CORRESPONDENCE DIRECTORY
UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA 94720

Admissions
Undergraduate Office of Admissions 127 Sproul Hall
Graduate Gradate Admissions 336 Sproul Hall
Registration and Registrar’s Office Window 3, Sproul Hall
General Information
Academic Matters Dean Individual college or school
Housing Housing Services 2620 Bancroft Way
Residence Status Attorney in Residence Matters 590 University Hall
Foreign Students’ Foreign Student Adviser International House, Campus
Problems
Selective Service and Supervisor of Special Services 309 Sproul Hall
Veterans Affairs
Scholarships
Undergraduate Committee on Under- 2536 Channing Way
graduate Scholarships
Graduate Graduate Division 225 Sproul Hall
Fellowships Graduate Division 225 Sproul Hall
Prizes Committee on Prizes 2620 Bancroft Way
Loans Dean of Students 201 Sproul Hall
Employment Student and Alumni Placement Center South Hall Annex
Student Activities Executive Director, ASUC 207 Eshleman
University Extension University Extension 2223 Fulton Street
Policy Matters Chancellor 3335 Dwinelle Hall
                 President 714 University Hall

Telephone: Area Code 415 845-6000  Cable Address: UNIVCAL
UNIVERSITY OF CALIFORNIA • BERKELEY VOLUME 60 NUMBER 15 JULY 15, 1966

A series of administrative publications of the University of California, Berkeley. Second-class postage paid at Berkeley, California. Published twenty-one times a year—one issue in January, March, and October; two issues in June, August, and September; three issues in May; four issues in April; five issues in July.

Information concerning the academic program was revised as of March, 1966, when major portions of this Catalogue closed for press. Faculty rosters were revised further in May. However, changes in program occur throughout the academic year, and all information is subject to change without prior notice.
<table>
<thead>
<tr>
<th>Event Description</th>
<th>Fall '66</th>
<th>Winter '67</th>
<th>Spring '67</th>
<th>Summer '66</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission to Undergraduate Status:</td>
<td>March 1,</td>
<td>Nov. 1,</td>
<td>Feb. 1,</td>
<td>May 1,</td>
</tr>
<tr>
<td>Persons planning to enter the undergraduate college must file applications by</td>
<td>Tuesday</td>
<td>Tuesday</td>
<td>Wednesday</td>
<td>Monday</td>
</tr>
<tr>
<td>these dates. These deadlines apply to regular, limited, or special status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>including applicants for a second bachelor's degree or intercampus transfer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission to Graduate Status:</td>
<td>May 16,</td>
<td>Oct. 10,</td>
<td>Jan. 10,</td>
<td>April 5,</td>
</tr>
<tr>
<td>Final date for filing credentials and applications with the Dean of the</td>
<td>Monday</td>
<td>Monday</td>
<td>Tuesday</td>
<td>Wednesday</td>
</tr>
<tr>
<td>Graduate Division for admission to graduate standing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readmission to Graduate Status:</td>
<td>May 16,</td>
<td>Oct. 10,</td>
<td>Jan. 10,</td>
<td>April 5,</td>
</tr>
<tr>
<td>Final date for filing applications with the Dean of the Graduate Division for</td>
<td>Monday</td>
<td>Monday</td>
<td>Tuesday</td>
<td>Wednesday</td>
</tr>
<tr>
<td>readmission to graduate standing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readmission to Undergraduate Status:</td>
<td>June 15,</td>
<td>Nov. 10,</td>
<td>Feb. 7,</td>
<td>May 1,</td>
</tr>
<tr>
<td>Final date for filing applications with the Registrar for readmission to</td>
<td>Wednesday</td>
<td>Thursday</td>
<td>Monday</td>
<td>Monday</td>
</tr>
<tr>
<td>undergraduate status.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance Registration of students, graduate and undergraduate, in departments at</td>
<td>July 1-</td>
<td>Nov. 21-</td>
<td>Feb. 14-</td>
<td>May 8-</td>
</tr>
<tr>
<td>Berkeley.</td>
<td>Aug. 26,</td>
<td>Dec. 9,</td>
<td>March 3,</td>
<td>May 26,</td>
</tr>
<tr>
<td>School of Law, term begins.</td>
<td>Friday-</td>
<td>Monday-</td>
<td>Tuesday-</td>
<td>Monday-</td>
</tr>
<tr>
<td>Subject A Examination.</td>
<td>Friday†</td>
<td>Friday†</td>
<td>Friday†</td>
<td></td>
</tr>
<tr>
<td>Examination in English for foreign students.</td>
<td>Sept. 12,</td>
<td>—</td>
<td>Feb. 6,</td>
<td>—</td>
</tr>
<tr>
<td>School of Law, term begins.</td>
<td>Monday</td>
<td></td>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td>Foreign Language Placement—Achievement Tests.</td>
<td>Sept. 22,</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Quarter begins.§</td>
<td>Thursday;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject A Examination.</td>
<td>Sept. 24,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Law, instruction begins.</td>
<td>Saturday;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final date for filing in final form with the committees in charge for the</td>
<td>Sept. 26,</td>
<td>Jan. 3,</td>
<td>March 27,</td>
<td>June 22,</td>
</tr>
<tr>
<td>doctoral degree to be conferred 1966-67.</td>
<td>Monday</td>
<td>Tuesday</td>
<td>Monday</td>
<td>Thursday</td>
</tr>
<tr>
<td>Instruction begins.§</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final date for filing applications in candidacy for all master's degrees to be</td>
<td>Oct. 3,</td>
<td>Jan. 6,</td>
<td>March 30,</td>
<td>June 26,</td>
</tr>
<tr>
<td>conferred 1966-67; office of the Dean of the Graduate Division, 250 Sproul Hall.</td>
<td>Monday</td>
<td>Friday</td>
<td>Thursday</td>
<td>Monday</td>
</tr>
<tr>
<td>All signatures required upon these applications must be obtained in advance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*的重要性 of Early Application* 为了给充分的时间进行必要的通信和通知，对所有可能在考试中的学生，申请书和材料应尽早提交给招生官，以便在最早可能的日期得到处理。

† 继续学生应于5月23日开始获取表格。

§ 除了法学院。

† 日期将由确定。
Study-list filing. See Instructions to Students received at time of registration for details.

Fee for late filing. $10.

Final date to register.

Final date for filing applications in candidacy for a bachelor's degree to be conferred 1966-67; before 4:30 p.m. at the office of the Registrar, Sproul Hall.

Final date for filing applications in candidacy for all doctoral degrees to be conferred 1966-67; 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, final date to file petitions to add or drop courses. After this date, students may discontinue a course by filing a properly approved petition; however, F will normally be assigned as the final grade in such courses.

For graduate students, final date to file petitions to add or drop courses. After this date, students may discontinue a course by filing a properly approved petition; however, F will normally be assigned as the final grade in such courses.

Final date for filing in final form with committees in charge theses for master's degrees to be conferred 1966-67.

Final dates for filing theses with the Dean of the Graduate Division for all doctoral degrees to be conferred 1966-67.

Instruction ends.

Final examinations in departments at Berkeley.

Final date for filing applications for fellowships and graduate scholarships for 1967-68.

Final dates for filing theses with the Dean of the Graduate Division for all master's degrees to be conferred 1966-67.

Quarter ends.

Final date for students enrolled in fall quarter to file applications for undergraduate scholarships 1967-68.

School of Law, instruction ends.

School of Law, final examinations.

School of Law, term ends.

Final date for entering students to file applications for undergraduate scholarships 1967-68.

Academic and Administrative Holidays.

<table>
<thead>
<tr>
<th></th>
<th>Fall '66</th>
<th>Winter '67</th>
<th>Spring '67</th>
<th>Summer '67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct. 10–14,</td>
<td>Oct. 1–15,</td>
<td>Apr. 6–12,</td>
<td>July 3–10,</td>
<td></td>
</tr>
<tr>
<td>Monday–</td>
<td>Monday–</td>
<td>Friday–</td>
<td>Monday–</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>Thursday</td>
<td>Thursday</td>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td>Oct. 14,</td>
<td>Jan. 19,</td>
<td>Apr. 12,</td>
<td>July 7,</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>Thursday</td>
<td>Wednesday</td>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Oct. 17,</td>
<td>Jan. 20,</td>
<td>Apr. 13,</td>
<td>July 11,</td>
<td></td>
</tr>
<tr>
<td>Monday</td>
<td>Friday</td>
<td>Thursday</td>
<td>Tuesday</td>
<td></td>
</tr>
<tr>
<td>Oct. 21,</td>
<td>Jan. 27,</td>
<td>Apr. 19,</td>
<td>July 17,</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>Friday</td>
<td>Wednesday</td>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td>Nov. 4,</td>
<td>Feb. 9,</td>
<td>May 3,</td>
<td>July 28,</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>Thursday</td>
<td>Wednesday</td>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Nov. 16,</td>
<td>Feb. 17,</td>
<td>May 12,</td>
<td>Aug. 8,</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>Friday</td>
<td>Friday</td>
<td>Tuesday</td>
<td></td>
</tr>
<tr>
<td>Nov. 28,</td>
<td>Feb. 24,</td>
<td>May 23,</td>
<td>Aug. 18,</td>
<td></td>
</tr>
<tr>
<td>Monday</td>
<td>Friday</td>
<td>Tuesday</td>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Dec. 10,</td>
<td>March 11,</td>
<td>June 6,</td>
<td>Aug. 31,</td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>Saturday</td>
<td>Tuesday</td>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>Dec. 12–17,</td>
<td>March 13–18,</td>
<td>June 7–13,</td>
<td>Sep. 1–8,</td>
<td></td>
</tr>
<tr>
<td>Monday–</td>
<td>Monday–</td>
<td>Monday–</td>
<td>Friday–</td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>Saturday</td>
<td>Tuesday</td>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Dec. 15,</td>
<td>March 17,</td>
<td>June 13,</td>
<td>Sept. 8,</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>Friday</td>
<td>Tuesday</td>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Dec. 16,</td>
<td>March 18,</td>
<td>June 13,</td>
<td>Sept. 8,</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>Saturday</td>
<td>Tuesday</td>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Jan. 10,</td>
<td>Feb. 15,</td>
<td>May 26,</td>
<td>July 4,</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>Wednesday</td>
<td>Friday</td>
<td>Tuesday;</td>
<td></td>
</tr>
<tr>
<td>Jan. 11,</td>
<td>May 31–1,</td>
<td>June 13,</td>
<td>Sept. 4,</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>June 13,</td>
<td>Wednesday–</td>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td>Jan. 16–28,</td>
<td>June 13–1,</td>
<td>Tuesday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monday–</td>
<td>Monday–</td>
<td>Tuesday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>Saturday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan. 28,</td>
<td>Feb. 15,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>Wednesday</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

§ Except School of Law.
"If I were founding a university I would found first a smoking room; then when I had a little more money in hand I would found a dormitory; then after that... a decent reading room and a library. After that, if I still had more money that I couldn’t use, I would hire a professor and get some textbooks.”

Stephen Leacock (1869-1944)

With these words, Professor Leacock wryly outlined what he considered the most important elements of higher education. Barely finding room for his fellow teachers, he does not even mention such things as curricula, majors, and prerequisites, examinations, theses, and degrees. While a complex and bustling campus of a large state university might find much wanting in his recommendations, there is still something of great value in a view of university life that places prime emphasis on human contact, academic freedom, and good books. For these, whatever else changes with time, remain the nucleus of higher education.

As you enter the Berkeley campus of the University of California—whether as a student, parent or visitor; whether through Sather Gate, Oxford Street, or this General Catalogue—you may be overwhelmed by what you encounter. The modern state university has come a long way from Leacock’s “smoking room.” Instead of a handful of people gathered informally to discuss life, you will find thousands of students, of all ages, from all backgrounds, pursuing all varieties of educational aims. (In a single chemistry class there may be chemists, physicists, future physicians, or forestry students, or an English major fulfilling a science requirement.) Instead of one little “decent reading room and a library,” there are, in fact, twenty-one libraries serving virtually every subject, and three million books. The faculty, considerably more than a daydreamer’s afterthought, is made up of some of the most distinguished teachers and scholars in the world. And, as might be expected, the Berkeley campus occupies a lively place in public life. Its research centers and institutes concern themselves with scientific, technical, and social problems that affect the daily lives of millions. The campus, situ-
ated within a large metropolitan area, maintains a close communication with the social, economic, and cultural life of the surrounding community. Whatever Stephen Leacock had in mind, it was not the Berkeley campus. Or was it?

Have we, in truth, come very far from a concept of a university where human contact, academic freedom, and the availability of good books are given priority? The student who enters the Berkeley campus has an ample share of all three, and, indeed, may find that his entire educational experience is built on these vital elements. The abundant resources of this University make all the more attainable an ideal of academic life. Where there are more people, of more varied backgrounds and interests, the value of human contact increases. Where there are more books and more capable teachers and scholars to help those books come alive, the student's freedom to learn is enhanced—for there is more on which to grow and develop, more by which to measure progress.

The man who founds a university in his daydreams might add to his prescriptions for simplicity the following: room to grow and room to experiment. The Berkeley campus, as it enters its first year of the quarter system, has undertaken broad reforms in its classes and programs, in its administration, and in the learning experience. More seminars and small classes, more creative challenges to the student, a greater service role in the community, and expanded educational innovation—these changes are made with the hope of keeping strong and vital the ideals of a university that men have cherished for centuries. Ultimately the university that seeks to provide a significant experience for its participants is the one that makes the most of what it has. And the Berkeley campus has a great deal.
# Contents

INTRODUCTION

SECTION ONE

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Undergraduate Admission to the University</td>
<td>13</td>
</tr>
<tr>
<td>II. Procedures and Regulations for Undergraduates</td>
<td>19</td>
</tr>
<tr>
<td>III. The Graduate Division</td>
<td>29</td>
</tr>
<tr>
<td>IV. Services and Facilities</td>
<td>47</td>
</tr>
<tr>
<td>V. Colleges and Schools</td>
<td>61</td>
</tr>
<tr>
<td>VI. Research at Berkeley</td>
<td>99</td>
</tr>
</tbody>
</table>

SECTION TWO

| VII. Courses and Curricula                  | 125  |
| Officers of Administration                  | 476  |
| Index                                        | 479  |
History of the University of California

The promise of a University of California is contained in the State's constitution, drafted in Monterey in the gold rush year of 1849. California was admitted to the Union the following year, although almost twenty years were to pass before the hope for a public university was realized.

Impetus for the building of a university came from private citizens and the federal government as well as from the State. A forerunner of the University of California was the Contra Costa Academy established in 1853 in downtown Oakland by a group of churchmen led by the Reverend Henry Durant. In 1855 that institution was incorporated as the College of California, and plans were made to purchase a new site north of Oakland. The community developing around this new site was given the name of Berkeley in 1866.

In 1853 Congress had bestowed upon the State 46,000 acres of public lands with the stipulation that proceeds of the sale of the land were to be used for a "seminary of learning." The Morrill Act of 1862 gave another grant of public lands to the State for the establishment of a college to teach agriculture and the mechanic arts.

The College of California offered its buildings and lands to the State in 1867 on condition that a "complete university" be created to teach the humanities as well as agriculture, mining, and mechanics. The legislature accepted, and on March 23, 1868—Charter Day—Governor Henry H. Haight signed the act that created the University of California.

The University, heir to the lands, buildings, library—and even alumni—of the old College of California, now came into being. The move to the new "College Site" in Berkeley came in 1873, when North Hall and South Hall (the latter still in service) were completed. These two Victorian-style buildings stood out prominently on an area that was barren except for a few farmhouses and barns. Students came to class from Oakland by horsecar, traveling up what is now Telegraph Avenue. Some traveled from San Francisco across the bay by ferry, then up to the campus by horsecar—about a two-hour trek. As enrollment increased at Berkeley, more buildings were added—first a mining and engineering building, a library and a gymnasium; then mechanics, philosophy, agriculture, botany, and chemistry buildings—all before the turn of the century.

As the Berkeley campus grew, other campuses were added throughout California: the San Francisco Medical Center in 1873; the Davis campus (initially the University Farm, in 1905; the Riverside campus (initially the Citrus Experiment Station) in 1907; the San Diego campus (initially the Scripps Institution of Oceanography at La Jolla) in 1912; the Los Angeles campus (UCLA, initially the Los Angeles State Normal School) in 1919; the Santa Barbara campus (initially Santa Barbara State College) in 1944; and the Santa Cruz and Irvine campuses in 1961. The nine-campus University of California is now one of the largest in the world. Each of its campuses has a separate administration, organization, and style of academic life.
The University also maintains research stations, field stations, Extension centers, and other facilities of research and instruction in more than 80 locations throughout California. The widespread achievement and influence of the University is reflected in the vigor of California’s economy, the well-being of its citizens, and the leading role of California in the nationwide advancement of learning and technology.

With such extensive and distinguished resources, the University enjoys a foremost position among state universities, offering advancement of knowledge in virtually every field of human endeavor in modern life, and continuing to serve as an indispensable force in the growth and development of our society.

Students From an enrollment of fewer than 200, students at the University of California now number nearly 90,000 of the brightest young people of the college generation. Nearly 85 per cent are residents of California, with the remainder from other states and from 100 foreign countries. A large proportion are studying at the graduate level.

Admission to the University is limited to graduates of California high schools in the top 12% of their classes; to graduates of out-of-state high schools in the top 6% of their classes; to students transferring from other colleges and universities whose academic records meet University requirements; and to graduate students with distinguished records. Admission requirements are uniform for the eight general campuses, and students may transfer from one to another.

These students come to the University with a tremendous range and variety of educational goals. They seek bachelor’s, master’s and doctor’s degrees in more than 100 fields of study, spanning the physical and biological sciences, social sciences, humanities, and arts. Many seek intensive professional education in such fields as architecture, engineering, law, medicine, public health, and social welfare, to name a few. In all cases, the University seeks to provide them the broadest and most complete education consistent with the demands of their prospective careers.

Faculty and Instruction The faculty of the University of California is noted for its unusually high number of Nobel laureates, National Academy of Science members, and holders of other notable awards for distinguished academic achievement. The men and women who teach courses at the University of California are exceptionally able scholars in their fields. They add to their knowledge of their subject by continuing research. They bring to the classroom the excitement of discovery, whether the class is a seminar of nine students or a lecture hall of several hundred. The faculty places a strong emphasis on the relationship between teacher and student. While seeking to meet the growing demand which our society places upon the University for advanced research and other academic services, the faculty holds firmly to its traditional role as educators of the young. Classes are as small as possible—about 70 per cent of instruction is carried on in groups of 25 or less—and students are encouraged to confer privately with instructors.

This GENERAL CATALOGUE together with those of the other campuses of the University embody about 10,000 courses, covering the spectrum of man’s knowledge. Students are given a considerable degree of freedom in choosing
their courses, although their colleges and departments, or schools, provide a broad framework of minimum general requirements and major requirements. The student plans his program with the aid of an adviser, and normally chooses a field of concentration by his junior year.

The academic year 1966–67 marks the transition to the quarter system on all campuses of the University. With the academic year at Berkeley to be divided into three equal quarters (and a summer quarter to be approved later), faculty and students will be able to make more effective use of their time. Courses will be shorter and more concentrated; students may take fewer courses per quarter and devote more time to each course.

Research  The distinction of the University’s faculty has already been noted. The University is also known for the quality and scope of its research facilities. Each campus maintains research units, including laboratories, museums, centers and institutes—covering most of the broad fields of study. There are also research stations, field stations, and other facilities of research in more than 80 locations throughout California. Continuing research is financed by University funds, private endowments, and grants from federal and State governments. These funds provide research fellowships and assistantships for faculty and outstanding graduate students.

The libraries of the University are a valuable resource to research and instruction. The major collections are at the Los Angeles campus, with more than two million volumes, and at the Berkeley campus with more than three million. The other campuses also maintain extensive library collections. Altogether, the University libraries cover virtually every research need. To minimize duplication, each campus has developed a specialized concentration of volumes. Interlibrary loans are arranged with ease.

Administration  Organization and government of the University is entrusted, under the State Constitution, to a corporate body, The Regents of the University of California. The Board of Regents is composed of twenty-four members, sixteen appointed by the Governor of California for sixteen-year terms and eight who are members because of the public 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 controls as may 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 on all its campuses. He is appointed by The Regents and is directly responsible to them. Each of the nine campuses of the University has a Chancellor as its chief administrative officer. The Chancellor is responsible for the organization and operation of the campus, including academic, student, and business affairs. The President has delegated additional authority to the Chancellors, including appointment of faculty, department chairmen, directors of local instructional or organized research units, and certain other personnel.
The Academic Senate, consisting of the faculty and certain administrative officers, participates in the administration of academic matters. The Senate determines conditions for admission of students, and for granting of certificates and degrees. It authorizes and supervises all courses in the schools and colleges and exercises general supervision of the discipline of students.

**University Extension** University Extension makes available a broad range of programs based on 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; and (5) public affairs education through programs designed to aid adults in meeting their responsibilities as citizens.

**The Berkeley Campus**

The Berkeley campus is surrounded by the business and residential districts of Berkeley (population, 111,000), at the foot of the wooded Berkeley hills. Despite a rapid and intensive construction program, the campus retains the pleasant atmosphere of a park, with wooded glens, spacious plazas, and picturesque Strawberry Creek running westward through the length of the campus. The Berkeley hills afford a panoramic view of the San Francisco Bay Area, a nine-county region widely acclaimed for its cultural activities.

One is impressed by the vitality of the campus. Political tables and noontime speeches that make news are, of course, part of the story. A host of other features—public lectures and concerts; campus-sponsored forums and seminars; clubs and workshops; dramatic presentations; international folk-dance festivals; art, photographic, design, architectural, anthropological, and archaeological exhibits and displays; recitals; lectures and more than twenty bookstores within one square mile—all of these make Berkeley what it is. In this environment, scholars of all ages gather to share ideas, information, and experience in a mood of exchange, toleration, and creativity.

Enrollment at Berkeley is approaching its limit of 27,500, including 17,000 undergraduates. About 3,200 students live in University residence halls, and the remainder in privately owned or cooperative housing, or fraternities and sororities. There are more than eighty academic departments, and most offer instruction on both the undergraduate and graduate levels.

Many changes are taking place on the Berkeley campus: the ivy-covered and classic stone buildings now share ground with modern steel and glass buildings; the Venetian-style Campanile at the center of the campus, long a landmark of the West, now looks down upon a new landmark, the modern Student Center complex at the south entrance of the campus; the undergraduate lecture-hall session, long a part of the student's curriculum, now shares time with the seminar, preceptorial, and tutorial. Oldest of the nine campuses, the Berkeley campus is adapting to new needs and new trends, in an effort to make the experience of higher education one of the most exciting, most meaningful, and most thorough of human experiences.
SECTION ONE

General Information
I. Undergraduate Admission to the University*

Following is a brief description of the standard procedures of being admitted to the University in undergraduate status. Once admitted, a student will be interested in the procedures of registration and various aspects of student life (covered in the next chapter). Complete details concerning admission are given in the Undergraduate Admissions Circular, available from the Office of Admissions and sent automatically to each applicant. Please remember that an individual college, school, or department may have additional requirements, such as qualifying examinations, certificates of certain courses completed, placement tests, or interviews. For such details, consult the appropriate sections of this catalogue or the individual Announcements published in booklet format by each school and college.

Undergraduate Admission Procedures

Filing the Application  Application packets, containing all necessary forms and instructions are available from the Office of Admissions. That office accepts completed applications during the following periods:
- Fall Quarter: October 1 through March 1
- Winter Quarter: May 1 through November 1
- Spring Quarter: August 1 through February 1
- Summer Quarter: December 1 through May 1

An applicant should apply to only one campus, listing alternate preferences. Admission requirements are the same for all campuses. If facilities are available the applicant is admitted to the campus of his first preference. To obtain his first preference, he is strongly advised to apply early in the filing period. Instructions for changing one’s preference of campus after the application has been filed are included in the application packet.

Application Fee  An applicant must include with his completed application forms, a fee of $10 (not refundable) to cover costs of processing. This fee may be submitted as check or money order payable to The Regents of the University of California.

Transcript of Record  The applicant must also explicitly request his high school, and each college attended, to send the Office of Admissions an official transcript of his academic record, showing courses and grades. For applicants to freshman standing not yet graduated from high school, the transcript should include all work completed through the sixth semester (eleventh grade) and should list both current and planned high school courses. For applicants to advanced standing, the college transcript should specify good standing or honorable withdrawal.

For all applicants, preliminary transcripts should show work in progress. Final transcripts, including an official statement of graduation or withdrawal, must be

* For graduate admissions information, see Chapter III.
sent later. Transcripts submitted become property of the University and are not returned.

Notification of Admission The length of time before notification may vary for each applicant, and delay should not cause concern. Applicants may be admitted provisionally pending receipt of final transcripts.

Each student admitted receives an Acceptance of Admission form, which he must complete and return with a fee of $25 (not refundable). If he registers in the quarter he applied for, this fee will be credited to the incidental fee.

Reapplication Applicants who, because of ineligibility or change of plans, do not register, and who wish to attend the University in a later quarter, must then file a new application (with the $10 fee). This application will be considered anew according to current facilities and admission requirements.

Subject A: English Composition Unless he presents a score of 600 on the College Entrance Examination Board Achievement Test in English taken since the 11th grade, or credentials showing completion with a minimum grade of C of an acceptable college-level course in English composition, an applicant is required to meet the Subject A requirement in one of two ways: by examination or (should he fail the examination) by the course in Subject A. If he has not taken the examination earlier, he must take it at the opening of the first term of attendance. Further details are available from high school counselors or from the Subject A Office, 216 Dwinelle Hall Annex. The Subject A requirement is discussed more fully in the next chapter.

Medical Information See Chapter II, page 19.

Freshman Admission Requirements for California Residents

Every applicant to the University is required to present evidence of his aptitude for University work. This includes both a high quality of scholarship and a background in specified subjects believed essential to higher education. With few exceptions, the better an applicant's preparation, the better his chances of success in University work, and the greater his freedom in choosing a field of specialization.

The following are the general requirements which California residents must meet. Those who plan to prepare for a specific major or curriculum—for example, chemistry, or engineering—are advised to investigate additional requirements as early as possible. These are set forth in brochures issued by individual departments, and in the Announcements of the colleges and schools.

Freshman admission requirements apply to those applicants who, after graduation from high school, have not yet taken any courses at a collegiate institution. All others should familiarize themselves with the requirements for admission in advanced standing, described on page 16.

High School Graduation An official statement of graduation from high school is required, and the high school must be determined by the University as acceptable.

Preparatory High School Subjects In order to meet these subject requirements, the courses offered in satisfaction thereof must be included on the certified list
submitted to the Director of Admissions of the University by the high school principal if the school is located in California. This list must be certified by the principal to the effect that the courses included thereon meet the requirements for admission to the University, and must have been approved by the Director of Admissions of the University. If the high school is not located in California, courses will be considered acceptable if the school is accredited. The following subjects are required (note that one unit of high school work normally implies a one-year course that meets five times a week):

**History**, 1 unit (refers to United States History; may include ½ unit of civics or American government)

**English**, 3 units (including composition, literature, and oral expression)

**Mathematics**, 2 units (including such subjects as: elementary algebra, geometry, trigonometry, calculus, elementary functions, matrix algebra, probability, statistics, or courses combining these topics. Arithmetic and such nonacademic subjects as shop or business mathematics are not acceptable)

**Laboratory science**, 1 unit (an eleventh or twelfth grade year-course, both semesters in the same subject field)

**Foreign Language**, 2 units (this must be in one language. Any foreign language with a written literature is acceptable; remember that a student's major or curriculum may specify a language requirement, which he should try to satisfy while in high school).

**Advanced course**, 1 to 2 units, consisting of at least one of the following:

a. **Advanced mathematics**, 1 unit in addition to the course offered under the mathematics requirement.

b. **Foreign language**, either 1 unit of the same language offered under the language requirement, or 2 units of an additional foreign language.

c. **Science**, 1 unit of chemistry or physics in addition to the course offered under the science requirement.

**Additional electives** (to complete, together with the above, a minimum total of 15 entrance units).

**Grade-Point Average**  At least a B average (3.0 on the University's 4-point system) is required in the courses taken after the ninth grade that are used to meet the above requirements. Grades in elective courses are not to be included in the grade-point average. A subject requirement is satisfied only by those courses for which a C or higher is received. In determining the B average, a grade of A in one course may be used to balance a C in another. Grades of D, E, or F may not be balanced by a higher grade.

One must repeat a course in which a D, E, or F was received, in order to receive credit for satisfaction of a subject requirement. One may also repeat any course taken after the ninth grade in which a C or lower was received, to improve scholarship. Grades earned in the first repetition may be used to improve scholarship; further repetitions will satisfy the subject requirement but any grade of C or higher will merely be counted as a C. Note: one is allowed only 2 units of repetition of the courses listed above as subject requirements.

**Admission by Examination**  Applicants with subject or grade deficiencies from high school (who since graduation have not undertaken any college work) may qualify for admission by examination, an alternate method to the above. While

---

* Except from schools that give only year grades, the University considers grades on a semester basis. Grades in accelerated or honors courses are counted at face value.
the University does not have an actual "entrance examination," it accepts the test scores from the College Entrance Examination Board. The applicant must take each of the following:

1. Scholastic Aptitude Test, with a minimum score of 1000.
2. Three Achievement Tests, with a total minimum score of 1650, and not less than 500 on each. These must include each of the following: (a) English composition, (b) social studies or foreign languages, (c) mathematics or sciences.

Scores are not counted for any of these tests taken prior to completion of the first half of the eleventh grade. An applicant may repeat a test once for credit. Verbal and mathematical scores of the Scholastic Aptitude Test must be from the same test session; in other words, he may not present the verbal score from one session and the mathematical score from another.

For arrangements and information about test and application dates, apply to the Educational Testing Service (addresses on inside back cover). A fee is charged for these examinations. Scores are counted by the University only if received by the Office of Admissions directly from the Educational Testing Service. Applicants are warned to take the tests well in advance of the term they apply for, or their scores may not be received in time to be acceptable for admission.

**Subject or Grade Deficiencies** In some cases, admission is possible with minor deficiencies in either subjects or grades. The authority for these allowances is vested in the Admissions Officers. Usually, an applicant must demonstrate an unusual academic record or present exceptional recommendations.

**Admission Requirements for Nonresident Freshmen**

The University is currently obliged, because of limited facilities and expanding enrollment, to place some limitation on undergraduate enrollment of nonresidents of California. Of those eligible, only those of exceptional promise are selected. Thus, admission requirements for nonresidents differ from those for residents are follows:

The high school grade-point average must be 3.4 or higher.
Those who seek to qualify by examination must present a score of 1100 on the Scholastic Aptitude Test and at least 1725 on all three Achievement Tests (not less than 500 on each).
Subject requirements, as well as all other admission procedures are the same as for California residents.
For admission requirements for applicants from foreign countries, see page 18.

**Admission in Advanced Standing**

Those who have registered since high school graduation at any collegiate institution, including junior colleges, summer school, or extension courses, must apply for admission in advanced standing. An applicant may not disregard his previous college record and apply as a freshman. Regulations applying to admission in advanced standing are as follows:

Those eligible for admission from high school, but who attended another collegiate institution, must present from that institution a statement of good standing and a grade-point average of 2.0 (2.8 for non-residents).
Those ineligible for admission from high school because of subject deficiencies may establish eligibility by taking, at an accredited college, the required courses, and by maintaining an average of 2.0 (2.8 for nonresidents).

Those ineligible for admission from high school because of grade-point deficiency, may establish eligibility by taking, at an accredited college, a minimum of 56 acceptable semester units or 84 quarter credits, with an average of 2.4 or better (2.8 for nonresidents).

Subject deficiencies of not more than 2 units may be waived for those who present the 56 or more semester (or 84 quarter credits) and the 2.4 grade-point average mentioned above (2.8 for nonresidents). Deficiencies in excess of 2 units must be satisfied.

Entry Via Other Schools  As indicated above, the conditions for entry to the University may be met by establishing a good record at another collegiate institution. Applicants are encouraged to investigate the University-preparatory programs offered by the many fine junior colleges throughout California. The University grants full unit value for approved transfer courses completed with satisfactory grades at any of these schools, up to 70 semester units or 105 quarter credits. However, extension courses taken elsewhere than the University may not be acceptable. For further information, consult the Office of Admissions.

Intercampus Transfer  Those currently registered on any campus of the University in a regular session (or those previously registered who have not since registered at any other school) may apply for transfer to another campus by filing a form on their present campus—not on their proposed campus. This form must be obtained and filed at the Office of the Registrar, together with an application for transcript of record, also available at the same office. The deadlines are the same as the admissions application deadlines given on page 1.

Special Admission Circumstances

Certain rules apply for special applicants not included above.

Limited Status  This includes applicants with a bachelor's degree or with a substantial amount of college work completed with a satisfactory scholastic average, whose special attainment may lead them to take certain courses toward a definite and limited objective. Only applicants of unusual merit are considered. Applicants for admission in limited status will normally have to complete a personal interview with an Admissions Officer, who will determine, from the applicant's record, his needs, and his plans, the conditions of his admission, subject to approval from the dean of the applicant's college or school.

Admission is for a specified time, determined beforehand, and the student must maintain a prescribed scholastic average. There are no "special courses"; the student will be admitted only to those courses for which he is able to demonstrate, in the opinion of the instructor, satisfactory preparation. Remember that many courses in engineering and professional fields require extensive, and often highly specialized, preparation.

The applicant must submit transcripts of records from all schools attended since the eighth grade.

Special Status  This includes students of mature years (minimum age 21) who have not had the opportunity to complete a satisfactory high school program or have not completed a substantial amount of college work, whose special attain-
ments may lead them to take certain college courses toward a definite and limited objective. Similar rules apply as for students in limited status, discussed above. Applicants to special status directly from high school are not accepted. One may not be admitted to special status for the purpose of making up requirements for admission to regular status.

**Work Toward a Second Bachelor’s Degree** Ordinarily this is discouraged by the University, but complete changes in objective occasionally require the attainment of a second bachelor’s degree. Applicants for admission to undergraduate study for a second bachelor’s degree must indicate, by their previous scholastic record, a strong probability of academic success in such an undertaking. Admission is subject to approval of the Admissions Officer and of the dean of the college or school in which work is to be undertaken.

**Students from Other Countries**

Admission qualifications of a foreign applicant are evaluated in accordance with the general regulations governing admission. He should submit his application, with all official certificates and transcripts at the beginning of the appropriate filing period (given on page 1), to allow time for exchange of necessary correspondence and, if he is admitted, for obtaining the necessary passport visas.

**Engineering Students** A foreign applicant to the College of Engineering in freshman status must take the College Entrance Examination Board’s Scholarship Aptitude Test, and three achievement tests: English composition, physics, and mathematics. Though he may be admitted to the University, a foreign applicant is not allowed to take courses in the College of Engineering without satisfactory scores on these examinations. To take these tests in his own country, an applicant should write to the Educational Testing Service. After the testing, he must request that his scores be forwarded to the Office of Admissions. A foreign applicant to the College of Engineering in advanced standing must take the Engineering Qualifying Examination.

**Proficiency in English** A student from a non-English-speaking country must demonstrate proficiency in English by an examination given by the University. Failure to pass this examination will defer admission until the required proficiency is obtained. Applicants are urged to take the Test of English as a Foreign Language (TOEFL), administered by Educational Testing Service. This test, while not required for admission, is of considerable assistance to the Office of Admissions, in evaluating the applicant. Scores from this test should be forwarded to the Office of Admissions.

Those whose language is other than English may receive college credit in their own language and its literature only for: (1) courses completed in their country at institutions of a college level; (2) upper division or graduate courses taken at the University of California.

**Health Insurance** Those not on permanent immigration visa must purchase health insurance. Further details about this insurance are given on page 55.

**Foreign Student Adviser** Foreign students are urged to visit the Adviser for Foreign Students, whose office is in International House, near the campus.
II. Procedures and Regulations for Undergraduates

For both new and continuing students, the first few weeks of the quarter carry the greatest number of problems. This chapter is an outline of the procedures encountered by most students in registering in the University, enrolling in courses, and completing work toward the degree. The sooner a student familiarizes himself with these details, the easier it will be for him to handle them smoothly and efficiently.

Registration and Enrollment

Registration Procedures Registration is the means by which one officially becomes a student at the University. It includes the payment of incidental and other fees (described in a later chapter), and the completion and filing of informational forms for various purposes. This is done by mail. New and reentering students receive information and instructions for registering by mail some time in advance of the quarter for which they have been admitted. The instructions include a mailing deadline which should be carefully observed. Registration in person at the opening of the quarter may involve a late registration fee of $10.

Late registration also increases a student's difficulties in obtaining a suitable program of classes. He may not plead lateness as an excuse for neglecting assigned classwork—for which he is held accountable from the first day of classes. A student's name is not entered on class rolls unless he completes registration according to the regulations. No student may register after the second week of classes.

Medical-Physical Examination Requirements 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 evaluation at the Student Health Service. Students will be mailed appointments by the Health Service following their acceptance for admission. However, if a student does not receive an appointment by mail prior to registration week, he must obtain an appointment at Cowell Memorial Hospital, Room 104. Examinations for the fall quarter begin the Thursday prior to registration and continue through registration week only. Appointments are not mailed to addresses outside the United States. Students readmitted to the University after an absence of five years or less must report to Window 104, Cowell Memorial Hospital for a medical screening.

Reduced fee program students (new and readmitted 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 evaluation of all new and returning students. A smallpox vaccination within three years is required.
Students are advised to have the vaccination before coming to the campus to avoid the necessity of having this procedure done at the time of their entrance medical examination. However, international certificates, Armed Services immunization records, Public Health Department certificates and statements by private physicians are acceptable in lieu of the University form.

Registration at the University is invalid without completion of medical examination requirements.

**Physical Education Orientation Meeting** Undergraduates registering for the first time are expected to attend this meeting conducted by the Department of Physical Education. Its purpose is to acquaint students with all course, intramural, intercollegiate, and recreational athletic opportunities.

**Nonresident Tuition Fee** Students who have not been bona fide residents of California for more than one year immediately prior to the opening day of the quarter in which they register are charged, along with other fees, a tuition fee of $267 for the quarter. Legal residence (Government Code Section 244 and Education Code Sections 23054, 23055, and 23057) is the combination of physical presence and the intention of making the state one's permanent home. New and returning students are required to fill out a Statement of Legal Residence, a form that is issued upon registration. Their status is determined by the Attorney in Residence Matters, 590 University Hall, University of California, Berkeley 94720, or by his deputy in the Registrar's Office. All correspondence should be addressed to the Attorney, as he has the sole authority to determine residence classification.

The attention of the following students is directed to the fact that presence in California for more than one year does not, in itself, entitle them to resident classification: (1) those under 22, whose parents are not California residents; (2) veterans who were not California residents at the time of entry into the Armed Forces; (3) alien students who must first qualify for permanent residence status according to the applicable laws of the United States. Exemption from payment of the tuition fee may be granted to the 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 quarter for which the minor registers.

Those classified incorrectly as residents are subject to reclassification as nonresident. If incorrect classification resulted from false or concealed facts, the student is subject to University discipline and is required to pay all back fees he would have been charged as a nonresident. Resident students who become nonresidents must immediately notify the Attorney in Residence Matters or his deputy. Application for a change in classification with respect to a previous quarter is not received under any circumstances.

Part of the fees may be refunded to students who withdraw before the end of any quarter. A separate circular, **STUDENT FEES AND DEPOSITS**, gives information on refunds. This circular is available from the Registrar.

**Conference with Faculty Adviser** A normal procedure for every University student is to confer with a faculty adviser and obtain approval of a tentative program. The adviser will help the student make long-range plans for a major, and to prepare for graduate or professional study. He will discuss with the student
the requirements of the University, his college or school, and his department. Students should see their advisers as early as possible in the established office hours during the week prior to the opening of classes. A student is strongly advised to go prepared: he should have at least a tentative idea of the courses he wishes to take, and should try to acquaint himself beforehand with course requirements. Later, once he has selected his courses, the student must have his completed study list signed by the adviser.

**Enrollment in Classes** A student should purchase from the Registrar’s Office, for 15 cents, the *Schedule and Directory*, listing all courses given for the quarter, their credit values, instructors, hours, locations, and final examination groups. From this booklet, and with the aid of his adviser and this catalogue, which provides course descriptions and prerequisites, the student may assemble his program. He may not choose two courses in the same examination group. Usually courses in the same group meet at the same hour, thus precluding such a problem. He should try to construct two or three alternative programs, in case he is not admitted to the courses of his choice. Some courses are especially popular, and therefore difficult to enroll in.

Most courses merely require the student to attend the first class meeting, submit a prepunched enrollment card, received at the time of registration, and obtain a prepunched class card which is filed with the study list (see below). Unless subsequent enrollment problems occur, and provided that the student satisfies the instructor’s prerequisites for admission, he is normally admitted.

Courses with restricted enrollment, or those likely to have an excessive number of applicants, have special advance enrollment procedures, which are described in detail on placards posted on campus bulletin boards at the end of the preceding quarter, and in the *Schedule and Directory*.

**Filing the Study List** In order to complete his enrollment and receive credit for the work of a quarter, a student must file his study list at a time and place designated by the Registrar’s Office. The study list must carry the approval of the student’s adviser, and (if his program is an exception to the normal unit load prescribed by his college or school) by the dean. Some colleges and schools require their dean’s signature as a normal part of the study-list procedure. Filing dates are assigned according to the student’s last name. The study-list form is included in the packet issued to the student upon registration, along with instructions for completing and filing it. The study list represents the student’s final choice of courses, and constitutes his commitment to undertake the work of each course. Unapproved withdrawal from, or neglect of, a course entered on the list could result in disciplinary action. Any changes of program after filing the study list—whether to add, replace, or drop a course—must be made by formal petition with the signed approval of the instructor involved and the dean of the college or school. There is a fee of $10 for filing the study list after the assigned date. No study list is accepted after the third week of instruction.

**Quarter Procedures**

**The Quarter System** As of September, 1966, the University of California is operating on a quarter system. The school year is divided into four equal quarters
(replacing two semesters and two summer sessions* under the old system), each quarter comprising ten weeks of instruction. Since the quarter is five weeks shorter than the old semester, the student will normally take fewer courses per quarter and devote more time to each course, although some departments may have exceptions to this pattern. Some two-semester sequences will now occupy three quarters, although some are condensed to two quarters. A student making normal progress toward the bachelor’s degree will attend three quarters per year. A student who misses one quarter out of the year need not submit an application for readmission. A student desiring to accelerate his graduation, or to enrich his program of study, may attend all four quarters.

Courses and Units. All University courses (except Subject A and certain other courses) are assigned a unit value. One unit represents three hours of work by the student, including both class attendance and preparation. Laboratory, discussion, quiz, or review sessions may or may not be given unit value.

A student proceeding to the bachelor’s degree in four years (twelve quarters) will normally complete a total of 180 units, or 15 units per quarter. This number may be slightly higher in some professional colleges and schools. Students are normally considered to have upper division or junior standing after completion of 90 units.

Grades and Grade Points. Every student at the University will have his completed course work reported in terms of the following letter grades: Passing: A (excellent); B (good); C (fair); D (barely passing). Grade points are 4, 3, 2, and 1, respectively. Not passing: F (failure). Undetermined: incomplete, symbol I (student’s work of passing quality, but incomplete). Other symbols used: P or S (passed or satisfactory without definite grading); U (unsatisfactory without definite grading); NP (not passed). These have no grade-point value.

The numerical values, or grade points, given above are intended to provide a more exact determination of a student’s scholarship. To compute the grade-point average for course work at the University of California, the point value of each grade is multiplied first by the unit value of the course to obtain a total of all grade points earned. That total is then divided by the total units undertaken, exclusive of courses in which grades P, S, or U were assigned. The resulting figure is the grade-point average.

Only courses for which grades D or F were received may be repeated for credit—and not more than once, unless authorized by the appropriate dean. On course repetitions, the units are applied toward a degree only once, but the student’s grade-point average is computed in terms of the total number of units undertaken. For each repetition, a student receives a grade and grade-point credit, if any.

To replace a grade of incomplete, a student must take an examination equivalent to the final examination, or complete any other assignment required by the instructor. On the instructor’s recommendation and the permission of the dean of his college, school, or division, the student may receive grade points upon successful completion of the course. He must obtain, therefore, before finishing the work, the petition forms from the Registrar; secure the required endorse-

* A summer quarter for 1967 has not yet been approved.
ments; and file the petitions as directed. The fee for filing the petitions is $5, regardless of the number of courses entered. The foregoing procedures also apply to former grade E.

**Minimum Scholarship Requirements** Failure to maintain a minimum grade-point average prescribed by the college or school will normally result in probation or dismissal. Computation of the grade-point average includes courses graded incomplete. **Colleges of Chemistry and Engineering:** A student is subject to dismissal if he falls below a 2.0 average, both for all work undertaken and for the work of each quarter. **All other colleges† and schools:** (1) A student is placed on probation if his overall average falls below 2.0 at the end of any quarter. He will be removed from probation if he achieves the requisite 2.0 overall by the end of the next quarter of attendance. (2) If by then he has not made up the deficit he is subject to dismissal. Students not on probation whose grade-point average for the work of any quarter falls below 1.5 are also subject to dismissal.

A student dismissed or on probation must obtain approval from the college or school to which he seeks a transfer. A dismissed student may appeal, by formal petition to the dean of his college or school, for a hearing, but the action of dismissal is normally presumed final.

**Honors** Standards for honors status are set by the colleges and schools, and departments may, in addition, recommend students for inclusion on the Honors List. Honor students are usually accorded special privileges, including eligibility for honors programs. Students with an overall grade-point average of 3.5 are accorded, through the Committee on Prizes, access to the Main Library loan stacks. For details on honors, please consult the college, school, or department.

**Midterm and Final Examinations** The number of midterm examinations varies at the discretion of the instructor. Final examinations, however, are mandatory in undergraduate courses, with the following exceptions:

At the beginning of the quarters, the **Schedule and Directory** lists some courses as not requiring a final examination. These are laboratory courses or their equivalents.

If a student who is to be graduated at the end of the quarter is taking a departmental comprehensive examination, he may, at the department’s discretion, be excused from final examinations in all courses taken within the department.

Year courses in the School of Law may, at the end of each term, require an instructor’s progress report in lieu of a final examination.

Final examinations are normally in written form; they may or may not, at the instructor’s discretion, cover the entire course. Students may wish to inspect a file of sample examinations, listed by course, in the Reserve Book Room of the Library. Examinations in nonlaboratory courses may not exceed three hours. Any infringement by the student of rules of fair examination practice is considered a serious offense subject to discipline.

Reexaminations are permitted only for the purpose of raising grade I or E to passing, not to raise any other grade.

---

* Not including grades earned in summer sessions. A student’s probationary status is not affected by his performance in a summer session until the close of the next regular quarter of attendance.
† The rules for students in the College of Letters and Science appear in the *Announcement of the College of Letters and Science*. 
Course Credit by Examination  Under certain circumstances, a student who has maintained at least a B average in all University work undertaken is permitted to qualify for course credit by examination. This procedure applies to: (1) students of exceptional ability who have studied a subject on their own; (2) students with a background in a subject appropriate to their curriculum but not normally offered as a course; (3) students entering in advanced standing who were not granted transfer credit for certain courses until they passed examinations in the comparable courses at the University of California. Petitions are available from the Office of the Registrar. Final approval is required from the dean of the college or school, and from the instructor appointed to give the examination. Students of the third category must obtain approval from the Office of Admissions before filing the petition.

Passed or Not Passed Credit  An undergraduate student in good standing may be authorized to take one course each quarter on a passed or not passed basis unless he has previously received two not passed grades. The student will receive course and unit credit for the work, but the course is not figured into his overall grade-point average. Except with the consent of his major department, courses thus undertaken shall not satisfy requirements for the major. The passed or not passed option is subject to regulation of the faculties of the various colleges and schools.

Absences and Withdrawals  While responsibility for short absences is largely left up to the student, he must bear in mind that there is a University regulation concerning absences longer than one day. For such absences, one should obtain informal permission from the Dean of Students. For absences of five days or longer, the student must apply to the Dean of Students for a Leave of Absence.

Permission to withdraw entirely from the University, without scholarship penalty, is not usually granted after the first few weeks of the quarter, except under unusual circumstances over which a student has no control. If circumstances prevent further class attendance, a student should notify the Registrar in writing immediately. Upon written approval of the Dean of Students and also the dean of the college or school, honorable dismissal will be granted. One may also obtain, upon petition, honorable dismissal at the close of any quarter. Any withdrawal for reasons of health requires the endorsement of the Director of the Health Service, following review by the medical staff or the student's private physician.

A student who obtains honorable dismissal must formally apply for readmission to any subsequent quarter. A student dismissed because of scholarship deficiency or disciplinary problems is generally not eligible for readmission. One may not, under any circumstances, discontinue schoolwork without formal notice—this may result in dismissal and loss of eligibility for readmission.

Student Conduct  The University presumes its students to possess earnestness of purpose and capabilities of self-discipline. Any serious behavior to the contrary may result in dismissal or disciplinary action, as the situation may warrant.

Declaration and Change of Major  Regulations and procedures for declaring the major vary for each college. A student may, at any time up to the last quarter of
residence, file a petition for a change of college or major. He must secure approval for this action from the dean or other authorized person in the college or department to which he is transferring.

**Work Toward a Degree** At the close of each quarter, the courses, units, grades, and grade-points earned are added onto the student's cumulative University record. From this record, he may determine his progress toward a degree. Transcripts of the records—useful, and usually necessary in applying to graduate school and for certain types of employment—are available from the Registrar. There is a charge of $1 for each undergraduate, graduate, or separate summer session transcript requested.

In working toward a degree, the student should keep in mind the various levels on which he is to satisfy requirements—University, college or school, and department—as well as the types of requirements he must fulfill: course, unit, grade point, and amount of upper division work. He may receive additional counsel in these matters from his adviser.

**Candidacy for a Degree** A student who expects to be a candidate for a degree must file an announcement of candidacy with the study list at the beginning of the quarter in which he expects to complete the work for the degree. The announcement is accepted no earlier than this period. Announcements filed later than the stated deadline are subject to a $3 late fee.

Of the last 45 units which a student offers for a degree, he must complete 36 in residence in his college or school—part of these units applied in satisfying requirements of his department and college or school. He may offer no more than 18 of those units in summer sessions.

**Preparation for Graduate Study** Those preparing for study toward higher degrees should learn, as early as possible, the entrance and degree requirements of their graduate field, in order to include all prerequisite steps in the undergraduate program. Further details about graduate study at Berkeley are given in the next chapter.

**Two University Degree Requirements**

There are two requirements—beyond those set by the college, school, or department—which all undergraduates registered in the University must satisfy in order to graduate. These are considered essential to the student’s education, regardless of his academic or professional objectives.

**Subject A** This requirement is based on the principle that a University student, to succeed in college-level work, must demonstrate reasonable proficiency in English composition. Satisfying the requirement is a prerequisite to many courses, including all first-year composition courses. All University departments and schools assume that the student has mastered the elementary principles of composition and that he can write with a minimum of gross errors in sentence structure, grammar, punctuation, and spelling. The Subject A course is designed to help those students who are deficient in composition. A student may meet the requirement in any one of the following ways:

By passing the Subject A examination given at the beginning of the quarter the student enters the University. This is a written three-hour test in two parts, an objective
part dealing with sentence structure, vocabulary, and punctuation; and a second part, consisting of a 500-word composition. Fee for this examination is $5.

By presenting a certificate of completion of an acceptable college-level course in English composition taken at another institution, with a grade of C or better.

By presenting a score of at least 600 on the College Board Achievement Test in English Composition.

By enrolling in the Subject A course, a noncredit course to be taken in the first quarter of residence along with other University work. The fee for this course is $45.

**American History and Institutions** This requirement is based on the principle that an American student enrolled at an American university should have some acquaintance with the history and government of his country. This requirement may be met in one of the following ways:

By passing the examination in each of these subjects. Those who wish to take either or both exams must apply in writing at the beginning of each quarter, either in Harmon Gymnasium at the time of registration, or during the first two weeks of the quarter at the American History and Institutions Office, 204 Building T-9. For details on these exams, please consult that office.

By presenting official evidence of completion of the same requirement at another college-level institution in California.

By completing at least one course in each of the two groups given below (or, upon approval of the Supervisor of American History and Institutions and dean of the college or school, any comparable courses offered at another institution, or University Extension):


(2) Political Science 1, 5, 33A, 33B, 33C, 110, 112, 113, 157A, 157B, 157C. The normal course to satisfy the Institutions requirement by those not majoring in Political Science on the Berkeley campus will be Political Science 5.

Foreign students are exempt from the History and Institutions requirement, but must file their names with American History and Institutions Office, 204 Building T-9, bringing with them passports, visas, and registration cards.

**College and School Requirements**

Every college and school has established a program of requirements for the degree, which may be in addition to those of a field of concentration. These requirements may include: (1) preparatory subject requirements for admission, in addition to University admission requirements stated in the previous chapter; (2) preparatory college-level courses for the student’s particular field of study—to be completed, if possible, during the student’s early period of residency in the college or school, or in some cases before entrance; (3) breadth requirements, that is, courses outside the field of study, considered essential to a well-rounded curriculum; (4) the credit requirement, which is a total number of units to be completed, with specifications of how these credits are to be distributed; and (5) a minimum scholarship requirement. The degree programs and general requirements of the colleges and schools are briefly summarized in Chapter V. Detailed information is given in the individual Announcements of the colleges and schools.
The Major and the Department

Every student must select a field of concentration, and pursue a major or curriculum, normally by taking a minimum number of units in one department or school. Occasionally—as, for example, with Law, Optometry, Public Health, and others—the school and the department are synonymous. In some cases—as, for example, the humanities field major in the College of Letters and Science—a major may embrace more than one department.

All courses, as well as all majors administered under a single department, are listed by department in the course section of this catalogue.
Graduate study embraces all study for degrees and certificates beyond the bachelor's degree—principally the master's and doctor's degrees—and is administered by the Graduate Division, under the policies and regulations established by the Graduate Council of the Berkeley Division, a standing committee of the Academic Senate. Higher degrees fall into two broad categories: (1) Professional—degrees awarded by each of the professional colleges and schools on the Berkeley campus in recognition of a candidate's command of a comprehensive body of professional knowledge and his ability to organize and carry out investigation of significant problems in his field. (2) Academic—degrees awarded by the academic departments, and some professional schools, in recognition of a candidate's command of a wide range of related subjects within an academic field, his preparation in one or more foreign languages, and his ability to pursue original research leading to a contribution of significant ideas to his field of study. For a list of graduate degrees offered, see page 45.

Admission to Graduate Study

Completed applications for admission, as well as all additional documents specified on the application form (including transcripts from each college-level institution previously attended), and a fee of $10, must be filed with the Office of the Dean of the Graduate Division by the established deadlines.

Admission Requirements The University requires of the applicant the following: (1) a valid degree from an accredited institution, comparable to the bachelor's degree offered at Berkeley; (2) sufficient undergraduate training to undertake graduate study in his chosen field; and (3) a satisfactory scholastic average. The methods of determining these points vary with each applicant, and an extensive evaluation of his college records and supporting materials is necessary. A satisfactory score on the Graduate Record Examination (administered by the Educational Testing Service), while not required for admission to the Graduate Division, is recommended, and further, is required by some departments and schools on campus. If it is required, the score should be forwarded to the applicant's proposed school or department.

In addition to the general University requirements, the school or department may require additional records, such as separate applications, letters of recommendation, reading lists, examples of original work, or qualifying examinations. This information is available in the school or departmental announcements and bulletins.

Notification of Admission Only a written notice from the Graduate Division, not letters from departments or faculty, constitutes valid proof of admission. This notice is sent following evaluation of an applicant's record and supporting materials—normally four to six weeks following the date this material is received in the Graduate Division.
Reapplication  An applicant who changes his plans and withdraws his application from consideration for a particular quarter will have all of his materials kept on file for a maximum of three years following his first application. He may reapply for any quarter within the three years simply by notifying the Graduate Division to reactivate his materials, and by providing any additional records of academic work completed to that time. For reapplication after the three-year limit, he will have to file a new application form (with the $10 fee) and supply a new set of records and supporting materials.

Foreign Applicants  No full-time program of English study for foreign students is offered on the Berkeley campus during regular quarters, and no student is admitted to the University for the purpose of learning English. Prior to arrival in Berkeley, and as a requirement for admission, applicants whose native language is not English must take either the Test of English as a Foreign Language (TOEFL), administered by the Educational Testing Service, or the test given by the American consular authorities abroad. Results must be forwarded to the Graduate Division Office. These applicants must demonstrate their proficiency in English after arrival in Berkeley by taking the University Examination in English for Foreign Students, described in the circular INFORMATION FOR GRADUATE STUDENTS FROM OTHER COUNTRIES, sent to all foreign applicants. Special summer session courses in English for foreign students are offered by the Department of Speech on the Berkeley campus. However, admission to this summer program does not constitute admission to the Graduate Division, and completion of the program does not excuse the applicant from the examination requirements mentioned above.

Admission Without Degree Objective  Students pursuing graduate study toward limited personal objectives must meet the same admission requirements as regular graduate students, and must satisfy the Dean of the Graduate Division that their programs of study have definite scholarly or professional purposes.

Accommodation of Visiting Scholars  The University of California has always been hospitable to postdoctoral scholars who wish to visit the University. It is essential that such scholars communicate in advance with the chairman of the department in which they wish to work to inquire whether the facilities they require may be provided.

Intercampus Exchange Program  A graduate student registered on any campus of the University who wishes to go to another campus of the University may, with the approval of his adviser, the chairman of the department in which study is proposed, the Dean of the Graduate Division on his home campus, and the Dean of the Graduate Division on the campus visited, become an Intercampus Exchange Graduate Student. This program will also include those students who take courses on more than one campus of the University in the same quarter.

Application forms for the Intercampus Exchange Program for Graduate Students may be obtained from the Office of the Dean of the Graduate Division on the student’s home campus.

It is anticipated that this privilege will be used by graduate students who seek the opportunity for association with certain scholars or with fields of study
not available on their home campus, or who seek the use of special facilities and collections. Whenever possible, personal arrangements between faculty members on the two campuses should be made so as to insure that the courses, seminars, or facilities will be available to meet the student's needs. This privilege will be granted where evidence of serious and high-quality scholarship is available.

Although he registers and pays fees on the home campus, the Intercampus Exchange Student will have library, infirmary, and other student privileges on the host campus. He should make arrangements with the Registrar to follow the enrollment procedures of the host campus so that grades obtained in courses taken will be transferred to the home campus for entry on the student's record. An exchange student is considered a graduate student in residence on his home campus. He has not transferred his enrollment, and he is not admitted to the graduate school and department of his host campus as a graduate student of that campus. Unless specifically restricted, holders of fellowships may participate in the Intercampus Exchange Program.

General Regulations and Procedures

Graduate Advisers  Each academic department, group, and professional school nominates to the Dean of the Graduate Division a graduate adviser, appointed by the Dean, whose name is announced before the opening of each quarter. The responsibilities of the graduate adviser include: (1) assisting graduate students in selecting a program of study toward a degree, (2) reporting to the Dean of the Graduate Division on the acceptability of upper division and graduate courses completed by a candidate at other institutions, (3) endorsing applications for candidacy for higher degrees and for qualifying examinations, (4) acting on petitions by graduate students, (5) maintaining records of all graduate students enrolled under his jurisdiction, (6) supplying information requested by the Dean of the Graduate Division regarding a student's work and progress, and (7) assisting the Dean in the enforcement of all regulations applying to graduate study, particularly those relating to admission to graduate courses and maintenance of acceptable scholastic performance. The graduate adviser is the deputy of the Dean of the Graduate Division and the chief representative of the department or school in all matters related to graduate study, and his signature is recognized as expressing their official decisions. All graduate students must confer with their graduate advisers at the opening of each quarter and obtain approval of their programs of study.

Adviser for Foreign Students  Foreign students must consult with the Foreign Student Adviser at International House as soon as possible after arrival in Berkeley. He will provide assistance in problems concerning finances, visas, passports, work permits, transfer of funds from abroad, and local and national regulations affecting foreign students.

Registration  Every graduate student in good standing, unless granted a formal leave of absence or honorable dismissal, is required to register with the Office of the Registrar each quarter until completion of all requirements for the degree expected. If he plans to be in residence on campus, he must register as a
regular student, and is subject to all regular fees. If his studies or research require him to remain outside of the State of California for the quarter, he must file a petition for this, including a request for reduction of the incidental fee, with the Office of the Dean of the Graduate Division.

**Leave of Absence and Withdrawal** If a student wishes to withdraw from the University, he must apply for a leave of absence. Petitions for this purpose are available from the Office of the Dean of the Graduate Division, and are filed with the same office. During his absence, a graduate student is exempt from all fees, and is expected in turn to maintain no connection with the University—he may not use University facilities or place demands on faculty time. To return to the University, he must file an Application for Readmission and any new supporting materials required. The application form is available from the Office of the Registrar, 120 Sproul Hall. Any leave of absence is a privilege requiring the endorsement of the student’s department or school and the Dean of the Graduate Division. Students who plan to leave the campus permanently should apply for honorable dismissal.

**Medical-Physical Examination Requirement** New students on the Berkeley campus, and those returning after an absence of more than five years, are required to have a medical evaluation at the Student Health Service. Students are mailed appointments by the Health Service following their acceptance for admission. If, however, a student does not receive an appointment by mail prior to registration week, he must obtain an appointment at Cowell Memorial Hospital, Window 104. Appointments are not mailed to addresses outside the United States. Students readmitted after an absence of five years or less must report to Window 104, Cowell Memorial Hospital, for a medical screening.

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

Examinations for the fall quarter begin Thursday prior to registration and continue through registration week only.† The examination includes a test for tuberculosis. Vaccination against smallpox within the past three years is required, and students are urged to have this done prior to the examination to avoid the necessity of vaccination by the Health Service. International certificates, Armed Services immunization records, Public Health Department certificates, and statements by private physicians are acceptable documentation of this vaccination.

Registration at the University is invalid without completion of the medical examination requirement.

**California Legal Residence** California state laws define legal residence as physical presence in the state with the intention of remaining indefinitely. To be considered for classification as a legal resident, a graduate student must meet this condition for at least one year immediately preceding the quarter in which

---

* See the next chapter.
† Examinations for the fall quarter 1966–1967 will be given from September 22 through September 30.
he registers. Nonresidents must pay a tuition fee for each quarter. Those in doubt about their status should consult the person in charge of residence matters in the Office of the Registrar, or write: Attorney for The Regents in Residence Matters, 590 University Hall, University of California, Berkeley, California 94720.

**Academic Residence** In order to meet the academic residence requirement for higher degrees—not to be confused with state residence, defined above—every graduate student must enroll in and complete a minimum of 4 units of upper division and/or graduate courses per quarter (courses in the 100 or 200 series), or 2 units per summer session.

**The Study List and Study-List Limits** Each quarter the student fills out a study list, entering on it all courses or any other graduate work, including thesis and/or research approved by the graduate adviser, to be undertaken for the quarter.

Courses are classified as lower division (numbered from 1 through 99); upper division (100–199); and graduate (200–299). Lower division courses are not counted as part of a full program of study leading to a higher degree.

To meet the minimum requirement of academic residence needed for a higher degree, a student must take at least 4 units of upper division or graduate work. Appointees to teaching assistantships and research assistantships must normally carry a minimum of 6 units of upper division or graduate work. Fellowship holders, foreign students on nonimmigrant visas, and students subject to selective service regulations must carry a full program of study, the minimum range in such cases being from 8 to 12 units in upper division and/or graduate courses, although cognizance is taken of the amount of individual study being pursued in the form of language preparations, comprehensive and qualifying examination preparations, etc., for the Ph.D. degree. In these cases reduced unit loads are accepted as full programs with the consent of the faculty adviser and dean. Maximum study lists for students not engaged in outside employment range from 12 to 16 units in the 100 and/or 200 series of courses, while for students employed half-time the maximum range is from 9 to 12 units in such courses, and for students employed full-time it is from 4 to 6 units.

**Changes in the Study List** Graduate students may file petitions to add, substitute, or drop courses entered on the study list at any time through the third week of instruction. Discontinuance of a course after this time will normally result in a grade of F. In unusual circumstances, and when approved upon petition to the Dean of the Graduate Division, the penalty of an F grade may not be assessed.

**The Nature of Graduate Instruction** A graduate course is a highly advanced course in a field of study already intensively presented in the upper division. Graduate courses demand, on the part of both instructor and student, either a critical analysis or a specialization of research not normally appropriate to an undergraduate major. These courses may be conducted in a number of ways: (1) as advanced lecture courses, (2) as seminars in which faculty and students present critical studies of selected problems within the subject field, (3) as
independent study or reading courses, or (4) as research projects conducted under faculty supervision. The main purpose of graduate study is to inspire independence and originality of thought in the pursuit of knowledge. The graduate student is expected to achieve mastery of his chosen field, through advanced course work, and—equally important—through independent study and research. He is accorded considerable liberty in his choice and number of courses, as long as he meets the minimum requirements for academic residence.

Possession of a bachelor’s degree does not in itself entitle a student to enroll in a graduate course. These courses assume adequate preparation at the upper division level in the subject field (a minimum of 18 units of upper division work basic to the subject matter of the graduate course; this basic work may be pursued in more than one department), and graduate students are encouraged to take any upper division work which will provide them with the necessary background for advanced work; they are not confined to graduate courses.

Graduate courses completed before attainment of the bachelor’s degree are not acceptable toward an advanced degree. Courses in the 300 and 400 series, which are professional in nature, are designed to meet the requirements for the various certificates, and are not acceptable as part of the program for an academic degree.

**Duplication of Higher Degrees** Duplication of the M.A. and M.S. degrees within the same field is permitted only in the most exceptional circumstances, such as cases where there is little or no close relationship between the two subjects studied within the field. Duplication of the Ph.D. degree, in any field of study, is not permitted.

**Degrees for Members of the Academic Senate** A voting member of the Academic Senate may be recommended for a higher degree by a Senate Division of which he is not a member, provided that he has fulfilled all the requirements of that Division.

No voting member may be recommended for a higher degree by his own division unless, prior to the date of final action on his appointment to a rank carrying the voting privilege, the Dean of his Division has certified to the appropriate authority that he has met all the requirements for the degree. Such appointments may be retroactive.

**Summer Sessions and University Extension**

**Summer Sessions** During the summer of 1966 two summer sessions will be held on the Berkeley campus. Because of the differences in course content in the summer session, graduate students are subject to special regulations, which may influence their degree programs.

Students obtain an application for admission to each of the summer sessions from the Office of the Summer Sessions, 1 Sproul Hall. This application must be filed, with a fee of $5, normally by the middle of May for the first session and the end of June for the second session. No transcripts of previous work are

---

* Plans for summer sessions after full conversion to the quarter system are still in the formative stage.
required for summer session attendance alone, unless the student also wishes to apply for graduate admission.

A student may apply upper division and graduate courses taken in summer sessions toward an advanced degree only if he is admitted by the Graduate Division to a regular session (even if he does not plan to attend regular sessions). Admission to summer session graduate courses does not constitute admission to the Graduate Division.

If the student is admitted to the Graduate Division before enrolling in a summer session, he is automatically given degree credit for acceptable summer courses. If, however, he is admitted to the Graduate Division after his summer session work is completed, he may receive degree credit for acceptable courses only upon approval of the graduate adviser and the Dean of the Graduate Division. Attendance of two summer sessions, with an appropriate number of units, will normally count toward the residence requirement as one quarter. Students enrolled in at least one graduate course per session will normally be limited to 4 units, except as approved by the Dean of the Graduate Division. Work for the Ph.D. degree at Berkeley may be pursued only in regular sessions.

A student seeking degree credit for summer session work should bear in mind that not all courses required may be available during a summer session, and only certain upper division courses are acceptable toward a degree. Furthermore, members of the regular staff are not normally on duty in the summer months, and admission to candidacy does not entitle a graduate student to place demands on the vacation time of faculty members for direction of theses and dissertations.

University Extension No courses taken in University Extension may be applied toward a higher degree administered by the Graduate Division at Berkeley. Requirements for the Standard Teaching Credential may be met in part, however, by courses offered in University Extension. (See the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION.)

The Master's Degree

Instruction is offered on the Berkeley campus leading to the following master's degrees:

**Academic**
- Master of Arts (M.A.)
- Master of Science (M.S.)

**Professional Master's Degrees in**
- Architecture (M. Arch.)
- Bioradiology (M. Biorad.)
- Business Administration (M.B.A.)
- City Planning (M.C.P.)
- Criminology (M. Crim.)

- Engineering (M. Eng.)
- Forestry (M. F.)
- Journalism (M. Jour.)
- Landscape Architecture (M.L.A.)
- Library Science (M.L.S.)
- Optometry (M. Opt.)
- Public Health (M.P.H.)
- Social Welfare (M.S.W.)
- Law (LL. M.)

* Except that two consecutive summer sessions may count toward the residence requirement.

† The Bachelor of Laws degree (LL.B.) is also a higher degree, and application for admission is made both to the Graduate Division and the School of Law.
Specific regulations governing the professional master’s degrees are set forth in the individual Announcements of the colleges and schools. The present section will deal primarily with the academic master’s degree, though the rules and procedures described will be of interest to candidates in all fields.

**Preparation** Normally a bachelor’s degree comparable to that offered at the University of California—with an undergraduate major either in the field of graduate study or a closely related field—is considered as acceptable preliminary training for study toward a master’s degree. The applicant’s undergraduate program of study must be approved by the graduate adviser in his proposed field of study, as providing sufficient foundation for advanced work in the field. The applicant’s scholastic record must also be of acceptable standard.

**Residence Requirement** A minimum of three quarters of academic residence (as defined earlier under Academic Residence) is required for the master’s degree. Specific subject requirements are set by the schools and departments.

**Transfer of Credit from Other Institutions** Up to 6 quarter units (or 4 semester units) of courses taken at other institutions may be applied toward the degree, upon approval of the Dean of the Graduate Division. These units are allowed if earned in graduate status at an institution of high standing, and cannot be used to reduce the minimum residence requirement or minimum requirement of graduate-level units. Requests for degree credit for such courses are not considered until a student has completed at least one half of the program for the master’s degree and is applying for advancement to candidacy. The student’s entire record must indicate superior scholarship.

**Course Credit by Examination** Upon approval of the instructor involved, or departmental chairman, where no instructor is designated, and the Dean of the Graduate Division, a student in residence may receive a limited amount of course credit toward the degree by examination, but not including laboratory courses or graduate seminar or research courses.

**Standard of Scholarship** Every graduate student must maintain a minimum grade-point average of B (3.0) for all work undertaken in graduate status. Only courses graded A, B, or C are accepted in satisfaction of degree requirements. Disqualification on grounds of poor scholarship is at the discretion of the Dean of the Graduate Division.

**Amount and Distribution of Work** Students working for academic master’s degrees on the Berkeley campus will pursue one of two plans, as set by the individual department (departments may adopt either or both plans, and will, in the latter case, designate which plan is to be followed by each student):

- **Plan I** requires 30 quarter units and a thesis. At least 12 of these units must be in graduate courses (200 series) in the major subject. Course units are not granted for the thesis.
- **Plan II** requires 36 quarter units of upper division and graduate courses, followed by a comprehensive final examination administered by the student’s department or group. At least 18 of the units must be in graduate courses in the major subject.

---

*Credit for graduate work completed on other campuses of the University of California may be granted in excess of 6 units. Requests are handled on an individual basis.*
Students under both plans are under the guidance of their graduate advisers regarding distribution of course work among the departments. Further requirements are specified by the major department.

Advancement to Candidacy Admission to candidacy for a master's degree is not automatic upon completion of the degree requirements; it requires a formal application to the Dean of the Graduate Division, bearing the approval of the student's major department or school and a precise statement of the studies on which the application is made. Application must be made not later than one quarter prior to the date of completion of the degree requirements.

The Master's Thesis Students under Plan I, described above, must submit a thesis in typewritten or printed form (or other form deemed acceptable by the Graduate Council). If typewritten, it must be doublespaced on medium weight, 8½" by 11" paper of good quality, with a minimum left-hand margin of 1½". It must be unbound and without perforations, and the type must be adequate for photographic reproduction. One copy (the original, if typewritten), following approval by the student's thesis committee, is filed with the Dean of the Graduate Division. Further information regarding the organization and format of the thesis is available from that office.

The thesis constitutes a report, in as brief a form as possible, of results obtained in an original investigation of a problem. While it is understood that the problem in question need be one of only limited scope, the thesis should be comparable in style, organization, and depth of understanding to theses and dissertations of greater scope, such as those executed by doctoral candidates.

The thesis is submitted to a committee of three members of the faculty appointed by the Dean of the Graduate Division. Wherever possible, one member of the committee is chosen from a department other than that of the candidate's major subject. The candidate is required to confer with all members of his committee before undertaking the work of a thesis. Since the committee is not appointed until a student is advanced to candidacy, the student should normally not begin his thesis work earlier, lest he incur the possibility of extensive revision of his work. Responsibility for placing the completed thesis in the hands of the committee members rests with the student.

If all three members of the committee approve the thesis, they sign the official title page prepared by the Office of the Dean of the Graduate Division, and a copy of the thesis is filed with that office, for later deposit in the University Library. In case of doubt by any member on the acceptibility of the thesis, the chairman of the committee calls a conference of the members to discuss the thesis. If the conference results in agreement on the acceptibility of the thesis, it is then signed and filed as previously indicated. If an agreement is not reached, the thesis is referred to the Dean of the Graduate Division, with a brief statement of each member's opinion. If the thesis is rejected, it is referred to the Dean with a statement to that effect by the chairman of the committee. In all cases involving rejection or a split vote, the Administrative Committee of the Graduate Council will make the final decision.
The Doctor's Degree

Instruction is offered on the Berkeley campus leading to the following doctor's degrees:

<table>
<thead>
<tr>
<th>Academic</th>
<th>Professional Doctor's degrees in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Philosophy (Ph.D.)</td>
<td>Criminology (D. Crim.)</td>
</tr>
<tr>
<td></td>
<td>Education (Ed. D.)</td>
</tr>
<tr>
<td></td>
<td>Engineering (D. Eng.)</td>
</tr>
<tr>
<td></td>
<td>Library Science (D.L.S.)</td>
</tr>
<tr>
<td></td>
<td>Law (J.S.D.)</td>
</tr>
<tr>
<td></td>
<td>Public Health (Dr. P.H.)</td>
</tr>
<tr>
<td></td>
<td>Social Welfare (D.S.W.)</td>
</tr>
<tr>
<td></td>
<td>Library Science (D.L.S.)</td>
</tr>
</tbody>
</table>

Professional degree programs are outlined in the individual Announcements of the colleges and schools offering them. The general procedures given in this section apply primarily to the academic doctor's degree, though the information will be of interest to candidates in all fields.

The Doctor of Philosophy degree is not granted at the University of California solely on the basis of the fulfillment of technical requirements, such as residence and completion of specified courses. The degree is awarded in recognition of a candidate's knowledge of a broad field of learning and his distinguished accomplishment in that field, through an original contribution of significant knowledge and ideas. The candidate's research must reveal high critical ability and powers of imagination and synthesis.

Preparation  A prospective candidate for a doctor's degree must possess a bachelor's degree from the University of California, or an equivalent degree from an institution of comparable standing, with sufficient undergraduate preparation for advanced work in his proposed field, as determined by the department of his choice. Facility in either French, German, or Russian should also be a strong part of the undergraduate program preparatory to the Ph.D. degree study.

Residence Requirement  As defined earlier, minimum residence of two years, or six quarters, is required for the Ph.D., although most candidates actually spend closer to four years. Work is normally pursued only in regular sessions, with certain exceptions granted in accordance with the regulations on summer sessions described earlier.

Program of Study  The candidate's program of study must be approved by the Graduate Council. It must embrace a field of study previously approved by the department or group concerned, and extend over a period of at least two years. Certain doctoral programs may require more than two years of study; it is, in any case, the candidate's performance, rather than his length of study, which leads to recommendation for the degree. The last year must normally be spent in continuous residence.

The field of study may lie in a single department except for essential related courses in other departments, or it may represent combinations of departments administered by an executive committee of the group. Once he has chosen his field of study, a student should confer with his graduate adviser to determine the best sequence of courses to provide adequate preparation for the qualifying examinations and research.
Foreign Language Requirement

This requirement serves a double purpose: (1) to assure a Ph.D. candidate's ability to acquire a wide knowledge in his field of study, and (2) to enable him to keep abreast of foreign developments in the field. There is sufficient flexibility to this requirement to enable each department or group to adapt it to the needs of the individual candidate. Before advancement to candidacy, and preferably before admission to the Qualifying Examination (see below), the student must satisfy one of the following requirements, as determined by his department or group:

1. Demonstration of a reasonably accurate reading knowledge of two foreign languages, one of which must be French, German, or Russian, the other chosen by the department from a list of languages certified to the Graduate Council as having important scholarly literatures in the field concerned. This is tested by a written examination administered by the student's department(s), consisting of a translation of a passage typical of the literature of the student's field—normally not less than 300 words. The translation need not be literal, but must show adequate comprehension of the passage's meaning. If the department allows the student to use a dictionary, a time limit is set of 75–90 minutes per 300 words. The examination is filed with the Dean of the Graduate Division and subject to annual review by a special committee of the Graduate Council.

2. Demonstration by a written examination of an exceptionally thorough reading knowledge of either French, German, or Russian, and an adequate knowledge of the structure of the language. The examination will require the student to translate, without the aid of a dictionary, an exceptionally difficult passage from the literature of his field. This examination is prepared, administered, and graded by a special committee of the Graduate Council, and may be supplemented by additional questions deemed appropriate by the members.

The above alternatives constitute the minimum language requirement, and the student's department(s) may require demonstration of knowledge in more than two languages (some departments currently require as many as five). The prospective graduate student is strongly urged to begin his language preparation in his undergraduate years.

Noncredit courses for graduate students are offered by the various language departments, to prepare candidates for reading examinations.

Foreign language requirements for the Ph.D. degree are now being reviewed and may be liberalized. A student preparing to meet the foreign language requirement(s) should obtain the latest information from his graduate adviser after registration.

Notice of Intended Candidacy

Notice of intention to proceed to candidacy for the Ph.D. degree should be given to the student's department or group as early as possible in his graduate career, preferably by the end of the second quarter of residence.

Qualifying Examinations

Before admission to candidacy a student must pass a series of qualifying examinations, including the foreign language examinations described above, administered by a committee appointed by the Graduate Council. He must have removed any deficiencies in his training, and must have maintained better than a B average in all course work undertaken in graduate status.

Advancement to Candidacy

Application is made on a form furnished by the Graduate Division. The completed form, bearing the endorsement of the stu-
dent's department, is filed with the Dean of the Graduate Division, who determines whether all formal requirements have been met. A fee of $25 must be paid before the application is filed.

Doctoral Dissertation The format of the Ph.D. dissertation is similar to that outlined in the last section for the master's thesis. Further information is available from the Dean of the Graduate Division.

The dissertation, the product of independent investigation, must be submitted to the committee in charge (see below), and must receive the approval of this committee and of the Graduate Council. The dissertation is one of the most important requirements for the Ph.D. program; the degree is in no case granted for completion of courses only, no matter how extensive.

The candidate is to work under one of two plans, as adopted by his department or group:

Under Plan A, the Administrative Committee of the Graduate Council appoints a five-man committee which determines whether the candidate has met the requirements for the degree. Three members of the committee, one of whom must be from a department other than that of the student’s major subject, guide the candidate in his research and pass judgment on the merits of his dissertation. The whole committee conducts a final oral examination dealing primarily with the relationship between the dissertation and the general field of study in which the subject of the dissertation lies. Admission to the final examinations may be restricted to the members of the committee, members of the Academic Senate, and guests of equivalent rank from other institutions.

Under Plan B, the Administrative Committee of the Graduate Council appoints a committee of three members, one of whom must be from a department other than that of the student’s major subject, to guide the candidate in his research and judge the merits of his dissertation. This committee may require any necessary conferences for elucidation of the subject treated in the dissertation. After presentation of the dissertation, but before final action is taken upon it, the committee may, if deemed necessary, require the candidate to defend the dissertation in a formal oral examination.

After the dissertation has been approved by the candidate’s committee, one copy (the original, if typewritten) is filed with the Dean of the Graduate Division on a date specified by that office. An abstract of the dissertation, not to exceed 600 words, is also filed with the Graduate Division along with the dissertation, for publication in Dissertation Abstracts.

All of the procedures and regulations described above, and in the preceding section on master's degrees, constitute the minimum requirements for the higher degrees, as set by the Graduate Division. Each academic department may adopt additional requirements, as approved by the Dean of the Graduate Division and the Graduate Council, according to the demands of a candidate’s field of study. Departmental choice of doctoral Plans A and B is fixed as at right.

Facilities and Services

Foreign Language Training Research and field work overseas may be facilitated by oral proficiency training in any of the 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, California 95060.

**Stanford-California Exchange Program** Graduate students with superior academic records may participate in the Stanford-California Exchange program when it is deemed desirable for them to take a limited amount of work in courses offered at Stanford and not available at Berkeley. Participants in this program register and pay the applicable fees at Berkeley and are exempt from tuition and fees at Stanford. The same privilege is accorded to Stanford students who wish to take courses at Berkeley. Further information and application forms may be obtained from the Graduate Division Admission office, 336 Sproul Hall.
Graduate Theological Union  Doctoral programs in religion are available at the Graduate Theological Union, utilizing its own courses as well as courses offered in the Graduate Division of the University. Examinations, dissertation, and the general scope of the program are under the direction of faculty members representing both the University and the Graduate Theological Union. Further information, a catalogue, and application forms may be obtained through the office of the Graduate Theological Union, 2465 Le Conte, Berkeley, California 94708.

Study Abroad for Graduate Students

Graduate students may also study or pursue research abroad at the University’s affiliate institutions overseas. To qualify, a student should normally have spent at least a year in residence at Berkeley before undertaking work at Education Abroad Centers other than Delphi, whose special character makes it available to students during their first year. He must secure a letter from his major adviser to the Dean of the Graduate Division supporting his application and explaining how his proposed study abroad contributes to his graduate program. If he desires the unit credit he may earn at an Education Abroad Center to be counted toward his graduate program, he must petition the Dean of the Graduate Division after his return and with departmental support to present his request to the Administrative Committee of the Graduate Council. It should be pointed out that in some cases graduate students may find that the informal support and assistance of the staff at Education Abroad Centers may serve their needs better than regular participation in the Program.

Interested students are urged to consult with their academic adviser. For additional information regarding study abroad, students may consult the Study Counselor, 201 Sproul Hall.

Financial Aid to Graduate Students

Over 500 fellowships and graduate scholarships are offered on the Berkeley campus. Awards range from about $300 to $3,600 for the academic year, the majority carrying stipends in the range of $2,000 to $2,400. Some are restricted to beginning graduate students, others to advanced graduate students; some are restricted to specific fields of study, others open to all students by competition. Provision is made also for a number of traveling fellowships.

The funds for these awards are made available from endowments held in trust by the University and given by interested friends and alumni; others are made available from annual donations from educational foundations, industry, government, and individual benefactors.

Information  Detailed information on awards available each year is given in the bulletin FELLOWSHIPS AND GRADUATE SCHOLARSHIPS, which is issued early in the fall. Requests for information should be addressed to the Committee on Fellowships and Graduate Scholarships, 225 Sproul Hall, University of California, Berkeley, California 94720.

Application Procedure  The application form, available in early fall from the
Committee on Fellowships and Graduate Scholarships,* must be filed no later than December 15 of the year preceding that for which the award is tenable. This must include a statement of purpose, official transcripts of all college-level work completed, and letters of recommendation from instructors. Note that this material must be sent directly to the Committee on Fellowships and Graduate Scholarships. Copies of these documents filed in other University offices, including the Graduate Division Admissions Office, will not be considered by the committee, and a fellowship appointment could be denied as a result of missing information.

**Announcement of Awards**  Awards are announced between March 21 and April 1, and must be accepted or refused, in writing, by April 15. The acceptance of a fellowship or graduate scholarship carries with it the presumption that the incumbent will devote full time to graduate study and research at the University of California. Institutions which are members of the Association of Graduate Schools in the Association of American Universities require that anyone who resigns an accepted appointment after April 15 must, in order to become eligible to fill a vacancy in a member institution, receive consent to do so from the University which first appointed him.

**Criteria of Appointment**  The purpose of graduate appointments is to provide able and productive scholars for the future. Awards are thus made as a mark of honor, primarily on the bases of outstanding scholastic achievement and promise. The age limit for appointees is normally 32. The applicant’s previous academic record, his evidence of ability in research or other creative accomplishment, his intellectual capacity, and general promise, are all strongly considered. Normally the award is for one academic year.

Because a fellowship is designed to enable a student to devote full time to studies, appointees have, until recently, been prohibited from accepting employment concurrent with their period of tenure. However, in view of current living costs, the Dean of the Graduate Division may, upon request, approve a limited amount of paid employment, provided the fellowship holder is able to carry a full program of graduate study with distinction. Requests for approval of such employment must be transmitted by the student’s adviser to the Dean of the Graduate Division.

**Honorary Traveling Fellowships**  Honorary traveling fellowships may be awarded to distinguished graduate students in any department. Such awards do not carry any stipend, but entitle the holder to official credentials from the University which may be of assistance in pursuit of studies and special inquiries in other states and foreign lands. Applications for honorary traveling fellowships must be received by the Committee on Fellowships and Scholarships by the same date as for other fellowships, December 15.

**National Science Foundation Fellowships**  Summer Fellowships for Graduate Teaching Assistants are available to qualified graduate students in certain fields of study. For information on these awards, please consult the Committee office, 225 Sproul Hall, from July through November.

---

* Applications are not sent by airmail unless the applicant forwards in advance sufficient postage for 2½ ounces of airmail postage.
National Defense Education Act Fellowships A number of fellowships are available under Title IV of the National Defense Education Act in specified fields of study. Fellowships are also available under Title VI of the same act, which provides for awards in certain designated modern foreign languages.

Students who apply through the regular University fellowship competition will be considered for awards under both Title IV and Title VI without making further application.

Traineeships A number of National Science Foundation Graduate Traineeships and National Aeronautics and Space Administration Predoctoral Traineeships are available to qualified students in certain fields. Applicants for regular University fellowships will be considered for these traineeships automatically.

Teaching Assistantships* Many departments make available teaching assistantships to outstanding graduate students, providing them an income of $2,750 to $3,040 per year, depending on the number of years of experience as a teaching assistant. The teaching assistant, chosen for his scholarly achievement and his promise as a teacher, must be a full-time student in residence. He serves his apprenticeship under the active tutelage and supervision of regular faculty members. Application is made directly to the chairman of the department in which the student wishes to teach.

Teaching Fellowships An appointee to a teaching fellowship must be a full-time student in residence who has been advanced to candidacy for the doctorate, or otherwise achieved appropriate professional maturity. He is chosen for his competence to conduct the entire instruction of a group of students in a lower division course, under general supervision of a regular faculty member. The stipend is $3,600 for a half-time annual appointment. Application is made to the individual departmental chairman.

Associateships The title “Associate” is assigned to teachers employed temporarily and not under consideration for appointment as “Instructor” or “Professor,” whose services, either full- or part-time, are contracted normally to give independent instruction in lower division courses. Associates may or may not be registered graduate students or candidates for degrees at this University. Appointees who are registered graduate students must have been advanced to candidacy for the doctorate and have had at least two years of teaching experience (including that of a teaching fellowship or assistantship) in or outside of the University. The title “Associate” rather than “Teaching Fellow” is given when a registered student or degree candidate is employed to teach on more than half-time appointment, or when such employment in combination with other University employment exceeds half time. Stipends for full-time service range from $6,612 to $7,476. Application is made to the individual department chairman.

Research Assistantships Positions as research assistants are available to qualified students in the various departments, institutes, and bureaus at the University. The stipends vary according to the type of research and the amount of time devoted to it. Application is made directly to the department, institute, or bureau.

* Holders of salaried teaching and research positions are, in many cases, subject to United States income tax deductions. Salary figures given are gross, not net.
Agricultural Chemistry, Ph.D.
Agricultural Economics, M.S., Ph.D.
Anatomy, M.A., Ph.D.
Animal Physiology, Ph.D.
Anthropology, M.A., Ph.D.
Applied Mathematics, Ph.D.
Architecture, M.Arch.
Art, M.A.
Asian Studies, M.A., Ph.D.
M.A. program emphases:
East Asian, Southeast Asian, South Asian
Astronomy, M.A., Ph.D.
Atmospheric and Space Sciences, M.A., Ph.D.
Bacteriology, M.A., Ph.D.
Biochemistry, M.A., Ph.D.
Biophysics, Ph.D.
Bioradiology, M. Biorad.
Biostatistics, M.A., Ph.D.
Botany, M.A., Ph.D.
Business Administration, M.B.A., Ph.D.
Chemical Engineering, M.S., Ph.D.
Chemistry, M.S., Ph.D.
City and Regional Planning, M.C.P., Ph.D.
Classical Archaeology, M.A., Ph.D.
Classics, M.A., Ph.D.
Ph.D. program emphases:
Greek, Latin
Comparative Biochemistry, M.A., Ph.D.
Comparative Literature, M.A., Ph.D.
Comparative Pathology, M.S., Ph.D.
Criminology, M.Crim., D.Crim.
Design, M.A.
Demography, M.A., Ph.D.
Dramatic Art, M.A., Ph.D.
Economics, M.A., Ph.D.
Education, M.A., Ph.D., Ed.D.
Endocrinology, M.A., Ph.D.
Emphases:
Civil Engineering
Structural Engineering and
Structural Mechanics
Hydraulic and Sanitary Transportation
Soil Mechanics
Electrical Engineering
Industrial Engineering
Administrative
Human Factors in
Technology
Operations Research
Production Systems Design
Mechanical Engineering
Heat Power Systems
Applied Mechanics
Mechanical Design
Aeronautical Sciences
Naval Architecture
Nuclear Engineering
Mineral Technology
Ceramics
Geological
Geophysical
Metallurgy
Mineral Beneficiation
Petroleum
English, M.A., Ph.D.
Entomology, M.S., Ph.D.
Environmental Health Sciences, M.S., Ph.D.
Epidemiology, Ph.D.
Folklore, M.A.
Food Science, M.S.
Forestry, M.S.
French, M.A., Ph.D.
Genetics, M.S., Ph.D.
Geography, M.A., Ph.D.
Geology, M.A., Ph.D.
Geophysics, M.A., Ph.D.
German, M.A., Ph.D.
Greek, M.A.
History, M.A., Ph.D.
History of Art, M.A., Ph.D.
Immunology, Ph.D.
Italian, M.A.
Journalism, M.Jour.
Landscape Architecture, M.L.A.
Latin, M.A.
Latin-American Studies, Ph.D.
Law, LL.B., LL.M., J.S.D.
Librarianship, M.L.S., Ph.D., D.L.S.
Linguistics, M.A., Ph.D.
Logic and the Methodology of Science, Ph.D.
Mathematics, M.A., Ph.D.
Medical Physics, Ph.D.
Microbiology, M.A., Ph.D.
Molecular Biology, M.A., Ph.D.
Music, M.A., Ph.D.
Near Eastern Languages, M.A., Ph.D.
Nutrition, M.S., Ph.D.
Optometry, M.Opt.
Oriental Languages, M.A., Ph.D.
Paleontology, M.A., Ph.D.
Parasitology, M.S., Ph.D.
Philosophy, M.A., Ph.D.
Physical Education, M.A.
Physics, M.A., Ph.D.
Physiological Optics, M.S., Ph.D.
Physiology, M.A., Ph.D.
Plant Pathology, M.S., Ph.D.
Plant Physiology, M.S., Ph.D.
Political Science, M.A., Ph.D.
Psychology, M.A., Ph.D.
Public Administration, M.A.
Public Health, M.P.H., Dr.P.H.
Range Management, M.S.
Romance Languages and Literatures, Ph.D.
Emphases:
French, Italian, Spanish
Romance Philology, Ph.D.
Sanskrit, Ph.D.
Scandinavian Languages and Literatures, M.A., Ph.D.
Slavic Languages and Literatures, M.A., Ph.D.
Social Welfare, M.S.W., D.S.W.
Sociology, M.A., Ph.D.
Soil Science, M.S., Ph.D.
Spanish, M.A.
Speech, M.A., Ph.D.
Statistics, M.A., Ph.D.
Wood Science and Technology, M.S., Ph.D.
Zoology, M.A., Ph.D.

Certificate in Russian and East European Studies  Students with substantial training in the history, literature, economics, geography, or politics of Russia and Eastern Europe can pursue studies leading to a Certificate in Russian and East European Studies in conjunction with a program leading to a higher degree in the social sciences or humanities, or following receipt of such degree upon completion of further requirements. Detailed information is available upon request from the graduate adviser in this area.

Medieval Studies  Students interested in specializing in medieval studies may be assisted by a Committee for Medieval Studies Advisory to the Dean of the Graduate Division. The committee will provide necessary information both to students and their faculty advisers, in drawing up a program of study.

Teaching Credentials  Work leading to the Standard Teaching Credential is given on the Berkeley campus. For details, please consult the Announcement of the School of Education.

45
IV. Services and Facilities

The Berkeley campus is acclaimed for its vast range of facilities, opportunities, and services to students. This chapter deals with those aspects of campus life apart from taking courses—including information on campus services, student organizations and activities, fees and expenses, financial aids, and housing.

Campus Libraries

The University maintains a network of reading and research libraries throughout the campus, in a wide variety of fields. The libraries contain a total of over 3,000,000 volumes, and 40,000 current periodicals and serials, as well as government documents.

The Main Library houses an extensive loan stack collection comprising the bulk of the humanities and social science volumes; a current periodical room; a Reference Service which offers valuable assistance in the bibliographical tasks of research; a department containing official documents of the Federal, State, foreign, and international governments; a Newspaper and Microcopy Room; a Rare Books and Special Collections Department; the Bancroft Library, with special collections in Californian, western American and colonial Latin-American history; a Reserve Book Room (designed for rapid circulation of assigned or recommended books in heavy demand); the Morrison Library (a recreational reading room); and a graduate reading room for students in the humanities.

Branch libraries are usually located in the respective academic departments or schools which they serve. These include:

- Biology
- Education and Psychology
- Optometry
- Agriculture
- Entomology
- Forestry
- Engineering
- Earth Sciences
- Astronomy, Mathematics, Statistics
- Physics
- Chemistry
- Biochemistry
- Environmental Design
- Music
- Art and Anthropology
- Social Science (graduate)
- Social Welfare and Criminology
- East Asian
- Librarianship

A student’s registration card entitles him to borrow books from the University library and its branches. Please consult the Main or branch libraries for the regulations of the various units. Orientation leaflets are available in the Main Library.

Services to Students

Student Health Service  Located in Cowell Memorial Hospital in the eastern area of the campus, the Student Health Service is financed by a portion of the incidental fee paid by each student at registration. The purpose of this service is to conserve the student’s time for classwork and studies by preventing and treating acute illnesses.

Students are eligible for care from the first to the last day of the quarter in which they are registered (or to the date of official withdrawal). One may receive
hospital care up to twenty days in any quarter. Outpatient care includes emergency surgery, routine laboratory and X-ray procedures, and certain drugs as provided and prescribed by the staff of the Health Service. Entering students are mailed a booklet describing the available services.

With certain exceptions, the Health Service does not provide continuing treatment or surgery for chronic physical defects or illnesses present at the time of entrance to the University; for injury or illness under treatment elsewhere; or for conditions where medical or surgical treatment is not immediately necessary and may be postponed to avoid interruption of classwork.

Emergency and routine dental care is given during the hours of 8 to 10:30 a.m., and 1 to 3:30 p.m. A charge is made for all general dentistry, cleaning, treatments, X-rays, and consultations.

**Optometry Clinic**—Emergency and routine vision services are provided in the Optometry Clinic of the School of Optometry. Free eye examinations are available to students and the general public. Services include those related to contact lenses and orthoptics, low vision aids, and other optometric care. If glasses or contact lenses are prescribed, a minimal charge is made for them.

**Counseling Center** Any regularly enrolled student may avail himself of the services of a professionally qualified staff, that will answer inquiries, or talk with the student at length, about his scholastic performance, choice of vocation, or personal adjustment. The student may request help in improving his study skills, assessing his interests and aptitudes, or exploring long-range career opportunities. He may, if he wishes, discuss personal problems. All communication between student and counselor is treated confidentially.

The Center provides complete psychological and aptitude testing, and maintains an extensive library of reference material on occupations, professions, and career opportunities; directories and catalogues of colleges, professional and technical schools; lists of scholarships, fellowships and loans. Students may use these reference materials even if not seeking counseling services. Further inquiry or appointments may be made at the Counseling Center, Temporary Building 5, just north of the Campanile Esplanade.

**Student and Alumni Placement Center** Those who seek part-time, temporary, vacation, or odd-job employment should apply at the Placement Center located in Temporary Building 6. Students are advised to avoid part-time employment during their first quarter at the University, if possible. The student should arrange his class schedule before applying to the Center; to be served, he must identify himself by a current registration card or a letter of admission to the University. The Center's staff provides advice on meeting financial obligations and helps the student determine those areas of work for which he is qualified.

School-year jobs for students cover a wide range, skilled and unskilled. They include services, technical, clerical, sales, domestic, manual, and many others. Some jobs offer room and board instead of salaries. Recent federal and State legislation has made available to the University funds providing a number of new jobs—in a great variety of fields, both on and off campus—designed for needy students. Before applying to the Placement Center for these opportunities, cer-
tification of financial need must be secured from the Office of Special Services, 309 Sproul Hall.

The Placement Center maintains a service for career planning and placement of University of California degree-candidates, graduates, and alumni in permanent career employment. Seniors and graduate students are encouraged to register with the Career Division no later than their final year of enrollment. During this period, the Center arranges on-campus interviews with employer representatives who visit each fall and spring. Information about career opportunities is available at all times to prospective graduates and alumni. The Center supports and subscribes to all equal opportunity employment practices.

Office of Educational Placement Located at 2120 Oxford Street, Berkeley, California 94720, this is the placement center for teaching, administrative, supervisory, and research positions—in universities, colleges, junior colleges, high schools, and elementary schools, in this country and abroad. The Office serves all qualified graduates and prospective graduates of the University of California. The Office registers candidates and assembles information into personal files concerning background, training, and professional experience, in order to match candidates with available positions. Placement advisers counsel candidates, communicate with employers, arrange interviews and recommend qualified candidates to employers. The University reserves the right to recommend only those persons who are considered to be fully qualified.

Office of Special Services Located in 309 Sproul Hall, this office is a division of the Office of the Dean of Students. Here the student may obtain information and assistance under the New Higher Education Act of 1965 (National Defense Education Act Loans, Government Guaranteed Loans, Educational Opportunity Grants and the Work-Study Program), Health Professions Student Loans, and the Earle C. Anthony Graduate Loan Fund. In addition, veterans’ educational benefits and Selective Service matters are administered by this office. For details on these services, please see the sections below on Financial Aids and Military Information.

Athletic and Recreational Facilities Harmon Gymnasium for men is equipped with two swimming pools, as well as squash, volleyball, and tennis courts, athletic fields, and a variety of indoor facilities. It is open throughout the year, free of charge, to every male student of the University, who may obtain, upon identification by registration card, a locker and free use of gym clothing and equipment. Apply at 2-B Harmon Gymnasium.

Hearst Gymnasium offers similar advantages to women students. A wide variety of courses, intramural, intercollegiate, and recreational athletic programs are offered to both men and women by the ASUC, the Department of Physical Education, and the Women’s Athletic Association.

The Strawberry Canyon Recreational Area was opened in 1959 for the benefit of the entire University community. It contains the Haas Clubhouse, the Lucie Stern Pool, and lounging, play, and picnic-barbecue areas. It is open, free of charge, to all students, faculty, and staff (students must show registration cards). During the summer, modest fees are charged, primarily for use of the pool. One may obtain further information at Haas Clubhouse.
University Police  The University of California Police Department was established by the State Legislature in 1947 as a fully constituted law enforcement agency. Subsequently, in 1962, the legislature revised the section of the Education Code dealing with University Police, broadening and defining their legal jurisdiction. The new section established full police powers for the University Police and places with them absolute responsibility for maintaining law and order and for investigation of criminal offenses committed within the jurisdiction of the department. Campus headquarters is in 2 Sproul Hall. The office is open twenty-four hours a day. The University Police also operates a lost-and-found service, which is open from 12:00 noon until 4:00 p.m., Monday through Friday.

Dining Facilities  The Dining Commons is located just north of the Student Union directly across the plaza from Sproul Hall. More than 75,000 meals are served each week to the University community and visitors, by the multiple facilities of the Dining Commons. A cafeteria, serving hot lunches and dinners, is located on the ground floor. Upstairs is a terrace, serving hot meals, sandwiches, and snacks; and the Golden Bear restaurant, offering table service. The Bear's Lair (located on the ground floor of the Student Union) has grill and fountain services. The Commons also operates a catering service for special affairs and student activities on campus.

Student Union and Student Center  The Student Union, a six-level building located at the south entrance of the campus, is a focal point of student activities and recreation. It contains quiet, comfortable lounges, a television room, meeting rooms, Pauley Ballroom, an art exhibit area, game rooms, the ASUC Store (a comprehensive book, stationery, and supply store), an information center, a bowling alley, a barber shop, a garage, an arts and crafts workshop, and facilities for the ASUC musical organizations. The Student Union is largely financed by ASUC funds operated by the student association.

The Student Union and the Dining Commons are the initial steps in a building program culminating in the establishment of a Student Center located around a spacious plaza. A recent addition to the Student Center is the new Eshelman Hall, which houses the ASUC publications, and student services as well as the Intercollegiate Athletic Department. An auditorium and theater now under construction will complete the Student Center and will serve the campus and surrounding community.

Student Organizations and Activities

The ASUC  The Associated Students of the University of California is the official undergraduate organization for student government. Membership in the ASUC is automatic upon payment of the ASUC fee along with other registration fees. This nonprofit organization is democratically constituted; it is divided into a governing body known as the Senate, consisting of 21 voting and 3 nonvoting members, and a planning and a coordinating body known as the Cabinet. Together they are responsible for directing a large variety of student activities and operations, including those of the Student Center described above. Students are urged to use the ASUC as their spokesman in University affairs, and to make use
of their ASUC votes to secure the representatives who will serve them capably and articulately.

**Student Publications** Owned and operated by the ASUC, the student publications provide opportunities to undergraduates for activities in all phases of publishing: writing, editing, reporting, art and design, advertising, sales, and general management. There are six ASUC publications:

- **The Daily Californian**—the campus newspaper; published continuously since 1897, it has ranked among the best college papers in the country.
- **The Pelican**—the monthly humor magazine; specializes in jokes and satire, with articles and features of current interest.
- **The Blue and Gold**—the official yearbook, covering virtually all phases of campus and academic life; it is a permanent record of the year's events.
- **California Engineer**—a magazine of scientific topics, for both technical and general interests.
- **Occident**—one of the oldest campus publications, it is the literary magazine, featuring poetry, fiction, criticism, and commentary, by students, faculty, and distinguished guest writers.
- **Graduate Student Journal**—a new literary magazine edited and managed by graduate students.

The center for all student publications except the Pelican is new Eshelman Hall, located in the Student Center.

**Lectures, Music, Drama, Debate** The University offers a broad variety of extracurricular activities in the humanities. These include:

Committee for Arts and Lectures (CAL)—a program of drama, music, dance, films, art exhibitions, and lectures. Some events are open to students and to the University community without admission charge. For those events requiring tickets, a reduced fee is usually available for registered students. Brochures announcing committee events may be obtained at the Committee's office, 2620 Bancroft Way, or at the Information Desk of the Student Union.

Music—a large selection of groups, including the Men's Glee Club, the University Chorus, Repertory Chorus, California Band, and others which students may join for academic credit. Each week, also, there is a noon concert, open free of charge to the general public. The Symphony Forum is a program sponsoring record concerts on campus and providing for students inexpensive San Francisco Symphony tickets.

Theater, Television, and Radio—The Department of Dramatic Arts offers course credit to any student participating, either in a performing or backstage capacity, in one of its excellent stage productions. There is also a Radio-Television Theater, and Orchesis, a workshop in the study and performance of modern dance.

Debate—Varsity Debate and University Roundtable (the latter open to all regardless of experience), are the two debate organizations of the Berkeley campus, nationally respected for their excellence.

For further information about these and many other campus events, please consult the Information Desk in the Student Union.

**Special Interest Clubs on Campus** Besides regular ASUC-sponsored activities, there are over 150 organizations on campus serving special interests and abilities. Each year, there is an Activities Fair held in the Student Center Plaza to acquaint students with many of these organizations and to give them an opportunity to join.

Academic and professional societies, including clubs organized by many of
the schools and departments, as well as national professional fraternities, provide students with an opportunity for seminars, discussions, lectures, tutoring services (both giving and receiving), and communication with members of an academic or professional field. Honorary academic societies are open to students of outstanding scholastic ability. These groups include: Tower and Flame (lower division); Honor Students' Society (upper division); Phi Beta Kappa (a national society of historical renown, open by invitation to the top seniors in nonprofessional fields); and others, including California Club, Gavel and Quill, and various groups for men and women separately. Most of these groups offer tutoring services.

Hobby and recreational groups abound—including folk dance, hiking, sailing, skiing, flying, photography, and travel clubs, and hundreds of others.

While the University, as a State-supported institution, does not offer chapel services or religious activity on campus, there are more than 35 churches and student religious clubs located within a few blocks of the campus.

Foreign Students' Groups The ASUC International Relations Board, comprised of various member councils, is an organization designed to provide a welcoming hand to students from other countries, and to promote among all students an understanding of international affairs. The Board sponsors programs for international correspondence, tours in foreign countries, and cultural activities on campus.

International House International House is a coeducational residence and program center for American and foreign students, primarily of the upper division and graduate level. Its activities include cultural and social events, home hospitality and educational tours. The program is designed to promote better understanding between all nationalities. For application and further information, write or call International House, University of California, Berkeley, California 94721.

Fraternities and Sororities Membership in a fraternity or sorority is by invitation after a period of "rushing." Those interested should apply through the Interfraternity Council for men, or the College Panhellenic Association for women, both located in the Office of the Dean of Students, 201 Sproul Hall. This office will supply general information regarding program and costs.

Military Information

This section discusses certain aspects of military service as they relate to student life, including Selective Service obligations, ROTC programs, and services to veterans.

Selective Service Regulations* Students subject to these regulations must keep their local boards informed of any changes affecting their draft classification. One may accomplish this by filling out a form at registration or at the Office of Special Services. Remember that undergraduate draft deferment for student status (Class II-S) can be granted only to those enrolled for a minimum of 12

* Policies regarding student deferments may change during an increased military call-up. Practices vary with the local board, and the student should be in contact with his board.
units per quarter; these students must also be making normal progress toward a degree (12 quarters). Graduate students must be in residence, spend full time on studies, and make normal progress toward a degree (two years for the master's; five years—including time spent on the master's—for the doctorate). Draft deferment for student status normally raises the upper age limit of eligibility for military service from 26 to 35 years. The student must report any changes of program during the quarter, such as dropping courses or withdrawal, to the Office of Special Services.

**Aids to Veterans** Students with questions concerning educational benefits under federal (including new legislation) or California state programs should inquire at the Office of Special Services, 309 Sproul Hall, or the federal or State offices for Veteran affairs listed on the inside back cover.

**Aids to Dependents of Veterans** There are certain educational benefits available to dependents of veterans. Students wishing to enroll under the provisions of Public Law 634 (War Orphans) or 361 (Children of 100% Disabled Veterans) should obtain from the U.S. Veterans Administration a Certificate of Education and Training. This certificate is to be filed at the Office of Special Services after the filing of the study list. These students must be prepared to pay all fees and educational costs at the time of registration. Education and training allowances will be paid to the student by the Veterans Administration, the first monthly payment sent normally within 60 to 75 days after compliance with the above procedures.

**Reserve Officers Training Corps** The University of California, as a land-grant institution (as established by the Morrill Act of 1862) offers courses and programs in military training. This training is voluntary, and affords a young man the opportunity to qualify for a commission as an officer in the Army, Navy, or Air Force while completing his college education. Reserve Officer Training Corps (ROTC) courses are offered by three departments: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). The departments furnish all necessary textbooks, uniforms, and supplies, and arrange draft deferment. The programs carry a monthly stipend in the junior and senior years, and additional financial aids are available to qualified students. Individual programs are summarized briefly as follows:

**Air Force** A Two-Year Program is offered to undergraduate or graduate students. Applicants complete six weeks of field training at an Air Force base during the summer preceding enrollment in the Professional Officer Course. Two academic years are required for completing the curriculum. Prescribed courses are listed under the Department of Aerospace Studies (see page 125).

*Financial and Other Benefits:* All students enrolled receive $40 per month for two academic years, plus textbooks, uniforms, and supplies. Financial Assistance Grants are available to selected students, as well as flying training, reduced travel expense, graduate study under Air Force auspices, draft deferment and other benefits.

*Commission and Service:* Upon graduation, the student is qualified for a commission as 2nd Lieutenant either in the Air Force Reserve or in the Regular Air Force (distinguished military graduates), and serves for four years on active duty in an officer specialty related to his academic preparation. Students should apply during January and February for fall quarter enrollment.

*Further Information:* Department of Aerospace Studies, 47 Harmon Gymnasium.
Services and Facilities

Armed Forces

Three programs:

1. Scholarship Program. Open by nationwide competition to qualified undergraduates. Those selected receive $50 monthly stipend, plus payment of certain fees and expenses. Upon graduation, the student receives a commission in the Regular Army and serves four years active duty.

2. Four-Year Program. Open to male freshmen. The student completes a six-week summer camp program between the junior and senior years (for which he receives approximately $147 per month compensation and travel expenses). In the junior and senior years, he receives $40 monthly, plus supplies, books, and expenses. Upon graduation, he accepts, if offered, a commission in the Army Reserve, and serves for two years active duty.

3. Two-Year Program. Primarily for transfer students but also open, upon acceptance, to those attaining upper division standing who have not previously participated in ROTC. This program involves the same service commitment and pay benefits as the four-year program. The student must successfully complete a six-week summer camp prior to entry into the program and attend a second period of summer training between his junior and senior years. For additional information on any of the programs and their benefits please contact the Department of Military Science, 151 Harmon Gymnasium.

Navy and Marine Corps

Three programs:

1. Four-Year Contract Program. Open by application to qualified freshmen; the student receives $40 monthly during the junior and senior years, plus supplies, books, and expenses for Naval Science courses. He completes a summer cruise prior to the senior year. Upon graduation, he is eligible for commission in the Navy or Marine Corps Reserve, and serves three years active duty.

2. Two-Year Contract Program. Open by application to a Naval Recruiting Station or NROTC unit to students who have already completed two years of college without Naval Science training. Candidate completes a six-week training session at a designated campus during the summer preceding the junior year. The remainder of the program is identical to the four-year contract program.

3. Regular Program. Open by nationwide competition to qualified freshmen; candidate receives $50 monthly for four years, plus all supplies, books, and expenses including tuition. He completes three summer cruises, about six to eight weeks each. Upon graduation, he is eligible for a commission in the Regular Navy or Marine Corps, and serves four years active duty. Commissions are also available in the U. S. Naval Supply Corps and Civil Engineering Corps. For additional information, please contact the Department of Naval Science, 25 Callaghan Hall.

Fees* and Expenses

It is extremely important that a student carefully consider the total financing of his education, from his entering quarter to the completion of his degree objective. If financial help will be needed, beyond those funds which the student or his family are able to provide, the student should make the necessary applications for a scholarship or a loan well in advance of his enrollment. He should pay particular attention to early deadline dates of application for scholarships or long-term loans. While the needs and resources of each student differ, the University, can provide a general list of fees and expenses normally encountered (see Schedule A).

* Fees are subject to change.
Schedule A: Table of Fees and Expenses for Three Quarters

Fees are subject to change

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COST</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidental Fee</td>
<td>$219</td>
<td>Paid by all students. Covers normal expected usage of such facilities as laboratories, gymnasium, counseling and placement services, health service, etc.</td>
</tr>
<tr>
<td>ASUC Membership (Associated Students)</td>
<td>Under-</td>
<td>Covers subscription to Daily Californian and use of the Student Union; entitles undergraduates to reduced rates on certain student activities.</td>
</tr>
<tr>
<td></td>
<td>graduate  $11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduate   $4.50</td>
<td></td>
</tr>
<tr>
<td>Student Union Fee</td>
<td>$12</td>
<td>Designed to help pay costs of construction of the Student Union, completed in 1960.</td>
</tr>
<tr>
<td>Nonresident Tuition</td>
<td>$801</td>
<td>See rules on page 20, to determine whether this fee is applicable.</td>
</tr>
<tr>
<td>Foreign Student Health Insurance</td>
<td>$21</td>
<td>Required of all students on nonimmigrant visas. This fee, payable in three installments, covers the student for the full academic year, including summer.</td>
</tr>
<tr>
<td>Subject A Fee</td>
<td>$45</td>
<td>Applies to those who are required to enroll in the Subject A Course (see page 25).</td>
</tr>
<tr>
<td>Athletic Privilege Card</td>
<td>$10</td>
<td>Optional. Permits free admission or reduced rates to most University athletic events.</td>
</tr>
<tr>
<td>Student Health and Life Insurance</td>
<td>Variable</td>
<td>Optional, available through ASUC. Provides coverage, beyond normal service of the Student Health Service, in any of several standard health and hospitalization plans; has additional advantage of including student’s spouse. Rates lower than normal adult rates. Normally about $80–$90 a year average for liberal arts students, but runs occasionally lower or higher ($50–$200) for students in preprofessional or professional curricula. Consult schools or departments for details.</td>
</tr>
<tr>
<td>Books and Supplies</td>
<td>Variable</td>
<td>University residence halls include room and board for about $940 yearly. Cooperatives are normally about $595 yearly. University-approved residences are normally about $900 yearly. For those who wish to obtain private dwellings, expenses may be higher, though not necessarily. Students living at home may disregard this item.</td>
</tr>
<tr>
<td>Living Expenses</td>
<td>Variable</td>
<td></td>
</tr>
<tr>
<td>Entertainment and Miscellaneous</td>
<td>Variable</td>
<td>A student will need to take into account such things as laundry, cleaning, transportation, and personal effects. The San Francisco Bay Area has a tremendous variety of cultural and entertainment activities, to suit all tastes and interests, which should be considered in planning a budget.</td>
</tr>
<tr>
<td>Total estimated expenses per school year</td>
<td>$1,850,</td>
<td>Given figure is approximate total budget, including fees, for single undergraduate student, who is a California resident and lives in a University residence hall.</td>
</tr>
<tr>
<td></td>
<td>average</td>
<td></td>
</tr>
</tbody>
</table>
Financial Aids

The University extends to students a variety of opportunities for financial aid. These are made available through donations and bequests by alumni and friends of the University, as well as by government agencies and special foundations and organizations. The ways in which a student may obtain financial aid include the following:

Scholarships These are awards made on the basis of academic achievement and financial need. An overall grade average of B is the minimum required for consideration for a scholarship. A scholarship application, for an academic year or any one quarter, must be filed between December 1 and January 10 of the preceding academic year by all except entering students, who have until February 15. A parents' confidential statement must be filed somewhat earlier than these dates—for entering students by February 1. Students who win a scholarship will be considered automatically for auxiliary Educational Opportunity Grants. For further details, consult the Committee on Undergraduate Scholarships and Honors, 2536 Channing Way, University of California, Berkeley, California 94720.

Fellowships and Graduate Scholarships For information on fellowships and graduate scholarships, please consult Chapter III, the Graduate Division.

Prizes These are awarded on the basis of competition or outstanding ability in some area of creative or scholarly achievement. Prizes include awards for poetry, short stories, essays, and music composition. New undergraduates are encouraged to investigate the Kraft Prize, given for excellence in grades in their first quarter. Students who carry more than the minimum number of units are given added consideration for this prize. For further information on all prizes, please consult the Committee on Prizes, Room 15, 2620 Bancroft Way, Berkeley, California 94720.

Loans University and National Defense Education Act loan funds are available to student applicants who have a creditable scholarship record and present a satisfactory repayment program. Students are not eligible for University loans in their first quarter of enrollment. However, NDEA loans are open to first-quarter students, as well as continuing students.

Any regularly enrolled undergraduate or graduate student, or applicant for admission is eligible to apply for the NDEA loan who: (1) is a United States citizen or a permanent resident of the United States, (2) will be satisfactorily pursuing at least a half-time program of academic work during the period for which the loan is granted, and (3) can establish a basic financial need in order to continue his education. It is necessary to reapply for the loan each academic year (three quarters), or each quarter or summer session, in which a loan is desired. Repayment period (with simple 3% interest) starts nine months after a student ceases to be at least a half-time student, with the first annual installment due one year later. The law now provides that priority be given in granting of loans to students with superior academic background. Forgiveness up to 50% of the total loan is given to teachers from the elementary through the college level, or up to 100% to those teaching in a poverty area. Undergraduate students are
eligible to apply for a maximum of $1,000 in an academic year and graduate students are eligible to apply for a maximum of $2,500 in an academic year. Undergraduate students may borrow a total of $5,000, and graduate students a total of $10,000. Application forms are available from the Office of Special Services, by mail or in person, approximately six weeks prior to the deadline for filing for the academic year, and one month prior to the filing for a quarter. The deadline dates are: academic year or fall quarter, May 1; winter quarter, November 1; spring quarter, February 1; summer quarter and/or summer sessions I and II, April 1.

Work-Study Program The Work-Study Program, now under the Higher Education Act of 1965, is administered by the Office of Special Services. Freshmen through graduate students are invited to establish eligibility at 309 Sproul Hall. Job priority is given to students who are from low-income families. Students may work fifteen hours per week while classes are in session and full-time during vacation. Work off campus relates primarily to major social problems through eighty-five public and private agencies. Work on campus comes under academic and administrative departments.

Other Financial Aids For additional opportunities for financial aids, see Student and Alumni Placement Center, Aids to Veterans, Aids to Dependents of Veterans, and Reserve Officer Training Corps.

Living Accommodations

There is a wide selection of housing at the Berkeley campus. Admission to this campus does not guarantee housing reservations. Rather, students should acquaint themselves, well in advance of their enrollment, with the various living arrangements. Housing Services, 2620 Bancroft Way, is prepared to send descriptive material upon request.

More than 3,000 men and women live in University residence halls, 1,000 live in University-approved privately operated housing; more than 3,000 live in sororities and fraternities; around 600 in University-approved cooperative houses; 920 married students in University Village, and the rest in rentals in the community. Students consider their individual wishes and needs, and select their own accommodations.

University-Operated Residences The University has 19 residence halls for men and women. Students may request applications as early as six months prior to entrance. Applications are mailed at given dates through the year (April for the fall quarter, October for the winter quarter, and January for the spring quarter). Residents will have contracts for the period of three quarters (fall, winter, spring). Residents may participate in rushing, but must fulfill their contracts for residence. Assignments are based on prompt application, admission to the University, class in the University, home address, and the availability of rooms. Contract fees may be paid in full in advance, or by installments.

University-Approved Residences There is a selection of privately operated University-approved residences (boarding houses, cooperatives, and apartments). These are supervised living groups adjacent to the campus which meet University standards for health and safety. A list of these will be sent upon request,
and students make reservations directly with the persons listed. In the cooperatives, moderate rates are made possible by the agreement of the residents to contribute five to seven hours of work a week to help maintain and operate the houses.

**University Village for Married Students** The University operates 920 apartments for married students in Albany, about 3 miles from the campus. There are one- to three-bedroom apartments, most of which are unfurnished, and the rent is from $60 to $100 a month, including utilities. There is a waiting list for these units, and married students should apply early to add their names to this list.

**International House** Please see page 52.

**Fraternities and Sororities** Please see page 52.

**Rental Housing in the Community** Housing Services has card files of rental listings for students, staff, and faculty. Accommodations are not listed unless they are available to all students without regard to race, color, or creed. These rentals are not inspected by the University, but are listed as a service to students.

There are street maps and rental advice guides available at Housing Services. Most rentals require written agreements and academic or calendar year leases. All contracts should be read with care, so that both students and landlords are in agreement about the rental terms, fees, and obligations.

The rental listings include rooms, apartments, flats, and housing. Most students share rentals to reduce the cost, since the campus is in a high rent area. The present general practice is to look for rentals in August and early September so that the rental period will coincide with the academic calendar.

A student is required, at the time of registration in the University, to list a residential address. Any subsequent change of address must be reported to the Registrar's Office. Every undergraduate woman under the age of 21 who does not live at home or in University-approved housing must have the written approval of her parent or guardian filed with the Dean of Women (a form to this effect is provided at the time of registration). Male students are not subject to this regulation.

**Education Abroad**

Students at Berkeley enjoy a number of opportunities to study overseas at the University's study centers around the world: Chinese University of Hong Kong; George August University, Goettingen, Germany; International Christian University, Tokyo; University of the Andes, Bogota, Columbia; University of Bordeaux, France; University of Lund, Sweden; University of Madrid, Spain; University of Padua, Italy; and Universities of Birmingham and Sussex, England. Special centers are also found for drama in Delphi, Greece and the study of the Classics in Rome, Italy. For most of these programs, students are expected to complete four semesters of the language of the country in which they plan to study. Instruction is in English at the centers in Tokyo, Hong Kong, Delphi, Rome, and, of course, England.
Generally speaking, participants must have at least an overall average of 2.75. Attention is given in screening to select students who seem capable of living a year abroad without unusual emotional or physical stress.

The estimated total cost, including a modest allowance for spending money and vacation travel, ranges from $1,200 at Hong Kong to $2,400 at Goettingen. Loans, scholarships, and grants-in-aid are available to enable all qualified students to participate.

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. Seniors in the College of Letters and Science who participate in the program are normally expected to spend an additional two or three quarters in residence.

Interested students should consult with their academic adviser. Further information can be obtained from the Study Abroad Office, 104 Annex, Institute of International Studies, 2538 Channing Way. William McCormack, Ph.D., is Campus Coordinator and Chairman of the Berkeley Committee for Education Abroad.

The University Press

The University of California Press is one of the largest university presses in the country. It publishes scholarly books, about forty monograph series known collectively as the University of California Publications, and several journals. The separate books (including a line of quality paperbacks) number about seventy-five each year. The press serves all campuses of the University equally, and its publishing program carries the work of the faculty beyond the campuses themselves.

The Alumni Association

More than 50,000 graduates of the University find the California Alumni Association a means of working for the continued welfare of the University and its student body. The California Alumni Foundation provides financial assistance to more than 200 students each year, as well as funds for research, library acquisitions, and campus improvements. Members also receive advance applications for football tickets, reduced rates on summer camps at Pinecrest and the Tahoe Alumni Center, and use of the facilities of the headquarters of the Association, Alumni House, where students and alumni alike are always welcome. California Monthly and a program of alumni meetings enable members to remain in close touch with the University and with one another.
V. Colleges and Schools

For purposes of administration and instruction, the University is divided into a number of academic and administrative subdivisions, ranging from departments, colleges, and schools to a variety of research centers and institutes. At Berkeley, there are sixteen major academic subdivisions—the Graduate Division (see Chapter III), five colleges, and ten schools:

<table>
<thead>
<tr>
<th>Colleges</th>
<th>Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Business Administration</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Business Administration,</td>
</tr>
<tr>
<td>Engineering</td>
<td>Graduate</td>
</tr>
<tr>
<td>Environmental Design</td>
<td>Criminology</td>
</tr>
<tr>
<td>Letters and Science</td>
<td>Education</td>
</tr>
<tr>
<td></td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Law</td>
</tr>
<tr>
<td></td>
<td>Librarianship</td>
</tr>
<tr>
<td></td>
<td>Optometry</td>
</tr>
<tr>
<td></td>
<td>Public Health</td>
</tr>
<tr>
<td></td>
<td>Social Welfare</td>
</tr>
</tbody>
</table>

A college accepts students directly from high school or as transfers from another institution and offers undergraduate instruction, normally as a four-year program, leading to the bachelor’s degree; however, departments in all the colleges offer programs of study beyond the bachelor’s degree, in conjunction with the Graduate Division. The colleges are designed to provide the student with a thorough background in one or more fields of study, and to give him some acquaintance both with allied fields and with general fields of knowledge. Although a student may take some courses in another college or school, his degree requirements are determined by the deans and faculty of the college in which he is enrolled. The College of Letters and Science emphasizes the study of the general academic areas for their own sake, whereas the other colleges emphasize the study of these areas in relation to applied arts and sciences.

A school normally begins instruction at the upper division or graduate level and is designed to provide a student with training preparatory to a specific profession. The school presumes its students to have acquired before entrance some background in general academic areas. The degrees offered by the schools are accredited by statewide and national boards and associations for the various professions, and normally allow the graduating student a direct entry into his field.

Each of the colleges and schools has its own administrative officials and its own regulations for earning degrees, and since each undergraduate student at the University belongs either to a college or a school he is expected to satisfy requirements for the degree on three levels: University, college or school, and field of concentration. This chapter provides a broad survey of the colleges and schools and their degree programs. For further information, see the individual school or college Announcements.
COLLEGE OF AGRICULTURE

The College of Agriculture at Berkeley is as old as the University itself. The Organic Act of March 23, 1868, by which the California State Legislature established the University, also required the creation of the College of Agriculture as the first duty of the Board of Regents.

Agriculture today means much more than the growing of food and fiber. It is both a broad science and a big business, where opportunities for both men and women are plentiful. Interesting employment is now offered to the qualified person in such fields as research, industry, business, education, communications, conservation, recreation, and public health. Agriculture is no longer limited to rural communities.

The College offers undergraduate instruction leading to the Bachelor of Science degree and, when completed, opportunities for immediate employment exist in most fields. Students wishing additional training may pursue studies leading to the M.S. and Ph.D. degrees, thus opening up opportunities for more responsible career positions.

Eight majors are offered under a single curriculum—Agricultural Sciences. They are listed in the section concerning general requirements for the bachelor's degree. Related curricula in the College are also available in range management, preforestry, and preveterinary.

Admission

Applicants to the College of Agriculture must meet the general University requirements for admission, given in Chapter I. It is recommended that high school preparation for work in the College should include: algebraic theory (½ or 1 year); trigonometry (½ year); physics (1 year); chemistry (1 year); and, for those proposing to major in forestry, mechanical drawing (½ year).

General College Requirements for the Bachelor’s Degree

The Bachelor of Science degree is awarded to those candidates who satisfy the following conditions: (1) general University requirements (see Chapter II); (2) at least 180 units of University work (not more than 6 units may be in lower division physical education courses); (3) of the above total, 54 units must be in upper division courses, those numbered 100-199; and (4) completion of a curriculum major in the College of Agriculture.

The majors in the Agricultural Sciences Curriculum are described in detail in the course section of this catalogue. They are: agricultural economics; agricultural science; dietetics (Nutritional Sciences); entomology (Entomology and Parasitology); food science (Nutritional Sciences); genetics; nutrition (Nutritional Sciences); and soils and plant nutrition. Preparation for graduate work in plant pathology is offered under the agricultural science major. The requirements for the Range Management Curriculum will be found under Range Management in the course section. The preforestry program, although administered by the College of Agriculture, is described under the Forestry section. The College also administers a preveterinary curriculum for those students who are preparing
for subsequent work in the School of Veterinary Medicine at Davis. The Dean’s Office, 101 Giannini Hall, will provide the name of an adviser and general information about the program. For details concerning the complete program, consult the Announcement of the School of Veterinary Medicine, available without charge from the Dean of the School of Veterinary Medicine, University of California, Davis.

The staff in the Office of the Dean of the College of Agriculture will assist the student in selecting a major. Faculty advisers in the student’s field of interest are available the year around to help in planning programs. For further details, see the Announcement of the College of Agriculture, available without charge from the Office of the Dean of the College.

Study List Programs Students are required to have the approval of their faculty adviser each quarter, prior to final endorsement of the study list by the Dean. This approval includes selection of courses in the program and any variation from the normal minimum (12 units) or maximum (18 units) course load.

Graduate Programs

Graduate instruction leading to higher degrees is available in the following fields—they are described in the course section of this catalogue; agricultural chemistry; agricultural economics; animal physiology (Poultry Husbandry); biophysics (Cell Physiology); comparative biochemistry (Cell Physiology and Nutritional Sciences); entomology (Entomology and Parasitology); food science (Nutritional Sciences); genetics; microbiology (Nutritional Sciences); nutrition (Nutritional Sciences); parasitology (Entomology and Parasitology); plant pathology; plant physiology (Cell Physiology and Soils and Plant Nutrition); and soil science (Soils and Plant Nutrition).

In addition to studying with a well-qualified faculty, the graduate student is afforded the opportunity to work with members of the research staff of the Agricultural Experiment Station. A number of research assistantships are available to outstanding students, as well as fellowships, graduate scholarships, and teaching assistantships.

For further information, consult the Announcement of the College of Agriculture, available free of charge, and Chapter III of this catalogue.

Facilities

Among the special facilities available to students are the Agriculture and Giannini Foundation libraries which house distinguished collections of source material in agriculture and agricultural economics; the 6.2-acre Oxford Tract which contains open plot areas, greenhouses, laboratories and environmental control cabinets; related facilities at the Gill Tract in nearby Albany, as well as special libraries, electron microscopes, computers, and a wide range of equipment and specialized laboratories maintained by the departments in Agriculture, Giannini, Hilgard, Morgan, and Mulford halls on the main campus.
Student Activities

College of Agriculture students 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 encourages a friendly student-faculty relationship.

COLLEGE OF CHEMISTRY

The College of Chemistry was established in 1872, and the first building on the Berkeley campus, South Hall, was designed as a chemistry laboratory. In the early years it was the college for practically all students desirous of scientific training, there being no separate college for physics, geology, and biology. In 1894 a separate College of Natural Sciences was created, which was in 1915 merged into the present College of Letters and Science, but in neither of those reorganizations was the College of Chemistry absorbed. Consequently, since 1894, students have had the choice of a chemistry major in the College of Chemistry, leading to a B.S. degree through a curriculum which emphasizes advanced work in the sciences, or in the now College of Letters and Science, leading to an A.B. degree through a curriculum with a greater proportion of courses in the humanities and social sciences.

Course offerings in chemical technology began in 1912, but not until 1955 did chemical engineering become formally a separate department. Today the College of Chemistry is a two-department college: the Department of Chemistry and the Department of Chemical Engineering.

Admission and Degree Requirements

For information on recommended high school preparation for admission, as well as specific requirements for degrees, see the respective Departments of Chemistry and Chemical Engineering.

Facilities

The present College of Chemistry occupies a group of buildings at the east edge of the campus, with undergraduate and graduate student laboratories, shops, lecture rooms, and offices having a total floor area of some 320,000 square feet. Additional research space is available in the Low-Temperature Laboratory, the Laboratory of Chemical Biodynamics, Lawrence Radiation Laboratory, and the Inorganic Materials Research Laboratory. Its working library collection has about 5,700 monographs and 228 journals. It offers not only curricula leading to undergraduate and graduate degrees in Chemistry and in Chemical Engineering, but also the basic chemistry courses for students in all other curricula, including those students preparing for careers in engineering or in medicine.
COLLEGE OF ENGINEERING

The College of Engineering offers programs in a wide variety of engineering fields, preparing the undergraduate and graduate for career work in engineering design, development, research, and teaching. The programs are based on the concept that the engineer must be well grounded in the sciences and in social and humanistic studies, with a full command of the principles and practices of his profession, as well as an awareness of the economic factors in engineering.

Four-year undergraduate curricula are offered in the following professional fields: civil, electrical, industrial, and mechanical engineering, and materials science (ceramic engineering and metallurgy). Each of these curricula is administered by a separate department within the College, and each emphasizes a core program of science and engineering subjects related to the particular engineering field. In addition, there is a curriculum in Engineering Science with programs in bioengineering, engineering geoscience, engineering mathematical statistics, engineering mathematics, and engineering physics. All of the above curricula and programs lead to the Bachelor of Science in Engineering.

Students with distinguished scholarship (B average or better, particularly in upper division courses) are encouraged to enter graduate study. Graduate programs are offered leading to the Master of Science and Doctor of Philosophy degrees for study emphasizing engineering applied sciences, and Master of Engineering and Doctor of Engineering degrees for advanced professional studies of design and development. Fields of study include civil, electrical, industrial, mechanical, and nuclear engineering, materials science, engineering geoscience, and naval architecture. Students with distinguished undergraduate scholarship in majors in mathematics or physical science may enter the graduate program in some of the engineering fields.

Admission

Applicants to freshman standing in the College must satisfy general University requirements as outlined in Chapter I. High school preparation for study in engineering includes the following: algebra (2 units); plane geometry (1 unit); trigonometry (½ unit); physics or chemistry, preferably both (1 unit); mechanical drawing (1 unit). Advanced mathematics courses are acceptable if they include the mathematical topics listed above. Deficiencies in any of the above subjects will delay the normal course of study.

For admission to advanced standing, see Chapter I, and also the information below on admission to the upper division.

Lower Division Program

For the first two years, the program is fairly uniform for all curricula, emphasizing the fundamentals in science, mathematics, and engineering, and providing a background in humanities and social sciences. Specific requirements are as follows.
Basic Science Courses  Mathematics 1A–1B–1C, 2A–2B–2C; Chemistry 1A–1B–1C; Physics 4A–4B–4C–4D–4E.

Electives  Should include at least 15 units of humanities and social sciences and must include (with the exception of engineering science majors) a two-quarter sequence of one of the following: Anthropology 2–3; Art 1A–1B–1C–1D; Classics 10A–10B; Economics 1–3; English 1A–1B; History 17A–17B; Philosophy 2–4; Psychology 1–50; Social Science 1A–1B or 1C; Speech 1A–1B.

Electives must also include the following, according to the intended upper division major:

Civil Engineering: Engineering 28, 36, 45, and Civil Engineering 10.
Electrical Engineering: Engineering 1, 17, 36, and 45.
Industrial Engineering: Engineering 1, 17, 36, and 45; Engineering 28 for Programs A and B.
Mechanical Engineering: Engineering 1, 17, 28, 36, and 45.
Mineral Technology: Engineering 36 and 45.
Engineering Science: English 1A or Speech 1A; course 2 (or the high school equivalent) of French, German, or Russian, and at least 9 units of technical electives, restricted as follows according to the field of specialization:
Bioengineering: Biology 1A–1B–1C.
Engineering Geoscience: Geology 5A–5B.
Engineering Physics: unrestricted.

Course Credits  A total of 90 units must be completed in the lower division.

Upper Division Programs

Admission to the upper division is not automatic. The transfer student must satisfy the general University requirements for advanced standing admission, outlined in Chapter I. All students entering the upper division must present satisfactory grades in the basic sciences, mathematics, and engineering courses of the lower division.

In addition, all students entering the upper division must show satisfactory completion of 84 quarter units of courses acceptable by the University, including the following subjects: analytic geometry and calculus (18 units); chemistry for engineering and science students (15 units); physics for engineering and science students (15 units); engineering subjects such as graphics, properties of materials, surveying, measurements, analytical mechanics, circuit theory and electronic devices, and computers (15 units); social sciences and humanities (9 units); and other courses in engineering, natural and social sciences, and humanities (15 units; 9 units may be in humanities and social sciences and none may be in military science or physical education). A student admitted to the upper division who has completed the above minimum is not required to take additional lower division courses, except those prerequisite to upper division courses in a particular curriculum, or those lower division engineering courses required in the curriculum, as outlined earlier.

The upper division curricula and programs are described in detail under the various Engineering departments in the course section of this catalogue, and in the ANNOUNCEMENT OF THE COLLEGE OF ENGINEERING.
Special Regulations

The College of Engineering has special regulations concerning scholarship, residence, and degree requirements, which supplement or supersede general University regulations. These are as follows:

A student is subject to dismissal who (1) does not have a minimum C average for all work undertaken in the University (2) does not maintain a minimum C average in each quarter.

A student must have a minimum C average in all upper division technical courses required in the curriculum, in order to obtain the B.S. degree.

At least the final 45 units of a regular program in Engineering must be taken in residence on the Berkeley campus in order to obtain the degree, and all other curriculum requirements must be satisfied.

All students must complete a total of 27 units of approved courses in humanities and social sciences, of which at least 9 units must be in upper division courses taken after admission to the upper division.

Engineering science majors must maintain a minimum grade-point average of 2.75 in the lower division and a minimum grade-point average of 2.50 in the upper division.

Graduate Study

Prospective graduate students in Engineering are advised to obtain the circular Admission to Graduate Study, available from the Dean of the Graduate Division.

The following degree designations are used in Engineering: Master of Science, Master of Engineering, Doctor of Philosophy, Doctor of Engineering.

For details on specific graduate programs, please consult the Announcement of the College of Engineering, and the Engineering departments in the course section of this catalogue. For general requirements of the Graduate Division, consult Chapter III.

Special Facilities, Programs, and Services

Cooperative Work-Study Program This is an optional program in which engineering students may alternate work and study periods to obtain actual industrial experience while earning the B.S. degree. This program normally requires four-and-a-half to five years for completion. Further details are available at the Office of the Dean of the College of Engineering.

Engineering Research Research at the University is closely integrated with the graduate engineering programs, and strongly influences the undergraduate programs. Engineering research programs are directly supervised by the faculty. Some research is supported by University funds and much is supported by grants and contracts with industrial organizations, foundations, and public agencies. The guiding principles behind most of these research programs (and behind acceptance of outside support) is faculty-student cooperation; activities are discouraged which are not based on graduate student participation. The College's policy is to employ graduates, and occasionally qualified undergraduates, in part-time research assistance, as the need arises. Over 500 students are
currently so employed, in addition to those supported by fellowships, traineeships, and other means.

Research activity at Berkeley and the Richmond Field Station, including projects supported by both internal and external means, are coordinated and served by the Office of Research Services in the College of Engineering. Outside sponsorship of projects conducted by faculty and organized research units amounts to about six million dollars annually. Additional funds are available to engineering researchers engaged at other scientific facilities outside the College of Engineering, including the Biomechanics Laboratory, the Computer Center, the Inorganic Materials Research Division of the Lawrence Radiation Laboratory, and the Space Sciences Laboratory. Organized research units within the College are:

Electronics Research Laboratory
Hydraulic Engineering Laboratory
Operations Research Center
Institute of Traffic and Transportation Engineering
Sanitary Engineering Research Laboratory
Sea Water Conversion Laboratory
Structural Engineering Laboratory

Engineering Extension

Through University Extension, a program of courses in engineering is offered on the University campuses and in communities throughout California where sufficient enrollment is assured. This program is designed to provide professional engineers an opportunity for review or for systematic study of new fields. Some undergraduate courses are also offered for those unable to attend regular sessions who desire background in engineering subjects. Fields of instruction (covering both practical and theoretical aspects) include: civil, electrical, industrial, mechanical and nuclear engineering, naval architecture and mineral technology.

Engineering Extension also arranges technical conferences and special short courses in selected engineering problems for specific groups. These are guided by the Faculty of the College or other recognized authorities.

Student Activities and Services

Various student and professional organizations supplement the program of studies. These groups seek to stimulate the growth of professional attitudes and to advance student welfare. Details about these and other activities and opportunities are available from the College.

Research Facilities

These are described in detail under Engineering in the course section of this catalogue, and in the Announcement of the College of Engineering.

* Students in regular sessions must obtain approval from the Dean of the College if they plan to enroll in an Extension course. Degree credit in previous Extension courses is granted to entering regular students only upon approval of the Dean.
The College of Environmental Design is composed of the departments of Architecture, City and Regional Planning, Design, and Landscape Architecture. As the name “environmental design” suggests, it promises a synthesis of the fields which deal with the functional and aesthetic quality of man's surroundings. These fields are among the most complex of the arts and professions taught at this University, drawing upon research in technology, decision theory, and human perception and behavior as the bases of their advancement. The College's graduate and undergraduate curricular are continually changing because man's environment changes. As more and larger metropolitan areas develop, as physical and social mobility increases, people's aspirations change. The physical form of the metropolis, as well as its institutions and services, must adapt to these new conditions and aspirations. As part of a great University, the College relies upon work in the humanities, the social and natural sciences, technology, and the other professions with which the environmental design fields are linked. Whether a student chooses a career in private practice, public service, or research, the satisfactions are immense. Above all, he has the experience of joint exploration with the faculty of subjects requiring a flexible intellect and fresh point of view. He will employ an intellectual as well as an intuitive approach—both essential to creativity.

The College currently offers the following professional degrees: Bachelor of Architecture, Master of Architecture, Bachelor of Landscape Architecture, Master of Landscape Architecture, and Master of City and Regional Planning. The Department of Design currently offers its undergraduate major (leading to a Bachelor of Arts degree) through the College of Letters and Science. This major is described under the Department of Design in the course section of this catalogue. For Letters and Science requirements for this major please consult the Announcement of the College of Letters and Science.

Undergraduate Admission, and Requirements for Degrees

Applicants to freshman status in Architecture or Landscape Architecture should include in their secondary school programs the following subjects: Architecture: four years of mathematics; one year of physics or chemistry; and one year of freehand drawing. Landscape Architecture: three years of mathematics, including plane geometry and trigonometry; one year of chemistry; one year of freehand drawing; and one half-year of mechanical or instrumental drawing. Transfer students from junior colleges and other institutions are required to present, for an evaluation of transfer credits, any work previously completed in design courses.

Detailed information on required courses and suggested programs in both of these curricula is available in the Announcement of the College of Environmental Design, which may be obtained free of charge from the Office of the Dean or the departmental offices of the College.

Students in both curricula must maintain a grade-point average of 2.0 or
better for all courses undertaken in the University, in order to receive the degree. The student in landscape architecture must also maintain a minimum of 2.0 in all courses taken in his department.

**Curriculum in Architecture**  This program normally requires five years, and includes 216 units of credit.

**Curriculum in Landscape Architecture**  This program covers four years and one summer session. The student must complete a total of 186 units.

**Note.**  Many changes in the course offerings of the departments of Architecture and Landscape Architecture are being effected. These changes and impending changes in the curricula of the two departments are directed to a greater breadth of education and understanding as a basis for environmental planning and design. It is intended that the student entering the College of Environmental Design as an undergraduate in the fall of 1966 will have available to him four-year curricula leading to the Bachelor of Arts degree with optional majors in Architecture or Landscape Architecture. It is also intended that graduate programs highly professional and scholarly in nature allowing for specialization in several areas will be available to qualified holders of a degree from the College or from other colleges and universities.

**Graduate Study**

Programs are offered leading to the master’s degree in Architecture, Landscape Architecture, City and Regional Planning, and Design, respectively, and to the Ph.D. degree in City and Regional Planning. Application is made directly to the Graduate Division of the University; those interested in graduate study should obtain, from the Dean of the Graduate Division, the circular, **ADMISSION TO GRADUATE STUDY**, which outlines general University requirements for admission. For specific graduate programs and degree requirements in the environmental design fields, please refer to the course section of this catalogue and the **ANNOUNCEMENT OF THE COLLEGE OF ENVIRONMENTAL DESIGN**.

**Facilities**

The Environmental Design Library, located in 210 Wurster Hall, contains 37,000 volumes, 27,000 pamphlets, and over a thousand periodical titles in the design fields. Special facilities are available for display of visual aids, and the library services a slide and picture collection for the college faculty.

Teaching facilities in Wurster Hall include drafting studios, an architecture shop, ceramics and glass-blowing laboratories, printed and woven textile studios, sculpture studios for the Department of Art, photographic laboratory, and exhibition and seminar rooms.

**The Blake Estate**  This land, 10½ acres of gardens and greenhouses, serves as a teaching and research laboratory for landscape architecture students.

**The Institute of Urban and Regional Development**  Established in 1963, this institute focuses research attention upon problems of city, metropolitan, and
larger regional development. Its Center for Planning and Development Research conducts research in city and regional planning, related social and technical processes, and administers a Laboratory for Design Research. The Center for Real Estate and Urban Economics conducts research in real estate and land economics, supported by appropriations allocated by the State Legislature from the Real Estate Education Research and Recovery Fund. The staff of these centers include University faculty and graduate student research assistants.

**COLLEGE OF LETTERS AND SCIENCE**

The College of Letters and Science is an undergraduate nonprofessional college offering a great variety of programs which normally lead to the Bachelor of Arts degree in twelve quarters. The variety of programs is in response to the diverse needs and motivations of the students in the College, and to the educational goals set forth by the faculty. The fundamental aim of the College of Letters and Science is to increase man's understanding of nature and of himself. To achieve this understanding, students should have a comprehension of abstract thought, an appreciation of the structure of ideas, a feeling for style, and a basis for forming value judgments. There is no single program which every student should follow to achieve these objectives. The College seeks to provide a flexible yet thorough program of basic studies.

The student is required to attain reasonable proficiency in the use of English and at least one foreign language in order that he may communicate and absorb ideas effectively. He is required to explore the significant broad fields of human knowledge: the humanities, that he may possess an awareness of the intellectual achievements of mankind; the natural sciences, that he may awaken his interest in the nature of the world and its inhabitants; the social sciences, that he may attain a disciplined approach to the problems of individuals and society. Furthermore, he is required to gain some limited experience in specialization, focusing his attention on a specific subject of knowledge which he will be prepared to cultivate throughout his life, or which he may use as preliminary preparation for a career or as a basis for graduate study.

**Admission and General Information**

Requirements and procedures for admission, registration, and enrollment, are synonymous with those of the University in general. Please consult the preceding chapters for further details.

**Classification of Students** Regular students are classified as freshman, sophomore (upon completion of 45 units), junior (upon completion of 90 units), or senior (upon completion of 135 units). Special and limited students are described in Chapter I on page 17. These students, under direct supervision of the Dean of the College (210 Sproul Hall), must have their study lists approved by him each quarter.

**Preparation for Admission to Professional Schools** A student enrolled in the College who plans to transfer to a professional school, either on the Berkeley campus or elsewhere, should consult the Announcement of the school of his
choice as early as the beginning of his freshman year and plan his program to meet the admission requirements; however, while he is enrolled in the College he is held to Letters and Science requirements, including English reading and composition and foreign language. He must enroll in these courses even if they are not required for admission to the professional school.

**Summer Session and University Extension** Students seeking to remove academic deficiencies in a 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) to insure that they will receive credit for such courses.

**Summary of Requirements for the A.B. Degree**

**General University Requirements** These are Subject A and American History and American Institutions, and are discussed in detail in the Introduction.

**College of Letters and Science Requirements.** These are given only in brief; they are discussed in detail in the Announcement of the College of Letters and Science, available at the information window at 210 Sproul Hall.

**Unit Requirement** The student must complete 180 units. (A quarter unit equals one and one-half times a semester unit.) Of these, 162 must be in courses on the Letters and Science List* (see page 74), and 54 of the 162 units must be in upper division courses. Eighteen units outside the List are permitted, under certain limitations.** No more than 45 upper division units in any one department may be counted toward a degree. (Honor students are allowed 50, and may exceed 50 if at least 9 units of upper division Letters and Science courses in other departments are completed. After 105 units toward the A.B. degree have been earned in all institutions attended, no further unit credit may be earned in a junior college.

**Scholarship Requirement** Candidates for the A.B. degree must have at least a C-average in (1) all courses undertaken in the University; (2) all courses in the major program; and (3) all upper division courses in the major program. For regulations concerning passed or not passed enrollment, see the Announcement.

**Breadth Requirements** A minimum number of courses in each of the following general academic areas must be completed (courses acceptable in each area are listed in the Announcement):

- Reading and Composition, 2 courses.
- Foreign Language (in one language), 4 courses or equivalent.
- Natural Science, 4 courses (including at least one course in physical science and one in biological science, as indicated in the Announcement.
- Social Science, 4 courses.
- Humanities, 4 courses.

**Major Requirement.** The student must also complete one of the following:

- Departmental major—these are designed and administered by the individual departments, and may lead either to graduate study or to cultivation of a subject as an intellectual interest. These majors are described in the course section of this Catalogue.

* A course not on the List is accepted as Letters and Science credit if it is accepted in satisfaction of a general University requirement up to a maximum of 12 units, or a major requirement.

** Not more than 9 units in courses numbered 300–499; not more than 6 units in Physical Education activity courses, a maximum of one unit a quarter.
Group major—these are interdepartmental programs, offered to certain students desiring a particular preparation for graduate study, or to students with interests somewhat broader in scope than are served by a departmental major. Group majors are described in the announcement.

Field major—for students of still broader interests, there is a choice of four programs in (a) biological science (b) physical science (c) social science (d) humanities. The four field majors are described in the Announcement.

Individual majors—these are programs planned by the individual student with the aid and approval of a faculty adviser and the Dean of the College; these serve the interests of superior students with intellectual needs different from those served by any of the above major programs.

All of these major programs are designed for one common purpose: to give the student a limited experience in specialization. Through his major, he will explore systematically a field of knowledge and gain a background sufficient for graduate study or further cultivation of a field by himself.

A student must designate his major before the beginning of his junior year by filing a formal petition for approval of the Dean of the College. Students are assigned a major adviser by the department (or by the officials in charge of a group or field major). Students considering an individual major must confer with the Dean and receive instructions for filing the petition and choosing an adviser.

A list of majors appears in the Announcement of the College of Letters and Science.

Honors

The Honor List This is published each quarter, and lists all students who have completed at least one quarter of 12 units in the College of Letters and Science, with an average of 3.0 or better for all work undertaken in the College. Certain other students specially approved are also included. Students on the Honor List are designated "honor students" and are granted certain privileges, such as permission to exceed the 45-unit maximum of courses in one department.

Departmental Honors Programs These are described by the departments in the course section of this catalogue. A student on the Honor List may, upon approval of his adviser, enroll in the honors program in his major at any time up to the first term of his senior year. In special cases, a student not on the Honor List may also obtain approval of the adviser and the Dean to enroll in the honors program.

Distinction with the Degree Appropriate recognition is given to a student whose general scholarship is superior.
Letters and Science List of Courses

Agricultural Economics: 23, 100A, 100B, 112A, 112B, 120, 175.

Anthropology: all undergraduate courses.


Art: all undergraduate courses.

Astronomy: all undergraduate courses.

Atmospheric and Space Sciences—all undergraduate courses.

Bacteriology and Immunology: all undergraduate courses.

Biochemistry: all undergraduate courses.

Biology: all undergraduate courses.

Botany: all undergraduate courses.

Business Administration: 100, 110, 111, 150.

Chemistry: all undergraduate courses except 125.

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 12 units from courses 49, 190, 191 will be accepted as Letters and Science credit.

Economics: all undergraduate courses.

Education: 110, 191, 192, 193.

Engineering: 1, 3, 180.

English: all undergraduate courses.

Entomology and Parasitology: 10, 100, 104, 105, 130, 140, 150, 153.

Forestry: 10, 115, 123, 124, 125.

French: all undergraduate courses.

Genetics: all undergraduate courses.

Geography: all undergraduate courses.

Geology and Geophysics: all undergraduate courses.

German: all undergraduate courses.

Greek: all undergraduate courses (see Classics).

History: all undergraduate courses.

Humanities: all undergraduate courses.

Italian: all undergraduate courses.

Journalism: all undergraduate courses except 131, 152, 171, 184.

Latin: all undergraduate courses (see Classics).

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 12 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.

Natural Science: Contemporary Natural Science 1A, 1B, 1C.


Optometry (see Physiological Optics).

Oriental Languages: all undergraduate courses.

Paleontology: all undergraduate courses.

Philosophy: all undergraduate courses.


Physics: all undergraduate courses.


Physiology and Anatomy: all undergraduate courses.

Plant Nutrition: 115, 117 (see Soils and Plant Nutrition).

Political Science: all undergraduate courses.

Psychology: all undergraduate courses except 104, 141, 173, 180, 182, 183A, 183B.


Sanskrit: all undergraduate courses (see Linguistics).

Scandinavian: all undergraduate courses.

Slavic Languages and Literatures: all undergraduate courses.

Social Science: 1A, 1B, 1C, 100A, 100B, 100C.


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 185A, 185B, 185C, 173, 175.
The School of Business Administration admits students at the junior level, and offers curricula leading to the undergraduate degree of Bachelor of Science in Business Administration. The primary function of the School is to prepare students for eventual responsible administrative and executive positions in business and government. Specialization is provided also for students preparing for such fields as accounting, business information systems, marketing, operations research, finance, managerial economics, and production management.

**Admission**

High school students looking forward to admission to the School of Business Administration should not emphasize vocational training in their preparatory work. In general, the standard high school courses in English, mathematics, history, civics, physics, chemistry, and foreign languages provide sound preparation for the School. It is advisable to include as much mathematics as possible.

Students entering the School from the College of Letters and Science (or its equivalent at another institution) must normally include the following subjects in their lower division program:

- English 1A–1B or Speech 1A–1B or Comparative Literature 1A–1B or Dramatic Art 1A–1B
- One other course in English Composition, Speech or English Literature
- Mathematics 1A or 16A
- Statistics 2 or 20
- Equivalent of course 2 in one foreign language
- Nine units of natural science (may include the mathematics and statistics courses above)
- Economics 1 and 3
- Sociology 1 or Psychology 1, and one of the following: Anthropology 3 or 140, Psychology 1, 50, Sociology 1 or 108, 30
- Business Administration 1 and 2
- Applicants from the University must present a grade-point average of 2.0 or better on all courses in the lower division. Others should see Chapter I of this catalogue for advanced standing admission requirements.

Students entering the School of Business Administration from other colleges, such as Engineering or Environmental Design, will follow a lower division course of study different from that outlined and should consult the Associate Dean of the School in 350 Barrows Hall for further information.

The following are additional breadth requirements only for students completing lower division requirements for the College of Letters and Science:

- Additional language, 9–12 units. This is satisfied by (a) language or courses related to language; (b) courses in mathematics or statistics beyond those required for admission; (c) a combination of the first two alternatives. Note that if a foreign language is offered, it must be a continuation of the one used to satisfy the admission requirement.
- Nine units of additional natural science.
- Nine to twelve units of additional social science, chosen from: agricultural economics, cultural anthropology, economics, economic geography, history, political science, psychology, and sociology.
General Requirements for the Degree

To obtain the degree of Bachelor of Science in Business Administration, a student must complete 180 units (including the lower division preparation) with a C average or better, and with a minimum C average in all upper division Business Administration courses. Residence requirements must be fulfilled by all students as follows: the final 36 units must be taken on the Berkeley campus except in the case of senior transfers to the School of Business Administration who must complete their final 44 units on the Berkeley campus including a minimum of 36 units of upper division Business Administration courses. All students must fulfill general University requirements (including Subject A and American History and Institutions, discussed in Chapter II).

The program in Business Administration is described in the course section of this catalogue. For detailed information about fields of emphasis, etc., please consult the Announcement of the School of Business Administration.

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 analytic procedures applicable to many business decisions. To meet the need for trained personnel in this area, an optional curriculum is available in mathematical and statistical methods. A student selecting this curriculum should include in his lower division preparation Mathematics 1A–1B–1C and Statistics 20, or their equivalents. Additional mathematical preparation, including linear algebra, is highly recommended. Students should consult the Associate Dean of the School as early as possible for further advice in planning a lower division program.

Graduate Study

The Graduate School of Business Administration, established in August, 1955, offers curricula leading to the Master of Business Administration degree. These curricula afford opportunity for advanced and specialized training based either upon the fundamental undergraduate curriculum in Business Administration or upon undergraduate study in other fields.

Students who wish to prepare for high-level research positions in business and government, or for academic careers at the university or college level, may pursue a program leading to the Ph.D. in Business Administration.

For detailed information, consult the Announcement of the Graduate School of Business Administration and Chapter III of this catalogue.

Facilities and Opportunities

Library  In addition to the unusually complete collection of trade journals, business periodicals and statistical publications located in the Main Library, students in Business Administration also have access to the Hans Kelsen Graduate School Science Library in 30 Stephens Hall.
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, 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.

Financial Aid  In addition to general University scholarships (described in Chapter IV), certain financial aids are also available to students in the School of Business Administration. These include scholarships, grants-in-aid, and prizes. These are normally awarded, without application, on the basis of scholastic merit. A limited number of loans are available through the School of Business Administration. Application may be made to the Associate Dean of the School, 350 Barrows Hall.

Graduate students in Business Administration are directed to the Office of the Graduate School of Business Administration, Room 310, Barrows Hall, for information about grants-in-aid, fellowships, assistantships, and readerships. In addition, loan funds in limited amounts are available through the Office of the Associate Dean of the Graduate School of Business Administration.

SCHOOL OF CRIMINOLOGY

The School of Criminology offers a broad range of studies in the nature, causes, and prevention of crime. The School's program falls into two main areas of emphasis: the first, general criminology, draws upon the concepts and methods of the social and behavioral sciences for an understanding of the economic, political, psychological, and sociological factors behind crime; the second, criminalistics, is concerned with the application of the natural sciences to law enforcement and crime investigation. The first program leads to a Bachelor of Arts degree; the second, to a Bachelor of Science degree. Students in either program are expected to gain an acquaintance with both fields.

Admission  Students are admitted in the junior year, after completion of a 90-unit lower division precriminology curriculum. This normally consists of the following subjects:

**Basic Program (All Students)**  English 1A–1B, or other reading and composition course; Foreign Language (modern), equivalent of course 2; Social Science 1A–1B–1C, or Sociology 1 and 30.

**Social Science Emphasis (Criminology)**  Political Science 1 or 5, and 2; Psychology 1 and 50; either Statistics 2, 20, Sociology 40, or Psychology 5; Natural Science, 18 units including one of the following: Physiology 1, Zoology 1A, 1B, 1C, 10, or Biology 11A–11B; Humanities electives, 18 units.
Natural Science Emphasis (Criminalistics)  Chemistry 1A–1B–1C, 5, and 12A–12B; Physiology 1 and 1L; Physics 2A–2B–2C; Mathematics 1A; Psychology 1; Statistics 20; Humanities electives, 5 units.

All of the above courses count toward the School's requirements for the bachelor's degree. The natural science and humanities electives should be chosen from those courses acceptable as breadth requirements in the College of Letters and Science—consult the Announcement of the College of Letters and Science for a list of these courses. To be admitted to the School's upper division program, a student must present a grade-point average of 2.0 or better.

Program in Criminology

The student in criminology must complete a total of 180 quarter units (including the precriminology curriculum outlined above), with 48 units in basic criminology courses, 20 units in elective criminology courses, and 22 units of recommended electives in other schools and departments. The student will take courses in the etiology of crime, in police and penal administration, in criminal law, in the prevention and control of juvenile delinquency, and in the criminalistics field. Specific course requirements and recommended electives are given in the Announcement of the School of Criminology.

Program in Criminalistics

The student in criminalistics must complete a total of 180 quarter units (including the precriminology curriculum), with 51 units in the criminalistics program, 9 units of required courses in other schools and departments, 12 units of elective criminology courses, 7 units of recommended electives in other schools and departments, with an additional 11 units in these categories. He will take courses in criminal law, criminal investigation, scientific methodology, forensic medicine, biochemistry, microanalytical techniques, and several other topics. Specific course requirements are given in the Announcement of the School of Criminology.

Graduate Study

Programs are offered leading to the Master of Criminology and the Doctor of Criminology degrees. Candidates for higher degrees are expected to complete the undergraduate requirements in criminology equivalent to those prescribed at the University of California. The completion of a special Core Seminar at the beginning of graduate study may partially substitute for certain of these undergraduate requirements.

The master's degree program normally takes one year; the doctoral program normally takes three years. The graduate curricula are intended to give a broad range of preparation for teaching and research, and yet allow each student sufficient freedom to explore a field of specialization. The student works under the supervision of a graduate adviser who approves his program and guides his research. Specific requirements for higher degrees are presented in the Announcement of the School of Criminology.
Student Activities and Opportunities

The School's chapter of Lambda Alpha Epsilon, a national law enforcement fraternity, sponsors lectures, panel discussions and field trips, covering many aspects of criminology. The chapter also provides social activities and gives criminology students an opportunity to meet people professionally engaged in the study and prevention of crime.

There are numerous opportunities for financial aid, including the August Vollmer Memorial Scholarship Fund for undergraduates, and the NIMH Intern Fellowships for graduates. For further information, consult the Announcement of the School of Criminology.

SCHOOL OF EDUCATION

The School of Education offers courses for students preparing for educational service in elementary schools, junior and senior high schools, junior colleges, and education agencies; for graduate students who are preparing 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 in the field of education. The School offers a wide range of teaching and professional credentials to serve a variety of needs. It also offers academic and professional degrees.

Admission

An applicant to any program of the School of Education must be admitted to the Graduate Division. Requirements and procedures are outlined in the circular Admission to Graduate Study, available from the Dean of the Graduate Division. Those who plan to enter teacher education programs should confer with an adviser in the Department of Education early in their University careers, because the credential programs involve specific courses to be completed during the undergraduate years. Further details concerning these requirements are available in the Announcement of the School of Education.

Degrees and Credentials

The following is a brief outline of the degrees and credentials for which the School of Education offers preparatory curricula.

Teaching Credential The holder of a State teaching credential is qualified for service in the public schools of California. A candidate for this credential must hold a bachelor's degree, with a major and a minor in a teaching field (not education), with completion of certain additional subjects during the undergraduate years, and with completion of a sequence of courses in the Department of Education. This normally involves three terms of study beyond the receipt of the bachelor's degree. Areas of specialization for those seeking the teaching credential are as follows: elementary teaching, secondary teaching, and junior college teaching.

Other Credentials Many education positions require credentials for which advanced preparation is needed. In addition to the teaching credentials, course
work is offered in the School of Education for the following credentials: Pupil Personnel Services (pupil counseling, school psychometry and psychology, school social work); Supervision; Administration.

**Higher Degrees** Curricula are offered in the School of Education for the following degrees:

The M.A. program involves broad training in education, with specialization in selected areas.

The Ph.D. program requires original research leading to the contribution of significant ideas to the field of education.

The Ed.D. (Doctor of Education) degree is conferred in recognition of a candidate's command of a comprehensive body of academic and professional knowledge, and of his ability to organize and carry out investigation of significant problems in the field of education. The candidate must have professional experience. He is not required to attain a reading knowledge of a foreign language unless a particular language is essential to his research.

For further details of the requirements and areas of specialization for all credential and degree programs in education, consult the Announcement of the School of Education.

**Facilities and Opportunities**

The faculty of the School of Education is engaged in continuing research and service in many phases of education. Much of this activity is financed by grants from the federal government and private foundations. Opportunities are open to students in the School of Education for participation in research and service, and for financial assistance.

The facilities and opportunities in the School of Education include:

- **Center for the Study of Higher Education**—devoted to research in educational theory and practice, and making available a variety of grants and research assistantships.

- **Education Field Service Center**—offering service to public school systems and assistance in solving practical problems of education.

- **Educational Media Laboratories**—containing facilities, equipment and materials pertinent to instruction and to research in education.

- **Education-Psychology Library**—containing an extensive collection of books and periodicals, and a curriculum service highly useful to student teachers.

- **Financial aids**—a wide variety of opportunities, including University scholarships and fellowships; special scholarships for teaching credential candidates; PTA grants-in-aid for prospective California teachers; special grants in the junior college leadership program; teaching fellowships and assistantships; research and service assistantships; teaching and administrative internships; and readerships in University classes.

- **University Extension** University Extension offers a broad and varied program of courses on campus and in communities throughout California. Some extension courses may, on approval, be applied toward the bachelor's degree and
certain credentials. Through University Extension, the School of Education offers a graduate internship program for preparation of secondary and junior college teachers. University Extension frequently cosponsors special conferences on educational problems.

**SCHOOL OF FORESTRY**

The School of Forestry prepares students for the profession of forestry, through undergraduate and graduate programs. Since 1915, when the first forestry curriculum was offered on the Berkeley campus, over 1,600 foresters have been graduated from the School. They have exercised strong leadership in the management of public and private forests and related wildland resources in California and throughout the nation. The undergraduate curriculum of the School is the only accredited professional forestry program offered in the state; the School also offers the only programs in the state leading to the graduate professional degree, Master of Forestry, and to the Ph.D. in Forestry.

The School’s programs are designed to qualify students 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. The programs also provide opportunity for the study of such closely related fields as range management, forest entomology, forest pathology, and wood science and technology.

The undergraduate major is divided into three principal parts: (1) *a pre-forestry curriculum* in the lower division, providing a solid foundation in natural and social sciences necessary to many phases of the forester’s profession; (2) *a summer field program*, Forestry 46, 47, 48, which is prerequisite to all required courses in the upper division program; (3) *the forestry curriculum*, occupying the junior and senior years and providing the basic core of professional subject matter essential to competence in forestry. This curriculum is offered only at Berkeley.

**Admission**

Applicants to the undergraduate curriculum must meet general University requirements for admission as described in Chapter I. The prospective forestry major should include in his high school program the following subjects: algebra (2 units); plane geometry (1 unit); trigonometry (½ unit); mechanical drawing (½ unit). Two units of laboratory science (preferably chemistry and physics) are also strongly recommended.

A student in the preforestry curriculum seeking admission to the upper division forestry curriculum must satisfy the following conditions: (1) admission to the University; (2) completion of at least 84 units of acceptable courses; (3) a grade-point average of 2.0 or better for all college courses undertaken; (4) satisfactory completion of the subject-matter requirements outlined below. Students satisfying all conditions for admission except a very limited number of subject-matter requirements should consult the School as to their eligibility; deficiencies in biological sciences, organic chemistry, or statistics may delay completion of the program by a full year.
The Undergraduate Program

Lower Division, Preforestry Curriculum This curriculum may be completed either at Berkeley or at any other accredited collegiate institution. Students at Berkeley should register in the College of Agriculture and will normally be required to complete the following courses (units in parentheses):

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1A–1B–1C</td>
<td>15</td>
</tr>
<tr>
<td>Chemistry 1A–1B</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry 8A–8B</td>
<td>8</td>
</tr>
<tr>
<td>Economics 1 and 3</td>
<td>8</td>
</tr>
<tr>
<td>Civil Engineering 21</td>
<td>4</td>
</tr>
<tr>
<td>Speech 1A–1B and/or English 1A–1B</td>
<td>10</td>
</tr>
<tr>
<td>Physics 2A–2B–2C</td>
<td>12</td>
</tr>
<tr>
<td>Statistics 20</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>13 or 11</td>
</tr>
<tr>
<td>Math 16A–16B</td>
<td>6</td>
</tr>
<tr>
<td>Geology 10</td>
<td>4</td>
</tr>
</tbody>
</table>

Programs taken at other collegiate institutions should approximate these courses as closely as possible. Information as to the specific minimum requirements which must be met in the preforestry curriculum is available in the ANNOUNCEMENT OF THE SCHOOL OF FORESTRY or from the Dean, School of Forestry.

Summer Field Program This ten-week program covering 15 units of course work should be completed during the summer immediately following completion of the sophomore year. These courses are prerequisite to the required courses of the forestry curriculum. The work is offered only at the University's Forestry Camp at Meadow Valley, Plumas County.

Upper Division, Forestry Curriculum The program in the junior and senior year is distributed as follows:

- Upper division botany and soil science (7 units)
- Required courses in forestry (34 units)
- Technical option (38 units)
- Nontechnical electives (17 units)

The technical option permits the student to gain depth of background in a particular phase of forestry, such as the management of forested and wild lands generally, the management of combinations of range and forest lands, the management of lands for recreational and aesthetic purposes, or the management of lands in terms of the technical attributes of wood of importance in the forest products industries. The nontechnical electives provide an opportunity for breadth in education. Details of the forestry curriculum in the upper division may be found in the ANNOUNCEMENT OF THE SCHOOL OF FORESTRY.

Before being granted the Bachelor of Science degree, the forestry student must satisfy the following conditions: (1) completion of general University requirements (see page 25); (2) completion of at least 201 units of University work (including not more than 6 of these units in lower division physical education activity courses); (3) satisfaction of preforestry and forestry curricula subject-matter requirements; (4) at least a 2.0 grade-point average in all courses undertaken while in the School.

Graduate Programs

The School of Forestry offers a graduate program leading to the professional degree of Master of Forestry (M.F.). This program enables students with a
B.S. degree in forestry to complete their professional education. The program involves at least a year of study, and is designed to broaden a student's grasp of forestry principles and increase his ability to apply the principles to selected professional problems. Requirements for the degree include residence in the School for at least three quarters; maintenance of a 3.0 grade-point average in at least 36 units of prescribed course work; preparation of a satisfactory professional paper; and passage of an oral comprehensive examination.

Students interested in a specialized aspect of forestry—such as tree physiology, forest soils, silviculture, photogrammetry, mensuration, or forest economics—may pursue a program of studies leading to the Master of Science degree, administered by the Department of Forestry. Interdepartmental programs leading to a Master of Science degree in range management or in wood science and technology are also available.

Programs leading to the Ph.D. degree are available as follows: (1) in forestry; (2) in forestry-related sciences such as agricultural economics, botany, genetics, plant physiology, soils, and zoology; (3) in wood science and technology; (4) in sciences related to range management. The faculty is active in research and has developed facilities enabling students to attack a wide variety of problems.

For further details on any of these graduate programs, please consult the ANNOUNCEMENT OF THE SCHOOL OF FORESTRY or the Graduate Adviser in 145 Mulford Hall. For information about related graduate programs in forest entomology and forest pathology offered through the College of Agriculture, please consult the graduate advisers of the departments of Entomology and Parasitology and of Plant Pathology.

Facilities and Activities

**Teaching Facilities** Mulford Hall contains workrooms for dendrology and wood technology; laboratories; statistical and drafting workrooms; extensive herbarium and wood collections; and a forestry library. The Berkeley campus contains specialized forestry facilities such as greenhouses, nursery areas, and the 160-acre Strawberry Canyon.

**Forest Land** Camp Caliform, located near Quincy in the heart of the Sierra, is the site of the ten-week summer field program. The 2,860-acre Blodgett Forest, located in El Dorado County, is a well-stocked young-growth forest of pine and fir; it is the site of active research by faculty and graduate students. Other smaller properties are also administered by the School.

**Forest Products Laboratory** Located at the Richmond Field Station, this unit conducts organized research in wood chemistry, pulp and paper, wood physics, and related applications of wood science and technology. Its extensive modern facilities allow investigation of a wide range of problems and topics.

**Wildland Research Center** A part of the Agricultural Experiment Station, this unit 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 Labora-
tory, are open to graduate students, and provide numerous research employment opportunities for both graduates and undergraduates.

**Student Organizations**  The Forestry Club, established on the Berkeley campus in 1910, is the focus of student activities in the School. The Club 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, the national honorary forestry fraternity, is located at the School. This group provides counseling services for students, sponsors discussions on topics of current interest, and promotes student academic achievement.

**Financial Aids**

Students interested in financial aids are referred to the information for undergraduates and graduates on pages 000 and 000. A limited number of financial aids are available only to forestry students. For details, graduates should consult the Committee on Fellowships and Graduate Scholarships; undergraduates should consult the Committee on Undergraduate Scholarships.

The Walter Mulford Loan Fund is available to students in forestry, especially those in need of assistance in connection with the Summer Field Program. Information concerning this Loan Fund may be obtained from the Dean, School of Forestry, 145 Mulford Hall.

**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. If 
planned effectively, the foundations for a broad culture will be laid in high school 
and developed during college.

2. The prelegal student should acquire the intellectual discipline and experi­
ence 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 administra­
tion, 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 con­
stant exercise of practice in writing should be cultivated assiduously. Intelli­
gently 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 achieve­
ment in high school and college is usually followed by distinction in the pro­
fessional 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 Pre­
legal Students” may be obtained from the office of the Dean, School of Law, 
Berkeley, California 94720.
The Law Curricula

Professional Curriculum  The professional curriculum of the School of Law leads to the degree of Bachelor of Laws (LL.B). It is designed for full-time students only and requires six semesters for completion. The School of Law does not offer a part-time or evening program. New students are admitted only at the beginning of the fall semester.

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. Courses in the curriculum are listed elsewhere in this catalogue.

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

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, 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 come to the School for personal interviews before admission is granted.

The Law School Admission Test, administered by the Educational Testing Service, 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. Applicants should write to Law School Admission Test, Educational Testing Service, Princeton, New Jersey 08540, 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.

Applications for admission to the fall semester, 1967, 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.
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. McEnemey Law Library, after the late Regent Garret W. McEnemey 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 205,000 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 and 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 States 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.

For additional information concerning the School of Law, refer to the AN-
SCHOOL OF LIBRARIANSHIP

The School of Librarianship offers a one-year basic curriculum at the graduate level leading to the Master of Library Science degree, which qualifies the holder for service as a librarian in academic, public, school, and special libraries. The School also offers two advanced degree programs—the Doctor of Library Science and the Ph.D.—which prepare a student for advanced research in theories and problems of librarianship, as well as for administrative, planning, and teaching positions.

Admission

An applicant to the basic curriculum must hold a Bachelor of Arts or Science degree comparable to that given by the University of California. He must qualify for admission to the Graduate Division of the University, without deficiencies. In addition, he must complete a year each of two modern foreign languages—preferably French and German. Finally, he must submit, before final action will be taken on his application, scores on the Graduate Record Examination Aptitude Test.

Note that two applications for admission are required; one to the School of Librarianship—including complete transcripts and certificates, showing satisfaction of the above admission requirements—and the other to the Graduate Division, Berkeley, including an application fee of $10 and complete transcripts of record. Deadlines for applying to the Graduate Division are announced in the circular ADMISSION TO GRADUATE STUDY, and the application blank is available from the Dean of the Graduate Division, 250 Sproul Hall. The application blank for the School of Librarianship is available from the office of the Dean of the School. The School urges its applicants to apply as early as possible (undergraduates should apply upon completion of the first semester of their senior year).

Courses in the School of Librarianship’s basic curriculum are open to graduate students of other departments who are, in the instructor’s judgment, qualified to undertake the work.

The Basic Curriculum: Master of Library Science Degree

Forty-two (42) quarter units are required for the Master of Library Science degree. This involves four quarters of study, in which the student is given a broad introduction to: cataloging and classification; general reference sources and general bibliography; selection and acquisition of library materials; development of the book; special reference sources and special bibliography; and Library Administration (with a choice of specializations). The courses dealing with these topics are described under the School of Librarianship in the course section of this catalogue. The student will also have an opportunity to include elective courses in Librarianship and (with the Dean’s approval) in other departments.
The student must maintain a minimum average of B (3.0). He may count toward the degree only those courses for which he receives a grade of A, B, or C. A student may, in exceptional cases and with the approval of the School, include in his program courses in librarianship taken at another accredited institution, to a maximum of four semester units or six quarter units.

For further details concerning the curriculum, please consult the Announcement of the School of Librarianship.

Advanced Degree Programs

These programs are open to applicants who have been graduated with a minimum B average from the basic curriculum in a graduate library school accredited by the American Library Association or approved by the University of California, and who satisfy the admission requirements.

Doctor of Library Science  This is a professional degree conferred in recognition of a candidate’s command of a comprehensive body of professional knowledge and of his ability to organize and carry out investigations of significant problems in librarianship. The candidate must have had successful professional experience.

A student is advanced to candidacy once he has satisfied several conditions: (1) residence in the School for three quarters; (2) passing an intensive written and oral examination administered by the School, covering material in the field of his dissertation; (3) securing approval of his complete program, including the proposal for his dissertation; (4) passing, if the faculty so requires, a qualifying examination in one or more foreign languages relevant to his dissertation; (5) presenting evidence of successful professional experience.

In order to obtain the degree, the candidate must complete three quarters in addition to the three required for candidacy. His program of study will be supervised by a five-man committee appointed by the Graduate Council of the Berkeley Division. This committee will consist of three or four members from the School of Librarianship, and the remainder from departments related to the program of study. The program must include 54 units of graduate and upper division courses relevant to the candidate’s field of study (not including a thesis course, or courses in the basic curriculum described earlier). Finally, he must submit and defend his dissertation in an oral examination.

For further information, please consult the Announcement of the School of Librarianship.

Doctor of Philosophy  The Ph.D. in Library Science is conferred in recognition of a candidate’s command of both academic and professional aspects of the field. The candidate is required to possess a general grasp of subjects over a large field of study, a critical ability, and a useful understanding of several related fields. His dissertation must represent a significant original contribution to knowledge in his field of study. Though his dissertation may include more than one field, the candidate may specialize in bibliography, history of books and printing, history of libraries, or the library as a social institution.

The general procedures and requirements for the Ph.D. are outlined in Chapter III of this catalogue. The qualifying examination will include the field
of the candidate’s dissertation (with closely related subjects outside of the School of Librarianship) and also one other field of librarianship, and finally an oral examination of the candidate’s comprehensive grasp of a wide range of knowledge relevant to the defense of his dissertation. For further information, please consult the Announcement of the School of Librarianship.

SCHOOL OF OPTOMETRY

Optometry is the art and science of vision care, drawing upon the principles of anatomy, optics, physiology, and psychology, and includes the study of both environmental and personal factors influencing visual performance. The School of Optometry seeks to provide training for the professional practice of optometry with high standards of competence. The School seeks as well to provide its students with an awareness of the social and intellectual environment in which they will practice their profession.

Admission

Students are admitted to the School of Optometry in the junior year (i.e., after 90 quarter units or 60 semester units of undergraduate preparation). A student is advised to include in the high school curriculum the following subjects: algebra, geometry, trigonometry, chemistry, physics, English, mechanical drawing, and two or three years of one foreign language.

The following college-level preparation is required (acceptable courses at the University of California, Berkeley, are given in parentheses):

- Analytical Geometry (Mathematics 16A–16B)
- Bacteriology (Bacteriology 2)
- General Chemistry (Chemistry 1A–1B)
- Organic Chemistry (Chemistry 8A–8B)
- Physiology with Laboratory (Physiology 1–1L)
- Physics with Laboratory (Physics 2A–2B–2C)
- Psychology (Psychology 1 and: 2, 3, 40 or 50)

A minimum grade-point average of 2.25 is required. * Minor subject deficiencies are permitted, if made up in the first year of enrollment in the School of Optometry. Students making up such deficiencies are enrolled in special status until the requirements are completed. Students must also satisfy the general University requirements for admission, given in Chapter I. For further details, see the Announcement of the School of Optometry, available from the School upon request.

Program in Optometry

This program takes four years: the first year is devoted to more advanced study of the basic sciences which form the background for optometry; the second and third years are devoted to the science of optometry and the acquisition of the technical skills; the fourth year is devoted to the practice of optometry and the detailed study of specialized areas.

* 2.4 for students who were ineligible for admission to the University in freshman standing, 2.8 for all out-of-state applicants.
A student who successfully completes the first two years of the program may receive the degree of Bachelor of Science in optometry. After successful completion of the fourth year, a student will receive the Degree of Doctor of Optometry, which qualifies him to take the state board examinations in most of the United States.

**Program in Physiological Optics**

The graduate program in physiological optics leads to the Master of Science degree and the Doctor of Philosophy degree. Offered in cooperation with other departments of the University, this program is designed to prepare students for a career in teaching or research in the science of vision. For admission and degree requirements and other details, consult the *Announcement of the School of Optometry* and Chapter III of this catalogue.

**School of Public Health**

The objective of the School of Public Health is to provide the student knowledge in the basic public health disciplines of biostatistics, community organization, epidemiology and environmental hygiene and an opportunity to develop proficiency in those technical and organizational skills which are required for specialized work within the field of public health. The broad scope of this objective requires that the School present a faculty qualified in a diversity of fields. In addition, it calls upon the faculties of other departments and upon persons who are involved in the problems of public health practice outside the University. Courses may be drawn from many departments of the University and arranged so that the special needs of each student are best served.

**Admission**

Formal application for admission to the Graduate School of Public Health should be made not later than May 15. Those seeking traineeships should apply not later than April 1. Students are encouraged and in most programs required to enter for the fall quarter because of the order in which courses are scheduled.

Enrollments are limited by the physical capacity of the School and frequently a considerable time is required to process graduate applications. Usually 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 they will be able to enroll, for there may be delays in awarding traineeships or 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 an alternate may be admitted.

**Undergraduate Curriculum**

An undergraduate curriculum in biostatistics leading to the Bachelor of Science degree is offered to provide the student with a liberal, scientific education and to prepare him for a statistical career in biology, medicine, or public health, or for graduate work in biostatistics. Students are eligible for admission to this
curriculum when they have satisfactorily completed 90 quarter units, including 9 units of calculus. The applicant should have a keen interest in the physical and biological sciences.

Formal application should be made to the Dean of the School of Public Health by the beginning of the sixth quarter (last quarter of the sophomore year). Interested students are strongly urged to consult with the faculty of the Division of Biostatistics as early in their academic careers as possible.

Graduate Curricula

Graduate curricula in the School of Public Health lead either to professional or to academic degrees. The professional degrees, Master of Public Health and Doctor of Public Health, constitute preparation for positions of administrative leadership in official and voluntary health agencies. The academic degrees prepare the candidate for research and teaching in specific fields in the health sciences. The requirements for admission to these programs are described in the Announcement of the School of Public Health.

Master of Public Health

The program leading to the Master of Public Health degree places emphasis on public health activities in general. However, because of the diversified nature of public health work, several areas of specialization are provided including the following:

Behavior Science
Biostatistics
Epidemiology
Hospital Administration
Maternal and Child Health
Medical Care Administration
Medical Microbiology
Nursing Administration
Occupational Health
Public Health Administration
Public Health Education
Public Health Engineering
Public Health Nutrition
Public Health Social Work
Radiological Health
Sanitary Science—Environmental Health Sciences

Within these curricula, certain technical fields such as dental health, family planning, and mental health may be given further attention.

In addition to the academic requirements described in the Announcement of the School of Public Health, candidates for the Master of Public Health degree must complete a period of approved field experience unless their previous experience renders this requirement unnecessary. Although students who are fully prepared may obtain this degree after one year of study, programs extending beyond a single academic year are not unusual. In certain cases, one or more quarters of preparatory work, as determined by the Admissions Committee of the School, are recommended before a student enters this curriculum.

Doctor of Public Health

This degree is 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 an academic program equivalent to that 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.
Master of Arts The degree of Master of Arts in biostatistics 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. A program in demography leading to the degree of Master of Arts is offered under the direction of the Group in Demography composed of members of the faculties of the School of Public Health, the Department of Economics, and the Department of Sociology.

Master of Science Curricula leading to the Master of Science degree in environmental health sciences are offered in the fields of industrial hygiene, air resources, radiological sciences, or environmental biology.

Doctor of Philosophy The degree of Doctor of Philosophy may be taken in biostatistics, demography, environmental health sciences, comparative pathology, or epidemiology. The program in biostatistics is 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. The program in demography is under the direction of the Group in Demography composed of the members of the faculties of the School of Public Health, the Department of Economics, and the Department of Sociology. The program in comparative pathology is under the direction of the Group in Comparative Pathology composed of the members of the faculty of the School of Public Health and various other departments on the Berkeley, San Francisco, and Davis campuses.

Special Financial Aid for Training in Public Health

A number of traineeships and grants-in-aid are available for education in specific areas of public health. For further information, see the ANNOUNCEMENT OF THE SCHOOL OF PUBLIC HEALTH, or write to the Dean of the School of Public Health, University of California, Berkeley, California 94720.

SCHOOL OF SOCIAL WELFARE

The School of Social Welfare is a graduate professional school offering a two-year program of study leading to the degree of Master of Social Welfare, and an advanced program leading to the degree of Doctor of Social Welfare. The master's degree program prepares for the professional practice of social work. The doctoral program prepares for careers in teaching and research in the field of social welfare and in the profession of social work.

Admission

Every applicant for admission to the School of Social Welfare must hold the 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 must establish his eligibility for admission in graduate standing at the University of California. For details of admission to graduate standing, see the booklet ADMISSION TO GRADUATE STUDY.
Dates for Filing Application 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, and no later than May 15, for admission in the following academic year. Admission as a part-time student is possible in the winter and spring quarters as well as in the fall, to take courses without field work. Applications for admission in the winter quarter for part-time study should be filed by October 10, and for the spring quarter, by January 10.

Master of Social Welfare Program

The prerequisites for admission are: (1) the 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 the 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) the completion of an introductory course in statistics; and (3) suitability for the profession of social work, as determined by the faculty of the School of Social Welfare.

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. Students who have completed courses that are part of a social welfare curriculum in an accredited school of social welfare elsewhere than at the University of California may be given appropriate transfer units.

The program of study provides knowledge of human development and pathology, including psychodynamics and psychopathology; social organization; social policy and social welfare services; methods of social work practice, including community organization and social action; and the logic and method of social research. Supervised field work is an important part of the curriculum and is concurrent with academic courses. The total curriculum includes 66 to 68 units of upper division, graduate, and professional courses.

Doctor of Social Welfare Program

The prerequisites for admission are: (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; and (3) intellectual ability to pursue the required work.

Requirements for the degree of Doctor of 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 com-
plete 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 at least three years of resident study will be required to earn the degree.

Special Facilities

The Social Welfare Research Projects Office, located in Richmond, California, facilitates opportunity for research for students enrolled in the School.

Several branch libraries on the campus, including the Social Welfare–Criminology Library, the Education–Psychology Library, the Graduate Social Science Library, the School of Public Health Library and the School of Law Library all 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, invaluable to students in a field where the literature is largely documentary.

The Associated Students of the School of Social Welfare is an active organization for graduate students in the School. As a recognized campus organization, the ASSW has access to the University facilities available for such student groups. The undergraduate Social Welfare Club is a comparable organization for students in the undergraduate group major and other students interested in the profession of social work and the field of social welfare.

Financial aids, in addition to the general University scholarships, are available especially for students in the School of Social Welfare. Information concerning financial aids may be obtained upon request from the School of Social Welfare.

Social Welfare Extension

The Social Welfare Extension program, administered by University Extension in cooperation with the School of Social Welfare, offers service to the health and welfare agencies of California through consultation on staff development and through the organization of courses, workshops, and conferences. A sequential study program leading to a Certificate in the Social Services is offered to groups of employed social service workers. Courses are also available for administrators of residential homes for the aging.

Undergraduate Group Major

The Department of Social Welfare administers the undergraduate group major in social welfare in the College of Letters and Science. The group major in social welfare leads to the degree of Bachelor of Arts and (1) offers a social welfare sequence of general interest to liberal arts students; and (2) prepares undergraduates for (a) graduate professional education in social welfare, or (b) direct entry upon graduation into certain positions in social service agencies.
Eligible social welfare majors, upon recommendation of their advisers, may enroll in an honors program.

**Lower Division** Required: Psychology 1, 3; Sociology 1; Psychology 5 or Statistics 2.

**Upper Division** Required: Social Welfare 102A–B, 110A–B–C (15 units); Sociology 105, 109, 141 (15 units); Psychology 140, 152 (10 units); and one additional course chosen from: Psychology 104, 150, or 170 (5 units).

A list of additional recommended courses for majors is available from the department office.

For more complete details, see the 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 the affiliated college in San Francisco may receive his required preprofessional training on the Berkeley campus.

For complete information regarding admission requirements, curricula, and costs, 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.
VI. Research at Berkeley

The Berkeley campus is renowned for its vast network of organized research units. These units carry on continuing research activity in most of the fields taught in the classrooms, and enrich the teaching functions of the faculty. Qualified graduates, and some undergraduates, may find employment here as research assistants.

The research units are classified in the following manner: (1) Institute. Agency established primarily to coordinate and promote long-range faculty research needs and interests organized around a broad subject area. Research projects and programs normally cut across departmental, school, college, or campus boundaries. Institutes are also formed by departments needing a coordinated approach to broad and varied research activities. (2) Center. An agency established within an institute to further research interests of the faculty in a designated major area; or a separate agency which provides facilities for faculty research projects (for example, Computer Center). (3) Bureau. An academic agency engaged primarily in public service activities and in facilitating research in one or more academic departments related to these activities. (4) Nondepartmental Laboratory. A research organization headed by a director who is a faculty member, with a research staff which may include nonfaculty personnel. (5) Museum. A permanent collection of material used in research and teaching, under faculty supervision. (6) Station. A unit equipped with facilities for research conducted by academic departments and divisions on one or more campuses. (7) Project. Title applied to units carrying out research activities requiring the participation of faculty members of several specializations, but not originating from long-range needs and interests.

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 Miller 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 Miller Fellowships 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 support 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 articulated form in scholarly journals.

Office of Research Services

(See page 68)

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, Bernard Moses Hall.

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 and training 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.

**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 three 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. The second main activity is research training and financial support of graduate students as graduate research assistants, mostly to individual faculty staff members but also to some group research projects which are related to the Institute's Community Services activities. The latter are under the direc-
tion of faculty or other senior professional research staff. The third main activity consists of a set of educational and related research activities in the area of industrial relations for groups of trade unionists, industrial managers, and the general public. These are directed by the Institute's Center for Labor Research and Education, on the one hand, and by its Coordinator of Management Programs, on the other.

**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 three main lines of organization. First are the 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.

Second are the comparative programs which follow 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 timebound 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 Political Modernization Project, the Program on Comparative Elites of Developing Areas, the Research and Training Group in Comparative Developmental Studies; (co-sponsored with the Institute of Industrial Relations), the Students and Politics in Developing Countries (co-sponsored with the Survey Research Center), the Joint Seminar on Problems of Communist Societies, the Program on International Integration, the Program for the Comparative Study of Western Industrial Societies, the Program on World Population and Demographic Behavior, and the Comparative Program on Religion and Society.

The range of interests represented within the Institute is extraordinarily broad. Three main foci have emerged as major preoccupations 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. The third main emphasis is on theories of comparison. A small group of scholars working on these problems form the editorial board of a new publication, Comparative Studies.

Area Programs

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 a set of intellectual tools for thinking about African problems as possible.

Center for Chinese Studies The Center was established in 1957, and 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.

Center for Japanese Studies This Center was established in 1958, and 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 increase their proficiency.

**Center for Latin-American Studies** The Center 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.

**Center for Slavic and East European Studies** This Center 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.

**Center for South Asia Studies** Established in 1956, the Center 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 Department 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.

Center for Southeast Asia Studies This Center 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

Comparative National Development Program The comparative national development program is concerned with delineating the patterns of change in the new nations of Africa, Asia and Latin America. Within this focus, the specific topics singled out for attention deal with (a) political modernization—the major developmental patterns in the use of power which propel nations into the modern world and which have been discernible in historical perspective; (b) educational development and politics, with emphasis on the role of student movements, intellectuals, and universities as agents of modernization; (c) cross-national studies in political and social change, stressing survey and other quantitative techniques for isolating key variables and assessing their significance in specific countries.

Comparative Study of Communist Societies This program of research identifies and analyzes the similarities and differences in policy, ideology, and patterns of social change in the various countries which are included in the Communist genus of polity. Attention is given to cultural and historical patterns of presumed significance to the contemporary setting but antedating the establishment of communism. Field visits to Communist nations and efforts at systematic data collection on such key topics as the study of refugees, demographic patterns, and communist movements are emphasized.

Comparative Political Elites Program Research on political elites occupies a strategic position in facilitating understanding of a host of social processes, e.g.,
stratification, social movements, leadership, governmental stability, revolution and social change. Sub-topics of concern comprise the study of the social and personal attributes of elites, careers of political elites, the relationship between social context and personal attributes and careers, the religious and secular values of members of elites, and the international or supranational ties among national elites.

**World Population Growth and Demographic Behavior** Research studies focus on the interplay between population and politico-economic development. Special emphasis is given to the accumulation and interpretation of interrelated statistics on basic social traits, as well as the policy implications of the world's changing population characteristics. Ongoing studies include birth-rate determinants in various types of society, attitudes toward fertility problems, and the study of population problems in advanced nations.

**Program on International Integration** This program deals with international organizations such as the United Nations and other more restricted efforts—in terms of both geographical and functional scope—such as common markets, military alliances, international financial institutions, courts, conciliation commissions and non-governmental groups. Sub-topics of research include (a) comparative studies of the relative effectiveness of performance of various tasks by organizations with a universal membership, (b) comparisons of various regional organizations, such as common markets, performing identical tasks, (c) comparisons of the performance of various specific tasks within the same region, and (d) comparisons of the United Nations with regional organizations along task lines.

**Comparative Studies of Western Industrial Societies** This program focuses on the nations of the West, their economies, their patterns of social organization, the ideas and political ideologies active within them, the extent of obsolescence of existing social forms and loyalties, including the notion of the sovereign nation-state itself. Important sub-topics include (a) the nature of variation within the "industrial-type society," including classifications of a historical character, (b) work on change in the elite structure and stratification system of industrialized societies, with special emphasis on mobility and economic organizations, and (c) studies of belief systems and their evolution, particularly in the context of technocracy, bureaucratization, and the growth of science and scientists in public life.

**Comparative Program on Religion and Society** This program addresses itself to the changing nature of religion in relation to social change. Comparative studies of Buddhist, Islamic and Catholic adaptations to social change and, in turn, the influence of religion on social change are being developed. Sub-topics include (a) the comparative adaptability shown by Catholicism in various cultural settings, (b) the movement toward denominational mergers and ecumenism, (c) the problems of minority groups and religiously based discrimination, and (d) the nature of religious and charismatic protest movements.

**International Population and Urban Research (IPUR)** The Center 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.

Institute of Library Research

The Institute of Library Research is a Universitywide organization with branches at Berkeley and Los Angeles and programs involving all of the nine campuses of the University of California. Its broad purposes are to conduct research into library and information problems, to develop methods for the improvement of University of California and other library and information systems, and to advance education for librarianship. Projects are pursued in the areas of values in library service, library and information systems, methodology, and computer-based information services development.

The Institute is closely associated with the School of Librarianship and provides opportunities for faculty, graduate students, and visiting scholars to participate in its research activities.

Institute of Marine Resources

The Institute of Marine Resources is a Universitywide 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 Science, within the administrative framework of the Department of Nutritional Sciences, College of Agriculture. 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.
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 Science

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.

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, econom­
ics, 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 pri­
vate agencies in the development of new techniques for the solution of develop­
ment problems. Its initial projects are concerned with selected topics and meth­
ods 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 Depart­
ment of City and Regional Planning, the Center employs faculty and graduate
students in economics, political science, law, architecture, engineering, and busi­
ness administration, among others.

Institute of Transportation and Traffic Engineering
(See page 116)

LABORATORIES*

Cancer Research Genetics Laboratory
(See under Zoology)

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 de­
partments, 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.

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 medi­
cine of the Lawrence Radiation Laboratory. The teaching center of the academic
Division of Medical Physics, which is an outgrowth of the research program of
the Laboratory, 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

* For a list of additional laboratories, described under departmental headings, see page 113.
investigation, are located in the Hill Area of the Lawrence Radiation Laboratory. The staff includes nine professors, fifty post-doctoral staff members, and fifty-five 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.

Inorganic Materials Research Laboratory

The Inorganic Materials Research Division of the Lawrence Radiation Laboratory is a fundamental research organization of the University of California which is fully supported by the Atomic Energy Commission and which provides facilities for research in inorganic and physical chemistry, solid state chemistry and physics, ceramics, and metallurgy by members of the faculty of the Colleges of Engineering and Chemistry and the Department of Physics. Formed in 1960
under the leadership of Dr. Kenneth Pitzer as a result of federal government interest in support of fundamental research and graduate student training at universities in the materials field, IMRD has expanded to a group of 27 faculty research directors, 30 postdoctoral fellows and 141 graduate students. Students may do thesis work for M.S. or Ph.D. degrees by arrangements with the faculty research directors and their departments. Dr. Leo Brewer, College of Chemistry, is Division Head and Dr. Victor Zackay, College of Engineering, is Associate Division Head.

The two major objectives of the interdisciplinary program of IMRD are to increase the store of basic knowledge in the materials field and to increase the number of qualified scientists and engineers who will work in this field. Although the programs are diversified, the program as a whole involves the cooperative efforts of several disciplines. Through such cooperation it becomes possible to undertake major comprehensive research problems previously conducted as separate, incomplete fragments.

**Lawrence Radiation Laboratory**

The Earnest 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 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 post-doctoral 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
Laboratory of the Rockefeller University

This Laboratory is maintained by the Rockefeller University for the research of Professor John H. Northrop. The funds are supplied entirely by the Rockefeller University and are administered partly through the Rockefeller University and partly through the Department of Medical Physics, Donner Laboratory, and the Department of Medical Microbiology and Immunology, School of Public Health.

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 a multidisciplinary 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 aeroscience 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 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. A current project within the social sciences group is Technology and Urban Management.

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 main center is the Space Sciences Laboratory on the hill area above the Berkeley campus; additional facilities are located in various parts of the campus and at the University's Storage Facility in Richmond.

Statistical Laboratory

(See under Statistics)

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-eight graduate students who have received the Ph.D. degree. During the present year there are twenty-seven postdoctoral students plus thirty-two graduate students working toward the Ph.D. degree with staff members in 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
Thermodynamics Laboratory

MUSEUMS AND BOTANICAL FACILITIES

(See Index)

Museum of Anthropology
Museum of Paleontology
Museum of Vertebrate Zoology
Botanical Garden
Herbaria
RESEARCH CENTERS, STATIONS, AND OTHER UNITS*

Center for Research and Development in Higher Education

The principal purpose of the Center for Research and Development in 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, to publish research reports and conference proceedings, and to work cooperatively with higher institutions and educational agencies throughout the U.S. in reviewing the findings from research and their implications for higher education.

As a campuswide 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 studies of student development in small liberal arts colleges and large, complex institutions; studies of factors related to attendance at various types of higher institutions; a longitudinal study of how, when and why high school students make educational career decisions which lead to different outcomes after they leave school; a study of the programs for training educational researchers.

The Center this year received a five-year grant with options for extension to ten years to establish a national research and development center in higher education. Research will be conducted in three areas: the educational experience of the college student, the basic organizational components of higher education, the evolving patterns in higher education and changing purposes and programs.

It has also recently received funds for a nationwide study of community colleges. 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.

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 research bearing on the development of law and legal theory; it also sponsors colloquia and study groups for faculty and students interested in this work. Among current areas of concern are: the administration of civil justice, including studies of the nature and implementation of laws affecting the poor; legal processes within large organizations both public and private; the administration of criminal justice, including studies of bail reform efforts and parole; the administration of justice to juveniles; historical conceptions of the role of law in society; and international comparisons of legal institutions.

The Center is primarily a facility for faculty and students in the social sciences, including the School of Law, but it also serves some visiting scholars and has a small professional research staff. Some summer stipends for faculty members are available, as well as training for graduate students through appointment as research assistants. The Center is a unit of the Institute of Social Sciences.

* Additional facilities are described under departmental headings. See list on page 117.
Computer Center

The Computer Center serves the entire campus by (1) conducting research in computer science and (2) providing and operating a system to meet the computing and information processing needs of the campus.

The principal components of the system are the computing machinery (a Direct-Coupled IBM 7094–7040 system), the operating and programming system (IBSYS, FORTRAN, ALGOL, MAP, NELLIAC and others) and the user-file storage (e.g., disks, tapes).

A program library and a consultation service are maintained to provide information about the operating and programming systems and to assist users to secure appropriate programs for the solution of problems or the processing of data. Assistance and consultation are also available on the formulation of problems and the suitability of programs.

Instruction in programming is available through regular courses offered by several academic departments and University Extension.

While the Center offers programming instruction and consultation, it does not undertake programming tasks for users. Those having programming needs may call upon the Center's associated programmer service for assistance in making contact with competent programmers.

One of the Center's major efforts is now devoted to developing an advanced computing system which will permit interplexed operations from a large number of remote input-output stations and peripheral data processors.

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 in 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 Barrows Hall. This laboratory, partly financed by the National Science Foundation, offers facilities for experiments in the research topics listed above and in man-computer interactions.

The Center, located in Stephens Hall, provides financial aid to doctoral candidates by employing them as research assistants on faculty projects, and thus also places them in an environment of research for training in research with recognized 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, development, 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 behavior, prejudice, and the social aspects of health. The Center also carries on a program of methodological research to increase the precision and the range of applicability of survey procedures and contributes 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.

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.

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 inception 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 Mountain 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 headquarters. 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 Aeronautics and Space Administration. 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-five languages taught at the Defense Language Institute at the Presidio of Monterey. This unique program is available on a limited basis to University senior undergraduates as well as 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
- Lick Observatory
- Minerals Thermodynamics Experiment Station
- Sagehen Creek Wildlife and Fisheries Station
- Seismographic Stations
- University Art Gallery
- University of California Archaeological Research Facility
- Wildland Research Center
General Interest Courses for Upper Division Students


**Education** 110, Learning and the Learner; 130, The School in America; 170, Introduction to Adult Education; 191, Humanistic Foundations of Education; 192, Social Foundations of Education; 193, Psychological Foundations of Education.

**Geography** 100A–100B, Principles of Culture; Geography; 117, The Tropics; 119, The Arid Lands; 121A, Eastern North America; 121B, Western North America; 121C, Canada; 131, Geography of California; 140, Transportation Geography; 142, Economic Geography: Industrial Localization; 150, Principles of Economic Geography; 153, Natural Resources, Population and Conservation; 155, Urban Geography; 157, Political Geography; 176, Relations Between Nature and Culture. And all of the foreign-area regional survey sources in the 120 series.


**Journalism** 140, History of American Journalism; 141, The Mass Media and Society; 151, The Journalist as Social Critic; 165, The Press, the Law and the Constitution; 190, Comparative World Journalism; 196, Government Information Programs.

**Linguistics** 105, Descriptive Linguistics; 145, Comparative and Historical Linguistics.

**Music** 127A, History of Music; 127B, History of Music; 128A, Opera; 128B, The Symphonies of Beethoven; 128C, Contemporary Music; 128D, J. S. Bach; 128E, Mozart and Haydn; 128F, Symphonic Literature of the Nineteenth Cen-
Century; 141, Advanced University Symphony Orchestra; 142, Advanced University Chamber Band; 143, Advanced University Concert Band; 144, Advanced University Chorus; 145, Advanced Repertory Chorus; 146, Advanced Chamber Music Ensemble; 148, Advanced Piano Ensemble; 149, Collegium Musicum.

Optometry  Optometry 100: History of Optometry; Optometry 128: Introduction to Pathology; Physiological Optics 101: Anatomy of Eye and Orbit; Physiological Optics 102: Dioptrics of the Eye; Physiological Optics 125: Vegetative Functions of the Eye; Physiological Optics 129: Motility of the Eye; Physiological Optics 132: Visual Stimuli; Physiological Optics 151: Monocular Sensory Processes of Vision; Physiological Optics 160: Binocular Vision and Space Perception.


Scandinavian  100A–100B–100C, History of Scandinavian Literature (100A, From 1300 to 1800; 100B, From 1800 to 1890; 100C, From 1890 to the Present); 106, History of Scandinavian Drama up to 1900; 107, The Plays of Ibsen; 108, Strindberg and His Writings; 109, Scandinavian Drama of the Twentieth Century; 120A–120B, The Novel in Scandinavia; 125, Masterpieces of Old Norse Literature; 160, Scandinavian Mythology.


