grants-in-aid are available for undergraduate or graduate students for purposes of summer-time field training in epidemiology field projects.

Medical Care. United States Public Health Service Special Purpose traineeships for qualified graduate students for Master of Public Health degree with emphasis on medical care.

Family Planning. Traineeships are available to qualified graduate students from special purpose funds provided by the United States Public Health Service. This is a collaborative program of Health Education, Maternal and Child Health, and Nursing.

Maternal and Child Health. Traineeships are available from funds provided by the Children's Bureau and the United States Public Health Service for physicians, nurses, and health educators in the maternal and child health curriculum, including special programs in mental retardation, school health, and family planning. A three-year program combining two years of residency training in pediatrics (in the departments of pediatrics of the medical schools of the University of California San Francisco Medical Center, Stanford, or the University of Washington) and a year in maternal and child health in this school is available with traineeship support provided by the Children's Bureau.

Naval Biological Laboratory Research Assistantships. A limited number of research assistantships are available at the Naval Biological Laboratory. Appointments will be made to students engaged in the fields of airborne infection and associated basic sciences; bacteriology, virology, immunology, epidemiology, respiratory physiology, and the physics of aerosols.

Public Health Education. Traineeships are available to graduate students working for the Dr.P.H. degree in public health education.

Public Health Nursing Administration. United States Public Health Traineeships are available in public health nursing administration. These traineeships were established for qualified nurses seeking advanced preparation for administration, supervision, and teaching positions in all fields of nursing.
Public Health Nutrition. Traineeships are available from funds provided by the U. S. Children's Bureau for students in public health nutrition.

Public Health Nutrition–Dietetic Internship. Traineeships are available from funds provided by the United States Public Health Service and the U. S. Children's Bureau for graduate students in the nutrition–dietetic internship program.

Public Health Social Work. Traineeships are available from funds provided by the U. S. Children's Bureau to social workers in public health social work who have a special interest in maternal and child health.

Radiological Sciences Traineeships. Traineeships are available to qualified citizens of the United States who are working for the M.P.H. or M.S. degrees in radiological sciences.

School Health. Traineeships are available to qualified graduate students from special purpose funds provided by the United States Public Health Service. This is a collaborative program of health education, maternal and child health, and nursing.

Federal Agency Traineeships

Air Pollution Program Grants-in-Aid

Public Health traineeships are available in the atmospheric pollution program of the United States Public Health Service for qualified scientists and engineers to receive advanced preparation in air pollution control. This program is associated with the occupational health engineering curriculum of the School of Public Health. Applicants should write to the Surgeon General, United States Public Health Service, Washington, D.C., 20201.

Federal Grants-in-Aid to States

The University of California has been designated by the United States Public Health Service as one of several universities for the professional education of public health personnel. Most state public health officers are authorized to appoint limited numbers of physicians, sanitary engineers, sanitarians, health educators, and other personnel in the health-medical professions, with a view to helping them to qualify for the several fields of public health work. Stipends are granted these appointees during their enrollment as students.

For information relative to appointment as a grant-in-aid student, the applicant should consult the state health officer of the state in which he resides or in which he plans to locate.
SCHOOL OF SOCIAL WELFARE

Education for the profession of social work has been available on the Berkeley campus since 1912–1913. In 1940 the curriculum in social service was replaced by a two-year program of graduate study leading to the master’s degree. In the spring of 1944 the School of Social Welfare was established. Since that time it has granted, on successful completion of two academic years of graduate work, the professional degree Master of Social Welfare. Since 1960–1961 the School of Social Welfare has offered a program of graduate study leading to the degree of Doctor of Social Welfare.

Undergraduate Group Major in Social Welfare. In 1942 a group major in social welfare was established in the College of Letters and Science. The group major in social welfare is designed: (1) to prepare graduates for professional education in social work; (2) to provide social welfare educational content in the liberal education of students going into immediate employment with social agencies and (3) to provide social welfare educational content in the liberal education of students for citizenship.

Social Welfare Extension Program. The School of Social Welfare, in cooperation with University Extension, offers service to the health and welfare agencies of California through consultation on staff development problems, leading to the organization of courses, workshops, or conferences. A sequential study program leading to a Certificate in Social Services is offered to groups of employed social service workers in Northern California. A study program is also available for workers in residential child care institutions.

The Master of Social Welfare Program

The program of study includes sequential courses in the areas of human growth and development, including bio-psycho-social pathology; social services, including policies and related problems; social welfare research; social work methods, including social casework, social group work, and community organization and administration. Supervised practice in social work is concurrent with academic work. To earn the Master of Social Welfare degree, a student must spend the equivalent of at least two academic years of graduate study in social welfare, one year of which must have been in residence at the University of California. The program consists of a minimum of 40 to 44 units of upper division, graduate, and professional courses, a thesis or group research project, and a comprehensive final examination in the field of social welfare. Students who have completed courses that are part of the social welfare curriculum in an accredited school of social welfare elsewhere than at the University of California may be given appropriate transfer credits.
The Doctor of Social Welfare Program

A program of graduate study leading to the degree of Doctor of Social Welfare is designed to prepare qualified students for careers in teaching and research. Requirements for the doctorate in social welfare are substantially similar to those for the Ph.D. in the University of California. Candidates must pass qualifying examinations in the four fields of welfare policy and administration, history and philosophies of social welfare, social research methods, and social work theory. They must demonstrate reading knowledge of one foreign language, and present a dissertation dealing with some problem of significance to the field of social welfare and of such character as to show power to prosecute independent investigation.

Prior to the qualifying examinations, doctoral students must successfully complete seminars in the School of Social Welfare in the four fields listed above, and approved advanced courses in departments other than Social Welfare. The object of the latter requirement is to achieve, on the part of every doctoral candidate, an adequate capacity to utilize social science or psychological theory in analysis and study of problems in social welfare.

The minimum residence requirement for the doctorate is two years, but experience indicates that normally three years of resident study will be required to earn the degree.

Special Requirements for Admission to Social Welfare

Every applicant for admission to the School of Social Welfare must hold a degree of Bachelor of Arts or Bachelor of Science from the University of California or an equivalent degree from a college or university of recognized standing and establish his eligibility for admission in graduate standing at the University of California. For details of admission to graduate status see the brochure, Admissions to Graduate Study, Graduate Division, Berkeley.

The special requirements for admission to the School of Social Welfare for the Master of Social Welfare program include:

1. Completion of the group major in social welfare offered in the College of Letters and Science at the University of California, Berkeley, or an equivalent major.

or

Completion of undergraduate study of psychology, sociology, cultural anthropology, and other social sciences sufficient, in the judgment of the faculty of the School of Social Welfare, to prepare the applicant for graduate study in the School.

2. Completion of an introductory course in statistics.

3. Suitability for the profession of social work, as determined by the faculty of the School.
The special requirements for admission to the School of Social Welfare for the Doctor of Social Welfare program include:

1. A master's degree from an accredited school of social work.
2. Experience sufficient to enable the student to obtain maximum benefit from the program.
3. Intellectual ability to pursue the required work.

Dates for Filing Applications

Admission to the School of Social Welfare as a full-time student is possible only in the fall of each year. Applications should be submitted as early as possible after the first day of December for the following academic year. The deadline for these applications is May 15. Students may be admitted in either the fall or spring semester to take courses only in the part-time degree program. The deadlines for these applications are May 15 for the fall semester and November 15 for the spring semester. Application forms may be obtained at or by writing to the School of Social Welfare, Berkeley, California 94720.

Scholarships, Fellowships, Assistantships, Loans

In addition to the general University scholarships, a wide variety of financial aid plans has been available in past years especially for students in the School of Social Welfare. Information concerning scholarships, stipends, assistantships, and loans may be obtained upon request from the School of Social Welfare.

Library Facilities

Several branch and special libraries on the campus, including the Social Welfare—Criminology Library, the Biology Library, the Law Library, and the Education-Psychology Library, contain materials of much value to social welfare students. Outstanding in its field is the Institute of Governmental Studies Library, which contains an unusually fine collection of social welfare documents and reports. This library is invaluable to students of social welfare, who must work in a field where the literature is largely documentary.

For complete details see Announcement of the School of Social Welfare.
SCHOOLS AND COLLEGES
IN SAN FRANCISCO

A student who plans to enter one of the University's schools or colleges in San Francisco may receive his required preprofessional training on the Berkeley campus.

For complete information regarding admission requirements, curricula, and costs in these schools and colleges, the prospective student should write to the dean of the school or college in which he is interested. Address the Dean of the University of California School of Dentistry, School of Medicine, School of Nursing, School of Pharmacy, or Hastings College of the Law, San Francisco.
Study and Research Facilities

Organized research units within the University of California further research and enrich the teaching functions of the faculty. These organizations are classified as institutes, centers, and projects; bureaus; non-departmental laboratories; and scientific museums.

An Institute is an agency established primarily for the coordination and promotion, on a continuing basis, of ascertained faculty research needs and interests organized around a broad subject area. Normally, the breadth of the subject will be reflected in research projects and programs which cut across department, school, college, or even campus boundaries.

A Center is (1) an agency, established within an institute to further research interests of the faculty in a designated major area, or (2) a separate agency, providing specialized facilities to further faculty research projects (e.g., a Computing Center).

A Bureau is an academic agency engaged primarily in public service activities and in facilitating research, in one or more academic departments, related to these activities.

A Nondepartmental Laboratory is a research organization, headed by a director who is a faculty member, with a research staff which may include nonfaculty personnel.

A Museum is an organization for the preservation and use of collections employed in research for the benefit of academic departments and the public.

A Station is a unit equipped with facilities for research conducted by academic departments and divisions on one or more campuses.

Project. The title of project is appropriate for a unit to carry out a specific and terminal research project.

INSTITUTES

Adolph C. and Mary Sprague Miller
Institute for Basic Research in Science

Through the benefaction of the late Adolph C. and Mary Sprague Miller, The Regents of the University were able to establish in 1956 an Institute “dedicated to the encouragement of creative thought and the conduct of research and investigation in the field of pure science, provided, however, that there may be conducted at said Institute research and investigation in the field of applied science insofar as such research and investigation are deemed by The Regents to offer a promising approach to fundamental problems.” The donors defined the purpose of the Institute as “to discover and encourage the work of individuals of great talent or promise.”
The Miller Institute, administered by an Advisory Board and Executive Committee, uses the income from its endowment for the appointment for limited terms of Research Professors who are freed from all other University duties and are provided with a small contingency fund and other items when possible. The Institute also offers two-year Research Fellowships, usually at the recent postdoctoral level.

Institute of Business and Economic Research

Established in 1941 and maintained by the University, the Institute provides research assistance for faculty members and an opportunity for training and financial support for qualified graduate students. In addition, it serves as an administrative and housekeeping unit for research grants from non-University sources involving studies in economics and business.

The results of Institute research are published in three forms: (1) Monograph Series, published through the University of California Press; (2) Special Publications, published and distributed directly by the Institute; (3) Reprint Series, containing results of studies published in article form in scholarly journals.

The Institute of Engineering Research

(See page 78.)

Institute of Governmental Studies

The purpose of the Institute of Governmental Studies (formerly Bureau of Public Administration) is to increase the understanding of public affairs, both through the marshaling and dissemination of existing information and through a research program designed to add to present knowledge.

The program of research and related informational and service activities falls within the four areas of public administration, public policy, politics and urban-metropolitan governmental problems.

The Institute is staffed by professional researchers who specialize in various aspects of these subjects and academic personnel who participate in the program through joint departmental-institute appointments. All the functions of the Institute are facilitated by a special library of public affairs materials—an extraordinarily broad and rich collection of documents, periodicals, and pamphlets that are indexed in a detailed subject catalogue.

In the fulfillment of its informational and research functions, the Institute publishes a wide range of materials, from books through booklets and pamphlets to monthly checklists and digests. California Public
Survey, a digest of public information, and Public Affairs Report, a bimonthly discussion of current issues in public policy, are issued by the Institute for free distribution to interested persons and organizations. Public officials and agencies, private organizations, and individual citizens make use of the Institute’s library and research facilities.

The Institute of Governmental Studies participates in the University’s teaching function both through its library facilities and through training advanced students in public affairs analysis. In addition, the Institute serves as headquarters for two organizations active in governmental research and improvement: (1) the Western Governmental Research Association and (2) the San Francisco Bay Area Chapter of the American Society for Public Administration.

For further information concerning the activities of the Institute of Governmental Studies, write to the Director, Room 348, Library.

Institute of Human Development

The Institute, which was established in 1927 as the Institute of Child Welfare, was renamed in 1958 to symbolize its research interest in human development over the whole life span. This interest includes not only the study of behavior as related to physical development and biological change, such as research on child development and aging, but also social transitions and the physiological, psychological and interpersonal consequences of changes in the social environment.

Among the Institute’s facilities is the Harold E. Jones Child Study Center, which houses the University nursery school and serves as a laboratory for the study of the preschool child. The Center is used as a setting for training activities by several departments, in addition to serving as a base for both faculty research and student theses.

The Institute research program includes several long-term longitudinal projects, which afford data for the use of collaborating staff and students, as well as grant-supported projects of shorter duration. A small working library is maintained primarily for the use of the research staff and its affiliates.

Institute of Human Learning

The purpose of the Institute is the advancement of experimental research in the field of human learning. The Institute is an interdisciplinary unit, and at present includes faculty members from the departments of Psychology, Education, Philosophy, Linguistics, and Speech. The work of the Institute places emphasis on the analysis of the basic principles of human learning and on the application of these principles to such areas as education and language development. Programs of
research within the Institute are supported by grants from extramural agencies and contracts.

The Institute provides research opportunities for graduate students who specialize in the study of human learning. Active areas of interest include verbal learning and memory, perceptual and discrimination learning, mathematical models in learning and concept formation, language development and associative processes, programmed teaching, and individual differences in learning ability. Research seminars and colloquia are held regularly throughout the year.

The Institute of Industrial Relations

The Institute of Industrial Relations, authorized by the Legislature of the State of California in 1945, began operations in 1946. It is concerned with two principal types of activity. The first is an interdisciplinary research and publishing program currently directed primarily toward the study of labor-management relations; wages and related problems; economic security programs; the labor market and labor mobility; social and industrial psychology; comparative developmental studies; and unemployment and the American economy. Research staff members of the institute are usually drawn from the regular faculties of the Departments of Business Administration, Economics, Political Science, Psychology, and Sociology. A number of half-time research assistantships are available to qualified graduate students each year in connection with this program. The second main activity consists of a community relations program serving management, unions, and other groups interested in industrial relations. The program consists of public lectures, conferences, institutes of varying duration, and evening courses.

The Institute of International Studies

The Institute of International Studies was founded in 1955 to foster comparative and international research in the social sciences and related disciplines. It is primarily concerned with contemporary problems, the analysis of which contributes to the development of systematic social science theory. Because the range of research is very broad, the Institute has evolved flexible programs in keeping with the needs of scholars at the University of California. They include faculty seminars on themes of current interest, programs of organized and individual research, as well as specialized area centers and committees. In addition, the Institute sponsors a program of research appointments and fellowships. Specialized libraries are located in the various area centers of the Institute and, as well, a library of international relations is maintained by the Bureau of International Relations within the Institute.
Organization and Research Interests

The general structure of the Institute follows both vertical and horizontal lines of organization.

The vertical organization consists of area centers and committees. Their jurisdiction is defined in terms of important regions of the world and includes scholars in different departments of the University concerned with given areas. In particular, the Centers are responsible for the maintenance of research resources for work in their areas: for example, adequate library materials; knowledge of individuals and organizations in the areas involved who might help scholars seeking materials or planning field trips; cooperation with the relevant language and extension units to assure language proficiency and special training; the operation of seminars and discussion groups bringing those interested in areas from the different disciplines together to discuss results, experiences, and problems; assistance to scholars in planning research designs in their area for proposals to foundations and other outside bodies.

The various area centers and committees within the Institute are: (1) the Committee for African Studies, (2) the Center for Chinese Studies, (3) the Center for Japanese Studies, (4) the Center for Latin American Studies, (5) the Committee for Middle Eastern Studies, (6) the Center for Slavic and East European Studies, (7) the Center for South Asia Studies, and (8) the Center for Southeast Asia Studies. Further information on the programs of research in each of these Centers and Committees is contained in the subsequent section on Area Programs.

The horizontal organization of the Institute follows the lines of certain functional problems which cut across the various geographic areas. These are necessarily diverse and change from time to time as research is completed or new interests emerge. Some of the programs are well established in the Institute and continue from year to year. Others depend on more time-bound concerns of particular members of the faculty. Included in the first category is the International Population and Urban Research project. In the second there are to be found the Committee on Community Development, the Committee on Land Tenure Research, and other similar groups. In addition there are special projects of research such as (1) The Comparative Elites of Developing Areas, (2) the Brazil Program, (3) the Research and Training Group in Comparative Developmental Studies (co-sponsored with the Institute of Industrial Relations), (4) the Students and Politics in Developing Countries (co-sponsored with the Survey Research Center), (5) the Joint Seminar on Problems of Communist Societies, (6) the International Security Program.

Although the range of interests represented in the Institute remains extraordinarily broad, two main foci have emerged as major preoccupa-
tions of scholars at the University of California. The first of these is the study of developing societies as reflected in the various Centers and Committees dealing with the underdeveloped areas and Japan. The second, related to the first, is the analysis of the background and processes of change in the Communist countries. This work is going on particularly in the Chinese and Slavic Centers.

Area Programs

The Committee for African Studies. For several years there has been developing, particularly within the departments of Political Science and of Anthropology, a program of teaching and research in African studies. A committee, consisting of African specialists at Berkeley, reflects an expanding interest and increasing concern with African affairs by faculty members in several departments. The committee forms the core of an interdisciplinary colloquium in which African specialists, other faculty members, and students participate. To meet its growing responsibilities, the Committee for African Studies is concerned with developing library materials and documentation, cooperating with the Los Angeles campus African Studies Center in short-term visiting programs of African specialists, and assuring the graduate students interested in African studies of as complete as possible a set of intellectual tools for thinking about African problems.

The Center for Chinese Studies, established in 1957, is primarily concerned with the development of social science research on contemporary China. The Center maintains a program designed to assist graduate students in the social sciences to apply their basic disciplines to the study of contemporary China. For this purpose, a limited number of grants are awarded to outstanding students primarily for language study, so that they may acquire a proficiency in Chinese that will enable them to engage in independent research. In addition, the Center takes an active interest in encouraging research projects by faculty members in the field of contemporary China. Other Center activities include the maintenance of a reading room, and research colloquia.

The Center for Japanese Studies, established in 1958, is the unifying organization for all faculty members and students interested in Japan. It brings together scholars from many disciplines whose interests focus on social science research concerned with analysis of the factors which determine the special social characteristics of Japan.

The Center facilitates the individual research programs of faculty members through grants-in-aid, research assistantships, travel funds, etc. Moreover, it conducts a monthly colloquium at which papers in this field are presented and discussed. The Center also supplies a language tutor for undergraduates, graduate students, and faculty members who wish to improve their proficiency.

The Center for Latin-American Studies was established in 1956 at
the request of faculty members, primarily in the social sciences and humanities, who had been meeting as an informal Latin-American Colloquium since 1950. From its inception, the Center's orientation has been mainly toward faculty research, through provision of grants-in-aid for travel, research materials, and released time, as well as through encouragement of library improvement and the provision of regular interdisciplinary forums.

Interchange of faculty between the Berkeley campus and Latin-American universities is encouraged by the center. This aspect of research contributes much toward the University's role in the development of a community of scholars, both from Latin America and this campus.

Committee for Middle Eastern Studies. For a number of years, the Berkeley campus has had impressive resources in this area, in terms of faculty, library material, and course offerings. The Committee for Middle Eastern Studies was established in 1962, reflecting a growing interest in this area specialty within several departments.

The committee provides the organizational form to facilitate a more integrated program of research and training. It supports the work of faculty members by securing funds for domestic and overseas research and by sponsoring a Colloquium devoted to the analysis and discussion of the problems of the Middle East. The areas of interest include Turkey, Iran, Afghanistan, Israel, and the Arab States of the Middle East and North Africa.

The Center for Slavic and East European Studies was established in 1957. Slavic studies and research have had a relatively long history on the Berkeley campus. Until approximately 1950 the emphasis lay almost entirely on languages, literature, and history; the present focus is increasingly upon economic, political and social analysis.

The Center devotes its funds primarily to the support of the research projects of individual faculty members. It also sponsors activities, such as colloquia, the Seminar on Soviet Technology, and the Faculty Seminar on Organization in the Communist World, which is conducted jointly with the Center for Chinese Studies.

The Center for South Asia Studies, established in 1956, has been instrumental in developing research, encouraging teaching of South Asian languages, providing funds for field research, organizing colloquia, seminars, lectures, and specially organized study groups dealing with various phases of social organization in South Asia.

A major undertaking is the Himalayan Border Countries Project. Under this project a number of studies are being carried out dealing with social, political, and economic developments in Bhutan, Sikkim, and other border areas. A second group of studies has focused on various phases of life in South Asian villages.

Linguistic research and facilitation of language teaching is an important part of the work being developed by the center. The Depart-
ment of Near Eastern Languages teaches modern Hindi, Urdu, Telegu, Tamil, and Kannada. A special research project financed by the National Defense Education Act has resulted in the publication of teaching materials for all five of these languages.

The Center has made special cataloging arrangements with the General Library so that the extensive collection of materials on the social, economic, and political development of modern India is readily accessible to scholars.

The Center for Southeast Asia Studies was established in 1960 in response to faculty and student interest in the area. A limited number of grants are available for graduate students. The Thai Dictionary Project is compiling a comprehensive Modern Thai-English Dictionary and a smaller Thai-English Student Dictionary, the latter designed as a tool for researchers in the social sciences to enable them to use Thai sources, particularly modern Thai newspapers. The Center for Southeast Asia Studies houses the Thompson-Adloff Collection of Southeast Asian clippings. By arrangement with the Army Language School in Monterey, special training in Southeast Asian languages is available to our students.

Comparative Programs

Committee on Community Development. As an outgrowth of faculty interest, interdepartmental course work in community development has begun under appropriate departmental auspices. University Extension, with assistance from the Institute, has conducted a series of special programs of training in international community development for foreign and American participants sent to the campus by government, international, and private agencies.

Research and Training Group in Comparative Developmental Studies. This group, established in the fall of 1961, is under the joint auspices of the Institute of International Studies and the Institute of Industrial Relations. The Research and Training Group has initiated a reprint series, and a number of individuals in the group have books in preparation on aspects of development in various countries. An informal training program has been established with student grants-in-aid.

International Population and Urban Research (IPUR) was founded in 1956. The central focus of the Project's activities is the comparative analysis of population and urban data from countries throughout the world.

The first research effort of the project was to gather and systematically file information about the world's cities and metropolitan areas of 100,000 or more inhabitants. These data have been used for the preparation of a monograph, several articles, and for a comparative international study of rank-size relationships among metropolitan areas.

International Population and Urban Research has recently begun a
long-term project on the population of Latin America. This research will utilize census data—on population, housing, industry, and agriculture—to study fertility, marriage and family patterns, labor-force participation, internal migration, educational attainment, occupational and industrial structure, and urbanization. Emphasis will be placed on the relation of these variables to economic development.

IPUR has conducted a pilot study on the post-attack demography of the United States. This study attempts to describe the population composition of the United States following hypothesized patterns of enemy nuclear attack and to identify some of the most important variables that would determine the long-range recuperation of the American population from such an attack.

Graduate students wishing financial assistance and clerical aid in completing research for the Ph.D. in the field of population or urban research (regardless of discipline) may qualify for research positions at IPUR if their projects are congruent with ongoing programs of research.

*International Security Program.* The Institute established a War/Peace Research Development Seminar in the fall of 1962 which has brought together interested faculty members, representing almost every discipline on the Berkeley campus. Undertaking major problems of joint concern, both social scientists and physical scientists are participating in the development of a systematic program of research on problems related to peace and international security.

*Committee on Land Tenure Research.* This group of faculty members serves to coordinate research on international problems of land tenure and reform. The interests of this group are closely related to those of the Committee on Community Development, and the overlapping membership of these committees permits a coordination of activities.

*Joint Faculty Seminar on Organization in the Communist World.* The seminar seeks to bring together those scholars who are interested in the comparative analysis of structures and processes in Communist societies. It sponsors papers and studies designed to illuminate patterns of change in different Communist societies so as to highlight the congruence and variation among them.

*Students and Politics in Developing Countries.* This project, jointly sponsored by the Institute and the Survey Research Center, is concerned with an analysis of the nature and sources of variation in the political behavior of university students in different developing nations. The project is designed to shed light on some of the factors which may determine the actions of the future elites of these nations. While data from a variety of sources are employed, interview and questionnaire responses are the major source of research materials.

**Specialized Programs**

The specialized programs conducted by the Institute are primarily concerned with training for overseas projects and institutions. These
include the *Brazil Program*; the *Community Development Project*; the *Peace Corps Training Programs*; and the *Public Economic Administration Project*.

**The Institute of Marine Resources**

The Institute of Marine Resources is a University-wide organization with headquarters on the San Diego campus. Its objectives are to encourage and support research on the resources of the oceans.

On the Berkeley campus the Institute of Marine Resources supports a research unit in Marine Food Technology, within the administrative framework of the Department of Nutritional Sciences. Some teaching and seminars are conducted by institute personnel but no special courses are currently offered in this field. The research program involves the study of fundamental problems connected with the utilization of ocean fauna for food. Another project in progress on the Berkeley campus, in the Department of Engineering, involves problems connected with the mineral aggregations that occur on certain parts of the floor of the Pacific Ocean.

**The Institute of Personality Assessment and Research**

The Institute, established in 1949 through a grant from the Rockefeller Foundation, has two interrelated objects: (1) the development of techniques and procedures for the assessment of human functioning and (2) the utilization of assessment procedure in seeking to discover (a) the characteristics of persons who are highly effective in their personal lives and professional careers, and (b) how such effectively integrated persons are produced in our society.

Most senior members of the staff hold joint appointments in teaching departments of the University, and consequently the Institute, though it offers no formal instruction in courses and seminars, is an important training and research facility for students who wish to specialize in the study of persons. Research assistantships are available to graduate students.

The investigations of the Institute are supported in part by grants from philanthropic foundations and governmental agencies, and by contract research.

**Institute of Social Sciences**

The functions of the Institute of Social Sciences are to assist faculty members in conducting research in subjects pertaining to social science. Grants are made annually both to individual scholars and to small groups. The Institute makes its awards to members of the seventeen departments represented on the Social Science Council and can do so to other faculty members whose research is social in content. The
institute is administered by an Advisory Committee of seven faculty members and has a director, who is also a faculty member, and an office staff. Within the Institute are placed two research bodies, the Survey Research Center and the Center for the Study of Law and Society. These Centers provide an organization for helping faculty members to conduct their research within the fields indicated by the titles.

The Institute of Urban and Regional Development

The Institute was established in 1963 to focus research attention upon the problems of city, metropolitan and larger regional development. Its present Centers, described below, are to be supplemented in the future by a program directed toward urban social problems. In addition to the Center programs, the Institute will work with other research organizations on such common problems as transportation and land use models, urbanization processes in developing countries, development decision-making in metropolitan areas, and the regulation of development. It draws upon faculty and graduate student resources in the professional schools, social and natural sciences, and the arts.

The Center for Real Estate and Urban Economics, established in 1950 to conduct research in real estate and land economics, and to assist in improving methods in the industry and related government services. Its research program includes projects on real estate and housing markets, finance, the organization and administration of the industry, and the economic, demographic and fiscal forces affecting urban growth. The Center publishes research monographs and reprints, and jointly with its counterpart on the Los Angeles campus issues a quarterly bulletin designed to acquaint real estate practitioners with current developments in real estate research and education. It provides research support for faculty members and graduate students in business administration, economics, finance, statistics, and related fields.

The Center for Planning and Development Research, established in 1962 to conduct research in city and regional planning and related social and technical processes. In addition, the Center will provide service to governmental and private agencies in the development of new techniques for the solution of development problems. Its initial projects are concerned with selected topics and methods to be used in a development plan for the State of California, the problems of planning and building new communities in suburban areas, and techniques of community renewal programming. While primarily affiliated with the Department of City and Regional Planning, the Center employs faculty and graduate students in economics, political science, law, architecture, engineering, and business administration, among others.
The Institute of Transportation and Traffic Engineering
(See page 79.)

LABORATORIES*

Laboratory of Chemical Biodynamics

The Laboratory of Chemical Biodynamics applies the science of chemistry to the fundamental problems of biology. Its work is based on the theory that a living organism is a dynamic system of chemical transformations, and research in this Laboratory emphasizes chemical biodynamics as a progressive step in the quantitative development of biology.

The Laboratory is a research facility for members of various University departments, presently including Chemistry, Physics, Botany, and Psychology.

Students may do thesis work for presentation to the Graduate Division for degrees in these and other departments and may engage in group curricula such as Comparative Biochemistry, Biophysics, and Plant Physiology, by arrangement with faculty members involved. The Laboratory is also a unit of the Lawrence Radiation Laboratory.

Crocker Laboratory

The William H. Crocker Laboratory was built by a donation of the late Mr. William H. Crocker for the use of the 60-inch cyclotron in Medical Research and Therapy. In 1962 the 60-inch machine ended an historic period of nuclear research, including the discovery and production of artificial radioelements, additional broad studies in physics and chemistry, and the first work on the biologic effects of heavy particles, leading to their use in therapy and the foundations of radiation safety in the atomic age; also to the first application of artificial radioisotopes in medical research, diagnosis and treatment. The magnet of the instrument was recently transferred to the Davis campus, where it is being remodeled for use in a new William H. Crocker Laboratory on that campus.

The early medical research carried out in the old Radiation Laboratory and the Crocker Laboratory was the basis for the broad program of research and teaching now being carried out in the Donner Laboratory and Donner Hospital Pavilion. The physical and chemical research activities formerly conducted with the 60-inch cyclotron are now being performed with other facilities in the Lawrence Radiation Laboratory, notably the 88-inch cyclotron and the Heavy Ion Linear Accelerator.

* For a list of additional laboratories, described under departmental headings, see page 156.
Donner Laboratory

The Donner Laboratory was founded to integrate the basic sciences of physics, chemistry, and mathematics in carrying out the program in biology and medicine of the Lawrence Radiation Laboratory. The teaching center of the academic Division of Medical Physics is also housed here. The main laboratory building is located next to Founder's Rock at the northeast corner of the campus, and not far away is the Donner Pavilion, the Laboratory's research hospital wing. Other laboratory facilities including animal housing and various facilities for animal and human investigation, are located in the Hill Area of the Lawrence Radiation Laboratory. The staff includes nine professors, fifty-five postdoctoral staff members, and more than fifty research fellows and students.

Research in biophysics is conducted on macromolecular, cellular, and animal systems. Radiobiology and space biology are subjects of active interest. Molecular fields of study include active study of lipoproteins, the nature of enzyme function, the biophysics of nucleic acids, and the study of molecular excited states. Cellular studies center around basic radiation genetics of microorganisms, electrical properties of cells and subcellular particles, cell division dynamics, properties of mammalian cells in vitro including studies on neurons. Metabolic studies using various biophysical techniques including radioactive tracer studies are carried out on hemopoiesis, heart disease, cancer, atherosclerosis, aging, radiation, etc. The Laboratory has modern equipment and instrumentation for biophysical and medical research including the accelerators of the Lawrence Radiation Laboratory.

Students may work for several degrees including the A.B. in biology and physics (individual group major), the Master of Bioradiology (a degree in the field of health physics), the Ph.D. in biophysics or in medical physics. Several predoctoral and postdoctoral research positions and fellowships are offered. Postgraduate physicians are trained in biophysics and nuclear medicine.

Hormone Research Laboratory

The activities of the Hormone Research Laboratory center about research on the chemistry and biology of the hormones from the anterior and intermediate lobes of the pituitary gland. The isolation and characterization of a great number of these hormones have been achieved here, and present research is concerned with obtaining the hormones in their purest form, investigating their biological activities, and accomplishing their chemical structure and synthesis. An equally important objective is the training of predoctorate and postdoctorate investigators in the techniques and methods requisite for work in the
fields of protein chemistry and experimental endocrinology. In addition, the Laboratory has been a source for highly purified pituitary hormones for biological and clinical investigations, not only within the University community but also throughout the world.

Seminars and courses in protein chemistry, biochemical aspects of endocrinology, and the biochemistry of hormones have regularly been offered by the staff of the Laboratory. A number of research assistantships and postdoctorate fellowships are provided for qualified applicants each year.

Lawrence Radiation Laboratory

The Ernest O. Lawrence Radiation Laboratory maintains major facilities for basic research in high-energy physics, nuclear chemistry, inorganic materials, medical physics, and bioorganic chemistry on the Berkeley campus. Principal research instruments at the Berkeley laboratory include the 6.2 billion electron volt Bevatron, the 184-inch synchrocyclotron, the Heavy Ion Linear Accelerator, and the 88-inch cyclotron. Opportunities are available for a limited number of graduate students to perform research at the Berkeley laboratory under the direction of faculty members and staff scientists. The Laboratory also maintains a site at Livermore, California, where the primary program involves research on nuclear weapons. In addition, however, major Livermore programs include unclassified basic research in the physical sciences and research on controlled thermonuclear reactions and the peaceful uses of nuclear explosives. An extensive computer complex is operated at Livermore.

Naval Biological Laboratory

The Naval Biological Laboratory, a research facility in the School of Public Health, operates under a contract between the Regents and the Office of Naval Research. Naval Medical Research Unit No. 1 of the Bureau of Medicine and Surgery, Department of the Navy, actively collaborates with the Laboratory. Research is concerned with fundamental investigations in the general areas of aerobiology and experimental pathology of infectious diseases as they apply to public health and to medical problems of the Navy. The Laboratory is staffed by civilian and naval personnel under the direction of a University appointed director. Facilities are available for use by faculty, graduate students, and postdoctoral fellows.

The Laboratory is uniquely equipped to study highly infectious diseases. It maintains its own engineering staff, machine shops, photography laboratory, and service facilities required for research in the fields of aerobiology, microbiology, public health and related sciences. Inquiries concerning the Laboratory should be addressed to: Director,
Naval Biological Laboratory, Building 844-A, Naval Supply Center, Oakland, California 94614.

Laboratory of the Rockefeller Institute

This Laboratory is maintained by the Rockefeller Institute for the research of Professor John H. Northrop. The funds are supplied entirely by the Rockefeller Institute and are administered partly through the Rockefeller Institute and partly through the Department of Medical Physics, Donner Laboratory.

It has no official academic duties. The work at present is concerned with the origin of bacterial viruses.

Space Sciences Laboratory

The Space Sciences Laboratory is an interdisciplinary laboratory engaged in basic research in the physical, engineering, biological, and social sciences on problems related to and motivated by the exploration of space.

Its major purpose is for faculty and graduate student research, and the projects are related to curricular programs. Current projects in fields of engineering comprise studies in aeronautics and technology, systems theory, microwave radiometers, and geomagnetism. There are extensive programs in space physics, solar terrestrial relationships, exobiology (extraterrestrial life), and biological systems in the interplanetary environment.

The Laboratory also supports an extensive program in the behavioral sciences with emphasis on the study of research and development organizations and the economic aspects of research and development.

The programs are supported by University funds as well as grants and contracts from the research branches of the U. S. Department of Defense, the National Science Foundation, and the National Aeronautics and Space Administration. The facilities, at the present time, are located in various parts of the campus with the central office in Room 11A, Leuschner Observatory.

Virus Laboratory

The Virus Laboratory was established by The Regents in 1948 as a regularly budgeted research organization within the University for the purpose of conducting research on the biochemical, biophysical, and biological properties of animal, bacterial, and plant viruses. Since that time it has become one of the foremost virus research centers in the world, and it is the only one in which work on all kinds of viruses is in progress. Major achievements include a new technique for freeze-drying preparations for electron microscopy, the preparation of pure poliovirus, the crystallization for the first time of a virus affecting animals or humans (poliovirus), the discovery that preparations of
nucleic acid from tobacco mosaic virus possess virus activity, the first reconstitution of a virus from its component parts, the invention of the separation cell for use in ultracentrifugation, and the first information regarding the chemical nature of virus mutation. Research on virus-cancer relationships and on cell-virus interaction in tissue cultures is being conducted under grants from the U. S. Public Health Service.

Scientists come to the Virus Laboratory from all parts of the world, and each year representatives from many foreign countries have been in attendance for postdoctoral training. Thirteen members of the staff hold appointments in the Department of Molecular Biology and in other academic departments and have supervised the work, including research in the Virus Laboratory, of thirty-two graduate students who have received the Ph.D. degree. During the present year there are thirty-four graduate students working toward the Ph.D. degree with staff members of the Virus Laboratory. Training in fundamental virology is, therefore, being offered at the predoctoral and the postdoctoral levels by a staff noted for its research accomplishments.

Additional Laboratories

(Described under departmental headings, see Index.)

Cancer Research Genetics Laboratory
Electronics Research Laboratory
Forest Products Laboratory
Hydraulic Engineering Laboratory
Industrial Engineering Laboratories
Low-Temperature Laboratory
Minerals Research Laboratory
Nuclear Engineering Laboratory
Operations Research Center
Radio Astronomy Laboratory
Sanitary Engineering Research Laboratory
Sea Water Conversion Laboratory
Soil Mechanics and Bituminous Materials Laboratory
Statistical Laboratory
Structural Engineering Materials Laboratory

MUSEUMS AND BOTANICAL FACILITIES

Museum of Anthropology
(See Index)

Museum of Paleontology
(See Index)

Museum of Vertebrate Zoology
(See Index)
Botanical Garden

The Department of Botany has maintained a Botanical Garden since 1892, and from 1925 onward it has been located in Strawberry Canyon. It includes a fenced area of approximately twenty acres in a valley that, by reason of its slope toward the Pacific Ocean, enjoys a reduction in the climatic extremes of the Berkeley Hills. The Garden provides opportunities for research with living plants, supplies teaching material, and offers botanical instruction for the interested public. The Garden contains ten greenhouses, a lathhouse, and associated facilities, and approximately fourteen acres of outdoor space are cultivated. Its collections are especially rich in succulents, South American, South African, European and Australasian plants. An Economic Plant Collection and a California Native Area are also being developed. In these areas active research is in progress. Experimental work is carried out in the greenhouses and in an experimental area that provides full facilities for the culture of population-samples outdoors.

Herbaria

The University maintains an herbarium representative of the floras of the world. It contains the original collections sponsored by the Geological Survey of California, the algological herbaria of Setchell and Gardner, the Ira W. Clokey herbarium, the J. P. Tracy herbarium, the H. E. Parks herbarium, the H. M. Hall herbarium, the H. L. Mason herbarium, the oriental collections amassed by E. D. Merrill, and the Joseph Rock collections and the South American collections made under the auspices of the University Botanical Garden.

The Jepson Herbarium, endowed by the late Professor Willis L. Jepson and maintained by the terms of the bequest as a separate herbarium, specializes almost exclusively in the flora of California and of areas in states immediately adjacent.

RESEARCH CENTERS, STATIONS AND OTHER UNITS*

Pacific Southwest Forest and Range Experiment Station

This Station is one of several regional headquarters of the U. S. Forest Service’s branch of research. It is responsible for planning and carrying out a comprehensive program of basic and applied research in the field of wildland resource management. This experimental work is done in close cooperation with the School of Forestry and the Agricultural Experiment Station. Several of the Station’s research units

* Additional facilities are described under departmental headings. See list on page 156.
also aid academic departments of the University in presenting lectures and seminars or in guiding graduate studies. Station and University research workers regularly collaborate on many study projects. Station personnel are federal civil service research workers and their clerical and administrative staff.

Center for the Study of Higher Education

The principal purpose of the Center for the Study of Higher Education is to provide opportunities for research on basic problems of higher education by faculty members, graduate students, and the Center's own research staff. In addition, the Center is authorized to hold conferences on higher education in cooperation with other University agencies or outside educational organizations, to provide fellowships or internships, and to publish research reports and conference proceedings.

As a campus-wide agency responsible to the Chancellor, the Center operates under policies approved by a faculty advisory committee. It is currently engaged in a number of extensive research projects involving the cooperation of high schools, colleges, and universities in several states. These include a study of student development in both small liberal arts colleges and large, complex institutions; a study of factors related to attendance at various types of higher institutions; an investigation of the accomplishment of junior college transfers in four-year colleges and universities; changes in attitudes, values, and personality characteristics of comparable groups of high school graduates who did and did not go on to college; changes in characteristics of academically superior students during their college careers; and studies of student development in specialized institutions. The Center has begun a program of research in college and university organization and administration. It has also recently received funds for a nationwide study of community colleges and for an investigation of training educational researchers. It has provided educational consultants for projects in Kenya, Japan, and Chile. The Center and the Western Interstate Commission on Higher Education hold an annual conference in Berkeley on research in higher education. The last two of these conferences have been on College and University Administration and Long-Range Planning in Higher Education.

Center for the Study of Law and Society

The Center for the Study of Law and Society conducts field studies of law in action, and historical and philosophical research bearing on the development of law and legal theory. Among current programs and projects are: the administration of civil justice, including studies of the flow of litigation, organization of the courts, characteristics of clients
and attorneys; the administration of criminal justice, including relations among police, defendants, public defenders, and prosecuting attorneys; juvenile delinquency and the administration of justice to juveniles; private government; law in ancient Mesopotamia; historical conceptions of law and society.

Although primarily a facility for faculty and students in the social sciences, including the School of Law, the Center serves some visiting scholars and employs a small professional research staff. Some summer stipends for faculty members are available, as well as training for graduate students through employment as research assistants. The Center is a unit of the Institute of Social Sciences.

**Computer Center**

A computing facility for the University is maintained on the Berkeley campus in Campbell Hall. A large electronic digital computer and extensive peripheral equipment are available for use by faculty and students of all departments on the campus for purposes of both teaching and research. The computing system has 32,768 words of fast (core) memory, disc files, magnetic tapes, and remote on-line stations designed to provide easy access to the system by students and faculty.

The Computer Center is administered by a Director responsible to the Chancellor at Berkeley. Potential users may profit by attending non-credit courses in computer programming which are periodically given by the staff. Further assistance is available from full-time consultants and the programming development group at the Center.

Faculty members associated with the various research projects of the Center are concerned with the theory of computer programming, numerical analysis, the design of computer equipment and instruments and the mechanical translation of languages. Students participate as research assistants and programmers on these projects.

**Center for Research in Management Science**

The Center for Research in Management Science, formally established in May, 1961, is composed of faculty members drawn from Business Administration, Economics, and related disciplines, who are actively engaged in research on the problems of management. Research topics include: conceptual and empirical studies of large-scale organizations, theoretical and experimental studies of individual and group decision-making, decision rules for optimization, applications of computer technology to organizational problems, and economic and other environmental studies.

Research facilities are provided in the Management Sciences Laboratory located in the basement of Barrows Hall. This laboratory, partly financed by the National Science Foundation, offers facilities for experi-
ments in the research topics listed above and in man-computer inter-
actions.

The Center provides financial aid to doctoral candidates by employ-
ing them as research assistants on faculty projects, and thus also places
them in an environment of research for training in research with recog-
nized men in the field.

Visiting scholars are encouraged to join the staff during the summer
or for varying periods during the academic year.

Weekly seminars of the Center have a planned program followed by
informal discussion, for review of work in progress.

Survey Research Center

Located organizationally within the Institute of Social Sciences, the
Survey Research Center is charged with assisting faculty and students
in all social science departments and schools, in the design, develop-
ment, and execution of research using survey methods. Organized
around a method rather than a single substantive topic, the Center
conducts research in a wide variety of fields. Projects are currently
under way in education, juvenile delinquency, marketing, political be-
havior, prejudice, and the social aspects of health. The Center also
carries on a program of methodological research to increase the pre-
cision and the range of applicability of survey procedures and con-
tributes to advanced training in social research by providing laboratory
resources and research apprenticeships for graduate students.

The Center seeks as well to serve the University and the community-
at-large wherever survey research can contribute to the formulation of
educational and public policy.

White Mountain Research Station

The White Mountain Research Station provides basic laboratory
and living accommodations for faculty and students requiring teaching
and research facilities in the high altitude environment. Since its incep-
tion in 1950 the Station has been the site of a wide variety of studies
in the agricultural, biological, and physical science fields.

The Station comprises three separate locations in the White Moun-
tain Range east of Bishop, California: the Crooked Creek Laboratory,
10,150 feet above sea level; the Barcroft Laboratory, 12,470 feet; and
the Summit Laboratory, 14,250 feet. In addition, the Owens Valley
Laboratory in Bishop, elevation 4,050 feet, serves as the local head-
quarters. All but the Summit Laboratory are kept open the year around.

Maintenance support is provided jointly by the University, the Office
of Naval Research, and the National Space and Aeronautics Adminis-
tration. A research physiologist and five maintenance men make up the
permanent resident staff. Administrative headquarters are located in
Berkeley, and inquiries concerning use of the Station may be addressed to Director, White Mountain Research Station, 2518 Life Sciences Building, University of California, Berkeley, California 94720.

Foreign Language Training

Research and field work overseas may be facilitated by oral proficiency training in any of twenty-eight languages taught at the Defense Language Institute at the Presidio of Monterey. This unique program is available on a limited basis to University graduate students and faculty. For additional information, the campus Language Training Adviser may be consulted. Application forms may be obtained from the Secretary, University of California Language Training Advisory Committee, University of California, Santa Cruz, Santa Cruz, California 95060.

Additional Units

(Described under departmental headings, see Index.)

Education Field Service Center
Giannini Foundation
Hastings Reservation
Leuschner Observatory
Minerals Thermodynamics Experiment Station

Sagehen Creek Wildlife and Fisheries Station
Seismographic Stations
University of California Archaeological Research Facility
Wildland Research Center