New Two-Year Catalog

This year's UC Berkeley General Catalog covers a two-year period, 1995-97. This two-year approach has enabled the university to free up the resources to make the catalog information also available on the Internet (see below). Most of the information within does not change from year to year. For information that does change, references are given for current sources.

In the Courses and Curricula section, the notations indicating when courses will be offered and the faculty who will teach them apply to the 1995-96 academic year only. Not all the courses that appear are offered every year. Current course offerings are listed in the Schedule of Classes, published twice a year well before the beginning of each semester. The Schedule of Classes also contains a section entitled “Changes and Additions to the General Catalog,” which will alert you to new developments in departmental requirements and curricula.

The annual college and school announcements are another important source of more detailed information than is furnished in this catalog, as are departmental handouts and publications from individual administrative units such as the Office of Financial Aid. Addresses and telephone numbers to obtain these materials are provided within.

Also available is the online General Catalog, located on the Internet through the World Wide Web at http://www.urel.berkeley.edu/catalog, through Telnet at telnet://infocal.berkeley.edu, or through Gopher at gopher://infocal.berkeley.edu.

You may also send e-mail to the online General Catalog at catalog@pa.urel.berkeley.edu.

As this print version goes to press, enhancements are in progress, and we anticipate being able to update the online version on a regular basis. You can also visit the online General Catalog to get to the online Schedule of Classes.
Throughout its history, Berkeley has proved to be a university that has endured—and even thrived on—change. As president-emeritus Clark Kerr observed, “Berkeley is a dynamic institution. It’s going to keep on changing; that’s one of the great things about it.”

This catalog of Berkeley’s educationally rich environment—more than 7,000 courses in nearly 150 subjects—is a testament both to change and to continuity. New knowledge is reflected in new courses. The quality of faculty and students remains very high, and, despite hard economic times, Berkeley continues to be among the best universities in the nation.

A principal foundation of this university continues to be the interaction of faculty and students in the art called teaching. At Berkeley, students have the opportunity to learn from leaders in every field from their earliest days on campus—in the lecture hall, seminar room, and laboratory, and during faculty office hours and informal faculty-student gatherings. I urge students to take full advantage of the intellectual stimulation of professors who write the textbooks and make the great discoveries.

It gives me great pride to introduce, in this catalog, some of the outstanding new faculty members who have joined our campus community. Recruitment of the very best faculty is critical to the future of Berkeley, especially in the wake of recent early retirement programs that resulted in the loss of many members of our faculty. Our vigorous recruiting effort has had great success in attracting top scholars and teachers who will lead Berkeley into the 21st century. They will inspire and teach the next generation of leaders and conduct the pioneering research that will enrich human knowledge and transform our lives. In keeping with Berkeley’s tradition, they will work to serve the people of California and, in the process, enrich the nation and world.

Chancellor's Message

Every time I enter a classroom, I have two objectives. First, I hope to shed some light and heighten interest in my field. Second, I want to learn. I have found that lively exchange with students is the spark that keeps intellectual curiosity burning strong.

-Chang-Lin Tien
Chancellor and Professor of Mechanical Engineering
Distinguished Teaching Award, 1962
I came to Berkeley as a naive adolescent and still remember the exhilaration on first reading the Berkeley catalog, which seemed to me the size of a telephone book, containing unbelievably attractive travel invitations to new intellectual worlds.

—Daniel Koshland, Jr., ’41
Professor Emeritus of Biochemistry, in speech at Charter Day, March 12, 1993
Courses and Curricula

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| 285 | Italian Studies |
| 287 | Journalism |
| 289 | Landscape Architecture |
| 292 | Latin American Studies |
| 294 | Law |
| 305 | Legal Studies |
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| 309 | Linguistics |
| 312 | Logic and the Methodology of Science |
| 313 | Manufacturing Engineering |
| 313 | Mass Communications |
| 314 | Materials Science and Mineral Engineering |
| 318 | Mathematics |
| 323 | Mechanical Engineering |
| 328 | Medieval Studies |
| 328 | Microbiology |
| 329 | Middle Eastern Studies |
| 330 | Military Officers’ Education Program (ROTC) |
| 330 | Military Affairs |
| 330 | Aerospace Studies (Air Force ROTC) |
| 331 | Military Science (Army ROTC) |
| 331 | Naval Science (Navy ROTC) |
| 332 | Molecular and Cell Biology |
| 339 | Music |
| 344 | Native American Studies |
| 345 | Natural Resources |
| 345 | Naval Architecture and Offshore Engineering |
| 347 | Near Eastern Studies |
| 352 | Neurobiology |
| 352 | Nuclear Engineering |
| 354 | Nutrition |
| 354 | Nutritional Sciences |
| 356 | Optometry |
| 358 | Vision Science |
| 359 | Oriental Languages |
| 359 | Parasitology |
| 359 | Peace and Conflict Studies |
| 361 | Petroleum Engineering |
| 361 | Philosophy |
| 363 | Physical Education |
| 363 | Physical Science |
| 363 | Physics |
| 367 | Plant Biology |
| 369 | Plant Pathology |
| 369 | Political Economy of Industrial Societies |
| 371 | Political Science |
| 376 | Population Studies |
| 376 | Psychology |
| 383 | Public and Nonprofit Management |
| 383 | Public Health |
| 391 | Public Policy |
| 393 | Range Management |
| 394 | Religious Studies |
| 395 | Rhetoric |
| 398 | Romance Philology |
| 399 | Scandinavian |
| 401 | Science and Mathematics Education |
| 402 | Slavic Languages and Literatures |
| 406 | Social and Administrative Health Sciences |
| 406 | Social Sciences |
| 406 | Social Welfare |
| 409 | Sociology |
| 413 | Soil Science |
| 417 | South and Southeast Asian Studies |
| 417 | Spanish and Portuguese |
| 422 | Statistics |
| 425 | Subject A |
| 425 | Undergraduate and Interdisciplinary Studies |
| 426 | Women’s Studies |
| 428 | Wood Science and Technology |

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| 430 | Criteria Used in Selecting Advanced-Standing Students |
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General Catalog, University of California, Berkeley, 1995-97.

All qualified students—regardless of race, sex, color, creed, age, handicap, sexual orientation, or national origin—are welcome.

Price: $5.00, plus shipping and handling. To obtain the General Catalog by mail, write to the University of California, Berkeley, ASUC Store, Attn: Mail Order Department #4504, Berkeley, CA 94720-4504, or call (510) 444-6251.
# Summer Sessions 1995

<table>
<thead>
<tr>
<th>Session</th>
<th>Dates</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Six-Week Session</td>
<td>May 22-June 30</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Ten-Week Session</td>
<td>June 5-August 11</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Eight-Week Session</td>
<td>June 19-August 11</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Second Six-Week Session</td>
<td>July 3-August 11</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Independence Day Holiday</td>
<td>July 4</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Three-Week Session</td>
<td>July 24-August 11</td>
<td>Monday-Friday</td>
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# Fall Semester 1995

<table>
<thead>
<tr>
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<th>Dates</th>
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<tbody>
<tr>
<td>Tele-BEARS</td>
<td>April 10-September 15</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Fee Payment Due</td>
<td>April 10-July 17</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Welcome Week</td>
<td>August 21-25</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Fall Semester Begins</td>
<td>August 22</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Instruction Begins</td>
<td>August 28</td>
<td>Monday</td>
</tr>
<tr>
<td>Labor Day Holiday</td>
<td>September 4</td>
<td>Monday</td>
</tr>
<tr>
<td>Thanksgiving Holiday</td>
<td>November 23, 24</td>
<td>Thursday, Friday</td>
</tr>
<tr>
<td>Instruction Ends</td>
<td>December 8</td>
<td>Friday</td>
</tr>
<tr>
<td>Final Examinations</td>
<td>December 11-19</td>
<td>Monday-Tuesday</td>
</tr>
<tr>
<td>Fall Semester Ends</td>
<td>December 19</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Winter Holiday</td>
<td>December 25, 26</td>
<td>Monday-Tuesday</td>
</tr>
<tr>
<td>New Year's Holiday</td>
<td>December 29-January 1</td>
<td>Friday-Monday</td>
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# Spring Semester 1996

<table>
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<th>Event</th>
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<tbody>
<tr>
<td>Tele-BEARS</td>
<td>October 30-February 2</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Fee Payment Due</td>
<td>October 30-December 15</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Spring Semester Begins</td>
<td>January 9</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Martin Luther King, Jr., Holiday</td>
<td>January 15</td>
<td>Monday</td>
</tr>
<tr>
<td>Instruction Begins</td>
<td>January 16</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Presidents' Day</td>
<td>February 19</td>
<td>Monday</td>
</tr>
<tr>
<td>Spring Recess</td>
<td>March 25-29</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Spring Holiday</td>
<td>March 29</td>
<td>Friday</td>
</tr>
<tr>
<td>Instruction Ends</td>
<td>May 6</td>
<td>Monday</td>
</tr>
<tr>
<td>Final Examinations</td>
<td>May 10-18</td>
<td>Friday-Saturday</td>
</tr>
<tr>
<td>Spring Semester Ends</td>
<td>May 18</td>
<td>Saturday</td>
</tr>
<tr>
<td>Memorial Day Holiday</td>
<td>May 27</td>
<td>Monday</td>
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# Summer Sessions 1996

<table>
<thead>
<tr>
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<tr>
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<td>Monday-Friday</td>
</tr>
<tr>
<td>Independence Day Holiday</td>
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</tr>
<tr>
<td>Three-Week Session</td>
<td>July 22-August 9</td>
<td>Monday-Friday</td>
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Note: Dates for the 1996-97 academic year had not received final approval when this catalog went to press. For those dates, see the Schedule of Classes and the 1996-97 college and school announcements.
Information Guide

University of California, Berkeley
Berkeley, CA 94720
Area Code 510
General information: 642-6000
Admissions, Graduate
309 Sproul Hall, 642-7405

Admissions, Undergraduate
110 Sproul Hall, 642-3175
TTY/TDD: 642-8396
Advising, Career and Graduate School Services
2111 Bancroft Way, 642-1716
TTY/TDD: 642-0592, 642-5373
Advising, Student Life
140 Golden Bear Center, 642-7224
Fax: 642-9078

Alumni Association
Alumni House, 642-7026
Fax: 642-6252

Associated Students (ASUC)
200 Eshleman Hall, 642-1431
Fax: 643-6396

Athletics, Intercollegiate
61 Harmon Gymnasium, 642-0580
177 Hearst Gymnasium, 642-2427
210 Memorial Stadium, 642-5363; Fax: 643-7778

Botanical Garden
Strawberry Canyon, 642-0849, 642-3690
Fax: 642-5045
E-mail: wenning@nature.berkeley.edu

Career and Graduate School Services
2111 Bancroft Way, 642-1716
TTY/TDD: 642-0592, 642-5373
Fax: 642-6987

Child Care Services
2537 Haste Street, 642-1827

Counseling and Psychological Services
2222 Bancroft Way, 642-9494

Disabled Students' Program
230 Golden Bear Center, 642-0518
TTY/TDD: 642-6376
Fax: 643-9686

Education Abroad Program
160 Stephens Hall, 642-1356

Educational Opportunity Program and Affirmative Action (EOP/AA)
140 Golden Bear Center, 642-7224
Summer Bridge Program, 642-5983
Fax: 642-9078

Financial Aid, Graduate
201 Sproul Hall, 642-0485
Fax: 642-5731

Helpful Publications

General Catalog & Schedule of Classes
by mail:
ASUC Textbook Store
University of California, Berkeley
Berkeley, CA 94720-4504
Attn: Mail Order Dept.
by telephone:
call 444-6251

Resource: A reference guide for new Berkeley students
Office of New Student Programs
137 Golden Bear Center, 642-4970

College and School Announcements
(available at colleges and schools)

University of California, Berkeley Policies
Applying to Campus Activities, Organizations, and Students
Student Activities and Services
102 Sproul Hall, 642-5171
Financial Aid, Undergraduate
211 Sproul Hall, 642-6442
Fax: 643-5526

Health Services
Tang Center, 2222 Bancroft Way
Appointments and information, 642-2000
Clinic I, 643-7117
Clinic II, 643-7109
Clinic III, 643-7110
Clinic IV, 643-9133
Specialty Clinic, 643-7177
Student Health Insurance Plan, 642-5700
Urgent Care, 642-3188
Vision Care
School of Optometry Clinics:
200 Minor Hall, 642-2020
Tang Center, 643-2020

Housing, Campus
2401 Bowditch Street, 642-4108

Housing, Off-Campus
2405 Bowditch Street, 642-3642

Info-BEARS
642-9400

Information Desk
Martin Luther King, Jr., Student Union
642-INFO (4636)

Interfraternity Council (Fraternities)
102 Sproul Hall, 643-6919

International Student Admissions, Graduate
309 Sproul Hall, 642-7405

International Student Admissions,
Undergraduate
110 Sproul Hall, 642-3246
Fax: 642-7333

International Student and Scholar Advising
Services for International Students and Scholars
International House
2299 Piedmont Avenue, 642-2818
Fax: 643-7289
E-mail: sis@uclink.berkeley.edu

Library Information
Main Library Information Desk, 643-9999
TTY/TDD: 642-0704

National Panhellenic Council
(Predominantly African American fraternities and
sororities)
102 Sproul Hall, 642-7950

Orientations, Undergraduate
Office of New Student Programs
137 Golden Bear Center, 642-4970
Fax: 642-9078

Pacific Film Archive
2625 Durant Avenue, 642-1124
TTY/TDD: 642-8734
Panhellenic Association (Sororities)
102 Sproul Hall, 643-6916

Personnel Office
University Hall, 642-9046
Personnel: 2199 Addison Street entrance;
Staff Employment: 2200 University Avenue entrance
TTY/TDD: 643-9421
Fax: 642-2888

Police
1 Sproul Hall, 642-6760
Emergency, 9-911 (or 911 from noncampus extensions)

Rape Prevention Education Program
2222 Bancroft Way, Room 2010
Sexual Assault Counseling, 642-6074
Workshops, 642-7202

Relations with Schools, Undergraduate Admission and
110 Sproul Hall, 642-3175
TTY/TDD: 642-8396

Shuttle Escort Service
642-WALK (9255)

Sports, Intramural and Recreational Sports
Recreational Sports Facility, 2301 Bancroft Way, 642-8342

Strawberry Canyon Recreational Area
643-6720
Strawberry Canyon Pool Hotline, 642-5575

Student Activities and Services
102 Sproul Hall, 642-5171

Student Learning Center
198 Golden Bear Center, 642-7332
Fax: 643-7879

Summer Sessions
22 Wheeler Hall, 642-5611
Fax: 642-2877
E-mail: summer@uclink.berkeley.edu

Tours, Campus
Visitor Information Center, 101 University Hall, 642-5215
Fax: 642-3423

Transcripts
Office of the Registrar, 642-4721
Fax: 643-8050

University Art Museum
2626 Bancroft Way, 642-0808
Fax: 642-4889

University Extension
2223 Fulton Street, 642-4111

Visitor Information Center
101 University Hall, 642-5215
Fax: 642-3423

Women's Resource Center
250 Golden Bear Center, 642-4786
Fax: 642-9078

Trivial Pursuit No. 1
The Campanile received its bells in three increments. How many bells and in what years? What is the heaviest bell called and how much does it weigh?
(Answer on page 444.)
The University's first buildings stood almost alone in the midst of orchards and wheat fields. Along with the rapid advance of the state of California, the University grew apace in resources, faculty, students, and programs. And while other campuses of the University have since challenged and sometimes bested Berkeley in size, Berkeley maintains its place in the forefront of international centers of learning.
History of the University

The roots of the University of California go back to the gold rush days of 1849, when the drafters of the State Constitution, a group of vigorous and farsighted people, required the legislature to “encourage by all suitable means the promotion of intellectual, scientific, moral and agricultural improvement” of the people of California. California had few families in 1849 and few children to educate, but these early planners dreamed of a university which eventually, “if properly organized and conducted, would contribute even more than California’s gold to the glory and happiness of advancing generations.”

The university that was born nearly 20 years later was the product of a merger between the College of California (a private institution) and the Agricultural, Mining, and Mechanical Arts College (a land grant institution). The College of California, founded by former Congregational minister Henry Durant from New England, was incorporated in 1855 in Oakland. Its curriculum was modeled after that of Yale and Harvard, with the addition of modern languages to the core courses in Latin, Greek, history, English, mathematics, and natural history. With an eye to future expansion, the board of trustees augmented the college’s Oakland holdings with the purchase of 160 acres of land four miles north, on a site they named Berkeley in 1866. This original tract was to be considerably expanded over the years.

While the College of California was in its infancy, efforts continued in the state legislature to create a public educational institution, and in 1866 the legislature took advantage of the federal Morrill Land Grant Act of 1862 to establish the Agricultural, Mining, and Mechanical Arts College. The college was to teach agricultural, mechanical arts, and military tactics “to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.” Scientific and classical studies were not to be excluded but were of secondary importance.

The boards of trustees of the College of California and the Agricultural, Mining, and Mechanical Arts College decided to merge the two schools to their mutual advantage—one had land but insufficient funds and the other had ample public funds but no land—on the condition that the curricula of both schools be blended to form “a complete university.” On March 23, 1868, the governor signed into law the Organic Act that created the University of California. The new university used the former College of California’s buildings in Oakland until South Hall and North Hall were completed on the Berkeley site (South Hall is still standing), and in September 1873 the University, with an enrollment of 191 students, moved to Berkeley.

Fiscal problems plagued the new University, and it was not until the 20-year presidency of Benjamin Ide Wheeler beginning in 1899 that finances stabilized, allowing the University to grow in size and distinction. Early in this period Phoebe Apperson Hearst, one of the University’s most generous benefactors, conceived of and financed an international competition for campus architectural plans that, she stipulated, “should be worthy of the great University whose material home they are to provide for.”

The competition, won by Emile Bénard of Paris, brought Berkeley not only a building plan but world-wide notoriety. The London Spectator wrote, “On the face of it this is a grand scheme, reminding one of those famous competitions in Italy in which Brunelleschi and Michael Angelo took part. The conception does honor to the nascent citizenship of the Pacific states . . .” At Oxford University, which at the time was strapped for funds, a Latin orator said, “There is brought a report that in California there is already established a university furnished with so great resources that even to the architects (a lavish kind of men) full permission has been given to spare no expense. Amidst the most pleasant hills on an elevated site, commanding a wide sea view, is to be placed a home of Universal Science and a seat of the muses.”

John Galen Howard, the supervising architect charged with implementing the Bénard plan, took advantage of his “permission to spare no expense” and developed a style of architecture that reinterpreted the grace, dignity, and austerity of classical lines to suit the California environment. Some of the campus’s most elegant and stately structures were built during Howard’s tenure, among them the Hearst Memorial Mining Building (1902-7), the Hearst Greek Theatre (1903), California Hall (1905), Doe Library (1911-17), the Campanile (1914), Wheeler Hall (1917), Gilman Hall (1917), and Hilgard Hall (1918).

President Wheeler, a classical scholar and able administrator, attracted library and scholarship funds, research grants, and a distinguished faculty to the University, and its reputation grew, particularly in the fields of agriculture, the humanities, and engineering. Many new departments were added in the early years of his presidency, and existing departments expanded. Summer sessions were begun in 1899 to train physics and chemistry teachers and before long broadened their scope.

The University grew with the rapidly expanding population of California and responded to the educational needs of the developing state. In the early 1900s the University’s new College of Commerce (now the School of Business Administration) trained students for export trade with the Orient and funneled graduates...
The Berkeley Campus

South Hall, the oaks along Strawberry Creek, and the eucalyptus grove link Berkeley to its beginnings over a century ago. While the campus has grown considerably since then, it has retained much of the tranquil beauty of its rural past and is now a park-like oasis in an urban setting. Students study, work, and relax among Neoclassical buildings, wooded glens, and parklands spread across 1,232 scenic acres overlooking the San Francisco Bay.

With 31,000 students, a distinguished faculty, nearly 300 degree programs, and alumni in positions of national and international leadership, Berkeley today is a large and complex institution, offering students a vast range of scholarly endeavor and a wide arena for personal growth.

Tradition of Excellence

Berkeley is internationally noted for its academic excellence. Its faculty includes 8 Nobel laureates, 112 members of the National Academy of Sciences, 68 members of the National Academy of Engineering, and more Guggenheim Fellows and Presidential Young Investigators than there are at any other university in the country. In national surveys, Berkeley’s academic departments consistently rank among the top five in the country.

By any standard, Berkeley ranks as one of the world’s leading intellectual centers, renowned for the size and quality of its libraries and laboratories, the scope of its research and publications, and the distinction of its faculty and students. More students who earn bachelor’s degrees at Berkeley complete Ph.D.’s than graduates of any other university in the country.

1905: The University purchases a collection of western Americana and Spanish-American historical materials from Hubert Bancroft, and founds the Bancroft Library, now one of the world’s outstanding collections.
1912: Doe Library is dedicated.
1913: Sather Gate, one of the campus’s principal landmarks, is completed.
1914: The Jane K. Sather Tower, more popularly known as the Campanile for its resemblance to the campanile of St. Mark’s Plaza in Venice, takes its place as Berkeley’s chief landmark.
1929: The first residence hall for students, Bowles Hall, opens. It was funded by private gifts.
1930: International House, one of four worldwide funded by John D. Rockefeller, opens at Berkeley.
1931: Ernest Lawrence and Stanley Livingston conduct on campus the first successful operation of a cyclotron.

(continued on next page)
1969: A student strike in support of establishment of an independent Third World College and protests over use of a three-acre plot later called People’s Park convey an image of Berkeley that is still strong in the public mind.

Superior Research

The range of research projects at Berkeley is varied, reflecting the diversity of disciplines represented. The campus provides a distinctive environment in which faculty and students seek to expand fundamental knowledge of human nature, society, and the natural world.

Research programs at Berkeley are conducted within teaching departments and organized research units (ORUs). The latter are established and administered separately from the teaching units. ORUs are interdisciplinary in nature and are organized around the work of a group of faculty and graduate students whose research interests transcend traditional disciplinary boundaries. They do not offer courses of instruction or degrees, although several work in conjunction with interdepartmental instruction programs which lead to bachelor’s or advanced degrees. ORUs provide invaluable experience for graduate students in basic and applied research and greatly enhance Berkeley’s educational program and the overall academic quality of the University.

Please see the Appendix for a listing of the campus ORUs.

Commitment to Teaching

Every year, the Berkeley campus honors several of its outstanding faculty members by presenting them with the Distinguished Teaching Award. More than 170 faculty members in 45 departments have been recognized in this way for their outstanding teaching.

(Recipients of Distinguished Teaching Awards have daggers by their names in the “Courses and Curricula” section of this catalog.)

At a large institution often known more for its research, such recognition serves to remind us all of the importance of teaching and the value we place on it. Students who attend Berkeley have the benefit of learning from world-renowned theorists and researchers who are also often distinguished teachers. Recipients of past awards have pointed out that their research is often enhanced by the questions and responses of their students in the classroom, while at the same time, the excitement of generating new ideas and discoveries in research stimulates them to become better teachers.

Good teachers do more than convey knowledge in a field. They clarify for students the relationships between their subject and other fields of knowledge; they ignite in their students a desire to learn; and as a consequence they often have a life-long impact on their students’ lives and careers.

Good teaching is, of course, not limited to the people who have received Distinguished Teaching Awards. Every year, many departments nominate one or more of their faculty as distinguished teachers. You will encounter excellent teachers in all departments, all disciplines, in large classes and in seminars.

There is no one way to teach well; the styles you will encounter will be as varied as the courses you take, from eye-opening lectures to discussion sections in which you will clarify and define your own ideas. In teaching, as in every aspect of Berkeley, diversity is the key to a rich and challenging educational experience.

Student Diversity

The quality of Berkeley’s student body complements the stature of its faculty. Most students are Californians, but every state and 100 foreign countries are represented. The student body can best be characterized by its diversity; more than half of the students are minorities, helping to produce the wide range of opinion and perspective essential to a great university. Many programs, such as African American, Asian American, Chicano, and Native American Studies, reflect the diversity, as does the opportunity students have to design their own major if their interests do not match any of the 100 majors offered.

Organization and Administration

The University of California

The University of California comprises nine campuses, each with a distinctive character. The San Francisco campus was added to the University in 1873, the Los Angeles campus in 1919, Riverside in 1954, Santa Barbara in 1958, San Diego and Davis in 1959, and Santa Cruz and Irvine in 1965. The campuses have three law schools, five medical schools, and schools of architecture, business administration, education, engineering, and many others.

The nine campuses have a full-time faculty of about 7,000 and the total enrollment is about 163,100 students, most of them California residents. Nearly one quarter are graduate students. Some 150 laboratories, extension centers, and research and field stations strengthen teaching and research while providing public service to California and the country.

Administration

Under the State Constitution, the government of the University is entrusted to the Board of Regents. The regents appoint the president of the University, and with the president’s advice, appoint the chancellors, directors of major laboratories, provosts, and deans who administer the affairs of the individual campuses and other divisions of the University. Authority in academic matters is delegated by the regents to the
Academic Senate, which determines academic policy for the University as a whole.

The Board of Regents includes seven ex officio board members and 18 members who are appointed by the governor for 12-year terms after consultation with an advisory committee. In addition, the regents appoint a student regent for a one-year term as a voting board member with full rights of participation. The chair and vice chair of the Academic Council serve as faculty representatives to the board and participate fully in all discussions. A constitutional amendment provides that "Regents shall be able persons broadly reflective of the economic, cultural, and social diversity of the State, including ethnic minorities and women." They shall have "full powers of organization and government, subject only to such legislative controls as may be necessary to ensure compliance with the terms of the endowments of the University and the security of its funds."

The president is executive head of the nine-campus University system. The Office of the President, located in Oakland, is the University's central administrative headquarters. There are five vice presidential divisions—Academic Affairs, Business and Finance, Agriculture and Natural Resources, University and External Relations, and Health Affairs. The Office of the President performs administrative functions for the University as a whole and supports all campus operations.

Each of the campuses 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. For the names of University regents, officers, and chancellors, see the appendix.

The Academic Senate, consisting of faculty and certain administrative officers, determines the conditions for admission and degrees, subject to the approval of the regents; authorizes and supervises courses and curricula; and advises the University administration on the important matters of faculty appointments and promotions and budgets.

Students participate in policy-making at both the campus and Universitywide levels.

**Colleges and Schools**

The Berkeley campus is divided into 14 colleges and schools, most of which are subdivided into departments. Colleges accept students directly from high school or as transfers from other institutions and offer undergraduate instruction, normally as a four-year program, leading to the bachelor's degree. Schools usually begin instruction at the upper division level and provide students with preparatory training for specific professions.
Each of the colleges and schools has its own regulations for earning degrees and is headed by a dean who has final authority for all academic decision making. Students are encouraged to contact the deans for assistance with academic matters.

Academic Resources

The University Library

Berkeley's library system contains one of the best research collections in the country. The system consists of Doe Library, Moffitt Library, the new Main Stacks (underground), the Bancroft Library which houses rare books and western Americana, and 18 branch libraries serving particular academic disciplines. The Teaching Library, a new service of the Berkeley campus library system, promotes information literacy and academic success by teaching students and faculty how to use a wide range of information resources—print, online, and networked—now available in the library. The library's collections and services are complemented by a variety of special purpose or "affiliated" libraries on campus. The holdings of the University library system include more than 8 million book volumes, 90,000 current serial publications, 5 million microform items, 400,000 maps, 60,000 sound recordings, 6,000 videos, and hundreds of thousands of government documents.

Most of the Berkeley humanities and social sciences materials are located in Moffitt Library and the Main Stacks. Moffitt Library, with its 160,000 volumes and 500 serial titles, is designed as a core collection and an entry point for new and undergraduate students. Special collections in Moffitt include reserve texts assigned in undergraduate courses and a file of course exams. Access is limited to card holders, including UC faculty, students, and staff.

The Media Resources Center, on Moffitt's first floor, provides spoken word and visual image material on a wide variety of subjects for student research and class reserves. The center also houses audio and video cassettes, slides, phonograph records, and the equipment to use these materials.

The Moffitt Microcomputer Center, also located in Moffitt Library, offers personal computing and consulting services to Berkeley students, faculty, and staff.

The recently completed Main Stacks is a new four-story underground addition connecting Doe and Moffitt libraries. The Main Stacks houses the humanities and social science research collection formerly located in Doe Library, plus the government documents collection formerly housed in the Government Documents Department. The Main Stacks may be entered through either Doe or Moffitt Libraries. A new Governmental/Social Science Information Service, located on the second floor of Doe Library, takes the place of the former Government Documents Department.

The Bancroft Library, devoted primarily to the documentation of western North America, maintains the largest collection of Mark Twain archives in the world. The East Asian Library contains rare editions of early manuscripts, scrolls, woodblock and engraved maps, stone rubbings, and bronze inscriptions. Special collections elsewhere in the library system include some of the rarest books and illuminated manuscripts in the world.

As a student you are entitled to use the libraries upon presentation of your current Berkeley student photo ID card. Borrowing privileges and access to the collections vary from unit to unit. Orientation tours are scheduled throughout the year, and library staff are available to help you at various information and reference desks.

The library's services are described in the leaflets available at many central points and branch libraries.

For information about the campus libraries or help in using the online catalogs, ask the Information Desk in Doe Library (643-9999). For tours, small group sessions on catalog use, and classes on a wide range of information resources, contact the Teaching Library in Moffitt (643-9959) or one of the subject-oriented branch libraries.

A cooperative program between the university libraries of Berkeley and Stanford provides convenient interlibrary services to faculty and graduate students.

Together the two libraries have more than 13 million volumes, a combined research collection that is one of the richest in the world.

Affiliated Libraries

The library system also includes 15 affiliated libraries that contain specialized research collections of unique and often difficult-to-locate materials associated with organized research units, academic departments, and professional schools at Berkeley. These libraries primarily serve the teaching and research needs of faculty and staff, although many of them also serve the campus community at large and the general public.

Lawrence Hall of Science

The Lawrence Hall of Science is both a public science center and a research unit in science education. To increase public understanding of science, LHS's programs are designed to involve participants actively in science. Visitors play logic games on computers, participate in interactive planetarium shows, conduct do-it-yourself experiments and observations in the biology and physics discovery laboratories, and explore a myriad of other exhibits on everything from dinosaurs to lasers. LHS also offers public lectures; science and general interest videos; numerous special events; workshops for school groups and after-school classes in biology, chemistry, physics, astronomy, computers, robotics, and math; and summer science camps.
Science curricula developed at LHS are used throughout the world. Teacher-training workshops actively involve participants in curriculum development. LHS is open daily from 10 a.m. to 5 p.m. There is an admission fee. UC Berkeley students are admitted free after 2 p.m. on weekdays. Transportation to and from LHS is available on a shuttle bus on weekdays, excluding UC holidays. For more information, call 642-5132.

Phoebe A. Hearst Museum of Anthropology (Formerly the Lowie Museum of Anthropology)

Facilitating scholarly research and educating undergraduate and graduate students from many disciplines including anthropology are among the primary functions of the Hearst Museum. Teaching exhibits are installed to assist faculty and students with ongoing instruction and individual study. The museum also maintains a program of changing exhibits in its exhibit hall and at other points on campus to meet the varied educational and aesthetic interests of the University community and general public. There are 645,000 catalogued specimens in the museum’s holdings. The exhibit hall is open Wednesday through Sunday from 10 a.m. to 4:30 p.m. Admission is free on Thursdays. The hall is closed on holidays. For further information, please call 642-3681 or 643-7648.

Language Laboratory

Dedicated to the support of language instruction, the Language Laboratory offers a variety of services and houses an extensive collection of audiotapes, including programs in 99 languages. Laboratory services include listening and viewing facilities and a language microcomputer facility for class and individual use, an audiotape lending library, a recording studio, and a tape duplication service. In addition to language instruction programs, tape library holdings include archival collections of linguistic field work and noteworthy University speeches and events. For further information, call 642-0767.

Summer Sessions

An extensive offering of regular academic courses and special programs is available through Summer Sessions. Students in good standing at any campus of the University or at another college or university are eligible for enrollment. Equally eligible are high school graduates, qualified adult applicants of sufficient maturity and aptitude for the work they plan to undertake, and, in certain cases, high school juniors and seniors.

Tuition varies with the number of units taken. Introductory and advanced courses for University credit are offered, and there are also special sessions for selected intensive language workshops. Courses are taught by both regular and visiting faculty.

Studying Abroad

Both undergraduate and graduate students may earn University credit while studying abroad at some 90 study centers around the world. See the studying abroad sections in the chapters on undergraduate and graduate education.

Exchange and Cross-Registration Programs

Undergraduate students may participate in cross-registration programs with Mills College, Oakland; Sonoma State University; San Francisco State University; California State University, Hayward; College of Holy Names; Dominican College; and JF Kennedy University. Graduate students may participate in exchange programs with other University of California campuses, Stanford University, the Graduate Theological Union, and a number of colleges and universities that participate in the Exchange Scholar Program. See the exchange and cross-registration program sections in the chapters on undergraduate and graduate education.

University Extension

University Extension is the continuing education branch of the University, linking the campus and the community. It ranks among the top half-dozen university-level programs in the nation in size, scope, and the quality of instruction. Its courses—about 2,300 are offered each year—provide the adult population of the Bay Area with opportunities to pursue intellectual and cultural interests, keep abreast of current research, prepare for
University Research Expeditions Program

Program Office: 2223 Fulton Street, Fourth Floor, 642-6586

The University Research Expeditions Program (UREP) allows students, staff, and members of the general public to join domestic and foreign field research projects sponsored by the University. Participants become short-term members of field research teams engaged in projects such as wildlife habitat studies, botanical collecting expeditions, ethnographic field work, ecological surveys, fossil excavations, historical studies, and the like.

Some of the projects planned for 1995, each approximately two to three weeks in duration, include:

• archaeological excavations of an Irish church and an Irish castle, or of an Inca fort in Ecuador;
• prospecting of dinosaur fossils in the Negev Desert and in Montana;
• environmental studies in Costa Rica, Madagascar, Belize, and Ecuador;
• studies of California pelicans, California wolves as predators, and monkeys who use medicinal plants;
• education and health issues in Guatemala and Bolivia;
• Ugandan traditional music, Renaissance villa gardens, and rock art of Easter Island.

For further information, write UREP at the University or call 642-6586.

Extension courses are held throughout the Bay Area, with concentrations in Berkeley, San Francisco, Menlo Park, Atherton, Fremont, Walnut Creek, and San Ramon. Outside the United States, high-technology short courses in Europe and Asia draw an international audience. The Oxford-Berkeley Program heads a roster of travel-study courses bringing American adults to cultural centers around the world for on-site study.

Many Berkeley campus courses in regular session may be open to nondegree students through an Extension enrollment option called concurrent enrollment. The consent of the instructor and the department chair (and in some cases the dean of the school or college) are required, and enrollment must be for credit. Obtain full details and an application form from Extension’s registrar.

For more information write to University of California Extension, 2223 Fulton Street # 7000, Berkeley, CA 94720-7000, or call 642-4111.
Cultural and Recreational Resources

The University Art Museum and Pacific Film Archive

The University Art Museum, located at 2626 Bancroft Way (near College Avenue), is the major visual arts museum serving the University community. Facilities include galleries, a fine arts bookstore, a sculpture garden, a cafe, and a film theater and film library. Gallery hours are 11 a.m. to 5 p.m. Wednesday through Sunday and 11 a.m. to 9 p.m. Thursday. Admission to gallery exhibitions is free for Berkeley students. For a taped message about exhibits, call 642-0808; for a taped message about the Pacific Film Archive program, call 642-1124. To reach Pacific Film Archive offices and library, call 642-1412, Monday through Friday, 9 a.m. to 5 p.m.

The museum annually offers about 15 exhibitions; some are nationally circulating and others originate at the museum. A permanent collection of Western and Asian art is on display on a rotating basis. The MATRIX program is a changing exhibition of contemporary art.

Special study collections are available to students and faculty, works in storage are made available for study upon request, and various exhibitions are prepared for and by University classes and seminars. In addition, the museum has an internship program in which advanced students receive practical experience by assisting in museum work.

Lectures on art by artists and art historians are regularly held.

The museum’s film department, the Pacific Film Archive (PFA), is one of the major film exhibition centers in the country, offering programs of international cinema to the public each evening. PFA maintains a study collection of 7,000 prints and 4,000 books and provides a media information service and facilities for both film study and research screenings. Monthly film programs are scheduled for preschool through high school classes as well.

Music, Dance, Drama

The University offers a broad variety of activities in the arts and humanities. These include:

Music—Students may enroll in a variety of student performing groups for credit through the Department of Music, 104 Morrison Hall (642-2678); auditors are also welcome in most groups. The African Music Ensemble, Chamber Chorus, Chamber Music Ensemble, Collegium Musicum, Javanese Gamelan, University Chorus, and University Symphony Orchestra are included; many of these groups give concerts every semester. The Department of Music also presents free noon concerts on Wednesdays in Hertz Hall. Extracurricular musical groups are the UC Jazz Ensemble (642-5062), the Cal Marching Band (642-6704), and Student Musical Activities—Vocal (642-3880).

Theater and Dance—The Department of Dramatic Art (now the Center for Theater Arts) offers many opportunities for students interested in theater and dance. Credit is offered for all aspects of participation in its variety of productions in the Zellerbach Playhouse, Durham Studio Theater, and 7 Zellerbach Hall: acting, dancing, directing, designing, stagecraft, and scenography. For information please call 642-1677.

The Student Union Program, Entertainment, and Recreation Board (SUPERB) is a student-run entertainment production company that produces a wide range of events, including the Berkeley Film Series in Wheeler Auditorium, concerts in The Bear's Lair and Lower Sproul Plaza, free sneak previews, special events, and more. All students are welcome to get behind the scenes of SUPERB events. For more information, contact SUPERB at 10 Eshleman Hall, 642-7477. SUPERB is a part of the ASUC (Associated Students of the University of California).

Cal Performances—a year-round program of world-class, professional music, dance, and drama presentations. Registered Berkeley students receive a half-price discount and $5 student rush tickets, as available. Berkeley faculty and staff receive a $2 discount. For information or reservations, call 642-9988.

Physical Education, Sports, and Recreation

Each year more than half the Berkeley student body regularly uses the campus physical education, sports, and recreation facilities. The campus has four gymnasias; four swimming facilities; three weight rooms; squash, handball, racquetball, and tennis courts; a martial arts room; and two 440-yard tracks. Registered students can use these facilities free of charge during the academic year.

The Department of Human Biodynamics offers physical education classes to students in aquatics, sports, dance, combatives, and exercise. Instruction is directed toward improving performance skills, learning about personal wellness and fitness, and developing and maintaining physical fitness. Elementary and intermediate classes are provided in many activities. Advanced classes are also offered in certain areas. All classes offered by the Department of Human Biodynamics are for credit and are open to all students. (See the Schedule of Classes for specific classes each semester.) For further information, consult the departmental office at 200 Hearst Gymnasium.

The Department of Athletics and Recreational Sports offers a wide range of leisure and competitive activities. Intramural Sports provides a diverse range of organized team and individual sports for its participants, as well as job opportunities through officiating. Sports Clubs offer students, faculty, staff, and alumni national and international competitions, recreation, and instruction in 29 sports. Also, students are invited to try out for UC spirit groups: yell leaders, songleaders, rally committee, and Oski.
Cal STAR assists disabled students who are interested in recreational programs. We offer volunteers as well as adapted equipment.

The Cal FIT (Fitness, Instruction, and Training) program allows members of the campus community to participate in a wide variety of noncredit instructional classes from jazz dancing to massage, yoga, and aerobics.

The Department of Athletics and Recreational Sports also offers extramural competitive sports for highly skilled student athletes.

The Recreational Sports Facility offers Berkeley students an opportunity to enjoy unstructured recreational and fitness activities. RSF features an Olympic-size swimming pool; a weight room with free weights, Cybex, Universal, and Keyser machines; Stairmasters, Windracers, Lifecycles, Concept II rowing machines, and Schwinn Air-Dyne cycles; courts for racquetball, handball, squash, tennis, badminton, basketball, and volleyball; a quarter-mile outdoor track; coed Jacuzzi; and table tennis. During the fall and spring semesters, Berkeley students can enter RSF at no additional charge by presenting their Cal photo ID. During the summer, Berkeley students must purchase a Cal Rec Club student summer membership in order to use the facility. Memberships and day passes for guests may be purchased at the RSF cashier’s station. For further information, call 642-4048.

Cal Adventures is Berkeley’s outdoor recreation program, offering a wide variety of classes and outings in activities such as backpacking, rock climbing, white-water kayaking, sea kayaking, white-water rafting, wilderness first aid, outdoor photography, windsurfing, sailing, rowing, and cross country and back country skiing. A complete line of rental equipment, including sleeping bags, tents, and stoves, is available at affordable prices. The program is open to the community as well as to students, alumni, faculty, and staff. Cal Adventures offers a large selection of student-only trips and classes. These are low-cost outings designed to assist Cal students in these times of rising student fees. A few locations Cal Adventures frequents are Yosemite National Park, Lake Tahoe, the San Francisco Bay, and the High Sierra. Facilities include an aquatic site at the Berkeley Marina, and the main office, located in the Recreational Sports Facility, 2301 Bancroft Way. Office hours are Monday through Thursday, 11 a.m. to 6 p.m., and Friday, 11 a.m. to 7 p.m. For more information about Cal Adventures and a free brochure, please call 642-4000 or write to Cal Adventures, Recreational Sports Facility, 2301 Bancroft Way # 4420, Berkeley, CA 94720-4420.

Other Resources

Computing on Campus

The Berkeley campus provides access to a full range of distributed computing capabilities, from individual workstations to large shared computers. Supported computers include Apple Macintoshes, PCs, UNIX workstations, DEC RISC computers running UNIX, and an IBM 3090 computer running VM/CMS.

Most of the campus’s computers and workstations are connected to the campus network, which also provides access to the MELVYL and GLADIS online library systems, the UC Berkeley Gopher and World-Wide Web servers, and other online information resources. The campus network is connected to major national and international data communication networks including the Internet.

The UCLink service provides campus-wide access to electronic mail and online information resources. For information on how to access UCLink and other general-purpose computers, contact User and Account Services, 642-7355, accounts@garnet.berkeley.edu.

The interactive computer-based Tele-BEARS system allows students to register for classes using a touch-tone telephone. The companion Info-BEARS system provides access to registration and class information.

Computing facilities provide access to Macintoshes, PCs, UNIX workstations, terminals, and printers. Facilities at 349 Davis Hall, 1535 Tolman Hall, and 212 Wheeler Hall are primarily for use by scheduled classes. Others at 2105 Valley Life Sciences Building, 310 Davis Hall, B-3 Dwinelle Hall, B-21 Dwinelle Hall, 352 Moffitt Library, 211 Wheeler Hall, and the
basement of Evans Hall are available for drop-in use when they are not being used for instruction. Call 643-6253 for recorded information. The Instructional and Collections Computing Facility (ICCF), 2224 Piedmont Avenue, has UNIX workstations and PC compatibles. ICCF users must open accounts. Call 642-7901 for information. Additional facilities and services for the social sciences are available from the Computer-assisted Survey Methods (CSM) Program. Call 642-6592.

Among academic units, Electrical Engineering and Computer Sciences, Business Administration, Chemistry, Physics, Engineering, and many other departments have extensive computing facilities. Most departments have faculty computing coordinators who can advise on departmental computing resources. The Scholar’s Workstation, the campus’s computer store, offers selected workstations, software, and peripherals at educational discounts to full-time faculty, staff, and students. Workstation Hardware Support provides repair service for equipment sold by The Scholar’s Workstation.

Services for the campus community include drop-in consulting in 264 Evans Hall (also available by e-mail and telephone; see sidebar), software and documentation (available online and in the consulting office), noncredit short courses and training (call User & Account Services for information), and a free newsletter covering developments in computing and communications at Berkeley.

**Botanical Garden**

The Botanical Garden was established in 1890 and transferred to its current location on 34 acres on Centennial Drive in Strawberry Canyon in the 1920s. Although relatively small in area, the garden ranks with the world’s leading gardens in the variety and quality of its plants. There are 13,000 different species, and something is in bloom every month of the year.

One major collection is cacti and other succulent plants. Native plants of California occupy the largest area devoted to a regional collection. Special collections include herbs and spices, palms, rhododendrons, Mesoamerican plants, ferns, cacti, carnivorous plants, orchids, a garden of Chinese traditional medicinal plants, and economically important species.

The Botanical Garden offers free tours to the public every Saturday and Sunday at 1:30 p.m. Special group tours may be arranged for a nominal charge by calling 642-3343. The garden has three large public plant sales annually, as well as plants for sale routinely at the Visitor Center. The garden is open to the public daily except Christmas, from 9 a.m. to 4:45 p.m. The Visitor Center/Gift Shop is also open daily. There is no admission charge. A shuttle bus provides transportation to and from the garden, and parking (for a fee) is available at the garden. For shuttle information, call 642-5145.

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**Computer Numbers and Electronic Mail Addresses**

Consulting office in 264 Evans Hall: 642-8899
drmicro@garnet.berkeley.edu
consult@uclink.berkeley.edu
consult@cmsa.berkeley.edu
consult@gamet.berkeley.edu
consult@violet.berkeley.edu

Statistical Software Consultants: 642-0910
consult@cmsa.berkeley.edu

Central Systems Trouble Desk: 642-4920
User & Account Services: 642-7355
accounts@garnet.berkeley.edu

Workstation Software Distribution: 643-9725
products@garnet.berkeley.edu

The Scholar’s Workstation: 642-8424
tswinfo@garnet.berkeley.edu

Workstation Hardware Support: 643-6937
caltec@garnet.berkeley.edu

Workstation and Microcomputer Facilities: 643-6253

Electronic Mail Postmaster:
postmaster@nic.berkeley.edu
The California Alumni Association

All former students and friends of the University of California, Berkeley are invited to join the California Alumni Association. Founded in 1872 and currently 85,000 members strong, the association is one of the best ways to stay in touch with Berkeley and promote for the welfare of the University and its student body.

The association administers the Alumni Scholarship Program, which annually awards more than $600,000 to some 600 undergraduates. These funds are raised by the association, primarily from alumni who wish to help students.

It sponsors the Alumni Scholars Club, a social and service organization, and co-sponsors career programs. The association also maintains the Alumni Career Resources file, a compilation of Berkeley graduates whom students may contact to learn more about career fields.

It co-sponsors Cal in the Capital and Cal in Sacramento, summer internship programs for students in the national and state capitals, and sponsors four Class Councils, which provide activities for students within the same class year while on campus. It also offers a program through which alumni provide students with internships in the community. Each summer, the association hires 90 students to work at its mountain family camp, the Lair of the Golden Bear, near the Sierra community of Pinecrest.

Currently, students receive a complimentary membership in the Alumni Association during the senior year. Alumni are actively involved in helping the University recruit the finest high school students to Berkeley, and every year they host receptions honoring newly admitted students. Outstanding students from underrepresented minorities in particular are attracted to Berkeley through the association’s Student Outreach and Retention Program. The association also provides one-to-one support for students of diverse cultures and backgrounds through its Mentorship Programs. Its volunteer service program, Cal in the Community, coordinates the activities of alumni and students in service projects throughout California.

Among the many benefits association members enjoy are the nationally respected magazine California Monthly; free UC library privileges on most UC campuses; access to the Lair of the Golden Bear vacation center; year-round alumni group travel programs; major medical and life insurance plans; access to career networking programs with alumni professionals; discounts on UC Berkeley Extension courses; access to Cal ProNet, a résumé database service; and discounts on use of campus sports facilities.

The association is a central source of information on more than 100 affiliated alumni clubs located around the world.

Each year, the association recognizes distinguished alumni and student achievement and honors outstanding service to the University and the community. It co-sponsors the Distinguished Teaching Awards for faculty and presents or co-sponsors a variety of events, such as the Charter Banquet, the Senior Commencement Convocation, Cal Alumni Day, and Cal Day.

The association maintains an office in Los Angeles to assist alumni and students in Southern California. For information, call (213) 624-5060.

Information about all association activities, including young alumni and club programs and alumni events, is available at the association’s campus headquarters, Alumni House, where students and alumni are always welcome. Alumni House is a multipurpose facility. Some of its largest rooms may be rented for meetings and events by association members, campus departments, and student groups registered with the ASUC and the Student Activities Office.

To inquire about the California Alumni Association, call (510) 642-7026 or (800) 255-9471 or send a fax to (510) 642-6252.

The Visitor Information Center

The staff of the Visitor Information Center, located at 101 University Hall, answers questions about the campus and conducts free one-hour, 45-minute tours Monday, Wednesday, and Friday at 10 a.m. and 1 p.m. There are limited Saturday tours available during the academic year; please call for times. During the semester, tours of a residence facility are also available. Special group tours may be arranged by calling 642-5215 (allow two weeks’ notice). A brochure describing a self-guided walking tour is also available for visitors who wish to explore the campus at their leisure. For information and questions regarding current campus activities, call Calendar at 642-2294.
In 1959, Cal made it to the Rose Bowl, won the NCAA basketball championship, and the man I was to get my Ph.D. with—Owen Chamberlain—was awarded the Nobel Prize. Who wouldn't have wanted to come to Berkeley? You could do anything here, and better than anyplace in the world. I still feel that way about Berkeley.

—Thomas “Zack” Powell

Professor of Integrative Biology

An oceanographer, Professor Powell returned to Berkeley in 1994 after 24 years on the faculty at UC Davis. He first came to Cal in 1960 as a freshman football player and received his Ph.D. in physics from Berkeley in 1970.
Student Life

This section offers general information about student life on the Berkeley campus and brief summaries of some of the services and organizations available, arranged in alphabetical order. You may obtain more information from the appropriate office or from Resource, the student handbook.

The ASUC
The Associated Students of the University of California (ASUC) is the official organization of Berkeley students. Membership in the ASUC is voluntary, although all students must pay the ASUC fees. This nonprofit organization, through its student-elected senate, is responsible for directing a large variety of student activities and serves as the official student spokesperson in University affairs. Graduate students also elect departmental representatives to the Graduate Assembly, which meets regularly in Anthony Hall. The ASUC also provides a wide range of programs and activities. Each year, roughly $600,000 is distributed to student activity groups, including associations, ethnic and cultural groups, and sports. The ASUC, moreover, sponsors vital programs such as student advocacy (642-6912), the Student Legal Clinic (642-9984), the Renters’ Assistance Project (642-1755), and the Student Union Program, Entertainment, and Recreation Board (SUPERB) (642-7477).

The basic goals of the ASUC are to enhance the quality of life for both students and the community, as well as to increase the avenues for student participation in education and campus operations. Other important goals of the ASUC are to protect full freedom of as-

 Career Planning and Graduate School Advising

Career and Graduate School Services
Career and Graduate School Services (CGSS), 2111 Bancroft Way, assists students and alumni with the career planning and graduate school admission processes. Students interested in advanced study in business, health science, law, or many other graduate or professional fields may obtain comprehensive advising in these areas and assistance with applications and letters of recommendation. Advisers also assist students and alumni in defining career objectives and developing job search skills to find employment consistent with their career goals.

In addition to advising services, CGSS offers a series of workshops and special programs on a variety of topics. The Resource Center houses reference materials, including occupational information, directories of employers and graduate schools, employer literature and college/university catalogs, informational handouts, and graduate admission test materials: CGSS provides an extensive on-campus interview program and year-round listings for full-time, part-time, summer, internship, and casual employment opportunities. For more information, call 642-1716 (TDD, 642-0592). See page 47 for more information on cooperative education and other internships.
If you are seeking:  
Go to:
Work-study positions  
Office of Financial Aid  
212 Sproul Hall
Part-time, temporary,  
odd-job, summer  
employment, or internships  
2111 Bancroft Way,  
Room 101
Career positions in  
business, industry,  
education, government,  
social services, or nonprofit  
organizations  
2111 Bancroft Way,  
Room 212

Child Care
The Child Care Program is available to full-time registered Berkeley students and provides care for children aged three months to eight years as of the first day of fall classes in a given academic year. To be eligible, at least one parent must be a registered Berkeley student; the other parent, if not a Berkeley student, must be employed or attending a degree-granting institution. Priority is given to currently enrolled children; next, to families based on gross income (lower income advantaged before higher income). Each family is asked to contribute two hours of parent participation per week. There are four centers, each open from 8 a.m. to 5 p.m. Fees are based on a sliding scale depending on gross monthly income and family size. For information and an application (the fall deadline is June 1), contact the Child Care Services office, 2537 Haste Street #4840, Berkeley, CA 94720-4840, 642-1827.

Clubs
Special Interest Clubs
Besides regular ASUC-sponsored activities, there are more than 350 registered student organizations on campus serving special interests and needs. Student groups include academic and professional, ethnic and cultural, political and social action, recreational, religious, and service-oriented organizations, as well as student publications. On Thursday of the third week of instruction during the fall semester, an activities fair is held in Sproul Plaza to acquaint you with many of the organizations and to give you an opportunity to join. A list of registered student groups is available from Student Activities and Services (SAS) in 102 Sproul Hall (642-6778) or on Undergraduate Affairs gopher.

Fraternities and Sororities
Fraternities and sororities offer students an opportunity to make life-long friendships, participate in community service, develop leadership skills and much more. Contact the Interfraternity Council for men (643-6919), the College Panhellenic Association for women (643-6916), or the predominantly African American National Pan Hellenic Council (642-7950). All three groups are located in 102 Sproul Hall. Additional information is available from Student Activities and Services (642-7507) in 102 Sproul Hall.

Honor Groups
Honorary academic societies are open to students of outstanding accomplishment. These groups include Honor Students' Society, Phi Beta Kappa, Prytanean, Mortar Board, Golden Key, Omega (general honor societies), Tau Beta Pi (a national society of upper division students in the College of Engineering and in chemical engineering), and various other groups in other disciplines. Most of these groups offer tutoring services. Information on the general groups is available in SAS, 102 Sproul Hall. Contact specific departments for the other groups.

Student Publications
Student publications provide opportunities for involvement in all phases of publishing: writing, editing, reporting, art and design, advertising, sales, and general management. If interested, you should inquire at the ASUC Library in Heller Lounge in the ASUC

Distinguished Visitors in 1993-94
Oscar Arias, Nobel Peace Prize winner, 1994 Tanner Lecture on Human Values
Jean-Bertrand Aristide, president of Haiti, lecture in Zellerbach Hall
Cecilia Bartoli, opera star, Cal Performances event
Mikhail Baryshnikov, dancer, Cal Performances event
Harry Belafonte, entertainer and human rights activist, guest of honor at International House Gala Dinner
Noam Chomsky, Institute Professor in Linguistics and Philosophy at MIT, Howison Lecture in Philosophy
Joe Clark, former Canadian prime minister, Regents' Lecturer
Dalai Lama, religious leader, lecture in Greek Theatre
Betty Friedan, noted feminist and author, lecture at Lawrence Hall of Science
Ruth Bader Ginsberg, U.S. Supreme Court Justice, moot court justice
Neil Kinnock, leader of the Labour Party, House of Commons, United Kingdom; Barbara Weinstock Memorial Lecture on the Morals of Trade
Jonathan Miller, director of opera and theater, neurologist, television personality; and author; Regents' Professor
Oliver Stone, Academy Award-winning director, speaker at Commencement Celebration
Fun Things to Do

ASUC Art Studio
Classes in photography, video, jewelry-making, paper-making, drawing, painting, ceramics, printmaking; lower level, MLK, Jr., Student Union, 642-3065

Athletics
Cal-STAR (recreation for disabled people), Recreational Sports Facility (RSF), 643-8331
Department of Recreational Sports 2nd floor, RSF, 642-8342
Intercollegiate Athletics, Harmon Gym, 642-9590
Hearst Gym, 642-2427
Intramural Sports, RSF, 643-6822
Sports Clubs, RSF, 643-6024
Tickets, Athletic Ticket Office, 642-5150 or 1-800-GO-BEARS

Bay Area Outreach and Recreation Program
Recreation for disabled people, 830 Bancroft Way, 849-4663
Bowling
The Underground, MLK Jr., Student Union, 642-3825

Cal Performances
Box Office, Zellerbach Hall, 642-9988
General Information, 642-0212
Student Committee for the Arts, 101 Zellerbach Hall, 643-6712
Usherling, 101 Zellerbach Hall, 643-6710
(continued on next page)

Community Service Programs
As part of its overall mission to prepare students for good citizenship, Berkeley is committed to promoting the ethic of public service and encouraging students to participate in community service activities. These activities benefit the disadvantaged and address needs such as educating the illiterate, consoling the lonely and sick, serving the elderly, and preserving the environment.

Cal Corps Public Service Center
Cal Corps Public Service Center, a component of Student Activities and Services, is the campus base and informational clearinghouse for community service efforts. Programs available to the campus community through the center include the Volunteer Clearinghouse, Student-Initiated Community Service Projects, Service-Learning Classes, President Clinton's National Service Program, and much more. For more information on public service or any of Cal Corps' programs, please stop by our office at 505 Eshleman Hall or call 642-3916.

The Volunteer Clearinghouse is a computerized database listing volunteer placements at over 200 community-based organizations in the Bay Area, such as Habitat for Humanity, Berkeley Unified School District, San Francisco District Attorney's Office, and Project Open Hand. In addition, a new section details full-time volunteer opportunities, including the Peace Corps, City Year, and Public Allies, which students can undertake during a year off or after graduation. For students or groups that are unable to volunteer on a weekly basis, Cal Corps compiles a monthly listing of short-term service projects.

The Student Community Service Grants Program was created by concerned students to address the needs of the surrounding community. To support this effort, Cal Corps offers grants, advising, and leadership development for students initiating and operating their own community service projects. Approximately 25 groups, ranging from tutorial and mentorship programs to health and legal services, are funded each year. For a complete listing of projects, or for information on the grant application process, contact the Cal Corps office.

Service-Learning Classes: Cal Corps sponsors a number of service-learning classes that integrate community service into the academic curriculum. Students may receive 2-3 passed/not passed units for volunteering at a local agency and attending a seminar related to their service placements. Issues addressed include homelessness, tutoring, mentoring, and community development. For specific course information or course control numbers, please contact the Cal Corps office.
**AmeriCorps:** In partnership with the School of Education's Service-Learning Research and Development Center, the city of Berkeley, the East Bay Corridor Project, and the Berkeley Unified School District, Cal Corps has expanded its capacity to involve Berkeley students in community service through AmeriCorps, President Clinton's National Service Program. National Service mobilizes young Americans to address pressing educational, environmental, public safety, and human needs while enhancing the educational experience, practical skills and sense of civic responsibility of those participating. AmeriCorps members are paid $9 per hour for 15 hours per week during the academic year and full-time during the summer and receive an educational award of $2,636 upon successfully completing their term of service. The recruitment and application process takes place each spring. For more information, please contact the Cal Corps Office.

**CALPIRG**
The California Public Interest Research Group (CALPIRG) is an independent, nonprofit corporation established by Berkeley students for research and advocacy of environmental and consumer issues. Students propose and conduct CALPIRG projects with the aid of professional staff, and policy is set by a nonpartisan student board of directors. The CALPIRG office is in 303 Eshleman Hall, 642-7313.

**Counseling and Psychological Services**
Counseling and Psychological Services (CPS) provides a variety of services for students: career, academic, and personal counseling through individual interviews; couples counseling; testing services; career information; and group counseling. Counselors are a multicultural group of social workers, psychologists, and psychiatrists. CPS is part of the University Health Service and is located on the third floor of the Tang Center, 2222 Bancroft Way, 642-9494.

Any Berkeley student can come in to talk about deciding on a major, learning about interests and abilities, clarifying career goals and exploring options, coping with personal crises, dealing with concerns about relations with family or others, overcoming learning and concentration problems, life at Berkeley, or any other concerns.

Psychological and aptitude testing is provided as part of the counseling process. An extensive group-counseling program is available on a variety of topics such as procrastination, coping with stress, and improving relationships.

The Career and Educational Guidance Library has materials on occupations, professions, and career opportunities; a comprehensive collection of college catalogs; directories of colleges and professional schools; and computer programs which you may use, even if you are not seeking counseling services.

**Disabled Students' Program**
The Disabled Students' Program (DSP) is located at 230 Golden Bear Center, 642-0518; TTY/TDD, 642-6376. If you have a permanent disability, chronic illness, or temporary injury, you can receive academic support services (such as admissions/enrollment assistance, readers, notetakers, sign language interpreters), attendant referral, emergency transportation, wheelchair repair, and housing assistance. A residence program for newly admitted severely disabled students needing attendant care is available. Many other services are available and most are free. If you have a visual, hearing, mobility, or orthopedic disability, or a learning or other non-apparent disability, you should contact DSP for complete information about services.

**Graduate Assembly**
The Graduate Assembly, whose offices are located in Anthony Hall (Pelican Building), 642-2175, is the graduate component of Berkeley's student government, the ASUC. The Graduate Assembly represents and serves the interests of graduate students. If you are a graduate student, you are welcome to participate in the various projects and activities of the Graduate Assembly, but formal representation is assigned through departments.

Services the Graduate Assembly offers include direct funding for graduate student groups and activities, an annual new graduate student orientation, graduate student instructor training programs, and a biannual magazine called The Berkeley Graduate. The GA also coordinates campus-wide and systemwide graduate student advocacy plans. A patio and meeting room are available for a variety of information and referral services.

**Movies**
Pacific Film Archive, University Art Museum, 642-1124 (recording)
SUPERB Productions, ASUC, 201 MLK, Jr., Student Union, 642-7477

**Music**
Morrison Library (listening library), 101 Main Library, 642-3671
Music Department, 104 Morrison Hall, 642-2678
Noon concerts, Hertz Hall, 642-4864
Practice rooms, Morrison Hall basement, 642-2681
UC Choral Ensembles (student musical activities), 51 Golden Bear Center, 642-3880
UC Jazz Ensemble, 91 Golden Bear Center, 642-5062
UC Marching Band, 53 Golden Bear Center, 642-3436
Health Services

University Health Service
The University Health Service (UHS) is an accredited organization providing access to comprehensive medical care, counseling and prevention services to students. Faculty and staff who are on the Qua-Med health plan or who need occupational health services may also use the health service. The UHS is located in the Tang Center at 2222 Bancroft Way.

Services include visits to physicians, nurse practitioners, and physician-specialists; health education; individual and group counseling; a pharmacy; physical therapy; and basic laboratory tests and X-rays. For people needing immediate care for serious illness, there is an Urgent Care Center and 24-hour telephone advice (643-7197).

Most of the services are subsidized by student registration fees, so the cost to students is modest. For some basic services there is no charge.

During the fall and spring semesters, the UHS is open every day. During semester breaks and summers, the UHS is open weekdays except holidays.

Below is an overview of services available to students, staff, and faculty. For more information, please call the Health Service at 642-2000.

Registered students are served in two distinct ways by the UHS: on-campus health and medical services and major medical health insurance for hospitalization or other referrals to off-campus services.

On-Campus Services at UHS: For general information call 642-2000. All students can use on-campus services including visits with the physician/nurse practitioner of your choice; visits to specialists in any of nine medical disciplines; walk-in urgent care; appointments with a nutritionist, chemical dependency counselor, or health educator for help with issues from sexuality to stress management; rape prevention education and crisis counseling; common laboratory tests and X-ray procedures; pharmacy; allergy tests and shots; international travel care; workshops and classes; peer education; community service and volunteer opportunities; and a self-care resource center.

Most services are supported by student registration fees, but some services have additional fees. Payment plans are available.

Major Medical Health Insurance: For student insurance information call 642-5700. All Berkeley students must carry major medical health insurance while attending Berkeley. Students are automatically enrolled in the University’s Health Insurance Plan (SHIP) and are charged a health insurance fee as part of registration. This insurance supplements the campus services available at the UHS and is designed to minimize the costs to students who have health problems requiring specialized off-campus care, hospitalization, and emergency care.

Students covered by other health insurance may choose not to use the University plan or pay the fee if they can show that their coverage is comparable to that available under the University plan. Waiver information is included in all registration packets.

Dental insurance is available to students. A major medical health insurance plan is also available for purchase to spouses, domestic partners, and dependents of students.

Services to Faculty and Staff: The following on-campus services are available to Berkeley employees: Occupational Health Service for work-related injuries and illnesses; health care for those who choose the Qual-Med medical plan; CARE Services for Faculty and Staff, the campus employee assistance program that provides counseling, assessment, and referrals; HEALTH*MATTERS, a wellness program of work-shops, classes, and activities; international travel care; rape prevention education and crisis counseling; and consultation on health issues affecting the Berkeley campus community. The worker’s compensation and vocational rehabilitation programs are also part of the UHS.

Berkeley’s University Health Service is nationally recognized for its innovative programs and high-quality accredited treatment facility.

University Optometric Eye Center
The School of Optometry, located in Minor Hall, is one of the leading research facilities in the world for studying the eye, vision, and related disorders. As part of its academic programs, the school has an excellent Optometry Clinic that offers comprehensive eye care to faculty, staff, students, and the general public.

The clinic provides complete eye examinations, including eye health assessments and treatment. Prescriptions for glasses or contact lenses can be filled from an extensive selection of eyewear. In addition to providing primary vision care, specialized care is also available:

- ocular health, eye photography, binocular and infant vision, low-vision rehabilitation, and electro-diagnostic testing;
vision training for reading or sports;
- video display terminal (VDT) examinations;
- special visual assessments for the disabled;
- job-related vision examinations and safety glasses.

The school also operates an eye clinic open to the general public in the University Health Service center at 2222 Bancroft Way. Insurance (including SHIP and UC employee benefit coverages) is accepted.

For more information about the clinic in Minor Hall, call 642-2020; for more information about the clinic in the University Health Service center, call 643-2020.

**Housing**

Admission to Berkeley does not guarantee housing reservations. You should acquaint yourself well before your enrollment with the various living arrangements possible. Undergraduates will receive housing information and an application to the residence halls in their admission packets. Graduate students should write directly to Housing Services, 2401 Bowditch Street #2272, Berkeley, CA 94720-2272, or telephone 642-3642, to receive descriptive material.

More than 9,000 men and women live in University residence halls, fraternities, sororities, International House, cooperatives, and University Family Student Housing. Early application to living groups is recommended. The remaining students live in rooms and apartments in the community.

**University Residence Halls**

University-operated residence halls accommodate some 5,000 students, approximately 75 percent of whom are new, incoming students. All new, incoming fall freshmen who apply by the deadline are guaranteed housing in the residence halls, if we are able to accommodate their preferences. Each residence hall is unique, and to become acquainted with the options, new students are encouraged to read their housing information thoroughly. If possible, they should also take the tour offered by the campus Visitor Information Center. Most halls are co-ed, and most offer a dining facility, recreational and social programs, and study rooms. University housing includes "theme houses" which provide a living environment focused on a language or culture. Most residence halls are within a few blocks of campus.

**Community Living**

The Community Living Office offers rental listings and counseling for students who are looking for housing in the community. A new telephone service, the Cal Community RentsLine, allows students to listen to rental advertisements by using a touch-tone telephone. This free service is available on a 24-hour basis, seven days a week. For more information, write to the Community Living Office, 2401 Bowditch Street #2272, Berkeley, CA 94720-2272, or call 642-3642.

**Co-ops**

The University Students' Cooperative Association (USCA) is a nonprofit, student-owned and operated organization that is independent of the University. The Co-op houses approximately 1,200 students in 18 two- and three-story houses and apartments. Members must work five hours a week at a variety of duties. Contracts

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Senior
Political Science
may be cancelled at the end of each semester. You may also join a program which allows you board although you do not room there. Admission priority is given to EOP/AA and disabled students. For more information, contact USCA, 2424 Ridge Road, 848-1936.

**Family Student Housing**
The University operates 994 apartments for married students and single-parent families. The apartments are located at the University Village in Albany, approximately four miles northwest of the campus, and at the Smyth-Fernwald complex in Berkeley. You may apply for family student housing before you have been admitted to the University. You should apply early, as assignments are made on a first-come, first-served basis, and the waiting period could be as long as a year. For more information, contact the Family Housing Assignments Manager, 2401 Bowditch Street # 2272, Berkeley, CA 94720-2272, 642-4109.

**International House**
International House is a coeducational residence for about 600 students and scholars from the U.S. and abroad, primarily at the graduate level. It is also an intercultural program center for the campus, serving nonresident and resident members. An active schedule of cultural, social, and recreational events is offered, designed to promote understanding and friendship among all nationalities. For an application and further information, write or call the Residence Office, International House, University of California, Berkeley, 2299 Piedmont Avenue # 2320, Berkeley, CA 94720-2320. Telephone: 642-9470; fax: 642-5220. For nonresident membership, call the Program Office, 642-9460.

**Information**

**Information Desk**
The Information Desk on the main floor of the Student Union provides campus, transportation, and entertainment information; counseling and advising referrals; directory assistance; campus literature; career planning and placement bulletins and supplements; help with registration procedures; a Student Union lost and found; and on-loan magazines and newspapers. The Information Desk is open Monday through Friday 8 a.m. to 5 p.m. and Saturdays 10 a.m. to 4 p.m. Call 642-INFO.

**Campus Information Online**
An increasing amount of campus information is made available online and can be accessed over the Campus Network or, in some cases, by dialup or from dedicated terminals. Information on most campus World-Wide Web and Gopher servers can be explored by accessing the following addresses with appropriate client software: www.berkeley.edu and gopher.berkeley.edu. Menus on these servers link to other campus servers. Servers are used by the campus to distribute textual material and images, forms, periodicals, software, etc.

Some services of very broad interest include the following:
- The Infocal server contains general public access campus information such as the Schedule of Classes (updated daily), health services information, the General Catalog, campus calendars and press releases, and the campus telephone directory. It can be accessed directly by WWW, Gopher, and Telnet software at infocal.berkeley.edu.
- The library maintains a Gopher server called InfoLib on which campus users can find a selection of online journals and other discipline-related resources, as well as guides to the library, at the network address infolib.berkeley.edu.
- Two online systems offer access to campus and systemwide bibliographic catalogs: the campus GLADIS system, which includes circulation information from campus libraries, and the UC systemwide MELVYL system, which includes a growing collection of scholarly materials for use by the UC community. These are at gladis.berkeley.edu and mevil.berkeley.edu, respectively.

These and other servers are accessible over the Campus Network from networked computers and workstations, campus microcomputer facilities, and library terminals. Dedicated terminals in some campus departments allow direct access to some electronic material—for example, course information terminals in the lobby of Sproul Hall. The Infocal server can be accessed with no special client software if you dial up to the Campus Network and Telnet directly to Infocal.

**International Student Advising**
Services for International Students and Scholars offers a wide range of services to international students, international scholars, and their families. Services include an international student orientation program, guidance on visa matters, help in solving financial problems, advice and referrals about personal concerns, and information on almost any topic of special interest to international students and scholars. Located in International House, 2299 Piedmont Avenue, 642-2818, the office is open Monday through Friday, 9 a.m. to noon and 1 to 4 p.m. E-mail: iss@uclink.berkeley.edu

The International House Program Office, 642-9460, organizes cultural, social, and recreational programs that enhance the appreciation of various cultures. Programs offer opportunities for personal interaction and participation in campus and community events. Trips to neighboring communities for home stays and tours of local institutions and facilities enable international visitors and U.S. citizens to learn from each other; at the same time these activities introduce people from abroad to unique aspects of U.S. society. I House cultural events, parties, and slide shows enrich the extracurricular life of the campus.

Nonresident membership in the I House (for a nominal fee) keeps newcomers informed of activities for the international community.
Legal Services

If you are concerned about a legal problem or want information about your legal rights and obligations and you are a registered Berkeley student, you are encouraged to make an appointment with Beth Karren, the Student Legal Services' attorney, by calling 642-4980. For appointments only, call 642-5171.

Ms. Karren’s office is located in Student Activities and Services, 102 Sproul Hall, and her hours are 9 a.m. to 4 p.m. Monday through Wednesday during the academic year and 9 a.m. to 4 p.m. Tuesday during the summer.

Office of the Ombudsperson for Students

The ombudsperson serves all students, both undergraduate and graduate, who feel they have been treated unfairly or need help in resolving a problem. Having no official administrative role in imposing solutions, the ombudsperson acts as an independent “agent of justice” who, if the situation warrants it, investigates complaints and the conditions leading up to the complaints and attempts to work with all parties involved to mediate a satisfactory solution. All matters referred to the ombudsperson are held in the strictest confidence.

If you are confronted with a bureaucratic impasse or feel you have been treated unfairly or need help with a procedural or academic problem, contact the ombudsperson. To make an appointment, call 642-5754.

Orientations for New Students

The Office of New Student Programs offers programs, services, and publications to introduce new undergraduates to the Berkeley campus. All incoming freshmen and transfers will be sent information about the Cal Student Orientation (CalSO) Program. At CalSO, new students (and their parents) receive information, advice, and the student handbook Resource to ease their transition to life at Berkeley. New Student Programs also organizes fall’s Welcome Week, staffs the chancellor’s Smooth Transition Information Tent, and runs the CalSO Resource Center in the Martin Luther King, Jr., Student Union, where students can get help with class enrollment during the early weeks of each semester. The Office of New Student Programs is located at 137 Golden Bear Center, 642-4970.

Smooth Transition

When Chang-Lin Tien became chancellor in the summer of 1990, he made a primary goal of easing the transition process facing students at the beginning of each semester. The fall “Smooth Transition” program builds upon Welcome Week activities and includes nearly a month of welcoming and orientation activities sponsored by academic departments, student service units, and student groups. Spring Smooth Transition includes orientations and an afternoon reception with the chancellor. The program funds these activities as well as additional staff to work the lines at Financial Aid disbursement, at the Cashier’s Office, and at other busy campus locations, thereby helping students to better navigate and conquer the bureaucracy.

Do not be surprised if you see Chancellor Tien staffing the Information Tent on Sproul Plaza during Smooth Transition time.

Re-entry Program

The Re-entry Program in the Student Learning Center provides academic support to undergraduates 25 and older and to graduate students age 30 and older. Services and programs designed to promote collaborative learning include tutoring in writing; peer advocacy; re-entry support groups; financial aid workshops; and community orientations for prospective students. Writing tutor and peer advocacy training seminars are available for credit. The Adult Learners seminar is a 1-unit course designed for new re-entry students. A re-entry newsletter is published every semester. The program is located on the mezzanine of the Golden Bear Center, 643-8070.

Religious Activities

Since the University is a state-supported institution, it does not offer chapel services or religious activity on campus. However, there are more than 35 churches and student religious clubs within a few blocks of the campus and six campus ministries that comprise the University Religious Council. For additional information, contact the Office of Student Activities and Services, 102 Sproul Hall, 642-6772.

Safety

The University maintains a police department on the Berkeley campus for your protection and safety. The department consists of approximately 77 fully trained, sworn officers, 43 other full-time personnel, and 55 student employees. The Police Department is located in 1 Sproul Hall (basement) and is open 24 hours a day, seven days a week. Police patrol the campus, the surrounding University properties, and Southside and vicinity, and they investigate all crimes committed on University property. For emergencies, including police, fire, or medical, call 9-911 from campus phones requiring that you dial “9” for outside calls, 911 from pay phones or off-campus phones. For general business, call 642-6760; for information about campus safety services and programs, call 64B-SAFE (642-7233); for information on emergency preparedness, call 642-9036; for lost and found, call 642-4936.

All bicycles on campus must have California bicycle licenses. The Police Department licenses bicycles at the bicycle bureau on selected days during the week; call 642-6760 during normal business hours for days and times.

We hear about students’ feelings of isolation on a large, decentralized campus like Berkeley. Being involved in an activity, group, or community service project, or an informal study group is an excellent way for students to meet, share, and help each other. I tell students, these can be your support groups, take advantage of them.

—Roseanne Fong
Night Safety Shuttle/Night Escort Service
The Night Safety Shuttle and Night Escort Service are available in the evening for safe access to your car, campus facilities, nearby home, or public transportation. Call 64B-SAFE (642-7233) for the operating area and times.

The following programs are also available for your safety:
- CalWatch (a volunteer night patrol program)
- mace and pepper spray training
- self-defense classes
- safety presentations

Please call 642-7233 or 64B-SAFE for more information.

Rape Prevention
The University Health Service offers counseling and advocacy services for sexual assault survivors; counseling services for friends and family of survivors; prevention education and training services for students, faculty, and staff; self-defense training; and referral services. Call 642-6074 for counseling/advocacy and 642-7202 for education and training.

Student Activities and Services
Student Activities and Services (SAS) staff help students learn to use the campus to its fullest. SAS encourages participation in co-curricular activities that, for many students, can be one of the most rewarding benefits of a Berkeley education.

SAS recognizes more than 400 student groups including fraternities and sororities, honor societies, student publications, and service organizations. Among SAS’s support services are leadership workshops and conferences, multicultural student group advising, and internships and awards. Volunteer opportunities are available through the Cal Corps Public Service Center (see Community Service Programs, above). SAS also assists with facility reservations and events management, disseminates campus information, and administers funding for student programs.

Registered students may seek free legal advice from the attorney for students and assistance with University-related problems through the ombudsperson for students (see Legal Services and Ombudsperson for Students, above).

SAS is located in 102 Sproul hall (642-5171); Cal Corps is at 505 Eshleman Hall (642-3916).

Student Learning Center
The Student Learning Center is an academic support service that offers tutoring and learning skills assistance to University students. Learning skills staff provide individual and group tutorial services in writing, study skills, and reading improvement, and in introductory courses in the humanities, foreign languages, social sciences, mathematics, statistics, and sciences. The center also provides services to re-entry students. The Student Learning Center is located in 198 Golden Bear Center, 642-7332.

Student Life Advising Services
Student Life Advising Services provides Educational Opportunity Program students (low-income, first-generation college students) and underrepresented groups (African American, Chicano, Latino, Filipino, and Native American) with academic, personal, financial, and career counseling and advising services. Professionally trained staff help students to develop problem-solving and self-management skills. The goals of SLAS are to motivate and direct students toward achieving academic excellence and to increase the number of low-income, first-generation and Affirmative Action students that graduate from Berkeley. Counselors and peer advisers are available on both a drop-in and appointment basis to assist students with their concerns.

In addition to counseling and advising services, SLAS administers a wide range of programs designed to assist students in achieving their educational and career goals. These include the Achievement Awards Program, Reduced Study-Load Program, Housing Assistance Program, Summer Bridge Program, Peer Advising Program, schedule request review, emergency loans, and financial assistance.

Student Life Advising Services is a component of Student Life Resources, located in 140 Golden Bear Center, 642-7224.

Women’s Resource Center
The Women’s Resource Center sponsors programs, groups, internships, and publications that promote understanding of the changing roles of women and raise campus awareness of the issues affecting their experiences and opportunities as students.

The center also provides individual problem-solving assistance, referrals to campus and community resources, a home base for diverse student women’s groups, and a comfortable resource room and study area for exploration of personal and academic interests.

If you would like to make new friends, find support in coping with a crisis, build leadership skills, advocate for responsive policies and programs, organize a campus-wide event, create a specialized support group, or gain work experience, stop by the Women’s Resource Center and introduce yourself. All members of the campus community who would like to contribute or get involved are welcome. The center is located at 250 Golden Bear Center, 642-4786.
I came to Berkeley because of its world-class students and faculty and the opportunity to work with colleagues interested in the fundamental questions of occupational health. The School of Public Health here is a natural fit for me. Berkeley cares about the work I do.

—Katharine Hammond

Associate Professor of Public Health

Formerly director of the environmental health division at the University of Massachusetts Medical Center, Hammond joined Berkeley's faculty in 1994.
Undergraduate Education

As a prospective Berkeley undergraduate, you should give careful thought to preparing yourself adequately in reading, writing, mathematics, and other areas related to your intended major. The more comprehensive and challenging your high school or college program is, the better prepared you will be for work at Berkeley.

High school honors-level and advanced placement courses are good preparation for Berkeley, regardless of the major you choose. The nature of instruction and the subject matter you cover in advanced courses will give you a definite advantage in your studies. These challenging courses will help you develop the good study habits and skills you will need at Berkeley.

Applying for Admission

How to Apply

If you are interested in applying to Berkeley, you can obtain an undergraduate application packet from your high school or community college counselor's office or any of the University of California campuses' admissions offices. The packet contains an application form and explains the application process, fees, and all the items you must submit with your application. You may apply to as many UC campuses as you wish, using one application form. (The San Francisco campus, which is devoted to the health sciences, has its own application and filing procedures.)

You should be aware of the importance of the priority filing periods. Berkeley has received an increasing number of applications in the last few years, so generally we are not able to accept applications after a filing period ends.

Priority Filing Period

Fall semester: File November 1-30

Note: Berkeley does not accept applications for the spring semester. However, we will continue to defer students to the spring semester from the fall applicant pool. For information about application fees and fee waivers, see below; see also Fees and Financial Aid, beginning on page 69.

Application Fees and Fee Waivers

The basic application fee of $40 entitles you to apply to one University campus. If you apply to more than one campus, you must pay an additional $40 for each campus you select. These fees are not refundable. You must include your fees with the application or it will not be processed.

The University will waive application fees for up to three campuses in order to assist students for whom payment is a barrier to application to the University. Students who qualify for fee waivers and who select more than three campuses must pay $40 for each additional choice. To be accepted for the fee waiver program, your family income and the number of dependents must be within specific guidelines.

There are four ways to obtain a fee waiver:

1. If you are in high school, you may use the College Board fee waiver. You may obtain an application for this waiver from your high school counselor.

2. If you are enrolled in the EOPS program in a California community college, you may obtain a fee waiver from your EOPS office.

3. You may obtain a fee waiver application from Berkeley's Office of Undergraduate Admission and Relations with Schools, or the EOP Office.

4. If you are unable to obtain a fee waiver from any of the sources mentioned above, you may attach a letter to your admission application requesting consideration for a fee waiver. In the letter, describe your family's income, the number of dependents, and the hardship that makes payment of the application fee difficult. Berkeley will review the letter and may grant you a fee waiver if appropriate.

Competitive Admission at Berkeley

All programs at Berkeley receive more applicants than they can accept. For fall 1994, Berkeley was able to admit only 8,400 out of 21,000, or 40 percent, of its freshman applicants and only 2,050 out of 6,400, or about 30 percent, of its transfer applicants. Consequently, to gain admission to Berkeley, you need to present an academic profile much stronger than that represented by the minimum University of California admission requirements. See the Appendix for more information on selection criteria.
Admission as a Freshman

Berkeley considers you a freshman applicant if you have graduated from high school and have not enrolled in a regular session at any college or university. If you attend a summer session immediately after graduating from high school, you are still a freshman applicant.

Minimum Eligibility Requirements

California Residents

To be eligible for admission to Berkeley, you must meet the subject, scholarship, and examination requirements described below.

Subject Requirement

To satisfy this requirement, you must complete the high school courses listed below with a grade-point average defined by the scholarship requirement. This sequence of courses is also known as the "a-f" requirements. You must take 15 units of high school courses to fulfill the subject requirement, and at least 7 of the 15 units must be taken in your last two years of high school. (A unit is equal to an academic year, or two semesters, of study.)

Applicants from California high schools: To be acceptable to Berkeley, the courses must appear on a list certified by your high school principal as meeting Berkeley's admissions requirements. Your counselor or principal will have a copy of this list.

a. History/Social Science—Two years required. Two years of history/social science, including one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government; and one year of world history, cultures, and geography.

b. English—Four years required. Four years of college preparatory English that include frequent and regular writing, and reading of classic and modern literature. Not more than two semesters of 9th-grade English can be used to meet this requirement.

c. Mathematics—Three years required, four recommended. Three years, including elementary and advanced algebra and two- and three-dimensional geometry. Math courses taken in the 7th and 8th grades may be used to fulfill part of this requirement if your high school accepts them as equivalent to its own courses.

d. Laboratory Science—Two years required, three recommended. Two years of a laboratory science providing fundamental knowledge in at least two of these three areas: biology, chemistry, and physics. Laboratory courses in earth/space sciences are acceptable if they have as prerequisites or provide basic knowledge in biology, chemistry, or physics. Not more than one year of 9th-grade laboratory science can be used to meet this requirement.

e. Language Other than English—Two years required, three recommended. Two years of the same language other than English. Courses should emphasize speaking and understanding and include instruction in grammar, vocabulary, reading, and composition.

University of California Freshman Eligibility Index

<table>
<thead>
<tr>
<th>A-F GPA</th>
<th>ACT Comp.</th>
<th>SAT I Total</th>
<th>A-F GPA</th>
<th>ACT Comp.</th>
<th>SAT I Total</th>
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<td>12</td>
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ACT is scored in intervals of 1 point, from a minimum of 1 to a maximum of 36. SAT I is scored in intervals of 10 points, from 400 to 1600. Use the first score if you take the test before April 1995. Use the second score if you take the test April 1995 or later.

f. College Preparatory Electives—Two years required. Two units (four semesters) in addition to those required in "a-e" above, chosen from at least two of the following areas: history, English, advanced mathematics, laboratory science, language other than English (a third year in the language used for the "c" requirement, or two years of another language), social science, and visual and performing arts.

Scholarship Requirement

The scholarship requirement defines the grade-point average (GPA) you must attain in the "a-f" subjects to be eligible for admission to Berkeley. If your "a-f" GPA is below 3.3 but above 2.81, you have met the minimum requirement if you achieve the necessary college entrance test score indicated in the eligibility index on this page.

Berkeley calculates your GPA in the "a-f" subjects by assigning point values to the grades you earn, totaling the points, and dividing the total by the number of "a-f" course units. Points are assigned as follows: A=4 points, B=3 points, C=2 points, D=1 point, F=0 points.

*Residency status: The requirements for California residents also apply to dependents of University of California graduates and employees. The definition of legal residence for tuition purposes is different. If you have questions about your residency status, see the Appendix or contact the Office of the Registrar at 642-1614.

(continued on next page)
Myth: You cannot do much beyond working hard at classes in your major to improve your chances of career success.

Fact: Courses outside your major and independent study projects are important, too. You will gain valuable experience by participating in extracurricular activities such as student organizations, sports, social groups, and student government. In addition, internships, summer jobs, and volunteer activities will help you define your interests, develop skills, strengthen your résumé, and establish professional contacts in the working world.

Myth: Your first job will determine your career. Therefore you ought to be completely sure of your choice when you make an academic or career decision.

Fact: You cannot be entirely sure of any decision. Each career has its advantages and disadvantages; any choice involves some risk. Do not think that you cannot change your mind. According to the Bureau of Labor Statistics, the average person changes careers three times in a lifetime—and even within a specific field, you are usually free to explore.

## Trivial Pursuit

No. 4

Which campus building, in what year, was demolished with great ceremony and some 700 alumni in attendance?

(Answer on page 444.)
the three SAT II: Subject Tests, with a minimum score of 500 on each test if taken before May 1995, or 1760 if taken May 1995 or later. If you take the SAT II: Subject Tests in May 1995 or later, you must also score at least 530 on each required test. You cannot qualify for admission by examination alone if you have completed 12 or more units of transferable course work at another college or university following high school graduation, or if you have taken transferable college courses in any subject covered by the SAT II: Subject Tests.

High School Proficiency Examination
Berkeley accepts the Certificate of Proficiency awarded by the State Board of Education for completion of the California High School Proficiency Examination in lieu of a regular high school diploma. Berkeley also accepts the General Education Development (GED) certificate and certificates of proficiency awarded by other states. You must satisfy all other admission requirements if you apply with a certificate of proficiency.

Admission of Nonresident Applicants
The minimum freshman admission requirements for nonresidents of California are the same as those for residents except for the following:

Scholarship requirement: Your grade-point average in the "a-f" subjects must be 3.4 or higher, regardless of your college entrance examination score. The eligibility index is used only for California residents.

Admission by examination alone: You must score at least 1300 on the SAT I: Reasoning Test if taken before April 1995 or a score of at least 1400 if taken April 1995 or later, or 31 on the ACT. Your total score on the three required SAT II: Subject Tests must be at least 1730, with a minimum score of 500 on any single test if taken before May 1995. If taken May 1995 or later, you must score at least 1850 with a minimum score of 530 on each test.

Admission as a Transfer Student
Berkeley considers you a transfer applicant if you graduated from high school and enrolled in a regular session at another college or university. You cannot disregard your college record and apply as a freshman.

If you plan to attend a California community college before applying to Berkeley, you should take courses that are transferable, that satisfy University and college requirements, and that fulfill prerequisites in your intended major. Advisers in the Office of Undergraduate Admission and Relations with Schools and community college counselors can help you with your planning.

The University publishes a booklet especially for transfer applicants called Answers for Transfers. It is available from your community college counselor or the Office of Undergraduate Admission and Relations with Schools; call 642-3175.

California Residents*
There are three ways in which you can meet the University’s minimum admission requirements for transfer students. These requirements are described below. In all cases, you must have at least a C (2.0) average in all transferable course work.

Requirements for Nonresidents
The minimum admission requirements for nonresident transfer applicants are the same as those for residents except that nonresidents must have a grade-point average of 2.8 or higher in all transferable college course work.

Minimum Eligibility Requirements

Requirements for Residents
1. If you were eligible for admission to Berkeley when you graduated from high school—meaning you satisfied the subject, scholarship, and examination requirements—you are eligible to transfer if you have a C (2.0) average in your transferable college course work.

2. If you met the scholarship requirement but did not satisfy the subject requirement, you must take college courses in the subjects you are missing to be eligible to transfer. You will need to earn a grade of C or better in each of these required courses and an overall C (2.0) average in all transferable college course work. If you completed less than 12 quarter or semester units of

*Residency status: The requirements for California residents also apply to dependents of University of California graduates and employees. The manner in which legal residence is defined for tuition purposes is different. If you have questions about your residency status, see the Appendix or contact the Office of the Registrar at 642-1614.
transferable college course work, you must also satisfy the examination requirement.

3. If you were not eligible for admission to Berkeley when you graduated from high school because you did not meet the scholarship requirement, or you did not meet the scholarship requirement and did not complete all the required "a-f" subjects, you must (a) complete 84 quarter units or 56 semester units of transferable college credit with a grade-point average of at least 2.4 and satisfy either (b) or (c) as follows: (b) take college courses in the subjects you are lacking and earn a grade of C or better in each one (Berkeley will waive up to 2 units of the required high school course work except in mathematics and English); (c) complete one college course in mathematics, one in English, and one selected from either U.S. history, laboratory science, or foreign language. You must earn a grade of C or better in each course. All courses, with the exception of the required mathematics course, must be transferable. The course in mathematics must assume a proficiency level equivalent to three years of high school mathematics (i.e., elementary algebra, advanced algebra, and geometry). The course may be trigonometry or a more advanced course in mathematics or statistics for which advanced algebra is a prerequisite.

When the number of applicants exceeds the spaces available for a particular college, school, or major, the university uses criteria that exceed the minimum requirements to select students. (See the discussion of selection criteria in the Appendix for more information.) Meeting the minimum requirements, therefore, is not enough to gain admission to most programs at Berkeley.

For additional requirements for admission in advanced standing, see the announcement of the individual college or school to which you seek admission.

**Intercampus Transfers**

If you are registered on any campus of the University or were previously registered in a regular session of the University, you may apply for transfer to another campus of the University by filing the undergraduate application. Filing dates and application fees are the same as those listed for new applicants. Note: Intercampus transfer applicants receive no priority in the selection process.

**Admission of International Applicants**

International students are those holding or intending to apply for nonimmigrant visas. If you are applying from another country, you should request further information about admission to Berkeley, visas, special examinations, fees and expenses, housing, and travel.

Direct your inquiries to the Office of Undergraduate Admission and Relations with Schools, 110 Sproul Hall #5800, or call 642-3246. If you need to improve your English language skills, you should contact the English Language Program, University of California Extension, 2223 Fulton Street #7022, Berkeley, CA 94720-7022, USA.

**Readmission**

If you formally withdraw from Berkeley, were absent for one or more semesters, or are returning to Berkeley in the Limited Status or Second Bachelor's programs, you must file an Undergraduate Application for Readmission. Application deadlines are April 15 for fall admission and August 15 for spring admission. Applications must be accompanied by a $40 readmission fee. If you attended other colleges or universities while you were away from Berkeley, you must send an official transcript to Berkeley immediately. Address correspondence to the Office of Undergraduate Admission and Relations with Schools, 110 Sproul Hall #5800, or call 642-0734.

**Special Admission**

Because all students have not had the same opportunities to prepare for higher education, Berkeley gives special consideration to a limited number of both freshman and transfer applicants who show potential to succeed at Berkeley although they do not meet the minimum admission requirements. If you think you qualify for special admission, contact the Office of Undergraduate Admission and Relations with Schools at 642-3175.

**Student Affirmative Action (SAA) and Educational Opportunity Programs (EOP)**

Berkeley recognizes and values the intellectual and cultural contributions of a student population that reflects the rich diversity of the people of California. To promote this diversity, Berkeley has a Student Affirmative Action (SAA) program for students from historically underrepresented ethnic groups, and an Educational Opportunity Program (EOP) for students from educationally disadvantaged and low-income backgrounds. These programs help students who are interested in attending college and who are already enrolled at Berkeley.

Through SAA, you may take advantage of a variety of special educational programs and support services. For example, you may participate in Early Academic Outreach developmental programs before you enroll at Berkeley. These programs will help you select the proper courses in high school and strengthen your academic skills. Through Immediate Outreach, counselors will advise you about your prospects for admission and help you with the admissions process. If you qualify for financial assistance, SAA provides application fee waivers, information about financial aid, and financial advising.
Once you enroll, SAA offers special services to help you make the transition to life at Berkeley. These include Summer Bridge programs, orientations, personal counseling, academic advising, and academic skills development. All students from underrepresented ethnic groups are eligible for SAA services.

The support services provided to educationally disadvantaged and low-income students by EOP complement the services offered by SAA. You may apply to EOP on Berkeley’s undergraduate admission application.

If you are considering Berkeley and you qualify for these programs or want more information, contact the Office of Undergraduate Admission and Relations with Schools at 642-3175.

**Limited Status**

Limited-status students are a special category of undergraduates who have earned an undergraduate degree with a record of superior scholarship (an overall grade-point average of at least 3.3), but need additional undergraduate course work for a specific and clearly defined purpose. Only the Colleges of Chemistry, Natural Resources, and Engineering and the Department of Ethnic Studies will consider admitting students in limited status.

Limited status is granted only in special circumstances; students’ needs, abilities, and programs should have enough urgency to justify admitting them in place of students in regular status, and there should be no reasonable alternative available. Use of limited status to enable students to raise their scholarship average is not permitted.

**Work Toward a Second Bachelor’s Degree**

If you are a candidate for a second bachelor’s degree, you will be considered for admission only if you need an entirely new major program for a valid educational purpose. Only the Colleges of Chemistry, Natural Resources, and Engineering, the School of Optometry, and the Department of Ethnic Studies will consider admitting students for a second bachelor’s degree. To apply for this program, you must have earned an undergraduate degree with a record of superior scholarship (an overall grade-point average of at least 3.3) and must have completed all lower division requirements for your proposed major with excellent grades. Your proposed program must represent a definite change in field from your first undergraduate degree, and you must prove that you require the second degree for the stated purpose. If you need course work but not a degree in a new field, you should apply for limited status (see above) instead.

In practice, Berkeley admits very few students to the limited status or second bachelor’s programs each year. Detailed information about these programs is available in the Office of Undergraduate Admission and Relations with Schools, 110 Sproul Hall # 5800, or call 642-3175.

If you are not eligible for the second bachelor’s or the limited status programs, you may consider concurrent enrollment through UC Berkeley Extension as an alternative. For information call 642-4111.

**Tele-BEARS**

Tele-BEARS is an interactive computer system that allows you to enroll in classes by using a touchtone telephone. A recorded human voice instructs you when to respond and what to enter for each transaction. Because Tele-BEARS is interactive, you always receive the most immediate, up-to-the-moment information regarding your registration and class enrollment.

**How Tele-BEARS Works**

To ensure the fairest possible distribution of courses to the student body, enrollment in classes is spread over two phases and an adjustment period. Phase I, starting toward the end of the previous semester, allows you to enroll in a maximum of 10 units plus one physical education activity course. In Phase II, starting immediately
Alternatives to Overcrowded Courses

If you are unable to get your first choice of a particular class, think creatively. Check with an adviser to determine whether an alternative course is a viable option for you. Consider these examples:

Economics: Political Economy of Natural Resources (PENR) 1 is accepted as equivalent to Econ 3, PENR 101, to Econ 125; PENR 151, to Econ 171.

Psychology: Consider alternatives outside the Psychology Department: cognitive science (UGIS), developmental psychology (Education), biological psychology (MCB), or organizational psychology (Business). See also Social Welfare and Public Health.

Literature: Many language departments offer literature courses in translation. For an exhaustive list, see the Schedule of Classes.

Political Science: Consider offerings in Public Policy and Environmental Science, Policy, and Management.

Letters and Science Breadth Requirements: L&S accepts many classes from other colleges in satisfaction of its breadth requirements. Use Info-BEARS, the Electronic Schedule of Classes, and the L&S publication "Earning Your Degree" to find alternatives to overcrowded courses that meet the L&S breadth requirements.

after Phase I, you may complete your enrollment by enrolling in courses up to your college or school maximum. You may then add and drop courses during the adjustment period, which starts one week before instruction and extends through the first three weeks of instruction.

Access to Tele-BEARS is regulated by pre-assigned appointments which are spread throughout each phase period. For security purposes, you are assigned a unique Personal Identification Number (PIN) which must be entered after your Student ID number in order to use Tele-BEARS.

To enroll and register through Tele-BEARS, follow these steps:

Receive Your Registration Form
A Tele-BEARS registration form indicating your PIN and appointment times will be mailed to you by the Office of the Registrar. * If you require academic advising, you also will be required to obtain an Adviser Code (AC) from your major adviser or college/school Dean's Office. ** The AC must be entered at the time of your first call to Tele-BEARS each semester. If you will be a new or readmitted student, you also will be mailed a Schedule of Classes which lists the meeting times and locations of all courses to be given at Berkeley for the semester.

Enroll in Classes
With the Schedule of Classes and the General Catalog, you can determine a class schedule. If you will be a new student, you are encouraged to attend the Cal Student Orientation (CalSO) program to obtain your AC and to help you choose classes and formulate a schedule tailored to your particular academic interests. Contact the CalSO office, 642-4970, for information. Once you have selected your classes, you are ready to call Tele-BEARS to enroll.

Pay Registration Fees
A monthly billing statement indicating all University fees due will be mailed to you by the Loans and Receivables Office. You may pay your fees in full or in five installments on the Deferred Payment Plan. Fee payment (either in full or the first installment) is due on July 15 for the fall semester and December 15 for the spring semester.

The Deferred Payment Plan
You may pay your registration fees in five installments if you wish. A nonrefundable processing fee will be charged to your first installment. Your billing statement will indicate the amount due for the first payment; subsequent statements for the remaining payments will be mailed to your local address on file with the Office of the Registrar. For full information about the Deferred Payment Plan, read the billing statement or call the Loans and Receivables Office at 642-3190.

Receive Your Confirmed Class Schedule
At the end of Phase II, the Office of the Registrar will send you a Confirmed Class Schedule indicating all classes for which you have enrolled through Tele-BEARS.

Info-BEARS
Info-BEARS is Berkeley's information retrieval system and an adjunct to Tele-BEARS. With Info-BEARS, you can hear your final grades for the previous term, the status of your financial aid application, your current class schedule, enrollment restrictions for a particular course, and much more. Info-BEARS is available Monday through Friday from 7 a.m. to 10 p.m., on Saturday from 7 a.m. to 7 p.m., and on Sunday from noon to 6 p.m. The phone number is 642-9400. For more information, see the Schedule of Classes.

Undergraduate Majors and Degrees

Planning for a Major
The decision on the choice of a major is a very important one and should be made on the basis of your interests and abilities as well as your career goals. You should look carefully into the programs available by using this catalog and by visiting departments in which you are interested. Your adviser can help you explore the possibilities of interdisciplinary majors, which you take by declaring a group major or field major. If the major you are interested in is offered in more than one college or division, your adviser can help you choose the one that best suits your academic goals.

You are strongly urged to declare your major as soon as possible and should begin thinking about possible majors in your first year at Berkeley. Some majors require a full four years to complete; most majors require that some or all of the lower division major requirements be completed before you may be accepted into the major. Since you are expected to be accepted into a major by the time you have completed 60 units, these lower division major requirements should be planned into your program for the first two years. It is possible for you to
plan a program that would include preparation for more than one major, an easy task if the majors in question have some lower division requirements in common.

Some majors are very crowded and cannot accommodate all applicants. You should consult closely with the departments in which you have an interest to learn of any restrictions that have been placed on entry to the major.

Declaration and Change of Major

Regulations and procedures for declaring the major vary for each college. You may, at any time up to the last semester of residence, file a petition for a change of major. (This policy does not apply to students in the College of Engineering.) You must secure approval for this action from the dean or other authorized person in the college or department to which you are transferring.

Preparation for Graduate Study

If you are preparing for study toward a higher degree, you should learn, as early as possible, the entrance and degree requirements of your graduate field, in order to include all prerequisite steps in your undergraduate program.

Undergraduate Degrees

African American Studies, B.A.
American Studies, B.A.
Ancient Near Eastern Archaeology and Art History, B.A.
Anthropology, B.A.
Architecture, B.A.
Art (History of), B.A.
Art (Practice of), B.A.
Asian Studies, B.A.
Asian American Studies, B.A.
Astrophysics, B.A.
Biomechanical Engineering, B.S.
Bioresource Sciences, B.S. ¹
Business Administration, B.S. ²
Celtic Studies, B.A.
Chemical Engineering, B.S.
Chemistry, B.A. or B.S. ³
Chicano Studies, B.A.
Civil Engineering, B.S.
Classical Civilization, B.A.
Classical Languages, B.A.
Cognitive Science, B.A.
Comparative Literature, B.A.
Computer Science, B.A. or B.S. ⁴
Conservation and Resource Studies, B.S.
Development Studies, B.A.
Dramatic Art, B.A.
Dramatic Art—Dance, B.A.
Dutch Studies, B.A.
Earth Resources Engineering, B.S.
Earth Science, B.A.
East Asian Languages, B.A. (Chinese, Japanese, Altaic)
Economics, B.A.
Electrical Engineering and Computer Sciences, B.S. ⁴
Engineering, Nine Double Major Programs, B.S. ⁵
Engineering Mathematics and Statistics, B.S.
Engineering Physics, B.S.
English, B.A.
Entomology, B.S.
Environmental Engineering Science, B.S.
Environmental Sciences, B.A.
Ethnic Studies, B.A.
Film, B.A.
Forestry, B.S.
French, B.A.
Genetics and Plant Biology, B.S.
Geography, B.A.
Geology, B.A.
Geophysics, B.A.
German, B.A.
Greek, B.A.
History, B.A.
Human Biodynamics, B.A.
Industrial Engineering and Operations Research, B.S.
Integrative Biology, B.A.
Interdisciplinary Studies, B.A.
Italian, B.A.
Landscape Architecture, B.A.
Latin, B.A.
Latin American Studies, B.A.
Legal Studies, B.A.
Linguistics, B.A.
Manufacturing Engineering, B.S.
Mass Communications, B.A.
Materials Science and Engineering, B.S.
Mathematics, B.A.
Mathematics, Applied, B.A.
Mechanical Engineering, B.S.
Middle Eastern Studies, B.A.
Mineral Engineering, B.S.
Molecular and Cell Biology, B.A.
Molecular Environmental Biology, B.S.
Music, B.A.
Native American Studies, B.A.
Naval Architecture, B.S.
Near Eastern Studies, B.A.
Nuclear Engineering, B.S
Nutrition and Clinical Dietetics, B.S.
Nutrition and Food Science, B.S.
Optometry, O.D.
Peace and Conflict Studies, B.A.
Petroleum Engineering, B.S.
Philosophy, B.A.
Physical Sciences, B.A.
Physics, B.A.
Political Economy of Industrial Societies, B.A.
Political Economy of Natural Resources, B.S.
Political Science, B.A.
Psychology, B.A.
Religious Studies, B.A.
Resource Management, B.S.
Rhetoric, B.A.
Scandinavian, B.A. (Danish, Norwegian, Swedish)
Slavic Languages and Literatures, B.A.
Social Welfare, B.A.
Sociology, B.A.
Soil Environment, B.S.
South and Southeast Asian Studies, B.A.
Spanish, B.A.
Statistics, B.A.
Vision Science, B.S.
Women’s Studies, B.A.

Minors

Minors are offered at Berkeley in many departments and groups in the College of Letters and Science:

- African American Studies
- Art History
- Asian Studies
- Celtic Studies
- Classics
- Creative Writing (UGIS)
- Demography
- English
- Ethnic Studies
- French
- Geography
- German
- Italian
- Mathematics
- Music
- Near Eastern Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Public Policy
- Religious Studies
- Rhetoric
- Scandinavian
- Slavic Languages and Literatures
- South and Southeast Asian Studies
- South Asian Archaeology
- Spanish and Portuguese
- Women’s Studies

Minors are also offered in the College of Environmental Design, in the College of Natural Resources, and in the School of Education. For more detailed information and lists of the minors available, see the section “Colleges, Schools, and Interdisciplinary Programs” beginning on page 87.

Undergraduate Degree Requirements

As soon as you have been accepted for admission to Berkeley, you should learn the requirements you will have to fulfill to earn your bachelor’s degree. These requirements are prescribed by four sources: the University, the Berkeley campus, your college or school, and your department. All are summarized below. For more information, pick up a copy of “Undergraduate Degree Requirements for Graduation” from the Office of the Registrar, 128 Sproul Hall.

1. Applicants interested in pre-veterinary medicine should apply for the major in bioresource sciences in the College of Natural Resources and contact the pre-veterinary adviser after admission.
2. The Haas School of Business requires completion of 60 semester units for admission into its program.
3. A chemistry major may be taken either in the College of Chemistry (B.S.) or in the College of Letters and Science (B.A.).
4. Computer science may be studied either in the College of Engineering (B.S. in computer science) or in the College of Letters and Science (B.A.).
5. See the Announcement of the College of Engineering for details.
6. Admission into the nutrition and clinical dietetics program requires completion of 56 acceptable semester units.
7. Admission into the optometry program requires completion of 90 acceptable semester units.
8. Closed to new admissions.
9. Applicants interested in vision science should apply for optometry and contact an adviser after admission.
University Requirements

The University sets two general requirements for the baccalaureate degree: Subject A and American History and Institutions.

Subject A Requirement

The University assumes that you are proficient in English and in writing about academic topics. Fulfillment of the Subject A requirement is a prerequisite to enrollment in all freshman reading and composition courses. If you have not passed the Subject A examination or otherwise fulfilled the requirement when you enter the University, you should enroll in College Writing 1A during your first or second semester. College Writing 1A is a 6-unit course that satisfies the Subject A and the first half of the reading and composition requirements.

In addition to a passing score on the Subject A examination, the Office of Undergraduate Admission and Relations with Schools accepts the following means of fulfilling the Subject A requirement before you enter the University:

- A score of 600* or higher on the Scholastic Assessment Test II (SAT II): Writing Subject Test (or on either form of the College Board Achievement Test in English Composition—"with essay" or "all multiple choice" offered before May 1994).

- A score of 3 or higher on the Advanced Placement Test in English Composition and Literature or in English Language and Composition.

- A score of 5 or higher on the International Baccalaureate Higher Level Examination in English (Language A only).

- A score of "Pass for Credit" on the California State University and Colleges English Equivalency Examination (discontinued 1993).

- A grade of C or higher in an approved transfer-level English composition course taken at another institution.

American History and Institutions Requirements

The American History and Institutions requirements are based on the principle that a U.S. resident enrolled at an American university should have an understanding of the history and governmental institutions of the United States. These requirements may be met as follows:

I. Options for Students Entering Berkeley for the First Time Fall Semester 1983 or Later:

Both the American History and the American Institu-

*The SAT II Writing Subject Test score necessary to fulfill the Subject A requirement is currently being revised. Contact the College Writing Programs Office at 642-5570 for more information.

1959: The Golden Bears men's basketball team wins the national championship. They're runner-up in 1960.

1982: The Bears finish among the top 10 football teams in the country with a Citrus Bowl win and 10-2 record. It is their most successful season in decades.

1993: Men's basketball reaches the Sweet 16 of the NCAA Tournament for the first time since 1960. Rugby wins its 10th national title in the last 14 years.

1984: Mary T. Meagher, '87, wins three gold medals in swimming at the Los Angeles Olympics.

1986: Matt Biondi, '87, wins five gold medals in swimming at the Seoul Olympics.

1992: Cal beats Stanford with "The Play," a five-lateral kickoff return for a touchdown as time runs out.

Students who have not satisfied the AH&I requirements before entering Berkeley may satisfy them in the following ways:

- By taking the American History and/or American Institutions exams. These exams are graded passed/not passed and are offered on campus throughout the year. Contact the AH&I Office for information and reading lists.
- By taking American History and/or American Institutions exams linked to the American History requirement, and Political Science 1 or 100 for the Institutions requirement. (Students who took other courses before fall semester 1988 may check with the AH&I Office for possible AH&I credits.)
- By taking a course or courses approved by the AH&I Office, at another collegiate institution.
- By mixing these three alternatives (for example, an exam for one requirement and a course for the other).

Freshmen: Your first opportunity to see the status of your AH&I requirements will be on your first Berkeley transcript.

II. Students Who Entered Berkeley Between Fall 1981 and Spring 1983 may use any of the options listed under Section I above with the following exceptions:

- The American History and Institutions requirements are not linked to the "a" subject requirement for admission. The AH&I requirements may be met in high school by completing two semesters of U.S. history with an average grade of B or better, for the History requirement and one semester of U.S. government with a grade of B or better for the Institutions requirement.
- One course taken at another collegiate institution before you enter Berkeley will not fulfill both AH&I requirements. A separate course must be taken for each.

- Passing the high school Advanced Placement American History exam with a score of 3 or better or the College Board Achievement Test in U.S. History with a score of 500 or better fulfills the American History requirement only.

III. Students Who Entered Berkeley Before Fall 1981 may use any of the options listed under Section I above, with the following exceptions:

- High school courses will not satisfy either the History or the Institutions requirement.
- The College Board Achievement Test will not satisfy the American History requirement.
- One course taken at another collegiate institution before you enter Berkeley will not fulfill both AH&I requirements. A separate course must be taken for each.

IV. International Students: The AH&I requirements will be waived if you have at least 90 1/2 semester units (senior status), hold a current, non-immigrant visa (F is the most common), and an I-94 departure record. You should present your visa and I-94 record to the Office of the Registrar, 128 Sproul Hall, before the semester in which you will graduate. International students intending to remain in the U.S. must fulfill the AH&I requirements.

V. AH&I Office: The office that administers these requirements is located in 29 Dwinelle Hall, 642-5006.

Berkeley Campus American Cultures Breadth Requirement

Students who entered Berkeley in fall 1991 or thereafter in lower division standing with 0-55 semester units and all students who entered in fall 1993 or thereafter must satisfy the American cultures breadth requirement in order to
The Berkeley campus is strongly committed to developing high levels of ability in critical thinking and communication among its undergraduates. Hundreds of courses require long papers and a number of courses provide training in writing or speaking. In addition to the Universitywide Subject A requirement, the College of Letters and Science and most other colleges and schools require two semesters of lower division work in composition. The following departments and programs offer writing courses that satisfy the reading and composition requirement: African American Studies, Asian American Studies, Chicano Studies, College Writing Programs, Comparative Literature, Dramatic Art, English, Native American Studies, Rhetoric, South and Southeast Asian Studies, Undergraduate and Interdisciplinary Studies, and Women's Studies. In addition, a number of departments offer workshop sections of larger courses that satisfy only the second half of the reading and composition requirement. Such courses are marked with a W (for example, Linguistics 5W and Slavic Languages and Literatures 37W). Because each course has a slightly different focus, you should contact the individual departments for details and consult your college or school for the particular courses that satisfy its requirements.

Minimum Scholarship Requirement
If you fail to maintain the minimum grade-point average prescribed by your college or school, you will normally be dismissed or put on probation. Since scholarship rules are applied only at the close of regular sessions, grade points that you earn in a University of California summer session or by removing an incomplete grade are not taken into consideration until the close of your next semester of attendance.

Residence Requirement
After you have completed 90 units toward the bachelor's degree, you must complete at least 24 of the remaining units in residence in no fewer than two semesters in the college or school of the University in which you will take your degree. You must begin these final 24 units in the semester in which you exceed 90 units. You should consult the announcement of your college or school for details concerning the senior residence requirement as it pertains to the summer session.

Don't buy anything on Telegraph Avenue from anyone who is out of breath.

—Paul Shepard
Educational TV
At Berkeley, it is not unusual to be enrolled in a class with a few hundred students. Due to this large number, it is sometimes very difficult to get a lot of help from the instructor. My suggestion is to get together with a few fellow students in the class and form a study group. You can meet together regularly, especially when assignments are due or when exams are coming up, in order to help each other review the course material.

—John Lam

Departmental Requirements
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 with business administration, optometry, and others—the school and the department are synonymous. In some cases a major may embrace more than one department, as with the interdisciplinary studies field major in the College of Letters and Science.

Major Requirements
Major requirements that must be fulfilled before you may receive a baccalaureate degree are outlined in each department in the “Courses and Curricula” section of this catalog. See also your department adviser.

Declaration of Candidacy
If you know at the beginning of a semester that you will have fulfilled graduation requirements by the end of the semester, enter the appropriate code during the first call to the Tele-BEARS registration system. You may also declare your candidacy in person in the Office of the Registrar, 128 Sproul Hall. The period for declaring candidacy is the first five weeks of the semester. Up to the end of the third week you may declare with no fee, and from the third to the end of the fifth week there is a $5 fee. If for any reason you do not meet the requirements for graduation after declaring your candidacy, you must file a new declaration in the filing period for the subsequent semester in which the degree will be awarded.

If you are a nonregistered student at the time you are ready to declare your candidacy, you may go in person to 128 Sproul Hall to fill out the form “Candidate for Bachelor’s Degree” or call 643-6173. The filing deadline is the same as that stated above.

Note: The Office of the Registrar does not backdate degrees.

General Rules and Academic Policies
See also the section “Academic Policies,” beginning on page 77.

Academic Probation
Regulations and procedures governing academic probation vary with each college and school. For specific details, consult your college or school announcement. Students on probation are not entitled to take courses with a passed/not passed option.

Academic Dismissal
Regulations and procedures governing academic dismissal vary with each college and school. For specific details, consult your college or school announcement. If you are dismissed, you may appeal for a hearing by
formal petition to the dean of your college or school, but the action of dismissal is normally considered final. If you are dismissed and want to transfer to another college or school at Berkeley, you may petition the dean of that college or school.

**Minimum Progress**

For undergraduates, normal progress toward a degree requires 30 units of successfully completed coursework each year. If you fail to achieve minimum academic progress, you may continue to be enrolled only with the approval of the dean of your college or school. To achieve minimum academic progress, you must have successfully completed a number of units no fewer than 15 times the number of semesters, less one, in which you have been enrolled on the Berkeley campus. Summer Session is not counted as a semester. A 15-unit study list is considered a normal course load; a study list of fewer than 13 units must be authorized by the dean of your college or school.

**Progress Toward a Degree**

At the close of each semester, the courses, units, grades, and grade points earned are added onto your cumulative University record. From this record, you may determine your progress toward a degree.

In working for a degree, you should keep in mind the various levels on which you must satisfy requirements—University, campus, college or school, and department—as well as the kinds of requirements you must fulfill: course, unit, grade point, and amount of upper division work. You may receive additional counsel in these matters from your adviser.

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**Academic Opportunities**

**Cross-Registration Program with Other Schools**

Berkeley has a cross-registration program with California State University, Hayward; Mills College, Oakland; San Francisco State University; Sonoma State University; College of Holy Names; JF Kennedy University; and Dominican College. With the approval of your adviser and the dean of your college or school, you may register and pay applicable fees at Berkeley and be exempt from tuition and fees at the host campus. You may enroll for only one course per semester at the host campus. For more information, go to the Office of the Registrar, 120 Sproul Hall, or call Special Registration at 642-1988.

**Studying Abroad**

**Education Abroad Programs**

While progressing toward your bachelor's degree, you have a number of opportunities to earn University of California credit while studying abroad. Requirements for participation are a grade-point average of 3.0, upper division standing, and sufficient language preparation. University scholarships, loans, and grants may be used to finance the year abroad.

Berkeley also participates in several intercollegiate consortia for advanced language studies: Rome Classics Program (requiring Latin fluency), Japanese language study in Tokyo, Mandarin Chinese study in Taipei, and Arabic study in Cairo.

If you are interested, consult your academic advisers and the Education Abroad adviser in the Berkeley Programs for Study Abroad office, 160 Stephens Hall, 642-1356. E-mail: eapub@uclink.berkeley.edu

The Universitywide Education Abroad Program has study centers at the following universities:

**Africa**

University of Ghana, Accra

**Asia**

Chiang Mai University, Chiang Mai, Thailand
Chinese University of Hong Kong
Chulalongkorn University, Bangkok, Thailand
Doshisha University, Kyoto, Japan
Gadjah Mada University, Yogyakarta, Indonesia
Indonesian Arts Institute (ISI), Yogyakarta, Indonesia
Inter-University for Japanese Language Studies
International Christian University and Sophia University, Tokyo, Japan
Jawaharlal Nehru University, Dehli
Meiji Gakuin University, Yokohama, Japan
Nagoya University, Japan
Nankai University, Tianjin, People's Republic of China
National Taiwan University, Taipei
National University of Singapore, Singapore
Osaka University, Japan

Any large institution needs a bureaucracy, and every bureaucracy feeds on paper. Ours is particularly hungry. You will have to fill out many forms. Do so carefully and turn them in on time. When you have to stand in line, bring a book or Walkman, be patient, and stay calm. Remember, you are not alone; if you were, there would be no line.

—Robert Holtermann

College of Letters and Science adviser
I've known you for four years and you're still trying to tell me that you're going to study on a Friday night?

—Anon

Trivial Pursuit
No. 8
What did "Wrong Way Riegeis" do and when?
(Answer on page 444.)

Peking University, Beijing, People's Republic of China
Tohoku University, Sendai, Japan
Tokyo Institute of Technology, Japan
University of Delhi, India
University of Tokyo, Japan
Yonsei University, Seoul, Korea

Australia and New Zealand
Australian National University, Canberra
Flinders University, Bedford Park
La Trobe University, Melbourne
Lincoln University, Christchurch, New Zealand
Massey University, Palmerston North, New Zealand
Monash University, Melbourne
University of Adelaide
University of Auckland, New Zealand
University of Canterbury, Christchurch, New Zealand
University of Melbourne
University of New England, Armidale, Australia
University of New South Wales, Kensington
University of Otago, Dunedin, New Zealand
University of Queensland, Brisbane, Australia
University of Sydney
University of Western Australia, Perth
Victoria University, Wellington, New Zealand
Waikato University, New Zealand
Woolongong University, Australia

Central America
Intensive Language Semester, Tegucigalpa
National Autonomous University of Mexico, Mexico City
Summer Intensive Language, Morelia, Mexico
Tropical Biology Program, Las Cruces, Costa Rica
Tropical Biology Program, Monte Verde, Costa Rica
University of Costa Rica, San Jose

Europe
University of Vienna, Austria
Vienna University of Economics and Business Administration, Austria
University of Copenhagen, Denmark
Universities in France: Bordeaux, Ecole Normale Supérieure, Ecole Polytechnique, Grenoble, Lyon, Paris (Film, Literature), Toulouse
Georg-August University, Göttingen, Germany
Eötvös Loránd University, Budapest, Hungary
Universities in Ireland: University College, Cork; University College, Galway
Universities in Italy: Padua; Institute of Architecture, Venice; Bocconi University, Milan; University of Bologna; University of Siena; University of Venice; Scuola Normale Superiore, Pisa
Universities in Spain: Barcelona; Granada; Madrid; University of Alcalá de Henares
University of Lund, Sweden
Universities in Russia: Financial Academy of the Russian Federation, Moscow; Moscow Stak University, Moscow
Universities in the United Kingdom: Birmingham, East Anglia, Edinburgh, Essex, Exeter, Glasgow, Hull, Kent, Lancaster, Leeds, Queen Mary and Westfield

Middle East
Hebrew University, Jerusalem, Israel
American University of Cairo, Egypt

North America
University of British Columbia, Vancouver, Canada

South America
Catholic University, Rio de Janeiro, Brazil
University of Chile, Pontifical Catholic University, Santiago, Chile

Programs Not Sponsored by the University of California
Many Berkeley undergraduates choose to attend overseas study programs sponsored by institutions and organizations other than the University of California. To obtain information about these programs, you should contact the programs directly. Directories of study abroad programs are available at the office of Berkeley Programs for Study Abroad, 160 Stephens Hall, 642-3245. Credit for course work completed may or may not be granted, depending on a review of your final transcript by the Office of the Registrar. Before enrolling in any program, you should consult with the international admission specialists, 110 Sprout Hall, 642-3246, concerning the transferability of the course work for a particular program. Finally, you should consult with a college and major adviser as to the appropriateness of your proposed courses toward degree progress and procedures for readmission.

Research and Internships
Berkeley offers many opportunities for you to conduct research projects and engage in internships either as volunteers or paid employees.

Research
In classes in a wide range of disciplines, students work independently or as part of a team on projects ranging from writing preliminary research designs to carrying out sophisticated research projects. Past projects have included working on archaeological digs, collecting and recording family folklore, cataloging museum collections, determining the mechanism for habitat selection of garden snails, assessing the effect of media coverage of the Vietnam war on public sentiment, and collecting information from scholars, managers, and workers in Yugoslavia on management in Yugoslavian firms. For more information consult your adviser.

The Undergraduate Research Apprentice Program (URAP) allows students to work on a one-on-one basis with faculty engaged in advanced research in the humanities and in social, physical, and biological sciences. Each term faculty submit proposals describing their current research and the qualities they seek in an undergraduate research apprentice. Students who apply and are selected for the program receive close mentoring and the opportunity to work with the
ground-breaking faculty who have made Berkeley the world’s premier research institution. For more information visit the URAP office, 341 Campbell Hall, 642-3795.

**Internships**
A wide variety of internships—loosely defined as structured field experience—is available to you on and off campus. The positions may be paid or unpaid, may or may not carry academic credit, and may have educational and career value. Courses with field components occur principally in the 98, 99, 197, 198, and 199 series. Check the course listings in the catalog for specific information. The following offices have listings of numerous internships, both on and off campus: the Student Employment Office and Cooperative Education Internship Program of Career and Graduate School Services, 2111 Bancroft Way; College of Engineering Cooperative Education Program, 306 McLaughlin Hall; Work-Study Program, 212 Sproul Hall; and Cal Corps Public Service Center, 505 Eshleman Hall. Many individual internship programs in education, business, law, medicine, government, and other categories are available through campus-based offices. For detailed information about these programs, consult *The Internship Directory* at Career and Graduate School Services, 2111 Bancroft Way. *The Internship Directory* and some internship listings are available online on the UC Berkeley gopher under “Student Paid and Non-Paid Positions.”

**Cooperative Education Program**
The Cooperative Education Program is an opportunity for undergraduate and graduate students to integrate classroom study with supervised practical and professional experience in the field. You may work with government, industry, business, or nonprofit organizations in positions related to your academic and career objectives before graduation. These positions are paid and may be full- or part-time. They may last for one semester or as long as two years, depending upon the type of experience you want.

Two offices constitute the campus-wide cooperative education program: the Cooperative Education Internship Program and the Engineering Cooperative Education Program. Each program office has separate application procedures and requirements. If interested, you should contact the appropriate program for specific information.

**Cooperative Education Internship Program**
Liberal arts, sciences, natural resources, environmental design, and business administration majors may apply through this office. Positions are paid, full- or part-time, and last for one semester or as long as two years. For general requirements, contact the Cooperative Education Internship Office, Career and Graduate School Services, 2111 Bancroft Way, 642-1532.

**Engineering Cooperative Education Program**
All engineering, computer science, and chemical engineering majors may apply through this office. Positions offered are full-time, paid, for a minimum of one semester. For general requirements, contact the Engineering Co-op Office, 306 McLaughlin Hall, 642-6385.

**Honors Courses**
Berkeley offers some honors courses for highly qualified students, usually in their senior year. A very small number of these courses is available to lower division students. See your major adviser for information.

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The fundamental purpose of universities is to hasten the coming of the day when all men and all women shall have a much larger knowledge and comprehension of the truth, so that they may live their lives more richly and more usefully in this exceedingly interesting world; in order, as the Master said, that the truth shall make them free.

—William Wallace Campbell
10th president of the University of California, from inaugural address, March 1924
Individual Majors

If you have interests that fall outside traditional disciplines, you may design your own major to satisfy your individual academic goals. See an adviser for assistance and more information.

Freshman Seminar Program

The Freshman Seminar Program arose from the conviction that early intellectual contact with faculty members would greatly enhance the freshman experience at Berkeley. Professors from nearly every campus department have joined together to offer an impressive array of seminars. The courses numbered 24 (and in some cases 90) bear 1 unit of credit; they are limited to 16 students, and freshmen are given priority for enrollment. The other lower division seminars, most of which are numbered 39, are limited to 25 freshmen and sophomores. Seminars, which emphasize interaction and discussion, provide a counterpoint to the learning experience in Berkeley's large lecture halls. These seminars also offer lower division students an unprecedented opportunity to explore a wide range of majors and even fields of study usually reserved for graduate students. As you browse through this catalog, you will find lower division seminars sponsored by Letters and Science departments as well as by the professional schools and colleges.

A brochure describing each semester's seminar offerings is mailed to each freshman in time for Tele-BEARS registration. For more information regarding the Freshman Seminar Program, please contact the Office of Undergraduate Programs, 333 Campbell Hall, 642-8378.

Student-Initiated Classes (DE-Cal)

The DE-Cal (Democratic Education at Cal) program encourages students to initiate socially responsible classes and internships that address academic interests outside the boundaries of established disciplines. The program allows students to transform theoretical knowledge into practical experience, with the goal of increasing their intellectual competence and social responsibility. Working with faculty, staff, and community members, students have proposed courses such as Chicano/Latino Journalism: Using the Media to Empower Our Communities; Emergency Preparedness; Homelessness: Issues and Action; Issues in Women's Health; and many others. Credit is available for DE-Cal classes. For more information, contact the DE-Cal office, 320 Eshleman Hall, 642-9127.

Advising and Academic Assistance

College and Department Advisers

The College of Letters and Science has a staff of professional advisers who will help you plan your course of study, fulfill requirements, and eventually choose a major. After you have chosen a major, you will be assigned to an adviser who is a faculty member in your major department. Outside the College of Letters and Science, your adviser will most likely be a faculty member.

Student Learning Center

The Student Learning Center, located in 198 Golden Bear Center, 642-7332, offers assistance and noncredit courses in reading, writing, and study skills and preparation for examinations. Priority is given to Affirmative Action and Educational Opportunity Program students, but everyone is welcome.

Academic Excellence

Semester Honors

To be eligible for semester honors, you must have completed a minimum of 12 units undertaken for letter grades at Berkeley and must have achieved the minimum grade-point average required by your school or college. Schools and colleges may establish additional criteria that you must also meet.

Honors at Graduation

To be eligible for honors in general scholarship at graduation, you must have completed a minimum of 50 semester units at the University of California, of which a minimum of 43 units must be undertaken for a letter grade; completed a minimum of 30 units at Berkeley; and achieved a grade-point average that ranks you in your school or college in the top 3 percent for highest honors, the next 7 percent for high honors, and the next 10 percent for honors. These criteria are minimal; consult your college or school office.

Honor Societies

Berkeley has a number of honor societies that elect students in recognition of academic excellence. Among these are Phi Beta Kappa, a national honor society; the Prytanean Society, founded in 1900 to honor upper division and graduate women for academic accomplishment and service to the University; the Honors Students Society; Tau Beta Pi, the national honor society for all engineering disciplines and various other engineering honor societies (see the Student Guide to Engineering Societies, available at the Engineers Joint Council office); Alpha Mu Gamma, a national society for students with demonstrated excellence in languages; and individual societies in most language departments. See your adviser for more information.

Prizes

Awards for outstanding ability in some area of creative, scholarly, or athletic achievement are available at Berkeley in two general categories: competitive prizes for creative effort or departmental awards for outstanding scholastic achievement. Consult the Committee on Prizes, 642-3498, for more information.
I came to Berkeley as a faculty member because it is where I would come as a graduate student. I think Berkeley has an unbeatable combination of intellectual excellence, cultural vitality, and a superb geographical setting. It has to be one of the top choices of any academic.

—Venkatachalam Anantharam
Associate Professor of Electrical Engineering
Returning to Berkeley in 1994 from his post as associate professor at Cornell University, Anantharam received four graduate degrees here: Ph.D. '86, C.Phil. '84 (math), M.A. '83, and M.S. '82.
Graduate Education

The main purpose of graduate study is to inspire independence and originality of thought in the pursuit of knowledge. As a graduate student you are expected to achieve mastery of your chosen field through advanced course work, independent study, and research.

Graduate education embraces study for all degrees and certificates beyond the bachelor’s degree—principally the master’s and doctor’s degrees. Graduate degrees fall into two broad categories: (1) Professional—degrees awarded by each professional college and school in recognition of a student’s command of a comprehensive body of professional knowledge and the ability to organize and carry out investigation of significant problems in the field. (2) Academic—degrees awarded by the academic departments and some professional schools in recognition of a student’s command of a wide range of related subjects within an academic field, preparation in one or more foreign languages, and ability to pursue original research leading to a significant contribution to a field of study.

These graduate degree programs have been approved by the Graduate Council and the Coordinating Committee on Graduate Affairs, which must approve any new programs. A list of graduate degrees appears later in this section. For complete information on regulations and procedures for graduate students, see the section “Academic Policies,” beginning on page 77.

The Nature of Graduate Education

Graduate study is the pursuit of knowledge through advanced course work and research. Graduate courses demand a capacity for critical analysis and a specialization of research interests not normally appropriate for 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.

You are accorded considerable liberty in your choice of courses, at the discretion of your graduate adviser, as long as you meet the minimum requirements for academic residence. Possession of a bachelor’s degree does not in itself entitle you to enroll in a graduate course. These courses assume adequate preparation at the upper division level in the subject field (a minimum of 12 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). You are therefore encouraged to take upper division courses that will give you the background you need for advanced work; you are not confined to graduate courses.

Graduate courses completed before you attain your bachelor’s degree are not acceptable for unit credit toward an advanced degree. Courses in the 300 and 400 series, which are professional in nature, are not acceptable for unit credit as part of the program for an academic degree. These courses may, however, satisfy certain requirements, such as teaching, research, or technical work, in particular academic programs.

Graduate Advisers

Graduate advisers are appointed by the dean of the Graduate Division for each department, school, or group and are announced before the beginning of the fall semester. Graduate advisers (1) assist students in selecting programs of study; (2) act on petitions for study list changes only; (3) maintain records of all students enrolled under their jurisdiction; and (4) supply information requested by the dean of the Graduate Division about a student’s progress. In addition, the chair of the graduate advisers (1) endorses applications for candidacy for higher degrees and for qualifying examinations; (2) acts on petitions by graduate students; and (3) assists the dean in the enforcement of regulations, particularly those relating to registration, admission to graduate courses, and maintenance of acceptable scholastic performance.

You may also have an individual or major adviser, usually assigned after you are advanced to candidacy for the doctorate, but frequently appointed in the earlier
stages of your training. The individual or major advisers may be the same as the official graduate advisers. You should keep in close touch with your individual adviser and should confer with your official graduate adviser at the beginning of each semester to obtain approval of your program of study.

**Graduate Admissions**

**Applying for Admission**

You must file a completed application for admission, as well as all additional documents specified in the application booklet (including official transcripts from each college-level institution you previously attended) and a nonrefundable application fee of $40, with the Graduate Admissions Office or the department to which you are applying by the established deadlines. Follow the instructions in the application packet, which you should request from the department of your choice.

Many departments also admit students only for the fall semester. Information on departmental deadlines and requirements is contained in the application packet. Each department may set its own deadlines within the following ranges: December 15 - January 5, if you are applying for both the fellowship competition and admission for fall semester (Please note: fellowships are awarded only at the beginning of the fall semester); December 15 - February 10, for admission only for the fall semester; and September 1, for admission to the spring semester. The School of Law admits only for the fall semester; the deadline is February 1.

**Limited Enrollment**

Each graduate program at Berkeley has a maximum enrollment, which limits the number of applicants who may be accepted. Almost invariably, this maximum is smaller than the number of applicants who meet the minimum qualifications for admission. Selection procedures are designed to admit applicants in accordance with their relative merit and promise among those at least minimally qualified. It is to your advantage to inquire early about the possibility of study at Berkeley.

**Admissions Requirements**

The University requires the following academic qualifications: (1) a degree from an accredited institution, comparable to the bachelor’s degree offered at Berkeley; (2) sufficient undergraduate training to undertake graduate study in the chosen field; and (3) a satisfactory scholastic average. In addition to the general University requirements, certain schools or departments may require additional records, such as separate applications, reading lists, examples of original work, or the results of qualifying examinations. Information on undergraduate requirements for a major field and on graduate programs and requirements is available in the school or departmental announcements and bulletins and in the “Courses and Curricula” section of this catalog.

**Graduate Record Examination**

Applicants for graduate admission (with certain exceptions listed below) are required to take the General Test of the Graduate Record Examination (GRE) and to have their scores on this examination reported by the Educational Testing Service. Although current test scores are preferred, reports up to five years old—but not older—will be accepted.

If you are applying to the UCB-UCSF Joint Medical Program, you are not required to take the GRE but must take the MCAT (Medical College Admission Test).

If you are applying to the Haas School of Business M.B.A. Program, you must take the Graduate Management Admission Test (GMAT) in place of the Graduate Record Examination.

If you are applying to the School of Law for the J.D. degree, you must take the Law School Admission Test (LSAT) rather than the GRE.
Teaching Credential applicants (Single Subject only) are not required to take the GRE. However, applicants for the M.A.T. degree must fulfill the GRE requirement.

The GRE is offered in two formats: The traditional paper-and-pencil test and the computer-based test. Either format is acceptable. If you choose the paper-and-pencil test, registration must be received about four weeks before the test date. Computer-based tests may be scheduled by telephone.

You may obtain applications for the GRE and GMAT from the Educational Testing Service, Box 6000, Princeton, NJ 08541-6000, or from its western office at P.O. Box 23470, Oakland, CA 94623-0470.

The GRE Board provides a fee waiver service for students. To be eligible, you must be: 1) a United States citizen or resident alien; 2) a senior receiving financial aid through an undergraduate college in the United States, Puerto Rico, or U.S. Territories; and 3) a student who meets the GRE Board financial-need guidelines. Consult your undergraduate financial aid office for information.

**International Applicants**

Applicants who come from a country in which the official language is English or who have studied for one year or more in schools or universities in which English is the language of instruction must take the General Test of the Graduate Record Examination. In general, others applying from countries outside the United States need not submit GRE scores unless their major departments so require. A list of departments or groups that require the GRE of all their applicants is included in the application packet.

International applicants must fulfill all previously stated admissions requirements and have an excellent command of English before beginning graduate study at Berkeley; students cannot be admitted to graduate standing to learn English. If you are applying from a country in which English is not the official language, you must take the Test of English as a Foreign Language (TOEFL) and have the results sent directly to the Graduate Admissions Office. The test is administered six times a year, and you should register as soon as possible by writing either the TOEFL agent in your home country or TOEFL/TSE, P.O. Box 6154, Princeton, NJ 08541-6154.

Applicants who register to take the TOEFL in May or later cannot be considered for admission to the fall semester. The results of institutional administrations of the TOEFL are not acceptable in lieu of the international or special center administrations. If you took the test more than two years ago, you must take it again.

If you would like to serve as a graduate student instructor, you should take the Test of Spoken English (TSE) in your country or the Speaking Proficiency English Assessment Kit (SPEAK) at Berkeley as soon as you arrive. For information on registering to take the TSE, contact the TOEFL/TSE agent in your country or at the address given above. International students with bachelor's degrees from the United States or from a country in which the language of instruction is English and students who will be teaching in their native language are exempt from the test requirement. A list of exempted countries is available from the Graduate Student Instructor Teaching and Resource Center, University of California, Berkeley, 301 Sprout Hall #5900, Berkeley, CA 94720-5900. The TSE is not a requirement for admission.

**Special Circumstances**

**Readmission**

If you have previously registered and withdrawn and want to re-enroll, you must file an Application for Readmission, obtainable from Graduate Degrees and Petitions, Graduate Division, 302 Sproul Hall, and pay a nontransferable, nonrefundable readmission fee of $40. This fee must accompany the Application for Readmission when first submitted, or the application will not be reviewed. Approval of readmission is not automatic. The Graduate Division and your department, school, or group will review your petition and academic record and notify you of their decision.
Duplication of Higher Degrees
Normally, duplication of degrees is not permitted. Your department may petition the dean of the Graduate Division for an exception to this policy if the degree you want is in a field of study distinctly different from the field in which you attained your original degree. A professional degree is not regarded as duplication of an academic degree.

On the recommendation of the graduate adviser and with the approval of the dean of the Graduate Division, you may, however, be permitted to earn a second master's degree in the same subject as that of the first master's (or in a closely allied subject), if you are enrolled in a doctoral program at Berkeley in that subject and if that particular doctoral program requires a master's degree from Berkeley.

Reactivation of Application
The Graduate Division keeps application materials on file for two years. If you filed an application within the past two years but did not complete the application process, were denied admission, or were admitted but did not register, you may reactivate your previous file by submitting a new application form by the established deadline for the semester in question.

The first reactivation is free. Thereafter, the current application fee is required. A request for reconsideration in another major field for the same semester does not constitute a reactivation of application.

Notification of Action on Admission
A written notice from the dean of the Graduate Division is the only valid proof of admission. Admission to graduate study is limited by the number of places available in the various colleges, schools, and departments of Berkeley. If you have applied for admission and fellowship consideration, you should be notified by April 1 of the action on your application. If you have applied for admission only, you will be advised as soon as possible after a decision has been reached. Normally, however, acceptance letters for admission only will not be issued until after March for the fall semester.

How Tele-BEARS Works
To ensure the fairest possible distribution of courses to the student body, enrollment in classes is spread over two phases and an adjustment period. Phase I, starting toward the end of the previous semester, allows you to enroll in a maximum of 12 units plus one physical education activity course. In Phase II, starting immediately after Phase I, you may complete your enrollment by enrolling in additional courses if necessary. You may then add and drop courses during the adjustment period, which starts one week before instruction and extends through the first three weeks of instruction.

Access to Tele-BEARS is regulated by pre-assigned appointments which are spread throughout each phase period. For security purposes, you are assigned a unique Personal Identification Number (PIN) which must be entered after your Student ID number in order to use Tele-BEARS.

To enroll and register through Tele-BEARS, follow these steps:

Receive Your Registration Form
A Tele-BEARS registration form indicating your PIN and appointment times will be mailed to you by the Office of the Registrar.* If you require academic advising, you also will be required to obtain an Adviser Code (AC) from your graduate adviser. The AC must be entered at the time of your first call to Tele-BEARS each semester. If you will be a readmitted student, you will also be mailed a Schedule of Classes, which lists the meeting times and locations of all courses to be given at Berkeley for the semester.

Enroll in Classes
With the Schedule of Classes and the General Catalog, you can determine a class schedule. Once you have selected your courses and have obtained your AC from your major adviser (if required), you can call Tele-BEARS to enroll.

Pay Registration Fees
A monthly billing statement indicating all University fees due will be mailed to you by the Loans and Receivables Office. You may pay your fees in full or in five installments on the Deferred Payment Plan. Fee payment (either in full or the first installment) is due on July 15 for the fall semester and December 15 for the spring semester.

The Deferred Payment Plan
You may pay your registration fees in five installments if you wish. A nonrefundable processing fee will be

*Registration forms for continuing and readmitted students will be mailed starting mid-March for the fall semester and mid-October for the spring semester. Forms for new students will be distributed to departments in early August for the fall semester and early January for the spring semester. (See "Special Information for New Graduate Students" on page 54.)
charged to your first installment. Your billing statement will indicate the amount due for the first payment; subsequent statements for the remaining payments will be mailed to your local address on file with the Office of the Registrar. For full information on the Deferred Payment Plan, read the billing statement or call the Loans and Receivables Office at 642-3190.

**Obtain Your Confirmed Class Schedule**

At the end of Phase II, the Office of the Registrar will produce a Confirmed Class Schedule indicating all classes for which you have enrolled through Tele-BEARS. You must obtain your schedule from your major department office.

**Statement of Intent to Register**

The admission letter to new (including reactivating) graduate students contains a Statement of Intent to Register that must be filled out and returned to the Graduate Admissions Office. Only the return of the form to the Graduate Admissions Office indicating an intent to register will reserve the registration slot allocated to you. If you want to retain a record of the return of your Statement of Intent to Register, you should send it by certified or registered mail. If you do not want to accept the offer of admission, you should complete and return the Declination of Admission section so that your place can be allocated to another applicant. Information about enrolling in classes will be mailed to you upon receipt of your Statement of Intent to Register accepting admission.

**Failure to Register**

If you do not return the Statement of Intent to Register or return it but do not register for the semester in which you were admitted, you must request reactivation of your application if you want to attend any subsequent semester. You have no priority over other applicants for any subsequent semester by virtue of your previous admission.

**Registration**

To maintain good standing as a graduate student, you must register with the Office of the Registrar each semester until you complete all requirements for the degree, unless you have permission from the dean of the Graduate Division to withdraw. You can satisfy the requirement for full-time continuous registration by attending both semesters of an academic year. You must be registered or pay the filing fee, whichever is applicable, for the semester in which your degree is conferred. If you hold a nonimmigrant visa, you must be registered for both semesters of each academic year unless you have special permission from the Immigration Service to do otherwise. Consult the International Student Adviser for further information.

In summary, you must register in any semester in which you are enrolled in formal courses of instruction or are making any use of University facilities, including access to the faculty, except for uses accorded the general public.

If your studies or research requires absence from California for the semester, you must file a petition requesting absence and a reduction of the University registration fee with Graduate Degrees and Petitions, third floor Sproul Hall.

**Special Information for New Graduate Students**

If you will be a new graduate student, you will not use Tele-BEARS until the adjustment period, starting one week before the beginning of instruction. You must obtain your registration form from your major department and meet with your graduate adviser to approve your class schedule and obtain your Adviser Code.

**Cancellation of Registration**

Students who have registered and decide before classes begin not to attend Berkeley may cancel by filing the appropriate form. For further information see the section “Academic Policies,” beginning on page 77.

**Class Schedule and Unit Load**

Courses are classified as lower division (numbered 1 through 99); upper division (100-199); graduate (200-299); professional, for teachers or prospective teachers (300-399); special study for preparation for the master’s exam (601); and special study for preparation for the doctoral qualifying examination (602). Lower division courses are not counted as part of a full program of study leading to a higher degree. You must be enrolled in 12 units in 200 series (or above) to be considered a full-time student. (For information on courses in the 600 series, see page 79.)

Graduate student instructors and graduate student researchers must normally carry a minimum of 8 units in the 100, 200, and 300 series. The substitution of lower division units taken to prepare for departmental requirements in languages, mathematics, or statistics for upper division units is permitted.

Fellowship holders and international students on non-immigrant visas must carry a full program of 12 units in upper division and/or graduate courses, although individual study in the form of language preparation, comprehensive and qualifying examination preparation, etc., for the Ph.D. degree is taken into account.

In these cases reduced unit loads are accepted as full programs with the consent of the graduate adviser and dean of the Graduate Division.

**Withdrawal**

If you want to withdraw from Berkeley at the end of a semester or while the semester is in progress, you must file a formal withdrawal. For further information, see the section “Academic Policies,” beginning on page 77.
Recent Ratings of Graduate and Professional Schools at U.S. Universities

In March 1994, *US News & World Report* published results of a study ranking graduate liberal arts and professional programs at U.S. universities. Below are rankings of the schools and programs that Berkeley offers.

**Graduate Liberal Arts Programs**

The survey of liberal arts programs asked department heads and directors of graduate studies to rate a school's reputation for academic quality on a 5-point scale.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Rank</th>
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<tbody>
<tr>
<td>Biology</td>
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<tr>
<td>1. Stanford (4.9)</td>
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<td>2. Berkeley (4.8), Harvard, MIT</td>
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<td>5. CalTech</td>
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<td>Chemistry</td>
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<tr>
<td>1. MIT (5.0)</td>
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<tr>
<td>2. Berkeley (4.9), CalTech, Harvard, Stanford</td>
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<tr>
<td>Computer Science</td>
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<td>1. Berkeley (4.9), Carnegie Mellon, MIT, Stanford</td>
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<tr>
<td>Economics</td>
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<td>1. Chicago (5.0), MIT, Stanford</td>
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<td>4. Harvard</td>
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<tr>
<td>5. Berkeley (4.8), Princeton, Yale</td>
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<tr>
<td>English</td>
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<td>1. Berkeley (4.9), Yale</td>
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<td>3. Cornell, Harvard, Johns Hopkins, Stanford</td>
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<tr>
<td>Geology</td>
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<td>1. CalTech (4.9)</td>
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<td>2. MIT</td>
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<td>3. Stanford</td>
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<td>4. Berkeley (4.5)</td>
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<td>History</td>
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<td>1. Berkeley (4.9), Princeton, Stanford, Yale</td>
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<td>5. Chicago</td>
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<td>Mathematics</td>
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<td>1. Berkeley (4.9), Harvard, MIT, Princeton</td>
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<td>Physics</td>
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<td>1. CalTech (5.0)</td>
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<td>2. Berkeley (4.9), Harvard, MIT, Princeton, Stanford</td>
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<tr>
<td>Political Science</td>
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<tr>
<td>1. Berkeley (4.8), Harvard, Michigan</td>
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<td>4. Stanford</td>
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<td>5. Yale</td>
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<td>Psychology</td>
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<td>1. Stanford (4.8)</td>
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<td>2. Berkeley (4.6), Illinois, Michigan</td>
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<td>5. UCLA, Yale</td>
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<td>Sociology</td>
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<td>1. Wisconsin (4.9)</td>
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<tr>
<td>3. Berkeley (4.6), Michigan</td>
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</table>

**Professional Schools**

The professional programs were rated overall on reputation plus such factors as student selectivity and available resources.

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<thead>
<tr>
<th>Professional Schools</th>
<th>Discipline</th>
<th>Rank</th>
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<tr>
<td>Architecture</td>
<td>1. Harvard</td>
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<td>2. Princeton</td>
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<tr>
<td>3. Columbia, Yale</td>
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<tr>
<td>5. MIT</td>
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<td>6. Rice</td>
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<td>7. Berkeley</td>
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<tr>
<td>Business</td>
<td>1. Stanford</td>
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<td>2. MIT (Sloan)</td>
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<td>3. Harvard</td>
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<td>4. Penn (Wharton)</td>
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<tr>
<td>5. Northwestern (Kellogg)</td>
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<td>6. Chicago</td>
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<td>7. Dartmouth (Tuck)</td>
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<td>8. Michigan</td>
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<td>9. Duke (Fuqua)</td>
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<td>10. UCLA (Anderson)</td>
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<td>11. Columbia</td>
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<tr>
<td>12. Berkeley (Haas)</td>
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<tr>
<td>Engineering</td>
<td>1. MIT</td>
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<td>2. Stanford</td>
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<td>3. Purdue</td>
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<td>4. Illinois</td>
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<td>5. Berkeley</td>
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<tr>
<td>Law</td>
<td>1. Yale</td>
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<td>2. Harvard</td>
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<td>3. Stanford</td>
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<td>4. Chicago</td>
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<td>5. Columbia</td>
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<td>6. NYU</td>
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<td>7. Duke</td>
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<td>8. Michigan</td>
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<tr>
<td>9. Penn</td>
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<td>10. Berkeley</td>
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<tr>
<td>Public Health</td>
<td>1. Johns Hopkins</td>
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<td>2. Harvard</td>
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<td>3. North Carolina</td>
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<td>4. Washington</td>
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<td>5. Michigan</td>
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<tr>
<td>6. Berkeley</td>
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<tr>
<td>Social Work</td>
<td>1. Michigan</td>
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<td>2. Berkeley</td>
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</tbody>
</table>

Trivial Pursuit No. 10
Where did Telegraph Avenue used to end near campus?
(Answer on page 444.)
Berkeley Faculty

Full-time, ladder-rank: 1,362
Male: 78%
Female: 22%
Ethnic minority: 14.5%
Tenured: 84%
Nobel laureates: 8
National Academy of Sciences: 112
National Academy of Engineering: 68
American Academy of Arts and Sciences: 169
Alfred P. Sloan faculty fellowships 1984-93: 42
National Medal of Science, 1982-93: 11
Endowed chairs: 167

Graduate Student Ethnicity
Asian American: 15.2%
Caucasian: 66.0%
Hispanic: 7.4%
African American: 4.7%
Native American: .8%
Filipino: 1.5%
Other: 4.4%
International: 13.4%

Graduate Degrees and Certificates

Please note: The current graduate majors in Entomology, Forestry, Plant Pathology, Range Management, Soil Science, and Wildland Resource Science are included in the Department of Environmental Science, Policy, and Management in the College of Natural Resources.

Academic degrees are the M.A., M.S., M.F.A., and Ph.D. All other degrees and certificates are professional. The J.D. in Law is the basic law degree. It is a graduate degree, and if interested you should apply directly to the School of Law.

Graduate degrees and certificates are listed below:

Agricultural and Environmental Chemistry, M.S., Ph.D.†
Agricultural and Resource Economics and Policy, M.S., Ph.D.
Ancient History and Mediterranean Archaeology, M.A., Ph.D.†
Anthropology, M.A.,* Ph.D.
Applied Mathematics, Ph.D.
Applied Science and Technology, M.S., Ph.D.
Architecture, M.S., M.Arch., Ph.D.
Art, M.F.A.
Asian Studies, M.A., Ph.D. M.A. program emphases:
   East Asian, Southeast Asian, South Asian†
Astronomy, M.A.,* Ph.D.

Bioengineering, M.S.,* Ph.D.† (Joint program with San Francisco campus)
Biophysics, M.A.,* Ph.D.†
Biostatistics, M.A., Ph.D.†
Buddhist Studies, Ph.D.†
Business Administration, M.B.A., M.S., 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. M.A. program emphases: Greek, Latin
Comparative Biochemistry, M.A., Ph.D.†
Comparative Literature, M.A., Ph.D.
Computer Science, M.S., Ph.D.
Demography, M.A., Ph.D.
Design (Visual), M.A.
Dramatic Art, M.A.,* Ph.D.
East Asian Languages: Altaic Language and Literature, M.A.; Chinese Language and Literature, M.A., Ph.D.; Japanese Language and Literature, M.A., Ph.D.
Economics, M.A.,* Ph.D.
Education, Teaching Credential, M.A., M.A.T., Ph.D., Ed.D.
Endocrinology, M.A., Ph.D.†
Energy and Resources, M.A., M.S., Ph.D.†
Majors for Engineering and Engineering Science: Civil Engineering, Electrical...
Engineering and Computer Sciences, Industrial Engineering and Operations Research, Materials Science and Mineral Engineering, Mechanical Engineering, Naval Architecture and Offshore Engineering, Nuclear Engineering

English, M.A., Ph.D.

Entomology, M.S., Ph.D.

Environmental Health Sciences, M.S., Ph.D.

Environmental Planning, Ph.D.

Epidemiology, M.S., Ph.D.

Ethnic Studies, M.A., Ph.D.

Folklore, M.A.

Forestry, M.F.

French, M.A., 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.

Health and Medical Sciences, M.S. Program emphases: Genetic Counseling, UCB-UCSF Joint Medical Program

Health Services and Policy Analysis, Ph.D.

Hispanic Languages and Literatures, M.A., Ph.D.

History, M.A., Ph.D.

History of Art, M.A., Ph.D.

Human Biodynamics, M.A., Ph.D.

Immunology (Public Health), M.A., Ph.D.

Integrative Biology, M.A., Ph.D.

Italian Studies, M.A., Ph.D.

Jewish Studies, Ph.D. (Joint program with Graduate Theological Union)

Journalism, M.J.

Jurisprudence and Social Policy, M.A., Ph.D.

Landscape Architecture, M.L.A.

Latin, M.A.

Latin American Studies, M.A., Ph.D.

Law, J.D., LL.M., J.S.D.

Library and Information Studies, M.L.I.S., Ph.D.

Linguistics, M.A., Ph.D.

Logic and the Methodology of Science, Ph.D.

Mathematics, M.A., Ph.D.

Medical Anthropology, Ph.D. (Joint program with UC San Francisco)

Microbiology (Public Health), M.A., Ph.D.

Molecular and Cell Biology, M.A., Ph.D.

Music, M.A., Ph.D.

Near Eastern Religions, Ph.D. (Joint degree program with the Graduate Theological Union)

Near Eastern Studies, M.A., Ph.D.

Neurobiology, Ph.D.

Nutrition, M.S., Ph.D.

Parasitology, M.S., Ph.D.

Philosophy, M.A., Ph.D.

Physical Education (see Human Biodynamics)

Physics, M.A., Ph.D.

Plant Biology, M.A., Ph.D.

Plant Pathology, M.S., Ph.D.

Political Science, M.A., Ph.D.

Psychology, M.A., Ph.D.

Public Health, M.P.H., Dr.P.H.

Public Policy, M.P.P., Ph.D.

Range Management, M.S.

Rhetoric, M.A., Ph.D.

Romance Languages and Literatures, Ph.D. Emphases:

French, Italian, Spanish

Romance Philology, Ph.D.

Scandinavian Languages and Literatures, M.A., Ph.D.

Science and Mathematics Education, Ph.D.

Slavic Languages and Literatures, M.A., Ph.D.

Social Welfare, M.S.W., Ph.D.

Sociology, M.A., Ph.D.

Soil Science, M.S., Ph.D.

South and Southeast Asian Studies, M.A., Ph.D. M.A. program emphases: Hindi-Urdu, Malay-Indonesian, Sanskrit, Tamil, and South Asian Civilization; Ph.D. program emphases: Hindi-Urdu, Malay-Indonesian, Sanskrit, Tamil, and South Asian Archaeology

Special Education, Ed.D., Ph.D. (Joint degree program with San Francisco State University)

Statistics, M.A., Ph.D.

Vision Science, M.S., Ph.D.

Wildland Resource Science, M.S., Ph.D.

Wood Science and Technology, M.S., Ph.D.

Certificate in Russian and East European Studies

The Certificate in Russian and East European Studies has been developed to serve graduate students in the humanities and social sciences who wish to broaden their knowledge of the Russian and East European area. To be eligible you must be in good academic standing and currently enrolled in a graduate program at Berkeley in a field related to the Russian/East European area. The program is to include at least 18 semester units in three or more disciplines, not including that in which you have received or are planning to receive your master's or doctoral degree. Advanced language courses in grammar, composition, or conversation may not be used to fulfill this requirement. Of the 18 required units, at least 6 must be at the 200 level; the remaining units may be at the 100 or 200 level. Applications and further information about the certificate program are available at the Center for Slavic and East European Studies, 361 Stephens Hall.

Certificates of Completion of Graduate Curricula in Library and Information Studies

A certificate program has been established which is designed to meet the need for advanced studies beyond the first professional degree (M.L.I.S.) and short of the doctoral degree (Ph.D.). You should direct inquiries to the School of Library and Information Studies.

Students are not admitted to work for the M.A./M.S. degree, although it may be awarded to students pursuing work toward the Ph.D. degree after fulfillment of the appropriate M.A./M.S. requirements.

 Indicates established interdisciplinary group or field.
Noted Alumni
1868-1899
James H. Budd, 1873
Governor of California, 1895-99. Strong supporter of 1897 bill in state legislature that doubled the state's financial commitment to UC, from one cent to two cents per $100 of taxable property in the state.
Jacob Reinstein, 1873
UC regent, served on jury for campus architectural plan sponsored by Phoebe Apperson Hearst, instrumental in successful effort to increase state allocations to UC in 1897.
George Edwards, 1873
Professor of mathematics, 1874-1918. Edwards Field and Stadium named after "Colonel" Edwards.
Rosa Letitia Scrivner, 1874
First female graduate, only female member of the class; committee of Scrivner and eight women in Class of 1876 selected colors blue and gold for institution.
Josiah Royce, 1875
Eminent philosopher, professor at Harvard, California historian; Royce Hall at UCLA named in his honor.
Florence Prag, 1887
Described in Blue and Gold yearbook as "guileless and inexperienced"; later, as Florence Prag Kahn, served as US Representative from California.
Franklin Lane, 1887
Stephen Matther, 1887
(continued on next page)

Certificate of Completion of Residency Program in Optometry
The School of Optometry offers an Optometric Residency Program leading to the Certificate of Completion. This is a 12-month program of graduate professional training in an optometric specialty area selected by the residents, and is designed to expand and refine their professional and specialty skills. The prerequisite for entrance is a Doctor of Optometry degree. For information, contact the Graduate Student Affairs Office of the School of Optometry, 351 Minor Hall, 642-9804.

Master of Arts in Teaching
The degree of Master of Arts in Teaching is offered by the School of Education jointly with the Department of English. If you are a candidate you must satisfy all requirements for certification to teach in California, in addition to completing academic training in one of the subject fields. You should direct inquiries to the appropriate academic department and to the School of Education.

Joint Doctoral Programs
There are two intercampus joint degree programs between Berkeley and the University of California, San Francisco: Bioengineering and Medical Anthropology. For Bioengineering you should apply to the Berkeley campus. You will have access to facilities and faculty on both campuses. For Medical Anthropology, you should apply to the campus most appropriate to your research interests, but you will have access to facilities and faculty on both campuses through intercampus exchange registration. For information, write to the Department of Anthropology or the Group in Bioengineering.

Graduate Theological Union
There are two kinds of programs that include the faculties of the Graduate Theological Union in Berkeley: the "casual program" and the joint Ph.D. programs. The casual program is open to all students in the GTU community and all graduate students at Berkeley. This program allows you to register on one campus and take courses on the other, subject to the appropriate academic approvals. You may obtain applications and deadlines from Graduate Degrees and Petitions, 302 Sproul Hall.

The Joint Doctoral Program is offered in two areas and is open only to students who intend to work toward the Ph.D. degree. You must be admitted to both the Graduate Theological Union and the University, because the degrees are conferred jointly by both institutions. To apply to Near Eastern Religions, you must first have an M.A. (or its equivalent) in Near Eastern Studies or in a related field and must have at least two ancient languages suitable to the proposed program. To apply to Jewish Studies, you must have an undergraduate preparation that includes at least six university-level courses in Jewish studies, at least two years of university-level Hebrew language courses or the equivalent, minimal proficiency in another foreign language, and an undergraduate major in Jewish studies, history, comparative literature, sociology, philosophy, anthropology, political science, religious studies, or Near Eastern Studies.

You may use the extensive library holdings of the Union and supplement your program with selected courses in Palestinian archaeology, Biblical studies, Semitic epigraphy, and philology. For information about the programs, a catalog, and application forms, write to the Graduate Theological Union, 2400 Ridge Road, Berkeley, CA 94709.

Special Education
A joint doctoral program in special education leading to either the Ph.D. degree or the Ed.D. degree is offered by the Berkeley campus and San Francisco State University. The program is interdisciplinary, including clinical experience as well as in-depth preparation in the behavioral sciences and in statistics and research methods. For application material and additional information, write to: Special Education, c/o School of Education, University of California, Berkeley, or Department of Education, San Francisco State University, 1600 Holloway Avenue, San Francisco, CA 94132.

Concurrent Degree Programs
Concurrent degree programs provide a broad integrated curriculum between two disciplines. You should direct inquiries to the departments or schools involved.

Architecture, M.Arch.—Structural Engineering, M.S.
Architecture, M.Arch.—Landscape Architecture, M.L.A.
Asian Studies, M.A.—Law, J.D.
Business Administration, M.B.A.—Asian Studies, M.A.
Business Administration, M.B.A.—Law, J.D. (Berkeley)
Business Administration, M.B.A.—Law, J.D. (Davis)
Business Administration, M.B.A.—Law, J.D. (Hastings)
Business Administration, M.B.A.—Public Health, M.P.H.
City and Regional Planning, M.C.P.—Civil Engineering, M.S.
City and Regional Planning, M.C.P.—Law, J.D. (Berkeley)
City and Regional Planning, M.C.P.—Law, J.D. (Hastings)
City and Regional Planning, M.C.P.—Public Health, M.P.H.
Economics, M.A.—Law, J.D.
Journalism, M.J.—Asian Studies, M.A.
Journalism, M.J.—Latin American Studies, M.A.
Journalism, M.J.—Law, J.D.
Landscape Architecture, M.L.A.—City and Regional
The Graduate Group in International and Area Studies Berkeley offers instruction leading to both academic and professional degrees. For specific regulations governing the professional master's degrees, see the individual announcements of the colleges and schools. This section will deal primarily with the academic master's degree.

Residence Requirement
A minimum of two semesters of academic residence is required for the master's degree. Academic residence is defined as enrollment in at least 4 units in 100-200 series courses. Specific subject requirements and performance levels are set by the schools, departments, and groups.

Transfer of Credit from Other Institutions
To request a transfer of units, ask your graduate adviser to make a formal request to the dean of the Graduate Division specifying the units and courses involved. Your credits may be transferable if (1) the units involved are equivalent to work normally offered within your current program of study, (2) the grade recorded was at least a B, and (3) you have a superior scholastic record (at least a 3.3) at both your original institution and at Berkeley. No more than 4 semester or 6 quarter units are transferable, and the work must have been completed previously in graduate status at an institution of high standing. The units transferred cannot be used to reduce the minimum required in the 200 series courses or the minimum residence requirement. Work that formed part of the program for a master's degree previously conferred (either at the University of California or elsewhere) may not be applied toward a current degree program.

Credit for graduate work that you completed on other campuses of the University of California may be granted in excess of 6 quarter units or 4 semester units. Requests are handled on an individual basis.

Requirements for Graduate Degrees

The Master's Degree
Berkeley offers instruction leading to both academic and professional degrees.

For specific regulations governing the professional master's degrees, see the individual announcements of the colleges and schools. This section will deal primarily with the academic master's degree.

Residence Requirement
A minimum of two semesters of academic residence is required for the master's degree. Academic residence is defined as enrollment in at least 4 units in 100-200 series courses. Specific subject requirements and performance levels are set by the schools, departments, and groups.

Transfer of Credit from Other Institutions
To request a transfer of units, ask your graduate adviser to make a formal request to the dean of the Graduate Division specifying the units and courses involved. Your credits may be transferable if (1) the units involved are equivalent to work normally offered within your current program of study, (2) the grade recorded was at least a B, and (3) you have a superior scholastic record (at least a 3.3) at both your original institution and at Berkeley. No more than 4 semester or 6 quarter units are transferable, and the work must have been completed previously in graduate status at an institution of high standing. The units transferred cannot be used to reduce the minimum required in the 200 series courses or the minimum residence requirement. Work that formed part of the program for a master’s degree previously conferred (either at the University of California or elsewhere) may not be applied toward a current degree program.

Credit for graduate work that you completed on other campuses of the University of California may be granted in excess of 6 quarter units or 4 semester units. Requests are handled on an individual basis.

Graduate Education
Walter Haas, '10
Co-founder of Levi Strauss and Co.; 1970 alumnus of the year

Earl Warren, ’12, J.D.’14
Governor of California; Chief Justice, US Supreme Court; 1945 alumnus of the year

Daniel Koshland, '13
Co-founder of Levi Strauss and Co.; 1977 alumnus of the year

Walter Gordon, ’18,
J.D. ’22
Former governor of the Virgin Islands; federal district judge; Cal’s first all-American football player; member, National Football Foundation Hall of Fame; 1955 alumnus of the year

James Doolittle, ’22
Aviator and Army lieutenant general; recipient of Congressional Medal of Honor for leading first World War II air raid against Japan; 1943 alumnus of the year

Helen Wills Roark, ’26
Winner of eight Wimbledon and seven US tennis championships

Ida Jackson, ’22, M.A. ’23
First African American school teacher in Oakland; observer to the United Nations, 1945

Stephen Bechtel, ’23
Senior director of Bechtel Corporation; 1951 alumnus of the year; Bechtel Engineering Center named in his honor

Irving Stone, ’23
Author of The Agony and the Ecstasy, Lust for Life, and other books

Rudolph Peterson, ’25
President, Bank of America, 1963-70; head of United Nations Development Programme; 1968 alumnus of the year

Melvin Belli, ’29, J.D. ’33
Attorney
(continued on next page)

Amount and Distribution of Work
If you work toward an academic master’s degree on the Berkeley campus, you will pursue one of two plans, as determined by your school, department, or group. (Units may adopt either or both plans and will, in the latter case, designate which plan you are to follow.)

Plan I requires at least 20 semester units of upper division and graduate courses and a thesis. At least 8 of these units must be in graduate courses (200 series) in your major subject. Course units are not granted for the thesis.

Plan II requires at least 24 semester units of upper division and graduate courses, followed by a comprehensive final examination administered by your school, department, or group. At least 12 of the units must be in graduate courses in your major subject.

Your graduate adviser will guide you regarding distribution of course work among departments. Please note that departments, schools, and groups may have performance standards that are higher than the minimum B average required by the Graduate Division. Further requirements are specified by the major department.

Advancement to Candidacy
When you complete the requirements for your degree, you will not automatically be admitted to candidacy for the master’s degree; you must make a formal application to the dean of the Graduate Division no later than the fifth week of the semester in which your degree will be awarded. The application must be approved by the chair of graduate advisers in your major school, department, or group and must include a precise statement of the studies on which the application is based. If you are to submit a thesis, however, you should consult your adviser as early as possible about advancement to candidacy so that the appropriate committee can be formed. You will not receive the degree unless you have been advanced to candidacy.

The Master’s Thesis
If you are following Plan I, described above, you must submit a thesis, double-spaced on approved paper, with a minimum left-hand margin of 1¾ inches. Consult the Degrees staff in the Graduate Division for required brands of paper.

The thesis must be unbound and without perforations. The type must be adequate for photographic reproduction. Following approval by your thesis committee, two copies are filed with the Graduate Division. Further information regarding the organization and format of the thesis is available from Graduate Degrees and Petitions, 302 Sproul Hall.

The thesis constitutes a report, in as brief a form as possible, of results obtained in an original investigation of a problem. The problem in question need only be of limited scope; however, the thesis should be comparable in style, organization, and depth of understanding to investigations of greater scope, such as the dissertations of doctoral candidates.

You must submit your thesis to a committee of three members of the faculty appointed by the dean of the Graduate Division. One member of the committee should be chosen from a department other than that of your major subject. You are required to confer with all members of your committee before beginning your thesis; since the committee is not appointed until you are advanced to candidacy, you should not begin thesis work before advancement in order to avoid extensive revisions. You are responsible for placing the completed thesis in the hands of your committee members.

Three years is the normal time period allowed for completion of the thesis. Candidacy for the master’s degree will lapse automatically at the end of that time. You can be reinstated, however, upon the recommendation of the graduate adviser to the dean at the time your thesis committee members have approved a final draft of your thesis.

If all three members of your committee approve the thesis, they sign your thesis title page. You then file two copies of the thesis with the Graduate Division for later deposit in the University library. If any member of your committee doubts the acceptability of the thesis, the committee chair convenes the committee to discuss it. If the committee reaches agreement on its acceptability, the thesis is signed and filed as described above.

If the committee continues to disagree, the thesis is sent to the dean of the Graduate Division together with a brief statement of each committee member’s opinion. If all members of the committee reject the thesis, it is sent to the dean with a statement to that effect by the committee chair. In all cases of rejection or split vote, the Administrative Committee of the Graduate Council makes the final decision.

The Doctoral Degree
Berkeley offers both academic and professional degrees. 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 doctoral degree.

The Doctor of Philosophy degree is not granted solely for fulfilling technical requirements such as residence and completion of specified courses; it is awarded in recognition of a student’s knowledge of a broad field of learning and for distinguished accomplishment in that field through an original contribution of significant knowledge and ideas. The student’s research must reveal high critical ability and powers of imagination and synthesis.

Programs of Study
Programs of study for doctoral degrees are more individualized than those for master’s degrees, permitting more specialization within a field or the establishment of connections among fields. Nevertheless, if you are seeking a doctoral degree, you must have your pro-
gram of study approved by the graduate adviser of the department or group to which you are admitted or later transferred. University policy requires continuous registration from entrance until receipt of the degree, unless a formal withdrawal is granted by the dean of the Graduate Division.

Your field of study may be in a single department, except for essential related courses in other departments; in several departments; or in an interdisciplinary group. Once you have chosen a field of study, you should confer with your graduate adviser to select the sequence of courses that will best prepare you for qualifying examinations and research work.

Residence Requirement
A minimum of two years or four semesters of academic residence is required for the Ph.D. degree. Academic residence is defined as enrollment in at least 4 units in 100-200 courses. The period during which you are allowed to be in candidacy is limited; after its expiration your candidacy for the degree will lapse. You should consult your department or the Graduate Division for the time permitted in candidacy.

Foreign Language Requirement
The foreign language requirement ensures that you have the ability to acquire wide knowledge in your field of study and to keep up with foreign developments in your field. You are urged to complete the foreign language requirement early in your graduate career. You must fulfill the foreign language requirement before admission to the qualifying examinations and advancement to candidacy. Each graduate program may have somewhat different foreign language requirements. If you are a prospective student, you are urged to inquire about the foreign language requirement as soon as possible and, if you can, to fulfill it while still an undergraduate. In some graduate programs, applicants for admission must have satisfied the foreign language requirement before applying.

Qualifying Examinations
Before you are admitted to candidacy, you must pass a qualifying examination administered by a four- or five-member committee approved by the Graduate Council. An oral component is required. You must be registered in the semester in which you take the examinations, and you must have removed any previous deficiencies in training, including incomplete grades in courses that your graduate adviser required for your program. You must have maintained at least a B average in all course work that you undertook in graduate status, and you must have fulfilled the language requirement(s).

Please note: Departments, schools, and groups may have performance standards that are higher than the minimum B average required by the Graduate Division.

Advancement to Candidacy
You must apply for advancement to candidacy, on a form furnished by the Graduate Division, no later than the semester following the one in which you passed your qualifying examinations. The completed form, bearing the endorsement of your graduate adviser chair and dissertation chair, is filed with the Graduate Division. You must pay a fee of $50 when you file the application, and you must have completed all requirements for the doctoral degree except the dissertation before you may be advanced to candidacy.

Normative Time—Doctoral Students
Normative time is defined as the elapsed calendar time in years that under normal circumstances would be needed to complete all requirements for the doctoral degree, assuming that a student is engaged in full-time, uninterrupted study and is making desirable progress toward the degree.

The primary goals of the Normative Time program are to provide incentives to both students and instructional units to reduce the average time taken to complete requirements for the doctoral degree, to facilitate a greater degree of continuity in doctoral studies, and to provide a more equitable assessment of fees for doctoral students advanced to candidacy. After advancement to candidacy, eligible students will receive a special grant to offset much of the cost of the educational fee.

The conditions of the Normative Time program are as follows:
1. Upon entry to a Berkeley graduate program, you proceed with course work in the normal fashion until you have completed all requirements for advancement to candidacy. During this period you are registered continuously, except for seminars on approved withdrawn status as appropriate, and are liable for payment of all fees and applicable tuition.
2. Once you have been advanced to candidacy for the doctoral degree, you become eligible in subsequent semesters for a fee offset grant paying part of the educational fee if you have not exceeded the normal time in candidacy for your discipline.
3. You are awarded the grant automatically each semester until your accrued time in graduate status exceeds the normative time set for your program of study. Accrued time is the number of semesters since you first registered, less a maximum of two semesters of approved withdrawn status, and any other adjustments that may be approved by the dean of the Graduate Division.
4. During the entire period of study, you must be registered continuously, except when you are on approved withdrawn status, or during the semester when the filing fee is used in lieu of registration. You will be informed of your eligibility and the number of semesters of fee offset grant support available to you when you are advanced to candidacy. Your application for advancement to candidacy for the doctoral degree must be received before the first day of instruction in the semester for which the first grant is awarded.

1930-59
Jackie Jensen, ’50
All-America football and baseball player for the Bears in the late 1940s and possibly Cal’s finest all-around athlete ever; 11-year career with the New York Yankees, Boston Red Sox, and Washington Senators; named American League most valuable player in 1958
John Kenneth Galbraith, M.S.’32, Ph.D.’34
Harvard professor emeritus of economics; former ambassador to India; 1985 alumnus of the year
RALPH EDWARDS, ’35
National television star of This Is Your Life; creator of Truth or Consequences; winner of three Emmys; 1966 alumnus of the year
Robert McNamara, ’37
Marguerite Higgins, ’41
Pulitzer Prize-winning war correspondent and journalist renowned for her coverage of World War II and Korean War; awarded US Army combat ribbon
Daniel Koshland, Jr., ’41
Professor of molecular and cell biology, emeritus; former editor of Science Magazine; 1991 alumnus of the year
Gregory Peck, ’42
Actor
John Najarian, M.D., ’48
Pioneer in the development of kidney transplant operation techniques; star football tackle
Zulfiqar Ali Bhutto, ’50
President of Islamic Republic of Pakistan, 1971-77; recipient of 1973 Haas International Award (continued on next page)
The following normative times in semesters have been established:

- Agricultural and Environmental Chemistry (13)
- Agricultural and Resource Economics and Policy (12)
- Anatomy (10)
- Ancient History and Mediterranean Archaeology (14)
- Anthropology (12)
- Applied Mathematics (11)
- Applied Science and Technology (11)
- Architecture (12)
- Asian Studies (10)
- Astronomy (12)
- Biochemistry (11)
- Biogeneration (10)
- Biophysics (12)
- Biostatistics (10)
- Botany (10)
- Buddhist Studies (10)
- Business Administration (10)
- Chemical Engineering (10)
- Chemistry (10)
- City and Regional Planning (10)
- Classical Archaeology (14)
- Classics (14)
- Comparative Biochemistry (10)
- Comparative Literature (14)
- Computer Science (10)
- Demography (10)
- Developmental Biology (10)
- Dramatic Art (10)
- East Asian Languages: Chinese (12), Japanese (12)
- Economics (10)
- Education (12)
- Endocrinology (10)
- Energy and Resources (10)
- Engineering (10)
- Nuclear Engineering (12)
- English (12)
- Entomology (10)
- Environmental Health Sciences (10)
- Environmental Planning (10)
- Epidemiology (8)
- Ethnic Studies (12)
- French (12)
- Genetics (13)
- Geography (12)
- Geology (10)
- Geophysics (10)
- German (12)
- Health Services and Policy Analysis (12)
- Hispanic Literatures (10)
- History: Modern Western Languages (12), Non-Western Languages (or Non-Indo-European) (14)
- History of Art (14)
- Human Biodynamics (12)
- Immunology (10)
- Integrative Biology (10)
- Italian Studies (12)
- Jewish Studies (12)
- Jurisprudence and Social Policy: Ph.D. (12), J.D./Ph.D. (14)
- Latin American Studies (12)
- Library and Information Studies (10)
- Linguistics (10)
- Logic and the Methodology of Science (11)
- Mathematics (11)
- Medical Anthropology (12)
- Microbiology (10)
- Molecular and Cell Biology (10)
- Molecular Biology (10)
- Music (12)
- Ethnomusicology (14)
- Near Eastern Religions (10)
- Near Eastern Studies (14)
- Neurobiology (10)
- Nutrition (10)
- Paleontology (10)
- Parasitology (10)
- Philosophy (10)
- Physics (12)
- Physiology (12)
- Plant Biology (10)
- Plant Pathology (10)
- Plant Physiology (10)
- Political Science (12)
- Psychology (10)
- Public Health (12)
- Public Policy (12)
- Rhetoric (12)
- Romance Languages and Literatures: French (12), Italian (12), Spanish (12)
- Romance Philology (10)
- Scandinavian Languages and Literatures (12)
- Science and Mathematics Education (10)
- Slavic Languages and Literatures (12)
- Social Welfare (10)
- Sociology (12)
- Soil Science (10)
- South and Southeast Asian Studies (14)
- Statistics (10)
- Vision Science (10)
- Wildland Resource Science (10)
- Wood Science and Technology (10)
- Zoology (10)

The Candidate's Degree

The degree "Candidate in Philosophy," which gives formal recognition to a definite state of progress toward the doctorate, may be awarded when you are advanced to candidacy for the Ph.D. degree. The list of graduate degree programs that award the "Candidate in Philosophy" degree is available from Graduate Degrees and Petitions, 302 Sproul Hall.
Annual Review of Doctoral Candidates
The Graduate Council requires all doctoral students who have advanced to candidacy to meet annually with at least two members of their dissertation committees to discuss progress during the last year and to set goals for the next. Students who are away from campus may complete the evaluation by mail. Departments may use their own form or one developed by the Graduate Division for this purpose. A copy of the evaluation must be forwarded to the Graduate Division.

The Doctoral Dissertation
The format of the doctoral dissertation is similar to that outlined in the section on the master's thesis. Further information is available from the Graduate Division.

The dissertation, the product of independent investigation under faculty supervision, must be submitted to the committee in charge (see below) and must receive both its approval and the approval of the Graduate Council. The dissertation is the most important requirement for the doctoral program; the degree is never granted for completion of course work only, no matter how extensive.

You are to work under one of two plans, as adopted by the department, school, or group:

Plan A: The Administrative Committee of the Graduate Council appoints a committee of five Academic Senate members which determines whether you have met the requirements for the degree. Three members of the committee, one of whom must be from a department other than that of your major subject, guide you in research and judge the merits of your dissertation. The entire committee conducts a final oral examination dealing with the relationship between your dissertation and the general field of study in which the subject of the dissertation lies. Admission to the final oral examination may be restricted to the members of the committee, members of the Academic Senate, and guests of equivalent rank from other institutions.

Plan B: The Administrative Committee of the Graduate Council appoints a committee of three Academic Senate members, one of whom must be from a department other than that of your major subject, to guide you in research and judge the merits of your dissertation. This committee may require any necessary conferences to elucidate the subject treated in the dissertation. After presentation of the dissertation but before final action is taken upon it, the committee may, if necessary, require you to defend the dissertation in a formal oral examination.

After your committee has approved your dissertation, two copies must be filed with the Graduate Division by a deadline specified by that office. You must also file an abstract of the dissertation, no longer than 350 words and signed by the committee chair.

See the "Master's Thesis" section for procedures to be followed if committee members disagree about the acceptability of your dissertation.

Programs using Plan A and Plan B are listed below.

Plan A
Anatomy
Buddhist Studies
Interdisciplinary Program
Logic and the Methodology of Science
Near Eastern Religions
Romance Philology
South and Southeast Asian Studies

Plan B
Agricultural and Environmental Chemistry
Agricultural and Resource Economics and Policy
Ancient History and Mediterranean Archaeology
Anthropology
Applied Mathematics
Applied Science and Technology
Architecture
Asian Studies
Astronomy
Biochemistry
Bioengineering
Biophysics
Biostatistics
Botany
Business Administration
Chemical Engineering
Chemistry
City and Regional Planning
Classical Archaeology
Classics—Emphases: Greek, Latin
Comparative Biochemistry
Comparative Literature
Computer Science
Demography
Developmental Biology
Dramatic Art
East Asian Languages
Economics
Education
Endocrinology
Energy and Resources
Engineering
Engineering Science
English
Entomology
Environmental Health Sciences
Epidemiology
Ethnic Studies
French
Genetics
Geography
Geology
Geophysics
German
Health Services and Policy Analysis
Hispanic Languages and Literatures
I try to improve my courses every time I teach them. I’m convinced that if I stop making them better, then they will degrade. Course evolution is particularly important when the underlying technology is changing as fast as it is in computers today.

—John Ousterhout
Professor of Electrical Engineering and Computer Science
Distinguished Teaching Award, 1985

Minimum Requirements
All the procedures and regulations described above and in the preceding section on master’s degrees constitute the minimum requirements for 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 its field of study.

Academic Opportunities

Exchange Programs
Berkeley students participating in any of the following exchange programs, with the exception of the Intercampus Exchange Program, will not automatically receive credit for taking course work at the host campus. The courses will be posted in the memorandum column of your transcript. If you want to transfer units, see page 59, “Transfer of Credit from Other Institutions.” No more than 4 semester or 6 quarter units are transferable toward the master’s degree.

Intercampus Exchange Program
If you are a graduate student registered on any campus of the University, you may go to another campus of the University as an Intercampus Exchange Graduate Student with the approval of your graduate adviser, the chair of the department in which you want to study, the dean of the Graduate Division on the home campus, and the dean of the Graduate Division on the host campus.

You may obtain an application form for the Intercampus Exchange Program for Graduate Students from the office of the dean of the Graduate Division on your home campus. You should complete and file the application form at least three weeks before the opening of the term of enrollment on the host campus. (Please note that all other UC campuses are on the quarter system.)

This privilege is available to graduate students who would like to associate with scholars or fields of study not available on the home campus, or who seek the use of special facilities and collections. Whenever possible, you should make personal arrangements with faculty members on both campuses to ensure that the courses, seminars, or facilities will be available to meet your needs. This privilege will be granted where there is evidence of serious and high-quality scholarship.

As an intercampus exchange student, you register and pay fees on your home campus but have library, health services, and other student privileges on your host cam-
You should make arrangements with the Office of the Registrar to follow the enrollment procedure of the host campus so that the grades you obtain in courses taken on the host campus will be transferred to your record on the home campus. Exchange students are considered graduate students in residence on the home campus and are not formally admitted to the host graduate school and department. Unless specifically restricted, fellowship recipients may participate in the Intercampus Exchange Program.

**Stanford-Berkeley Exchange Program**

If you have a superior academic record, you may participate in the Stanford-Berkeley Exchange Program when it is considered desirable for you to take a limited number of courses that are offered at Stanford but not at Berkeley. Participation in the program must be approved by the Graduate Division and your department. Normally, you will not be allowed to participate in this program until you have completed a year of graduate study at Berkeley. Participants 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 want to take courses at Berkeley. If you apply for this program, you must enroll in at least one course at Berkeley. You may obtain further information and an application form from Graduate Degrees and Petitions, 302 Sproul Hall.

**Exchange Program with Hayward, Mills, San Francisco, and Sonoma**

You may also participate in exchange programs with California State University, Hayward; Mills College, Oakland; San Francisco State University; and Sonoma State University. With the approval of the Graduate Division and your department, you may register and pay applicable fees at Berkeley and be exempt from tuition and fees at the host campus. You may enroll for only one course per semester at the host campus.

**The Exchange Scholar Program**

The Exchange Scholar Program is an experimental program designed to enable doctoral students with superior academic records to study at one of the participating institutions to take advantage of educational opportunities that are not available at Berkeley. Normally, you are eligible to become an exchange scholar only after you have completed one year in a Berkeley graduate degree program. You may take courses or conduct research with particular faculty at the host institution for no more than one year while remaining registered at Berkeley.

Participating institutions are Berkeley, Brown University, University of Chicago, Columbia University, Cornell University, Harvard University, Massachusetts Institute of Technology, University of Pennsylvania, Princeton University, Stanford University, and Yale University. You may obtain further information and an application form from Graduate Degrees and Petitions, 302 Sproul Hall.

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**Trivial Pursuit No. 12**

Whom is the fountain on Sproul Plaza named for?

(Answer on page 444.)
The conflicts between California's burgeoning population and wild countryside make relevancy in education both urgent and easy to achieve. I engage students in the discovery of knowledge by using intentionally provocative examples; by encouraging questions during lectures; and by drawing graduate student instructors into classroom discussions, especially when their expertise exceeds mine.

—Harry Greene
Professor of Integrative Biology and curator of Herpetology, Museum of Vertebrate Zoology
Distinguished Teaching Award, 1993

Please note: Guidelines for participation in the exchange program with Stanford University are outlined above under the Stanford-Berkeley Exchange Program.

Studying Abroad
Graduate students who have been admitted to study toward a higher degree may, under certain conditions, be granted permission to study abroad. To apply, you must have completed at least one year in residence before your departure for study abroad, and you must demonstrate language proficiency where required.

As a graduate student, you are eligible to apply to most of the study centers under the Universitywide Education Abroad Program. (For a list of study centers, see "Studying Abroad" on page 45.) You must obtain the approval of both your department and the dean of the Graduate Division.

M.A. and Ph.D. Research Internships in India
The Professional Studies Program in India is a national program for American graduate students with professional interests in doing fieldwork and research in India. The program is based at Berkeley and is funded partially by a grant from the U.S. Department of Education. Based on their professional and research interests, participants design projects which are conducted under the supervision of Indian faculty and professionals. For additional information, contact Berkeley Programs for Study Abroad, University of California, Berkeley, 160 Stephens Hall # 2302, Berkeley, CA 94720-2302, 642-1356. For course descriptions, see Berkeley Programs for Study Abroad in the courses section of this catalog.

Tropical Biology
If you are a registered graduate student interested in doing field research in the tropics, see Integrative Biology 289 for information.

Interdisciplinary Groups
Berkeley has established graduate programs in a number of fields that cut across conventional departmental lines yet comprise distinct cores of knowledge. These programs are administered by groups of faculty from several related departments and, in certain instances, from several campuses. If you are enrolled in these programs you can work with any faculty member in the group without having to pursue the particular discipline of the department with which the faculty member is associated. Moreover, this arrangement gives you access to a range of facilities not ordinarily open to students enrolled in departmental programs. In some cases (e.g., medieval studies), a faculty committee is appointed specifically to advise you and the interested departments on setting up a program that will best meet the departments' and your views of the intellectual quality of the proposed programs. Since groups have no budgets or facilities of their own, however, most applicants, to be accepted by a particular group, must first obtain the sponsorship of one of its faculty members.

Following is a current list of graduate groups on the Berkeley campus:

Group in Agricultural and Environmental Chemistry
Professor Norman Terry, Chair
c/o Department of Plant Biology
111 Koshland Hall

Group in Ancient History and Mediterranean Archaeology
Professor Erich S. Gruen, Chair
3422A Dwinelle Hall

Group in Applied Science and Technology
Adjunct Professor David T. Attwood, Chair
c/o Engineering Interdisciplinary Studies
230 Bechtel Engineering Center

Group in Asian Studies
Professor Lowell Dittmer, Chair
2223 Fulton, Room 524

Group in Bioengineering
Professor Steven L. Lehman, Chair
c/o Engineering Interdisciplinary Studies
230 Bechtel Engineering Center

Group in Biophysics
Professor Harold Lecar, Chair
230 Bechtel Engineering Center
Group in Biostatistics  
Professors D. Brillinger and Steve Selvin,  
Co-chairs  
c/o School of Public Health  
140 Warren Hall

Group in Buddhist Studies  
Professor Padmanabh S. Jaini, Chair  
c/o Department of South and Southeast Asian Studies  
1203 Dwinelle Hall

Group in Comparative Biochemistry  
Professor Nancy K. Amy, Chair  
c/o Department of Nutritional Sciences  
127 Morgan Hall

Group in Endocrinology  
Professor Charles Nicoll, Chair  
c/o Department of Integrative Biology  
281 Life Sciences Addition

Group in Energy and Resources  
Professor Neville Cook, Chair  
c/o Group Office, 100 Building T-4

Group in Environmental Health Sciences  
Professor Martyn T. Smith, Chair  
c/o School of Public Health  
140 Warren Hall

Group in Epidemiology  
Professor Arthur Reingold, Chair  
c/o School of Public Health  
140 Warren Hall

Group in Ethnic Studies  
Professor Norma Alarcon, Acting Chair  
c/o Department of Ethnic Studies  
508A Barrows Hall

Group in Folklore  
Professor Alan Dundes, Chair  
c/o Department of Anthropology  
232 Kroeber Hall

Group in Health and Medical Sciences  
(Chair to be announced)  
c/o Program Office  
570 University Hall

Group in Health Services and Policy Analysis  
Professor Richard Scheffler, Chair  
c/o School of Public Health  
405 Warren Hall

Group in Immunology  
Professor Constantine H. Tempelis, Chair  
c/o School of Public Health  
239 Warren Hall

Group in International and Area Studies  
Professor Richard Buxbaum, Dean  
International and Area Studies  
260 Stephens Hall

Group in Jewish Studies  
Professor Robert Alter, Chair  
c/o Graduate Theological Union  
2400 Ridge Road  
Berkeley, CA 94709

Group in Latin American Studies  
Professor Beatriz Manz, Chair  
c/o International and Area Studies  
207 Moses Hall

Group in Logic and the Methodology of Science  
Professor Hans Sluga, Chair  
c/o Department of Philosophy  
731 Evans Hall

Committee on Medieval Studies  
Professor Geoffrey Koziel, Chair  
c/o Department of History  
3116 Dwinelle Hall

Group in Microbiology  
Professor Richard S. Stephens, Chair  
c/o School of Public Health  
233 Warren Hall

Group in Neurobiology  
Professor Carla Shatz, Chair  
c/o Department of Molecular and Cell Biology  
121 Koshland Hall

Group in Nutrition  
Professor Barry Shane, Chair  
c/o Department of Nutritional Sciences  
127 Morgan Hall

Group in Parasitology  
Professor Richard S. Stephens, Chair  
c/o School of Public Health  
233 Warren Hall

Group in Range Management  
Professor James Bartolome, Chair  
c/o Department of Environmental Science, Policy, and Management  
145 Mulford Hall

Group in Romance Philology  
Professor Suzanne Fleischman, Chair  
c/o Department of French  
4125 Dwinelle Hall

Group in Science and Mathematics Education  
Professor Barbara White, Chair  
c/o School of Education  
4533 Tolman Hall

Group in Vision Science  
Russell L. De Valois, Chair  
c/o School of Optometry  
381 Minor Hall

Trivial Pursuit  
No. 13  
What song is tolled by the Campanile chimes on the last day of classes before final exams each semester?  
(Answer on page 444.)
Teaching is the heart of my life and identity, in class and out. (My daughters used to say, "Skip the lecture, Dad, and just answer the question!"
—Frederick Crews
Professor of English
Distinguished Teaching Award, 1985

Group in Wood Science and Technology
Professor Frank Beall, Chair
c/o Forest Products Laboratory
478 Richmond Field Station

Advisory Group
(not degree program)
Committee for Certificate in Russian and East European Studies
Professor Victoria Bonnell, Chair
Center for Slavic and East European Studies
361 Stephens Hall

Individual Doctoral Programs
To allow you to work in a field that, in its breadth, falls between that of a department and an interdisciplinary group, the Graduate Division permits the informal establishment of ad hoc programs leading to the Ph.D. degree. You will be considered for an interdisciplinary program only if you have completed at least two semesters of graduate study in a doctoral program on this campus and have shown superior academic performance in your graduate studies here. In these programs, you may prepare a proposal for a course of study under the sponsorship of five faculty members. Final approval of every individual graduate program and admission of each student into such a program must be granted by the Graduate Council. You must complete degree requirements in accordance with Plan A of the Graduate Council policies, and the degree is awarded in a field approved for you by the council.

Teaching and Research Appointments
Many departments make graduate student instructorships available to qualified graduate students, and departments, centers, and institutes often seek qualified graduate students for research appointments. For specific information see the section "Fees and Financial Aid," beginning on page 69.

Internships
A number of internships are available to graduate as well as undergraduate students. For information see "Research and Internships" on page 46.

General Rules and Academic Policies
A brief summary follows of some of the general rules and policies you are subject to as a graduate student. For more exhaustive coverage, see the section "Academic Policies," beginning on page 77.

Standards of Scholarship
You must receive a grade of A, B, C (including pluses and minuses), or S in your course work to satisfy degree requirements. You will not receive course credit for courses graded below C-. You must maintain a grade-point average of 3.0 in all upper division and graduate course work taken as a graduate student. Your department, school, or group may establish more stringent standards.

Probation and Dismissal
You are subject to probation and dismissal if your grade-point average falls below 3.0 or if required by your department, school, or group; if you have too many Incomplete grades; if your written work is substandard; or if you fail to make adequate progress toward the degree. You may appeal dismissal for academic reasons to the Graduate Council of the Academic Senate.

Normative Time
For information about normative time (the time needed to complete all requirements for the doctoral degree), see page 61.

Academic Residence
In order to meet the academic residence requirement for higher degrees—not to be confused with state residence, defined in the Appendix—every graduate student must enroll in and complete a minimum of 4 units of upper division and/or graduate courses per required semester of academic residence. Only courses in the 100 or 200 series satisfy this requirement. You should also become familiar with the regulations on academic residence for the individual graduate degree.

Postdoctoral Fellows and Visiting Scholars
Prospective fellows or scholars should communicate with the chair of the department, school, or research unit in which they are interested to determine whether the facilities they require are available and whether they meet eligibility requirements for an honorary appointment. With rare exceptions, visiting scholars must hold a doctoral degree or its equivalent. Visiting scholars may not be students enrolled in or on leave from another institution of higher education; candidates for a graduate degree, or employees of any University of California campus. Foreign fellows or scholars should communicate with Services for International Students and Scholars, International House, to determine whether they hold the proper visa to assume an appointment.
Berkeley offered me the opportunity to run the new Burch Center for Tax Policy and Public Finance at a great university with strong traditions in economics and law.

—Alan Auerbach

The first Robert D. Burch Professor of Tax Policy and Public Finance and director of Berkeley's new Burch Center for Tax Policy and Public Finance Professor Auerbach came to Berkeley in 1994 from his position as professor of both law and economics at the University of Pennsylvania.
Fees and Financial Aid

It is very important that you carefully consider the total financing of your education, from your first term at Berkeley to completing your degree objective. If financial help will be needed beyond funds that you or your family are able to provide, you should make the necessary applications for financial assistance well in advance of enrollment. You should pay particular attention to early deadlines for application for grants, scholarships, Federal Work-Study, Federal Perkins, and Federal Direct Stafford/Ford Loans. While the needs and resources of each student differ, the University can provide a general list of fees and expenses normally encountered. Note that fees are subject to change without notice.

Part of your fees may be refunded if you cancel your registration before the opening day of the semester or withdraw before the beginning of the sixth week of classes of any semester. (See Index, "Schedule of Refunds.") A circular on refunds, Student Fees and Deposits, is also available from the Office of Undergraduate Admission and Relations with Schools, 110 Sproul Hall.

Total Expenses. The cost of attending the University varies according to individual circumstances. The expenses listed below are approximate costs for the nine-month academic year and should be used only as a guideline.

Required Fees

The fees in this section are those in effect for the spring semester 1995. When this catalog went to press, fees for future semesters had not been determined. Fees are subject to change. Please call 643-7490 for current information.

University Registration Fee—$356.50 per semester. This fee is paid by all students and covers normal expected usage of facilities such as laboratories and gymnasiums (except for instructional programs associated with these facilities) and services such as counseling, placement, and health.

Educational Fee—This fee is paid by all students at $1,543 per semester. A portion of this fee may be temporary. The educational fee is used to support a portion of the student services costs of the educational program, such as financial aid, social and cultural activities, Admissions and Registrar operations, counseling and career guidance, student affirmative action, and academic tutoring. In exceptional circumstances the educational fee may be reduced by one-half for part-time undergraduate students. Approval of part-time undergraduate study is made only in exceptional cases and is based on considerations of occupation, family responsibility, and health. Applications must be approved by the appropriate dean before the start of each term. A fee reduction will be made only if you enroll in no more than two courses.

Berkeley Campus Fee—This fee is paid by all students in the amount of $78.75 per semester. It provides support for a wide range of activities sponsored by the ASUC, including work with academic and administrative units of the campus. It covers use of the Student Union, helps pay construction costs of the Union building, and assists with the provision of ethnic studies on the Berkeley campus.

University Health Insurance Fee—Undergraduates, $195 per semester; graduate students, $215 per semester. All students attending the University of California,
The figures listed below were those in effect in spring 1995. Fees and estimates of other expenses had not been determined when this catalog went to press, and are subject to change for the 1995-96 and 1996-97 academic years. For current information, call 642-0645.

### Undergraduate Off-Campus & Residence Hall

| Expense                              | Amount  \\n|--------------------------------------|---------\
| Room and Board (includes food, housing, and utilities) | $6,246  \\n| Books and Supplies                   | $635    \\n| Personal Expenses                    | $1,633  \\n| Transportation                       | $300    \\n| **Total Living Expenses**            | **$8,814** \\n| Fees (for two semesters)             | $3,958  \\n| Health Insurance                     | $390    \\n| **Total Budget (for California resident)** | **$13,162** \\n
#### Nonresident Tuition

- $7,699

#### Total Nonresident Budget

- $20,861

### Undergraduate Commuter (lives with parents)

| Expense                              | Amount  \\n|--------------------------------------|---------\
| Room and Board (includes food, housing, and utilities) | $1,850  \\n| Books and Supplies                   | $635    \\n| Personal Expenses                    | $1,633  \\n| Transportation                       | $300    \\n| **Total Living Expenses**            | **$4,418** \\n| Fees (for two semesters)             | $3,958  \\n| Health Insurance                     | $390    \\n| **Total Budget (for California resident)** | **$8,766** \\n
### Grad/Law/Optometry

| Expense                              | Amount  \\n|--------------------------------------|---------\
| Room and Board (includes food, housing, and utilities) | $7,389  \\n| Books and Supplies                   | $530    \\n| Personal Expenses                    | $1,633  \\n| Transportation                       | $300    \\n| **Total Living Expenses**            | **$9,852** \\n| Fees (for two semesters)             | $3,958  \\n| Health Insurance                     | $430    \\n| **Total Budget (for California resident)** | **$14,240** \\n
#### Nonresident Tuition

- $7,699

#### Total Nonresident Budget

- $21,939

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a) The room-and-board budget includes costs for housing, food, and utilities.
b) The budgets for undergraduates living in Clark Kerr and Foothill are $14,357 for California residents and $22,056 for nonresidents, due to additional housing fees of $917.
c) The undergraduate off-campus room-and-board budget includes $411 per month for housing and $283 per month for food. The $1,850 undergraduate commuter allotment is for food only.
d) The nine-month budgets for undergraduates enrolled in the UC Berkeley Extension Fall Program for Freshmen are $13,188 for off-campus/residence-hall students and $8,792 for commuter students. Fall Program budgets (for the fall semester) are $6,468 for off-campus students and $4,270 for commuter students. (Fall Program students are assessed $1,950 for fees and $110 for health insurance.) These undergraduates are assigned standard spring-semester budgets of $6,720 for off-campus/residence-hall students and $4,522 for commuter students.
e) The graduate room-and-board budget includes $538 per month for housing and $283 per month for food.
f) The budgets for entering Haas School of Business graduate students are $16,518 for California residents and $24,217 for nonresidents, due to additional business school fees of $2,000.
g) The budgets for entering Boalt School of Law students are $17,084 for California residents and $24,217 for nonresidents, due to additional law school fees of $2,376 and an additional $190 for law books.
h) The budgets for continuing Boalt School of Law students are $15,084 for California residents and $22,783 for nonresidents, due to additional law school fees of $376 and an additional $190 for law books.
i) Optometry students deduct $40 from the health insurance fee and thus $40 from the total budget.
Fees and Financial Aid

Directory of Financial Aid Offices:

Undergraduate Financial Aid, 211 Sproul Hall 642-6442
Graduate/Law/Optometry, 201 Sproul Hall 642-0485

Special Financial Aid Services:
Committee on Prizes, 229 Sproul Hall 642-3498
Director's Office, 225 Sproul Hall 642-0645
Emergency Loans, 205 Sproul Hall 642-0470
Undergraduate Scholarship Office, 210 Sproul Hall 642-6363
Work-Study Program, 212 Sproul Hall 642-5625

Berkeley must be covered by major medical health insurance. All students are therefore automatically enrolled in the University Major Medical Health Insurance Plan, which provides for specialized care and hospitalization and supplements campus care services provided at the University Health Service (UHS) at the Tang Center. The cost for the plan is billed with registration fees each semester. Payment for both the fall and spring semesters provides major medical coverage for the entire calendar year, including summer. You may waive out of the University's plan and not pay the fee if you can show proof of coverage comparable to the University's plan. For more information, contact the Student Health Insurance Office, University Health Service, Tang Center, 2222 Bancroft Way, or call 642-5700.

Nonresident Tuition—$3,849.50 per semester. At the time of registration, you are classified as a resident or nonresident for tuition purposes. Only U.S. citizens and holders of immigrant visas can become qualified for resident classification. Under California law you may be classified as a resident for tuition purposes if you have lived in California for more than one year immediately before the day instruction begins at the last of the campuses to open for a semester. Residence is the combination of physical presence within California, intent to live in California permanently, plus demonstrated financial independence for the two years immediately preceding the request for residence classification. Nonresidents must pay a nonresident tuition fee each semester. For detailed information regarding the establishment of California residence, see the Appendix or write to the Attorney in Residence Matters, 300 Lakeside Dr., Seventh Floor, Oakland, CA 94612-3565.

Additional Fees and Expenses

Late Fee Payment—Payments must be received, not postmarked, by the deadline indicated on the Campus Accounts Receivable System (CARS) statement. A $50 fee will be charged if registration fees are not paid by that date. All other delinquent accounts over $50 will be assessed penalties as follows:

- $20 on accounts one month past due;
- $25 on accounts two months past due and monthly thereafter until the account is brought current.

Returned Check Charges—A processing charge of $50 is assessed when the bank returns a check for payment of registration fees. A processing charge of $20 is assessed for all other returned checks.

Late Enrollment—$50. Continuing students who fail to call Tele-BEARS during Phase I or Phase II are liable for this fee.

Reinstatement after having been dropped from University rolls—$10.

Collection Costs—Additional costs may be assessed on any defaulted debts requiring remedial collection activity. These costs may include applicable attorney's fees.

Men's and Women's Athletic Events—Student season tickets are available for purchase at the Athletic Ticket Office for football and men's basketball. Admission to other events is available in the form of a sports pass. For prices and additional information, call 642-5150.

Fee Schedule*

At the time of registration, by mail or in person, students pay the following fees each semester:

<table>
<thead>
<tr>
<th>Undergraduates</th>
<th>Fees per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>$2,173.25</td>
</tr>
<tr>
<td>Nonresidents</td>
<td>$6,022.75</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>Fees per Semester</td>
</tr>
<tr>
<td>Residents</td>
<td>$2,193.25</td>
</tr>
<tr>
<td>Nonresidents</td>
<td>$6,042.75</td>
</tr>
</tbody>
</table>

Additional Fees for Law and M.B.A. Students—Students in the School of Law and students in M.B.A. programs in the Haas School of Business are subject to different fee schedules. Law students may obtain current information from the Announcement of the School of Law. M.B.A. students may obtain information from the MBA Announcement or may call 642-1405.

*These fees are those that were in effect for spring 1995. Fees for subsequent semesters had not been determined when this catalog went to press. Please call 642-7200 for current information.

Financial Aid

The Financial Aid Office is located on the second floor of Sproul Hall. The office is composed of four units, each serving a different part of the academic community. Please refer to the directory to the left for the address and telephone number of each unit. You may obtain detailed information about the various kinds of student aid available to Berkeley students by calling or writing the appropriate unit.

Students may apply for a variety of financial aid funds, including grants, scholarships, work-study, and loans. Financial aid applications and supporting information will be sent to entering undergraduate and graduate students. New financial aid applications will not be sent to continuing students; they should stop by the Financial Aid Office in December or January to pick up their forms. The deadline for filing each year is normally March 2.

All financial aid except fellowships, honorary scholarships, teaching and research appointments, and prizes is granted on the basis of financial need. Financial need is the difference between the cost of attendance for the academic year and the amount you and your family can
contribute toward those costs. Prizes are awarded on the basis of competition or outstanding ability in some area of creative or scholarly endeavor. Most scholarships are awarded on the basis of academic performance and financial need. Regents', Chancellor's, and Alumni scholarships, however, are awarded solely in recognition of outstanding achievement and promise. A separate booklet describing the prizes offered to Berkeley students is available from the Committee on Prizes, 229 Sproul Hall.

Much of the funding for graduate students comes from sources other than the Financial Aid Office. Fellowships are awarded through the Graduate Division. Information and applications are available at the Graduate Division, 318 Sproul Hall. The deadline is January 5, but there are exceptions. Check with your department to confirm its filing dates.

**Reserve Officers Training Corps**

The University of California, as a land-grant institution established by the Morrill Act of 1862, offers courses and programs in military training. This training is voluntary and affords you the opportunity to qualify for a commission as an officer in the Army, Navy, Air Force, or Marine Corps while completing your college education. Reserve Officers Training Corps (ROTC) courses are offered by three departments: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). Scholarship programs are available; they carry a monthly stipend and pay for tuition, books, and most fees for qualified students. Individual programs are described under Military Officers Education Program in the courses section of this catalog.

**Veterans' Educational Benefits**

The Veterans Services Unit in the Office of the Registrar certifies eligible veterans, dependents, surviving spouses, and reservists for educational benefits. As the campus liaison to the Veterans Administration and the State Department of Veterans Affairs, Veterans Services can answer all questions regarding your eligibility for benefits and can assist you with counseling and referrals. A veterans’ work-study program, a tutorial assistance program, and a fee waiver program are also available.

If you are a veteran newly admitted to Berkeley, please submit a certified copy of your Certification of Release or Discharge from Active Duty (form DD-214). You may also need to submit certified copies of your marriage certificate, dependent children’s birth certificates, and final divorce decree, if applicable.

If you are a veteran’s dependent, you must provide your spouse or parent’s VA claim number and social security number. The VA pamphlet, “A summary of Veterans Administration Benefits,” is available upon request.

If you have questions or need more information, you may write to the Veterans Services Unit, Office of the Registrar, 120 Sproul Hall, or call 642-1592.

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**Trivial Pursuit No. 15**

Fill in the blanks: Bicycle registration and campus stationery now occupy a building designed by _______ next to the Pelican building. It formerly housed _______ and was originally built to house _______.

(Answers on page 444.)
Teachers are role models for their students. I try to present myself to them as someone who enjoys doing what he's doing, who loves learning, who loves teaching, who is compassionate and who listens.

—Julian Boyd
Professor of English
Distinguished Teaching Award, 1993

Fellowships, Graduate Scholarships, and Academic Appointments for Graduate Students

Numerous programs—from fellowships, grants-in-aid, and loans to assistantships, subsidized housing, and child care programs—provide ways in which you can cut the cost of graduate school. Some of the programs are need-based and are administered through the Financial Aid Office. These programs are discussed in preceding paragraphs. Others are merit-based and are administered through the Graduate Division Fellowships and Appointments Office and the academic departments. For detailed information about all the sources available to you, consult the “Graduate Application for Admission and Fellowships,” available from the department to which you wish to apply. The following paragraphs discuss merit-based fellowships, graduate scholarships, and teaching and research appointments, the primary sources of non-loan financial aid for graduate students.

Fellowships and Graduate Scholarships

Applications for University fellowships and graduate scholarships are considered only once a year. Awards are made for the academic year beginning with the fall semester.

In assigning awards, the Committee on Fellowships and Graduate Scholarships and your department will consider the extent and quality of your previous academic work, evidence of your ability in research or other creative accomplishments, your intellectual capacity, and promise of productive scholarship.

In addition to departmental block grants and fellowships funded by the Graduate Division, which provide a stipend plus tuition and fees, the following fellowships are awarded in open competition:

The Berkeley Fellowships for Graduate Study. Fellowships are awarded to students of outstanding achievement and high promise who will begin graduate study toward the doctoral degree in any field. These are three-year awards, based on continued excellence in the fellow’s advanced degree program, with an initial annual stipend of $12,000, plus tuition and fees.

University Predoctoral Humanities Fellowships. Entering humanities students who enroll in Ph.D. programs and who plan to pursue a career in teaching and research are eligible for this fellowship, which provides $10,000, plus tuition and fees, for the first year of graduate study and for the dissertation year. For at least the second and third years, departments provide support in the form of teaching or research appointments.

The Chancellor’s Opportunity Predoctoral Fellowships. Fellowships are awarded to underrepresented students of outstanding achievement who are beginning study toward the doctoral degree and are planning a career in university teaching. Fellowships provide a stipend of $11,000, plus tuition and fees. The fellowships are for three years and are based on continued excellence in the fellow’s advanced degree program.

Foreign Language and Area Studies (FLAS) Fellowships. The U.S. Department of Education allocates fellowship funds to institutions of higher education that offer advanced training in modern foreign language and area studies. Area studies is defined as a program of comprehensive study of aspects of a society or societies including geography, history, culture, economy, politics, international relations, and languages. To be eligible, you must be a citizen or permanent resident of the U.S., show potential for high academic achievement, and plan to enroll in a course in the language of award.
Eugene Cota-Robles Fellowships. These awards are intended to increase substantially the number of doctoral awards granted to ethnic minorities and women in disciplines in which they are underrepresented as recipients of doctoral degrees. The three-year awards carry an annual stipend of $12,500, plus tuition and fees for two years, followed by a one-year departmental teaching or research appointment. To be eligible, you must be a U.S. citizen or permanent resident and plan a career in teaching and research.

Graduate Opportunity Four-Year Fellowships. The purpose of this program is to increase the enrollment of women and ethnic minorities in departments in which they have been traditionally underrepresented. To be eligible for an award under this program, you must have demonstrated scholastic achievement and be an entering full-time registered graduate student and a citizen or permanent resident of the United States. Awards carry two years of fellowship support ($10,000 stipend, plus tuition and fees the first year; $9,000 plus fees the second year) and two years of departmental support in the form of a teaching or research appointment. The fellowship covers fees for all four years.

Regents Intern-Fellowships. Entering humanities or social science students who enroll in a Ph.D. program and who plan to pursue a career in teaching and research are eligible for this fellowship, which provides four years of support: two years of fellowship support ($10,000 stipend, plus tuition and fees the first year; $9,000 plus fees the second year) and two years of departmental teaching or research appointments. The fellowship covers fees for all four years.

Fellowship Application Procedure. If you are applying for admission/fellowship, you must file the combined Graduate Application for Admission and Fellowships according to instructions included in the application. You are strongly advised to take the October Graduate Record Examination. If you are applying for admission for the spring semester, you should see your department for an award to begin the following fall semester. If you are a continuing or returning graduate student at Berkeley, you may obtain the necessary fellowship application materials from your department or graduate group.

The fellowship application deadlines for new students range from December 15 to January 5, depending on the department; see the Application for Admission and Fellowships for deadlines. Continuing students should see their departments before January 5.

Announcement of Awards. Awards are announced by April 1 and must be accepted or refused, in writing, by April 15.

Fellowship Supplementation. Fellows receiving stipends of $6,500 or more may be employed no more than 25 percent time per semester as teaching or research assistants or in similar educationally relevant positions. Any exception to this policy must be approved by the dean of the Graduate Division upon recommendation of the graduate adviser.

Nonresident Tuition Scholarships. If you are a nonresident student with an outstanding academic record, your department may award you a nonresident tuition scholarship. Awards may cover a full academic year or partial nonresident tuition only. If you receive one of these scholarships, you must enroll in a full-time program of study or research leading to a higher degree.

For further information, contact your department.

Graduate Opportunity Program (GOP). The Graduate Opportunity Program, formerly known as the Graduate Minority Program, was renamed in 1991 to reflect more closely its role of administering both merit-based Graduate Opportunity Fellowships (see above) and need-based Graduate Opportunity Program grants. The goals of the Graduate Opportunity Program are the same as those of the Graduate Minority Program: to increase the number of underrepresented students entering and completing higher degrees at the University. To that end, GOP oversees an ongoing program of recruitment activities, financial assistance, and support services for students from groups that have been underrepresented in graduate and professional programs in the United States. The University has identified African Americans, Native American/American Indians, Pacific Islanders, Mexi-
Teaching and Research Positions

Teaching Appointments. Many departments make graduate student instructorships available to qualified graduate students, providing them with a stipend of $1,237 to $1,472 per month (based on a half-time appointment). Appointments are half time or less.

Graduate student instructors must be registered full-time students. Chosen for scholarly achievement and promise as a teacher, appointees serve the apprenticeship under active supervision of the regular faculty. Advancement to candidacy, teaching experience, and continuous and satisfactory progress toward the degree are rewarded with appointment to the higher steps of graduate student instructor. In some departments, students working for a Ph.D. are required to complete a specified minimum period of teaching as part of their degree program. If interested, you should apply directly to the chair of the department in which you wish to teach.

All students who have graduated from institutions in non-English-speaking countries will be required to demonstrate competence in spoken English before they are appointed as graduate student instructors. Applicants are strongly encouraged to take the Test of Spoken English (TSE) in their home countries. Enrolled students should contact their major departments for details. For information on registering to take the TSE, contact the TOEFL agent in your home country or at the address given on page 52.

Research Appointments. If you are a qualified registered full-time graduate student, you may seek a research appointment in the departments, centers, and institutes of the University. The stipend ranges from $1,067 to $1,536 per month for a half-time appointment. The duration and extent of such an appointment may vary. If interested, you should apply directly to the department, center, or institute in which you wish to work.

Stipends and Fee Remissions. Stipend figures for all positions mentioned above are subject to United States income tax deductions. Figures given are gross, not net, and do not reflect deductions. If you are offered an appointment, you should obtain information about payment schedules, since payment for work performed is later than the deadline for payment of registration fees. For teaching appointments, payment is in 10 equal installments (five installments per semester).

In order to ensure proper academic progress, candidates for higher degrees may not be appointed by the University in any capacity at more than half time during the academic year without the express consent of the dean of the Graduate Division. Summer appointments may be full time. Graduate students appointed by the University to most academic titles must be registered for at least 8 units per semester in 100-200 series courses. Units in the 600 series may be substituted for 200-level units when appropriate. Lower division units taken to prepare for departmental requirements (languages, mathematics, statistics) may be substituted for 100-level units.

Graduate student instructor and graduate student researcher appointments may include coverage of the premium for the Student Health Insurance Plan (SHIP) and a special partial remission of registration fees. Effective in spring 1992, doctoral students with graduate student researcher appointments at 45 percent time for the entire semester may be eligible for remission of nonresident tuition if they meet certain other criteria. See your department to determine eligibility.
I came to Berkeley because of its strong math and physics departments—theoretical physics is more and more a melding of the two. I was also attracted by the theoretical physics group at Lawrence Berkeley Lab and the Mathematical Sciences Research Institute. Berkeley is an exciting place to be and a wonderful place to concentrate in.

—Hirosi Ooguri
Professor of Physics
Arriving in December 1994 from Kyoto University, Professor Ooguri, at age 32, is the youngest full professor in the Physics Department.
## The Semester System

Under the semester system on the Berkeley campus, the academic year is divided into two semesters and one summer session. Quarter units, either earned previously at Berkeley or at another institution, are converted to semester units by multiplying by two-thirds; for example, 180 quarter units equal 120 semester units.

## Courses and Units

Most University courses are assigned a unit value. One unit represents three hours of work per week by the student, including both class attendance and preparation. Laboratory, discussion, quiz, or review sessions may or may not be given unit value. For graduate courses (numbered 200 and above) it is generally understood that 1 unit should require four hours per week of effort on the part of the student, including time spent in class, laboratories, and outside reading and preparation.

## Grades

The work of all students on the Berkeley campus is reported in terms of the following grades: A (excellent), B (good), C (fair), D (barely passing), F (failure), P (passed at a minimum level of C-), NP (not passed), S (satisfactory, passed at a minimum level of B-), U (unsatisfactory), I (work incomplete due to circumstances beyond the student’s control, but of passing quality), IP (work in progress; final grade to be assigned upon completion of entire course sequence). The grades A, B, C, and D may be modified by plus (+) or minus (-) suffixes.

A course in which the grades A, B, C, D, or P (undergraduate students only) is received is counted toward degree requirements. A course receiving the grade S (graduate students only) is similarly counted unless otherwise specified in the course description. A course in which the grade F, NP, or U is received is not counted toward degree requirements. A course in which the grade of I or IP is received is not counted toward degree requirements until the I or IP is replaced by grade A, B, C, D, P, or S.

### Grade Points

Grade points per unit are assigned as follows: A=4, B+=3, B=2, B-=1, and F=0. When attached to the grades A, B, C, or D, plus (+) grades carry three-tenths of a grade point more per unit than unsuffixed grades, except for A+, which carries 4.0 grade points per unit as does the A.

### Grade-Point Average

Your grade-point average is computed on courses undertaken in the University of California, with the exception of courses undertaken in University Extension. Grades A, B, C, D, and F are used in determining your grade-point average; grades IP, P, S, NP, and U carry no grade points and are excluded from all grade-point computations. Grade I, if assigned before fall 1973, is included and is computed as an F; an I grade assigned fall 1973 and later is excluded from computations. For additional information, see "Repetition of Courses" below.

### Computation of Grade-Point Averages

<table>
<thead>
<tr>
<th>Grade</th>
<th>Units</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>12</td>
</tr>
<tr>
<td>B+</td>
<td>3</td>
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</tr>
<tr>
<td>C</td>
<td>3</td>
<td>5.1</td>
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<tr>
<td>P</td>
<td>3</td>
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<tr>
<td>I</td>
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<tr>
<td>Totals</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>3.000</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
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<td>9.9</td>
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<td>C</td>
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<td>NP</td>
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<td>I</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
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<td>27</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>3.000</td>
</tr>
</tbody>
</table>

### Special Provisions—Graduate Students

Only courses graded A, B, C (with or without plus or minus signs), or S are accepted in satisfaction of degree requirements. Courses graded below C- do not yield unit credit toward a higher degree, regardless of your overall grade-point average. Graduate students must maintain a minimum grade-point average of 3.0 in all upper division and graduate course work undertaken in graduate standing in the University of California or its exchange programs. Please note that departments,
schools, and groups may have a higher performance standard than the minimum B average required by the Graduate Division. You must also work full time at your academic or professional program unless a program with fewer units is approved by your graduate adviser. In addition, you must successfully complete all course work required by your department, school, or group program, be advanced to candidacy, pass the required examinations, and fulfill other requirements specified for the program.

For a course extending over more than one semester in which evaluation of your performance is deferred until the end of the final semester, provisional grades of in progress (IP) may be assigned in the intervening semesters. The provisional grades are replaced by the final grade if you complete the full sequence. If you do not complete the full sequence, the Berkeley Division of the Academic Senate is authorized to regulate the award of credit.

With the consent of the department involved, graduate students may enroll in courses in the 600-series. These courses are evaluated by means of the grades satisfactory and unsatisfactory (S and U). They prepare you for appropriate master’s or doctoral examinations and do not count toward academic residence or the unit requirements for a higher degree. Beginning with fall semester 1985, you may earn 1-8 units of 601 or 602 per semester or 1-4 units per summer session. You may accumulate a maximum of 16 units in 601 and 602, respectively, toward examination preparation. No credit is allowed for work graded unsatisfactory.

**Passed/Not Passed and Satisfactory/Unsatisfactory Grades**

If you are an undergraduate in good academic standing (2.0 grade-point average or better, or in good academic standing under the academic probation regulations of your college or school), you may elect to take letter-graded courses on a passed/not passed basis, and if you are a graduate student in good academic standing, you may elect to take letter-graded courses on a satisfactory/unsatisfactory basis with the consent of your department, school, or group. Credit for courses taken on these bases is limited to one-third of the total units that you have taken and passed on the Berkeley campus at the time your degree is awarded. Included in this one-third are any units completed in an Education Abroad program, or on another University of California campus in an intercampus visitor or exchange program, or in a joint doctoral program. For graduate degree programs, grades of Satisfactory assigned in courses numbered 299 and in courses of the 300, 400, or 600 series are excluded from this computation. If you enroll in a course offered only on a passed/not passed or satisfactory/unsatisfactory basis, you will be graded P/NP if an undergraduate and S/U if a graduate.

A course that is required in or prerequisite to your major may be taken on a P/NP or S/U basis only upon approval of the faculty of your school or college.

If you are a special or limited-status student, you may take courses on a P/NP basis at the discretion of the dean of your college or school. You may not repeat on a P/NP basis a course that you have previously taken on a letter-graded basis.

The option of being graded P/NP or S/U in a course may be cancelled if you are found to be ineligible for the option. If the course is offered on a P/NP or S/U basis only, it may be deleted from your study list at the option of your dean.

If you want honors at graduation, you should consult your college, school, or division for additional restrictions.

Your level of performance must correspond to a minimum letter grade of C- if you are to receive a passed grade, and to a B- if you are to receive a satisfactory grade.

These rules may be further limited by the faculties of the various schools and colleges and by the Graduate Council.

**Grade I (Incomplete)**

The grade I may be assigned if your work in a course has been of passing quality but is incomplete for reasons beyond your control. Prior arrangements must be made with the instructor, because in assigning the I grade the instructor is required to specify the reasons to the department chair.

For graduate students, the I grade will remain on the record until the required work is completed. Graduate students must finish the course requirements as soon as possible. To remove an I grade from your record, you must file the appropriate petition and fees with the Office of the Registrar, 128 Sproul Hall.

Despite the multifaceted nature of my job, I have put most of my efforts into teaching—since this is where I feel I can have the greatest positive impact on others' lives.

—David Modest
Associate Professor of Business Administration
Distinguished Teaching Award, 1992
Degrees Awarded
1993-94:

Bachelor's 5,740
(More Berkeley graduates go on to earn Ph.D.'s than graduates of any other U.S. university)

Master's 1,826

Ph.D. 896
(Berkeley is the nation's leading supplier of Ph.D.'s)

Professional 295

Certificate 55

Candidate 106

Total 8,918

Although I grades are not counted in computing the grade-point average, it is important to remove them quickly. In order to hold an academic appointment, graduate students may have no more than two I grades on their academic records. You should seek the advice of the Graduate Division if you have further questions concerning I grades.

For undergraduate students, an I grade received in the fall semester must be replaced by the first day of instruction in the following fall semester.

An I grade received in the spring semester or Summer Session must be replaced by the first day of instruction in the following spring semester.

When you complete the required work or deferred examination, grade points will be assigned if you receive a grade of A, B, C, or D. If you repeat the course, grade points will then be assigned to the earned grade if the dean has given prior written approval to repeat it. If you repeat the course without the approval of the dean, the I grade will be converted to an F and the repeated course will be treated the same as any other course in which you receive an F. The dean of your college or school may extend the deadline for undergraduate completion of an I grade. For undergraduates, except as noted below, any I grade which has not been replaced within the above deadlines will, at the end of that time, be converted to grade F (or NP if taken passed/not passed). After that time, but not retroactively, the grade is counted in computing your grade-point average.

Exceptions: Within the above deadlines for completing an I grade, undergraduate students may notify the dean that they have not attempted completion and will not complete the work required for removal of the I grade, and may request that the grade not be replaced by an F (or NP). This procedure is limited to a maximum of two courses. Once the decision has been made, it is irrevocable; the course cannot afterward be completed by any means, including repetition of that course or any equivalent course.

If a degree is conferred before the end of the above deadlines following the assignment of an I grade, the grade will not be converted to an F (or NP). However, you still have the option of removing the I grade within the above deadlines.

If you are an undergraduate student with 12 or more units of I on your record, you may not register without the permission of the dean.

All students who receive an I grade must file a Petition for Grade and Grade Points in an Incomplete Course, available at department offices and at the Office of the Registrar, 128 Sproul Hall. You should file the petition with the department in which you received the I grade as soon as you and the instructor have established the date you completed the course. The filing fee is $5, payable at the Registrar's Office. You must make arrangements to complete the course at least 30 days before the deadline. The final grade cannot be recorded until you have filed the petition with the department and paid the fee.

Note: The I grade is not physically replaced or removed from the academic record. Completion of the work is reflected as a subsequent line entry on the
record, and the units and grade points thus earned will be included in the grade-point computations at the close of the next session.

Grade IP (In Progress)
If you take a course extending over more than one term and evaluation of your performance is deferred until the end of the final term, provisional grades of IP (In Progress) are assigned in the intervening term(s). The provisional grades are replaced by one final grade if you complete the full sequence. The grade IP is not included in the grade-point average. Effective with an IP assigned fall 1973 or later, if the full sequence is not completed as scheduled, the IP will be replaced by a grade of Incomplete. Further changes in your record will be subject to the rules pertaining to I grades (see above).

Changes of Grade
All grades except I and IP (see above) are considered final when assigned by an instructor at the end of a term. An instructor may request a change of grade when a computational or procedural error occurred in the original assignment of a grade, but a grade may not be changed as a result of re-evaluation of your work. No final grade may be revised as a result of re-examination or the submission of additional work after the close of the term.

Appeal Process
If you have a grievance about grades, you may appeal. You have grounds for appeal if you feel that considerations of race, politics, religion, sex, or sexual harassment affected your grades, or that your work was evaluated by other criteria that do not directly reflect your performance of the course requirements. The following formal procedure may not be activated unless you, the instructor in charge, an ombudsperson (or any mutually accepted third party), and the department chair have failed to resolve the dispute informally. The procedure, once initiated, is to be completed at the unit level within 20 days and at the Senate level within 40 days if both parties are in residence and the University is in regular session. The formal process must be initiated within two semesters of the alleged offense.

Appeal of Grades in Courses and Examinations
Each department or other instructional unit, or group of units teaching similar disciplines, must establish a standing Grievance Committee chair. For each case this chair will appoint an ad hoc Grievance Committee composed of three faculty members, only two of whom may be from the same unit, and two students in good standing appointed by the student association(s) of the unit(s). If no student association exists, the students are to be appointed by the ASUC or the Graduate Assembly. (The student members must have passed courses or an examination in the unit(s) at least at the level of the disputed course or examination and have been in residence for at least one year.) If you are dissatisfied with the outcome of the informal discussion, you may submit the case in writing to the Grievance Committee, which will obtain a written response from the instructor and will provide all parties the opportunity to present additional information orally or in writing. The Grievance Committee's recommendation to the Committee on Courses, including minority view, if any, must be given in writing.

If the Committee on Courses finds in your favor, it may change a failing grade to a P or S, drop a course retroactively, retain the course but eliminate the grade from the GPA, or adopt the letter grade, if any, that was recommended by four of the five members of the Grievance Committee of the unit(s).

Repetition of Courses
You may repeat only courses in which you received a grade of D+, D, D-, F, NP, or U. You may repeat an I grade subject to limitations listed below (see Grade I). Courses in which you received a grade of D+, D, D-, or F and courses that you undertook for a letter grade but for which you received a grade of I may not be repeated on a passed/not passed basis. Repetition of a course more than once requires approval by the dean of the college, school, or division in which you are enrolled at the time you repeat the course. Without this approval, a course repeated more than once will not be included in the grade-point average, but a passing grade in the repeated course will be accepted in satisfaction of unit requirements for the degree. Degree credit for a repeated course will be given only once, but the grade assigned at each enrollment is permanently recorded. If you repeat courses in which you received a grade of D+, D, D-, or F, the units are counted only once and only the most recently earned grades and grade points are used for the first 12 units repeated. In case of further repetitions, the grade-point average is based on all grades assigned and total units attempted. If, however, you receive a grade of I upon repetition of a course, the grade of D+, D, D-, or F will continue to be computed in the grade-point average until the I grade is replaced. If you repeat an I in a letter-grade course, the I will lapse to an F unless you have permission of the dean of your college or school to retain the I grade for a longer period.

Credit by Examination
Undergraduate Students
You may earn credit by examination in two ways:
1. If you are a new or re-entering undergraduate student, on the recommendation of the Board of Admissions you may be allowed credit by examination for knowledge that you acquired since graduation from high school, either by independent study or at another
institution, and for which you have not been allowed advanced standing credit. You should apply to the Office of the Registrar for credit.

2. If you are a student in good standing and currently registered in a regular session, you may qualify for course credit by examination. You may apply for credit to the dean of your college or school on the Petition for Credit by Examination, obtainable from the Office of the Registrar. You may apply for credit by examination in any course listed in the current General Catalog that pertains to the regular sessions at Berkeley. However, the subject in which you want to be examined should be one in which, in the opinion of the instructor in charge of the department, knowledge can be tested by examination. You must file a separate petition for each course for a fee of $5 per course. In certain laboratory, field, or practice courses, neither a written nor an oral examination may be a satisfactory test. You may not receive credit by examination (1) if the credit would duplicate credit that you presented for admission to the University or (2) in elementary courses in your native language if it is not English. The examination must cover the entire course and be administered at one sitting of no longer than three hours. It may be the regularly scheduled final examination for the class, provided that the examination meets the foregoing criteria. The result of the examination may be reported to the Office of the Registrar only as Passed or Satisfactory, according to the regulations governing the assignment of these grades. Further information concerning credit by examination may be obtained from the Office of the Registrar.

Graduate Students

If you are a graduate student in residence, you may petition to receive a limited amount of course credit toward your degree by passing examinations on material covered in certain courses in lieu of taking those courses. Laboratory courses or graduate seminar or research courses are excluded. You must be registered for at least 4 units of upper division and/or graduate course work at the time you take the examination and you must be in good academic standing (3.0 grade-point average or better). The final result of the examination will only be reported as satisfactory or unsatisfactory. You may obtain the petition from the Office of the Registrar. Approval to take these examinations must be given by the dean of the Graduate Division and by the course instructor, or, if no instructor is designated, by the department chair.

Midterm and Final Examinations

The number of midterm examinations varies at the discretion of the instructor. Notices will be sent to undergraduate students whose work at midterm is of D, F, or NP quality. Final examinations are required in all undergraduate nonlaboratory courses, with the exception of courses that the Schedule of Classes indicates do not require a final examination. This requirement allows you to demonstrate mastery of course material while providing the instructor with written evidence for evaluation. You may be re-examined only to complete an incomplete grade, not to raise any other grades. The examination may last no longer than three hours and must be administered at the time announced in the Schedule of Classes. Any deviation from this announced time, including take-home examinations, requires approval from the Committee on Courses. This requirement guarantees you ample prior notice of the examination time and eliminates conflict with other examinations.

Instructors or departments must return your final examinations or copies of them, or retain them for 13 months after the date of the examination. They must give you access to retained examinations under the supervision of the instructor or a designee. You have a right to pay for and keep photocopies of your retained examinations. The department is responsible for ensuring compliance with this regulation for all faculty, including visiting faculty and faculty on leave.

Other Academic Policies

Grade Reports and Transcripts

After grades are recorded for a semester, they are available from Info-BEARS at 642-9400. Official copies of student transcripts also are available from the Office of the Registrar, 123 Sproul Hall. Transcripts for registered students with their grades are available approximately 30 days after the last date for final
exams. At times other than the end of the semester, the normal period required for processing and issuing transcripts for both registered and former students is 7 to 10 working days after receipt of your request. The charge for each transcript of every undergraduate, graduate, or separate Summer Session record is $4 per copy. The total amount due must accompany the application. If you urgently need a transcript that would normally take 7 to 10 days to issue, it can be made in 24 hours at a special charge of $10 for each copy. Rush transcripts also can be ordered by mail or by telephone at 643-7490, using your Visa or Mastercard.

**Cal Photo ID Cards**
Your Cal photo ID card is your official identification as a student at Berkeley. The campus is embarking on a new campus photo identification card program for students, faculty, and staff. The new card will be called the CalCard. We anticipate that it will replace the existing Cal photo ID card, in phases, beginning in fall semester 1995.

**Change of Name and Address**
If you are moving, go to 120 Sproul Hall to fill out a change of address form. If you have changed your name, go to 128 Sproul Hall to fill out a change of name form.

**Probation and Dismissal—Graduate Students**
Graduate students are subject to probation and dismissal for academic deficiencies at the discretion of the dean of the Graduate Division under the policies established by the Graduate Council of the Academic Senate. Probation may be initiated by the dean of the Graduate Division or by recommendation of the chair of graduate advisers in your major department, school, college, or graduate group. The most common reasons for probation are a low GPA, written work of substandard quality in courses central to your program of study, or failure to make adequate progress toward the degree. Dismissal for academic deficiencies is normally carried out by the dean on the recommendation of the chair of the graduate advisers, but the dean may also initiate dismissal after reviewing your record. You may appeal dismissal for academic reasons to the appropriate committee of the Graduate Council of the Academic Senate.

**Access to Records**
You are entitled by law and University policy to examine and challenge most of the records that the University maintains on you. These records are confidential and in most circumstances may be released to third parties only with your prior consent. Such matters are detailed in the Berkeley Campus Policy Governing Disclosure of Information from Student Records, available in the Office of the Registrar, 128 Sproul Hall.

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**I insist upon taking students seriously—seriously enough to argue with them, seriously enough to snap their heads off if they cannot show me logical bases for their assertions, and seriously enough to retreat in open confusion when they disagree with me and show me I have in fact misunderstood the materials I have presented.**

—Stephen Booth
Professor of English
Distinguished Teaching Award, 1982
Schedule of Refunds for New Students Who Receive Federal Financial Aid and Withdraw During Their First Academic Term

<table>
<thead>
<tr>
<th>Days</th>
<th>Refund</th>
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<tr>
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<td>8-14</td>
<td>90%</td>
</tr>
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<td>80%</td>
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<td>43-49</td>
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<td>50-56</td>
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<tr>
<td>57-63</td>
<td>40%</td>
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<tr>
<td>64 or more</td>
<td>0%</td>
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</tbody>
</table>

Refunds

If you cancel your registration before the first day of classes, you are eligible to receive a full refund of registration fees paid for the semester, less a $10 processing fee.

If you withdraw, the eligible amount of refund of registration fees paid for the semester is prorated according to the date on which the first University office stamps or signs the withdrawal petition, not by the date on which you stopped attending classes (see Schedule of Refunds, below).

The following fees are not refundable:
- Any late or penalty fees paid
- Deferred Payment Plan fee ($30)
- Statement of Intention to Register fee ($100) (new undergraduates only)

Note: If you are ineligible to attend the University (e.g., academic dismissal, administrative cancellation of admission), you are eligible for a refund of all fees paid for the semester. If you enter the armed forces before the sixth week of the semester, you also are eligible for a refund of all fees paid for the semester.

All refunds are subject to University review for indebtedness; any outstanding debts will be withheld from the refund. If you are on the Deferred Payment Plan, the amount of your refund is based on total fees assessed (not actually paid) at the time you file the withdrawal petition; you may still have a financial obligation to the University upon withdrawal.

If you are receiving financial aid: Regardless of whether you or the Office of Financial Aid paid your fees, any refund processed will be first applied to your financial aid accounts; if any portion of your fees has been paid by the University or any outside sources, the refund will be applied directly to the source of those funds. Any remaining balance will be refunded to you. For further information on this policy, contact the Office of Financial Aid, second floor, Sproul Hall.

Schedule of Refunds for All Continuing and Readmitted Students and New Students Who Do Not Receive Federal Financial Aid

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<td>29-35</td>
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<tr>
<td>36 or more</td>
<td>0%</td>
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Returning to Berkeley

Attending Berkeley After Cancellation

New Students: If you cancelled your registration and wish to attend Berkeley in a future semester, you must submit a new application for admission. Your previous admission status will have no bearing on the decision for admission in the future.

Continuing Students: If you cancelled your registration and wish to attend Berkeley in a future semester, you must submit an Application for Rea dmission, available at the Office of Undergraduate Admission and Relations with Schools, 110 Sproul Hall (for undergraduates) and at Graduate Degrees and Petitions, 302 Sproul Hall (for graduate students). The filing dates are April 15 for the fall semester and August 15 for the spring semester. For more information, see page 36 (undergraduates) or page 52 (graduate students).

Attending Berkeley After Withdrawal

If you withdrew from the University and wish to return in a future semester, you must submit an Application for Readmission, available at the Office of Undergraduate Admission and Relations with Schools, 110 Sproul Hall (for undergraduates) and at Graduate Degrees and Petitions, 302 Sproul Hall (for graduate students). The filing dates are April 15 for the fall semester and August 15 for the spring semester. For more information, see page 36 (undergraduates) or page 52 (graduate students).

Note: If you are an undergraduate in the Colleges of Engineering, Environmental Design, or Letters and Science, you may be subject to a "semester out" rule; consult your college dean's office for more information.
Undergraduate Students

Declaration of Candidacy. If you expect to complete work for your degree by the end of a semester, you must declare your candidacy by entering the appropriate code during the first call to the Tele-BEARS registration system. As an alternative, you may declare your candidacy at the beginning of the semester by completing the appropriate petition in the Office of the Registrar, 128 Sproul Hall, or call 643-6173. You have until the end of the fifth week of classes in which to declare.

Nonregistered students. If you are not registered at the time you want to declare candidacy, you may come in person to 128 Sproul Hall to fill out the form “Candidate for Bachelor’s Degree” or call 643-6173 by the end of the fifth week of classes.

Degree check. The Office of the Registrar will check your records to ensure that you have completed the University requirements (American History and Institutions and Subject A, 120 units, and are in good academic standing) and the Berkeley campus American cultures requirement, which will also be necessary for graduation beginning with spring semester 1995. Your college or school will check for the fulfillment of major, department, and college or school requirements.

Confirmation of Candidacy. Your Confirmed Class Schedule will indicate whether or not you have been advanced to candidacy. If you think there has been an error, go to 128 Sproul Hall.

Certificate of Completion. A Certificate of Completion is official proof that you have been granted the degree for which you were working. Undergraduates may request a certificate from 128 Sproul Hall, and it will be mailed from four to six weeks after the end of the semester.

Graduate Students

Before a graduate degree can be conferred, candidates must have been advanced to candidacy and complete the master’s thesis or doctoral dissertation and any required comprehensive or oral examinations. For detailed procedures and requirements, see the section “Graduate Education,” beginning on page 49.

Commencement

Commencement exercises to honor students who have won baccalaureate and graduate degrees and to give recognition and awards to students who are graduating with distinction are held each year in May. Students who have won their degrees in the previous fall semester or in Summer Sessions are welcome to participate. The ceremonies are held by individual schools or colleges or, in the College of Letters and Science, by individual department. There are about 60 ceremonies each year. The ceremonies consist of speakers and the presentation of degrees and awards and are followed by a reception, sometimes a dance, and for at least one department a picnic and volleyball game.

Trivial Pursuit
No. 20
Which famous comedian entertained at the 1947 Homecoming?

(Answer on page 444.)
Students may rent caps and gowns through the ASUC and may make arrangements for photographs to be taken or videotapes made. See your department office for additional information.

**Diplomas**
Diplomas are not given out at Commencement but are available approximately four months afterward. You may pick up your diploma at 128 Sproul Hall or request that it be sent to you for a mailing fee of $8 domestic and $14 international. The Office of the Registrar will retain diplomas for five years only.

**Student Conduct and Appeals**

**Student Conduct**
When you enroll in the University, you assume an obligation to conduct yourself in a manner compatible with the University's function as an educational institution. Rules concerning student conduct, student organizations, use of University facilities, and related matters are set forth in both University policies and campus regulations, copies of which are available upon request at the Office of Student Activities and Services, 102 Sproul Hall. You should pay particular attention to the booklet Berkeley Campus Regulations Implementing University Policies.

**Cheating or Plagiarism**
Achievement and proficiency in subject matter include your realization that *neither is to be achieved by cheating*. An instructor has the right to give you an F on a single assignment produced by cheating without determining whether you have a passing knowledge of the relevant factual material. That is an appropriate academic evaluation for a failure to understand or abide by the basic rules of academic study and inquiry. An instructor has the right to assign a final grade of F for the course if you plagiarized a paper for a portion of the course, even if you have successfully and, presumably, honestly passed the remaining portion of the course. It must be understood that any student who knowingly aids in plagiarism or other cheating, e.g., allowing another student to copy a paper or examination question, is as guilty as the cheating student.

**Sexual Harassment Policy**
The Berkeley campus actively supports the official policy of the University of California on sexual harassment, which states: "The University of California is committed to creating and maintaining a community in which students, faculty, and administrative and academic staff can work together in an atmosphere free of all forms of harassment, exploitation, or intimidation, including sexual. Specifically, every member of the University community should be aware that the University is strongly opposed to sexual harassment and that such behavior is prohibited both by law and by University policy. It is the intention of the University to take whatever action may be needed to prevent, correct, and, if necessary, discipline behavior which violates this policy."

The campus has a special complaint procedure designed to facilitate prompt and confidential resolution of sexual harassment complaints. If you believe that you have been a victim of sexual harassment, have questions about the definition of sexual harassment or about the special complaint procedure, or have questions about the interrelationship between the special complaint procedure and other campus procedures, you may address your inquiries to the Title IX Compliance Officer, 643-7985. Copies of the procedure are available in 200 California Hall.

**Student Grievance Procedure**
The Berkeley campus Student Grievance Procedure (Appendix II to the Berkeley Campus Regulations Implementing University Policies) gives you an opportunity to resolve complaints alleging discrimination based on race, color, national origin, sex, handicap, age, and sexual orientation. You may also use the procedure to resolve any complaints you may have alleging that any other rules or policies of the Berkeley campus were inappropriately applied and resulted in an injury to you. The procedure is not applicable to certain kinds of complaints for which other appropriate appeals procedures exist, such as a grade appeal based on the application of nonacademic criteria. (See "Appeal of Grades in Courses and Examinations" on page 81 for a description of the grade appeal process.) The procedure contains important time limitations and provisions about the interrelationship between this procedure and other campus complaint procedures. Inquiries about this procedure or its interrelationship with other campus complaint procedures may be directed to the Assistant Vice Chancellor of Student Life, 643-9260. Copies of the procedure are available in 102 Sproul Hall.

Graduate students should consult the Graduate Division for information about grievance procedures.
The architecture faculty at Berkeley collectively represent a broad range of theoretical positions combined with substantial individual accomplishments. And they are kept refreshingly challenged and honest by the talent and intelligence of the students. This dynamic academic community, unlike any other in the country, has attracted me since I first started teaching and is proving to be as provocative and fulfilling as I hoped.

—Susan Ubbelohde

Associate Professor of Architecture

New to Berkeley in 1994, Ubbelohde was formerly on the faculties of UC San Diego and the University of Minnesota, where she directed the Regional Daylight Center.
Colleges and Schools

Walter A. Haas School of Business

Office: Student Services Wing, 642-7989
Dean: William A. Hasler, M.B.A.
Associate Deans:
Russell S. Winer, Ph.D. (Academic Affairs)
Andrew W. Shogan, Ph.D. (Instruction)
Directors:
Glenn R. Carroll, Ph.D. (Ph.D. Program)
Diane Dimoff, M.B.A. (EMBA Program)
David H. Downes, Ph.D. (M.B.A. Program)
Richard A. Meese, Ph.D. (Undergraduate Program)

Undergraduate Program

The bachelor of science degree in business administration constitutes an important service to the public and the business and government communities and serves as a respected model for other schools in the West. The school's program is less focused than graduate instruction. Its true distinctiveness resides in the integration of a well-rounded liberal arts education with a professional concentration in business administration. An excellent foundation is also provided for students preparing for graduate professional degrees in business, law, and public policy.

Students are admitted only at junior level in both fall and spring semesters. Before applying to the school, you should obtain an Announcement of the Undergraduate Program of the Haas School of Business, available in S450 Student Services Wing. The announcement contains complete information concerning academic qualifications for admission, with details about prerequisites and degree requirements. Because there are many more applicants than spaces available, completion of the prerequisites does not guarantee admission. Requests for advice on programs of study and general information should be addressed to the Walter A. Haas School of Business, University of California, Berkeley; S450 Student Services Wing #1900; Berkeley, CA 94720-1900.

Lower Division. Students preparing for admission to the Undergraduate Business Program may complete required lower division courses in any college in the University, or equivalent courses at other institutions. Counselors in the undergraduate school will assist lower division students in selecting courses prerequisite to the upper division business administration curriculum. Detailed information on required preparation is available in the Announcement of the Undergraduate Program of the Haas School of Business.

Upper Division. Upper division core courses to be taken at Berkeley are: 100—Business Communication; 110—Microeconomic Analysis for Business Decisions; 111—Macroeconomic Analysis for Business Decisions; 120A—Introduction to Financial Accounting; 120B—Managerial Accounting; 130—Financial Management; 150—Organizational Behavior; 160—Marketing; 170—Social and Political Environment of Business.

Beyond these requirements, additional courses within seven subject matter fields must be taken. Advisers will assist you in the selection of these courses. A minimum of 32 units in upper division business courses is required.

The following subject matter fields are available:
Accounting, economic analysis and policy, finance, management science, marketing, organizational behavior and industrial relations, and real estate and urban land economics.

Graduate Programs

The Haas School of Business offers curricula leading to the Master of Business Administration degree and the Ph.D. degree. The Haas School offers two separate M.B.A. programs: a two-year campus program for full-time students and an evening program for fully employed students (EMBA) that takes three years to complete on a part-time basis.

The M.B.A. Program. The Haas School offers a strong general management program that prepares its graduates to understand the economic, social, political, and technological forces driving global competition and to become effective leaders of modern organizations. The school is increasingly well-known nationally and internationally for its focus on international business, innovation and entrepreneurship, and the management of technology.

Unusually flexible in its range of courses and electives for second-year students, the full-time M.B.A. program emphasizes cooperative work in teams and small groups. With approximately 30 percent international students (evenly divided between Europe and Asia) and more than 30 percent women (39 percent entering in 1993), the program reflects the diverse global environment in which its graduates will pursue their careers.

The diverse student body represents 192 colleges and universities, 42 countries, and a wide range of academic and professional backgrounds. There are approximately 450 students in the two-year full-time campus program and 250 students in the EMBA program.

The Haas School co-sponsors three concurrent-degree programs:
- J.D./M.B.A. with Boalt Hall or Hastings College of the Law;
- M.B.A./M.P.H. in health services management with the School of Public Health;
M.B.A./M.A. in Asian studies with the Group in Asian Studies.

In addition, two joint curriculum programs are offered:

- The Management of Technology Joint Program with the College of Engineering leading to a certificate in the management of technology.
- The Real Estate Development Program with the Department of City and Regional Planning and the Center for Real Estate and Urban Economics.

Curriculum. Students in the full-time campus program must complete 52 semester units to graduate: 28 units of core required courses and 24 units of electives. Core courses may be replaced by electives by passing a waiver exam. In the second year, students must complete a 1- or 3-unit applied management project. There is also a two-year residency requirement.

Haas students may apply 6 units of credit toward their degree from courses outside the department, such as languages or law, and they are encouraged to take full advantage of the range of course offerings at Berkeley. More than 6 units can be taken by petition.

Students outside the M.B.A. program may take courses on a space-available basis only. They should consult the M.B.A. office directly before attempting to register for any courses.

Applicants interested in the M.B.A. program for fully employed people should contact the EMBA office directly for details on requirements and curriculum.

Exchange Programs. The Haas School offers 12 exchange programs with some of the finest business schools in Europe and Asia. The following European schools participate: London Business School in Great Britain, L'École des Hautes Études Commerciales (HEC) outside Paris, the Rotterdam School of Management in the Netherlands, Solvay Business School in Brussels, Koblenz School of Management in Germany, Wirtschaftsuniversität in Vienna, SDA Bocconi in Milan, and IESE and ESADE in Barcelona. In Asia, we have programs with Keio University in Japan, Chinese University of Hong Kong, and Hong Kong University of Science and Technology. In addition, the Washington Campus Program in our nation’s capital and the MBA Enterprise Corps in Eastern Europe provide Berkeley students with opportunities to enhance their education.

Admission. Applications for the full-time M.B.A. program are accepted for fall entry only. Each year, the school receives approximately 2,100 applications for about 230 positions in the entering class. The average age of entering students is 27.5 years and more than 99 percent have significant full-time business experience before entering the program. Interviews are strongly recommended.

Because admission to the program is extremely competitive, the Admissions Committee uses the following criteria for admission: a superior scholastic performance; a substantial employment history that demonstrates potential for a career in management; and personal attributes that suggest leadership, maturity, interpersonal skills, social and civic responsibility, and goal orientation.

Applicants are strongly urged to submit completed applications as early as possible. Domestic applications are reviewed beginning in November and are evaluated on a rolling basis, generally in the order of their receipt. Early application for international students is especially important since their academic records take longer to evaluate and their applications will be reviewed on a country-by-country basis.

Career Center. Representatives from more than 200 firms recruit at Berkeley each year. In addition to assisting with full-time job placement, the Haas Career Center sponsors a Summer Job Development Program for first-year students.

The Career Center also assists students in choosing and attaining career objectives and in preparing for the job search. This preparation includes workshops on interviewing and writing cover letters and résumés, videotaped mock interviews, and proactive-search seminars.

Campus Visits. The Haas School encourages prospective students to attend information sessions at Berkeley. Organized by first- and second-year students, these presentations cover life in the program from the student perspective. Information sessions are held daily at 1 p.m. throughout the academic year (September through mid-May, with the exception of school holidays). The sessions last approximately one hour. During a visit, prospective students may arrange to visit classes or request a Dutch-treat lunch with current students. For further information or to arrange for a classroom escort, call 642-5610.
Applications. Applications become available around the first of September each year. Requests for application materials to the full-time M.B.A. programs should be addressed to:

Haas School of Business, University of California, Berkeley; M.B.A. Admissions # 1902, Berkeley, CA 94720-1902, telephone 642-1405, fax 643-6659, or e-mail: mbaadms@haas.berkeley.edu.

Requests for application materials to be mailed to destinations outside North America must be accompanied by a certified check or international money order in the amount of $11.

The Evening M.B.A. Program. The Haas School of Business also offers the M.B.A. program on a part-time basis. This three-year evening M.B.A. program is available to students who are fully employed and are seeking to add value to their academic background and professional experience while maintaining their current career momentum.

Students entering the program in the fall or spring semesters must have completed five prerequisite courses or their equivalents before enrollment. These prerequisite courses are introductory courses in microeconomics, macroeconomics, financial accounting, statistics, and calculus. Courses must have been taken within the past seven years, and applicants must have earned grades of B or higher. Admission criteria for the evening M.B.A. program are identical to those for the full-time M.B.A. program.

Students in the evening M.B.A. program must complete 36 semester units to graduate: 18 units of required core courses and 18 units of required elective courses. Classes are held on the Berkeley campus Monday through Thursday from 5:30 p.m. to 9:30 p.m. Students typically attend classes two nights per week and may enroll in day courses on a space-available basis.

Applications. The EMBA program accepts applications for fall and spring entry throughout the year. Requests for information and application materials should be addressed to:

Haas School of Business, University of California, Berkeley; Admissions Office, EMBA Program # 1906, Berkeley, CA 94720-1906, telephone 642-1406.

The Ph.D. program of the Walter A. Haas School of Business is an advanced and scholarly course of study in the functioning of business and its interaction with the environment. It combines an in-depth examination of one or more of the traditional fields of study in business administration with a broader, integrative investigation of basic and applied theory in the social sciences and in quantitative methods. Fields of primary specialization include accounting, business and public policy, finance, marketing, and organizational behavior and industrial relations. Students in any primary specialization may also choose to concentrate in strategy by taking additional course work. The program also enrols students with interests in real estate, provided they take the required course work in either accounting or finance.

The Ph.D. program includes periods of intensive work in formal courses as well as individually developed and executed reviews of special topics and programs of research. It provides the opportunity to work closely with an internationally known faculty both in the classroom and in individual scholarly investigation.

The purpose of the program is to train men and women for careers in the research, study, and teaching of business administration. It is designed to enable students not only to become critically familiar with the sophisticated technical and theoretical disciplines underlying the practice of business administration, but to develop the capacity to contribute to their extension. A distinguishing feature of Berkeley’s program is an emphasis on research. Since the end of World War II, the application to business of theory and methodology from the social sciences and quantitative methods from the applied sciences has resulted in an accelerated rate of knowledge acquisition. This change has significantly deepened the sophistication of research work and broadened the range of analytical concepts with which the student in business must be familiar. The intention of the Berkeley faculty is to train students who will take leadership roles in the future expansion and communication of this knowledge.

The teaching and research skills provided by the Ph.D. program have become virtually mandatory for positions in colleges and universities. These skills are also of increasing importance for a small but expanding number of jobs in business and government. These opportunities are likely to be found in consulting, research, and technical advisory firms, with some Ph.D.’s in business administration starting their own companies. While a few may take positions as administrators in large companies, the Ph.D. program is not the best way to prepare for such posts. Those who want a professional degree to prepare them for responsible administrative positions will find the M.B.A. degree the appropriate course of study.

Compared to the Ph.D. programs at most other universities, the Berkeley plan is strongly discipline and research oriented. Emphasis is placed on preparing students to evaluate existing knowledge and to advance the work in their fields through the application of theory from the social sciences, mathematics, or statistics. The importance of quantitative skills in this mix varies by field of study within business administration, but all students must attain sufficient proficiencies to read and keep pace with an increasingly mathematical literature.

Instruction in the program may be separated into three general periods. The first encompasses formal course work in basic and advanced subjects. The time devoted to these studies, typically two years, depends largely upon a student’s prior preparation.
In the second period, directed study, students work closely with faculty members to prepare for research in their selected fields.

In the last period, individual research, students work on their dissertations. Together, periods two and three usually require two to three years to complete.

**Preparation for the Ph.D. Program.** Admission to the Ph.D. program is open to students with an accredited bachelor’s degree, or higher, from any field. No preference in admission is given to any previous field of study or to applicants who have had some graduate training. Applicants should possess strong skills in writing and oral communications and have a basic understanding of differential calculus.

Ph.D. applications will be evaluated on the basis of evidence of a high level of scholarly ability in both quantitative and qualitative skills, the motivation to complete a strenuous academic program, and a clear statement of career objectives that are consistent with the Ph.D. degree.

Applications for the Ph.D. program may be obtained by writing to the Ph.D. Program Office, Haas School of Business, University of California, Berkeley; F655 Faculty Wing # 1900, Berkeley, CA 94720-1900.

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**College of Chemistry**

**Office:** 420 Latimer Hall, 642-0473

**Dean:** Alexis T. Bell, Sc.D.

**Associate Dean (Undergraduate Affairs):** William A. Lester, Jr., Ph.D.

**Assistant Dean (Services):** David E. Wemmer, Ph.D.

The College of Chemistry comprises two departments, the Department of Chemical Engineering and the Department of Chemistry. Both disciplines provide the opportunity for having an impact on a number of major world problems. Overcoming the energy shortage, recovering and utilizing dwindling mineral resources, developing new drugs and food supplies, understanding and protecting the environment, and synthesizing new products biochemically all depend centrally upon chemistry and chemical engineering. Students entering these fields will spend their careers in the middle of the action on these and other highly important areas of research.

Both departments in the College of Chemistry rank among the most prominent in their fields and both are renowned for their breadth of activity in a diverse range of subdisciplines and applications. At the same time, with only two departments, the college is a relatively small and comfortable place in which to work. Faculty members have many demands on their time, but students are able to develop close and satisfying contacts with them while in the college.

The college offers programs leading to the B.S., M.S., and Ph.D. degrees in both chemistry and chemical engineering. The B.S. degree in chemistry is intended for students who are primarily interested in careers as professional chemists. The B.S. degree in chemical engineering is intended as preparation for a career in chemical engineering and related disciplines. Chemical engineering majors specialize in one of six interdisciplinary options: applied chemistry, applied physics, biotechnology, chemical processing, environmental technology, or materials science. The College of Letters and Science offers a chemistry major leading to an A.B. degree through a curriculum with a greater proportion of courses in the humanities and social sciences than is included in the B.S. chemistry program. It is intended for students interested in careers in teaching, medicine, or other sciences in which a basic understanding of chemical processes is necessary.

Advanced undergraduate and graduate students have opportunities to conduct research in synthetic and structural chemistry of organic and inorganic compounds, chemistry of natural products, theoretical chemistry, nuclear chemistry, physical chemistry, biophysical chemistry, solid-state and surface chemistry, catalysis, process design and control, polymers, food processing, and biochemical engineering.

Recommended high school preparation for chemistry or chemical engineering should include chemistry (1 year); physics (1 year); mathematics (4 years) including trigonometry, intermediate algebra, and analytic geometry. If you have a choice, the preferred foreign language is German.

For a more specific description of the programs for the various degrees, as well as options of specialization, see the **Announcement of the College of Chemistry**.

**Organizational Units**

**Chemical Engineering**
Department Office, 201 Gilman Hall, 642-2291

**Chemistry**
Department Office, 419 Latimer Hall, 642-5882
I try to make astronomy "come alive" to students who may be taking the course primarily to satisfy a breadth requirement, while still challenging and inspiring the more interested students. In all cases, I want them to enjoy learning about the subject and pondering its profound implications.

—Alex Filippenko  
Professor of Astronomy  
Distinguished Teaching Award, 1991

**Graduate School of Education**

**Office:** 1600 Tolman Hall, 642-5345  
**Dean:**  
William D. Rohwer, Jr., Ph.D.

Education can serve either to enlarge or constrict the prospects of individuals and societies. The chance to participate in expanding the bounds of human potential creates a compelling attraction to the practice and study of education. To those captivated by this field, the Graduate School of Education offers opportunities for conducting imaginative and rigorous research, engaging in incisive analysis of educational problems, fostering productive learning in students of diverse ages and backgrounds, and managing complex educational systems.

The school offers four kinds of graduate programs: (1) credential programs for prospective elementary and secondary school teachers who are interested in acquiring a strong grounding in educational research on developmental psychology, writing, science, or mathematics and in applying this knowledge to problems of teaching and learning; (2) advanced credential programs for experienced school practitioners who choose to develop specialized leadership capacity in areas such as administration; (3) advanced professional degree programs leading to the M.A., M.A.T., or Ed.D. degree; and (4) advanced academic degree programs leading to the M.A. or Ph.D. degree. In addition, the school offers an undergraduate minor in education that is designed to prepare students for citizen involvement with the public schools and universities.

The school's programs are organized into seven principal areas of study: education in mathematics, science, and technology; education in language and literacy; educational administration; educational psychology; social and cultural studies in education; quantitative methods; and special education.

- In education in mathematics, science, and technology, there are two areas of concern: research that will advance both fundamental and applied understanding of cognition and instruction, and the development of advanced computational systems for learning and teaching. Students must have a strong background in mathematics, physical or life science, computer science, or engineering.

- Educational administration focuses on the development of a broad understanding of the structure of educational systems; the quality, effectiveness, and equity of educational programs; and the nature of the changing social, political, fiscal, and legal contexts of education. School leadership and management, higher education leadership and management, political and policy analysis, financing and organizational design, and educational planning and evaluation are the major areas of study.

- Educational psychology concentrates on two areas: developmental phenomena, including cognitive development, social development, and individual differences; and quantitative methods, including measurement, psychometrics, research methods, and data analysis.

- Social and cultural studies in education is concerned with the social and cultural contexts within which schools operate. The relationship of social, cultural, philosophical, and political events to curriculum and pedagogy in the public school are examined.

- The quantitative methods program is for those who want to apply quantitative methods to the problems of research, assessment, and program evaluation in education. It is intended for students with a mathematical, statistical, or computer data analysis background and an interest in education, as well as for students primarily interested in education who want to develop the skills necessary to do quantitative research.

- The program in special education is designed to develop research competence and advanced knowledge of theory in an area of exceptionality. This doctoral program, offered jointly with San Francisco State University, allows students to specialize in human development, education policy studies, educational administration, vocational education, language and literature studies, mathematics, science and technology, or other areas selected by students in consultation with faculty counselors in the Schools of Education at SFSU and Berkeley. Courses are taken on both university campuses.

For details about the school's programs and information concerning admissions requirements and procedures, consult the *Announcement of the Graduate School of Education*, available by writing or visiting the Graduate School of Education, Education Admissions Office, University of California, Berkeley; 1607 Tolman Hall #1670, Berkeley, CA 94720-1670, or by calling 642-5345.
College of Engineering

Office of the Dean: 320 McLaughlin Hall; graduate information, call individual departments; undergraduate information, call 642-7594.

Dean:
David A. Hodges, Ph.D.

Associate Deans:
Edwin R. Lewis, Ph.D.
Alan M. Portis, Ph.D.
Steven E. Schwarz, Ph.D.
Robert C. Spear, Ph.D.
William C. Webster, Ph.D.

The College of Engineering consists of seven departments and an interdisciplinary studies program. Each department has its own faculty, set of courses, fields of specialization, and curriculum requirements. All departments offer programs leading to the B.S. and graduate degrees. However, beginning fall 1994, admission to the undergraduate naval architecture degree program was closed. Naval architecture is available as an emphasis in Mechanical Engineering.

The college includes the departments of:

- Civil Engineering
- Electrical Engineering and Computer Sciences
- Industrial Engineering and Operations Research
- Materials Science and Mineral Engineering
- Mechanical Engineering
- Naval Architecture and Offshore Engineering
- Nuclear Engineering

Each department with its degree programs is listed separately in alphabetical order in this catalog. There are also separate listings for programs in:

- Applied Science and Technology
- Bioengineering
- Biophysics
- Earth Resources Engineering
- Engineering—Double Majors
- Engineering Science
- Manufacturing Engineering

Additional sections of interest are:

- Engineering courses
- Engineering—Interdisciplinary Studies Program
- Interdepartmental Studies courses
- Chemical Engineering (part of the College of Chemistry)
- Computer Science (part of the College of Letters and Science)
- Petroleum Engineering

Undergraduate Programs

The college offers programs in a wide variety of engineering fields. These programs are based on the concept that the engineer must be well-grounded in the sciences, humanities, and social studies, with full command of the principles and practices of the engineering profession.

Four-year undergraduate curricula are offered in the following professional fields: civil engineering, electrical engineering, computer science, industrial engineering and operations research, mechanical engineering, mineral engineering, naval architecture (closed to new admissions effective fall 1994), and nuclear engineering. All are accredited by the Accreditation Board for Engineering and Technology, Inc. Programs are also offered in manufacturing engineering, materials science, and earth resources engineering. Each of the curricula is administered by a department within the college and each emphasizes a core program of science and engineering subjects related to the particular field. In addition, there is a curriculum in engineering science with programs in bioengineering, engineering mathematics and statistics, engineering physics, and environmental engineering science. Engineering science—undeclared admissions option is available to freshman applicants. Six double major programs within the college are offered. These are nuclear engineering or materials science and engineering combined with either mechanical engineering or electrical engineering and computer sciences; petroleum engineering combined with mechanical engineering; and materials science and engineering combined with nuclear engineering. In addition to
these six programs, double major programs in chemical engineering combined with materials science and engineering or nuclear engineering or petroleum engineering are offered jointly by the College of Chemistry and the College of Engineering.

Admission to an engineering double major is open to transfer students. Admission is closed to entering freshmen. Continuing students may petition for change to a double major in the final semester of their sophomore year. Students interested in the double majors with chemical engineering must apply for admission to the College of Chemistry.

The College of Engineering offers a series of courses in energy engineering open to junior and senior engineering students and qualified students in other fields. These courses are listed under "Engineering" and are sponsored by individual departments or groups of departments as indicated. The courses are intended to provide a sound introduction to the identification and analysis of concerns related to energy. These courses include nuclear fission and fusion and hydroelectric power generation; geothermal, tidal, and solar power; direct energy conversion; and air pollution.

Degree Requirements. Engineering students must fulfill University of California, Berkeley campus, and College of Engineering requirements to graduate. The unit requirement for the bachelor's degree is normally 120 semester units, within which the student is expected to satisfy graduation requirements. This minimum may be exceeded for valid reasons. To exceed 125 units, prior approval of the dean is required for registration.

Admission Requirements. Entering freshmen should have completed the following subjects:

High School Subjects and Units:

United States history—1 (one year of United States history or one-half year of United States history and one-half year of civics or American government.)

English—4
Mathematics—4
Physics—1
Chemistry—1
Foreign language—2
Other college preparatory subjects—2
Total units—15

Graduate Programs

Graduate programs are offered leading to the Master of Science and Doctor of Philosophy degrees for study emphasizing engineering and applied sciences, and Master of Engineering and Doctor of Engineering degree programs emphasize advanced professional studies of design development. Fields of study include civil engineering, electrical engineering and computer sciences, industrial engineering and operations research, mechanical engineering, nuclear engineering, ceramic engineering and metallurgy, materials science and mineral engineering, petroleum engineering and geoenineering, fluid mechanics, applied mechanics, and naval architecture and offshore engineering. Interdisciplinary graduate programs are also available in the fields of bioengineering, biophysics, ocean engineering, plasmas, environmental engineering, applied science and technology, management of technology, robotics and manufacturing, fire safety engineering science, surface and subsurface hydrology, and rock mechanics.

Concurrent degree programs provide a broad, integrated curriculum between two disciplines. Degrees awarded are an M.Arch. in Architecture with an M.S. in Civil Engineering (Structural); an M.C.P. in City and Regional Planning with an M.S. in Civil Engineering (Transportation); and an M.P.P. in Public Policy with an M.S. in an engineering department.

More information will be found in the engineering sections of this catalog and in the Announcement of the College of Engineering. The announcement is available from the College of Engineering, University of California, Berkeley; 308 McLaughlin Hall # 1702, Berkeley, CA 94720-1702, or from any organizational unit listed below.

Organizational Units

Civil Engineering
Department Office, 760 Davis Hall, 642-3261
Chair: David B. Ashley, Ph.D.

Electrical Engineering and Computer Sciences
Department Office, 231 Cory Hall, 642-3214
Chair: David G. Messerschmitt, Ph.D.

Computer Science Division
Division Office, 389 Soda Hall, 642-1024
Associate Chair: Robert Wiltensky, Ph.D.

Industrial Engineering and Operations Research
Department Office, 4135 Etcheverry Hall, 642-5484
Chair: Ronald W. Wolff, Ph.D.

Materials Science and Mineral Engineering
Department Office, 577 Evans Hall, 642-3801
Chair: Ronald Gronsky, Ph.D.

Mechanical Engineering
Department Office, 6189 Etcheverry Hall, 642-1338
Chair: David B. Bogy, Ph.D.

Naval Architecture and Offshore Engineering
Department Office, 202 Naval Architecture Building, 642-5464
Chair: Ronald W. Yeung, Ph.D.
Nuclear Engineering
Department Office, 4153 Etcheverry Hall, 642-5010
Chair:
William E. Kastenberg, Ph.D.
Interdisciplinary Studies
Program Office, 230 Bechtel Engineering Center, 642-8790
Associate Dean:
Edwin R. Lewis, Ph.D.

College of Environmental Design

Office of the Dean: 230 Wurster Hall, 642-0830
Dean:
Roger Montgomery, M.Arch.
Assistant Dean—Undergraduate Administration:
Mike Martin, Ph.D.

The College of Environmental Design combines in a single academic unit professional instruction in architecture, city and regional planning, and landscape architecture, along with related undergraduate and advanced graduate instructional programs. In addition to preparing students in these three professions, the college is committed to improving practice, contributing to basic knowledge, and addressing ethical issues in areas related to the built environment and its natural setting. To this end, instruction, service, and research programs in this college aim at educating people to build more efficiently, more beautifully, and in ways better fitted to the multiplicity of human, social, and ecological needs.

The college consists of three departments: Architecture, City and Regional Planning, and Landscape Architecture. Undergraduate degree programs in architecture and landscape architecture offer unusual learning opportunities that combine general education, basic skills, and knowledge in the professional fields, with a broad introduction to the built and natural environments. All three departments offer undergraduate minor programs that are open to students majoring in other fields. No undergraduate major or minor programs are professionally accredited by their respective professions. At the graduate level, each department offers the professionally accredited master’s degree. And each department provides advanced graduate work leading to the Ph.D.

Undergraduate Programs
Undergraduates enroll in a four-year curriculum leading to the Bachelor of Arts (A.B.) degree with a major in architecture, landscape architecture, or an individual major. These curricula provide a broad educational base and preprofessional competency in environmental design fields. In addition, they serve as undergraduate preparation for graduate education both in the design fields and, with properly selected elective courses, in other fields such as business, law, and engineering. Graduates also work in related fields such as urban development, real estate, construction, etc.

Most states require that an individual intending to become an architect hold an accredited professional degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture, which requires a minimum of five years of study (not offered at Berkeley), and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor’s degree or two years following a related preprofessional bachelor’s degree. These professional degrees are structured to educate those who aspire to registration or licensure as architects.

The four-year, preprofessional degree, where offered, is not accredited by the NAAB. The preprofessional degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in architecturally related areas.

Admission. High school preparation for the college should include four years of mathematics, one year of physics, and one year of biology or other natural science. Additional preparation could include freehand drawing or introductory drafting. Transfer applicants who have completed 60 semester units should have completed the prerequisite course work described in the Announcement of the College of Environmental Design. As transfer admissions become increasingly competitive, the college consistently retains those applications that demonstrate the most complete academic preparation (the fewest prerequisite courses either lacking or in progress) and the highest level of scholastic achievement (indicated by the applicant’s GPA). Enrollment in the college beyond 130 semester units is not usually permitted; consequently, California community college transfer students may receive up to 70 semester units of transfer credit. Units above 70 receive no credit. Transfer students from four-year institutions who have credit for more than 86 semester units are not normally admitted to the undergraduate program. An undergraduate major in architecture or landscape architecture is not a prerequisite for admission to graduate study in these fields.

Degree Requirements. The A.B. degree programs in the college require the completion of 120 units distributed according to regulations which appear in the Announcement of the College of Environmental Design, available from the Undergraduate Dean’s Office, University of California, Berkeley; 232 Wurster Hall #1800, Berkeley, CA 94720-1800.

Minor Programs. The College of Environmental Design offers several minors. Minors consist of at least five upper division courses as an optional program with two objectives: to encourage coherence in course
work taken outside the major, and to give recognition to the work when it is completed. The following minors are currently being offered to all majors: city and regional planning, ecological design, environmental design in developing countries, history of the built environment, landscape architecture, and social and cultural factors in environmental design. The architecture minor is open to landscape architecture and civil engineering majors only. The landscape design minor is open to architecture majors only. For further information, contact the Undergraduate Office, 232 Wurster Hall.

Information on the courses and degree programs in Architecture, City and Regional Planning, Environmental Design, and Landscape Architecture can be found in those sections of this catalog, as well as in the Announcement of the College of Environmental Design.

Graduate Programs

Architecture, City and Regional Planning, and Landscape Architecture each offer accredited professional master’s degree programs that serve as the basic credential for professional practice in the respective fields. The departments also have concurrent and joint degree programs that combine professional degrees in two fields either within the college or with other professional schools. In addition, an M.A. degree in design is offered for a very few students.

The three departments have advanced graduate programs leading to the Ph.D. degree for students who have the capacity to engage in research and teaching. A research M.Sc. degree in architecture is currently under review and should soon be approved. These programs have limited enrollments and are not regarded as advanced degrees for professional practice.

Organizational Units

Architecture
Department Office: 232 Wurster Hall, 642-4942
Chair: Sam Davis, M.E.D., F.A.I.A.

City and Regional Planning
Department Office: 228 Wurster Hall, 642-3256
Chair: Allan B. Jacobs, M.C.P.

Landscape Architecture
Department Office: 202 Wurster Hall, 642-4022
Chair: Michael M. Laurie, M.L.A.

I have yet to find anything in life which produces a longer sustained feeling of elation than an absolutely crackling good lecture where electricity is flowing between the students and the teacher. To me, that’s real excitement.

—Robert Berring
Professor of Law and Law Librarian
Distinguished Teaching Award, 1987

Graduate School of Journalism

Office: 121 North Gate Hall, 642-3383
Dean:
Tom Goldstein, J.D.
Associate Dean:
Thomas C. Leonard, Ph.D.

The goal of the Graduate School of Journalism is to produce professional journalists who move on to positions of leadership and influence in American journalism. The Master of Journalism (M.J.) program provides intensive training in journalism skills and a knowledge of the traditions and principles of the field. A professional project or thesis is required to complete the two-year program. The program is rooted in the idea that the best possible preparation for careers in journalism is a sound liberal arts education followed by training in journalism at the graduate level. Concurrent degree programs with Law, Asian Studies, and the Center for Latin American Studies are available.

The school offers specialties in print and in broadcasting. Everyone must take a focused and demanding core course which stresses reporting and writing skills. This is because members of the faculty believe that the best way to train students for careers in journalism is to place them under the supervision and guidance of seasoned journalists in small classes, give them instruction in the skills and attitudes of the craft, and intensive
practice in reporting, writing, and editing. Professors give exhaustive critiques of students’ work.

Beyond the core course, there are courses in specific areas, such as political, business, science, and cultural reporting. There are also courses stressing different techniques, such as investigative reporting and magazine reporting. The curriculum also includes courses in copy editing and photography and a sequence of courses in television and radio reporting.

Another group of courses is intended to increase understanding of the role of journalism in society. There are courses in the history of journalism, legal aspects of the media, journalistic ethics, and the literature of journalism.

Candidates for the M.J. degree are expected to complete their work for the degree in four semesters. They must complete 36 units in approved upper division and graduate courses, of which at least 24 must be in graduate courses in journalism, and must present an acceptable thesis project. Students are encouraged to take about one-third of their courses in disciplines other than journalism.

Applicants for graduate study should hold a bachelor’s degree comparable to that given by the University of California. Requirements and procedures are outlined in the brochure Graduate Application, Fellowship, and Financial Aid, available at the Office of the Dean of the Graduate Division, and in the Announcement of the Graduate School of Journalism.

The Graduate School of Journalism offers several courses for undergraduates, ranging from small writing and reporting seminars to large lecture courses.

Further information, application requirements, and copies of the Announcement of the Graduate School of Journalism are available from the Journalism Office, North Gate Hall.

School of Law

Office: 225 Boalt Hall, 642-2278

Administrative Officers:

Dean:
Herma Hill Kay, J.D.

Associate Deans:
Eric Rakowski, D.Phil., J.D.
Harry N. Scheiber, Ph.D.

Assistant Deans:
Leslie Oster, J.D.
Sue Ann L. Schiff, J.D.
Lujuana Treadwell, J.D.

Vice Chair, Jurisprudence and Social Policy:
Charles J. McClain, Jr., Ph.D., J.D.

The School of Law (Boalt Hall) has a three-year curriculum leading to the Juris Doctor (J.D.) degree.

Educators at Boalt are faced with the varied needs of teaching students not only to understand legal doctrine but the forces that shape it, of providing experience in the basic working skills of the lawyer who must be able to grow and function for a half century in a constantly changing legal system, and of preparing students for the inevitable policy-making roles lawyers are called upon to fill in a complex world. To this end, Boalt’s curriculum is constantly undergoing reexamination and evolution. It currently includes concentration programs in Criminal Justice and Public Policy, Environmental Law, International Law and Comparative Legal Studies, Law and Technology/Intellectual Property, and Traditionally Disadvantaged Groups. A number of concurrent degree programs also are available with other Berkeley campus graduate departments and with the Kennedy School of Government at Harvard University and The Fletcher School of Law and Diplomacy at Tufts University. The school is a member of the Association of American Law Schools and is approved by the American Bar Association. Its graduates are qualified to become applicants for admission to practice in any state of the United States.

No single “pre-law” major is required or even recommended. However, these suggestions are made: students should learn to write by taking courses in which their work is vigorously edited; enroll in courses that demand analytical skills; obtain some breadth in humanities and social sciences that will help in understanding the social context within which legal problems arise; and acquire a general understanding of economic principles and the business world. However, prospective students should not be deterred from pursuing the study of law merely because their undergraduate education has not emphasized all these areas. Diversity of background enhances and enriches the legal experiences of all students.

The school also offers programs, mainly for foreign-educated attorneys, that lead to the degree of Master of Laws (LL.M.) or the degree of Doctor of the Science of Law (Juris Scientiae Doctor, J.S.D.).

The school does not offer a part-time or an evening program. It admits an entering class once a year for the fall semester. The first-year curriculum is prescribed; the second and third years’ courses are elective.

Graduate Program in Jurisprudence and Social Policy. The School of Law offers a graduate program in Jurisprudence and Social Policy, leading to M.A. and Ph.D. degrees, that is unique in legal education.

The program is founded on two related convictions: (1) legal scholarship should have intimate connections with the social sciences; and (2) education in a law school should not be confined to the professional training of future lawyers.

The program is multidisciplinary, involving faculty from Law and a variety of humanities and social sci-
ience disciplines, including economics, criminology, history, philosophy, political science, and sociology. It is designed for students who are interested in careers in teaching, research, policy analysis, or public administration.

Study for a degree in Jurisprudence and Social Policy may be combined with study for a J.D. degree. Further information on admission procedures and program requirements may be obtained from the graduate assistant, JSP Program.

**College of Letters and Science**

Office of Undergraduate Advising: 113 Campbell Hall, 642-1483

Chair of the Deans of Letters and Science:
Bonnie C. Wade, Ph.D.

Divisional Deans:
Paul Licht, Ph.D., Biological Sciences
Anthony Newcomb, Ph.D., Humanities
P. Buford Price, Ph.D., Physical Sciences
William Simmons, Ph.D., Social Sciences
Donald McQuade, Ph.D., Undergraduate and Interdisciplinary Studies

Assistant Deans:
Anthony Barnosky, Ph.D., Integrative Biology
Brenda J. Bredemeier, Ph.D., Human Biodynamics
Andrew Griffin, Ph.D., English
Leanne Hinton, Ph.D., Linguistics
Harry L. Morrison, Ph.D., Physics
Julio Ramos, Ph.D., Spanish and Portuguese

The College of Letters and Science offers undergraduate students a variety of programs leading to the Bachelor of Arts degree in four academic years of full-time study.

The first two years are a time of exploration, experimentation, and decision. In the last two years students confirm the decision and acquire and refine special knowledge, usually in their major departments. The college's departments are devoted to instruction and research in a variety of academic subjects. Each department represents a style of study and communication and refined development of a set of structured ideas. The subjects of the departments overlap and complement one another.

**Requirements for Admission in Advanced Standing**

Students applying for admission will not be considered if they have completed more than 80 semester (120 quarter) units. The dean of the college makes exceptions to this policy only in unusual circumstances. Applicants with advanced-placement credit may, however, exceed the 80-semester-unit limitation by the amount of their advanced-placement credit and be admissible if they meet all other admission criteria. Students who enter the college with advanced-placement credit may exceed by the amount of this credit the maximum unit limitation requiring the selection of a major and the maximum unit limitation requiring graduation.

In computing the number of units which they have completed, students should be aware that the College of Letters and Science does not grant unit credit for courses completed in a two-year college after a total of 70 semester units has been completed. Subject credit toward completion of college requirements is, however, granted for appropriate courses.

Transfer students with 56 or more semester units are expected to have satisfied, before admission to the college, the reading and composition breadth requirement, the foreign language breadth requirement, and the quantitative reasoning breadth requirement of the college. Students who apply as intercampus transfers and who have completed all the Letters and Science breadth requirements, or the general education requirements, or the equivalent of either, at the University of California campus from which they transfer may, upon petition, be credited with having completed the breadth requirements of the college. Transfer students who apply from community colleges in California have the option of fulfilling lower division breadth requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC). This program specifies a series of subject areas and types of courses which, if completed before transfer, will satisfy the lower division breadth and general education requirements at any general campus of the University of California.

**Note:** In recent years, all major programs have turned away qualified applicants because of space limitations. Transfer applicants should be aware that admission to all majors in the college is competitive.

**Biological Sciences Majors.** Students planning to declare majors in a biological science must in addition have completed the minimum subject preparation in the major with a grade-point average of 2.00 (C average) or higher. The subject preparation listed below is minimal; transfer students who wish to declare a major in a biological science are urged to consult directly with the department or program in which they are interested to learn of additional requirements or of any restriction placed on entry to the major. With the exception of Plan III of the major in molecular and cell biology (see department listing) and the major in human biodynamics (see department listing), the subject preparation for majors in the biological sciences is as follows:

**Students who have completed 56 to 70 semester units:**

1. General chemistry with laboratory (equivalent to one
Requirements for the Bachelor of Arts Degree

Students must complete a minimum of 120 semester units, distributed according to regulations which appear in the College of Letters and Science's Guide to Earning Your Degree. A 15-unit class schedule per semester is considered to be a normal course load; a class list of fewer than 13 units requires the special permission of the dean. There are also scholarship, minimum-progress, residence, breadth, and major requirements; these are described in the announcement as well. Brief descriptions of the breadth, major, and minor requirements appear below. Major and minor programs are outlined under the department, field, or group headings in this publication. In addition, students must satisfy the University requirements in Subject A, American History, and American Institutions, and the Berkeley campus American cultures requirement.

Breadth Requirements. There are four breadth requirements:

1. Reading and Composition. Students must normally complete the first half of the requirement (an "A" course) during the freshman year and the second half of the requirement (a "B" course) during the sophomore year. Students must complete the requirement through course work according to the requirements of the semester system, whether the course work is undertaken at Berkeley or elsewhere.

2. Quantitative Reasoning. This requirement may be fulfilled by satisfactory performance in an examination or by successful completion of an acceptable college course. Information about acceptable examinations and acceptable courses is included in the announcement. This requirement, if satisfied by course work, must be completed without delay.

3. Foreign Language. This requirement assures that students who graduate from the college will have some knowledge of the language of a culture other than their own. Students who have not satisfied the language requirement at the time of admission must complete it without delay. The requirement may be satisfied by (a) completion of the third year of one foreign language in high school with a minimum grade of C-, (b) by completion of the second semester of a Berkeley course, or its equivalent elsewhere, in one foreign language with a minimum grade of C-, or (c) by demonstration of equivalent knowledge through examination, including the College Entrance Examination Board Achievement Test, the CEEB Advanced Placement Examination (if taken before admission to the college), or an acceptable foreign language placement examination offered by a foreign language department at Berkeley or on another campus of the University of California. The college will accept in completion of the requirement appropriate work in two foreign languages (with minimum grades of C-) only if that course work was completed before fall semester 1983 and if the course work was accepted by the college in satisfaction of the foreign language breadth requirement under the quarter system.

4. Seven-Course Breadth Requirement

The seven-course breadth requirement took effect in fall 1994 for students who began their studies at Berkeley in lower division standing, and it will take effect in fall 1996 for transfer students admitted in advanced standing (56 or more units). Each student subject to the seven-course breadth requirement must take one course from each of the following categories, with no more than two courses in the same department:

- one course in physical science;
- one course in biological science;
- one course in arts and literature;
- one course in historical studies;
- one course in philosophy and values;
- one course in international studies (lower division language instruction excluded) or participation in the University of California Education Abroad Program or a recognized equivalent; and
- one course in social and behavioral sciences.

These courses may be taken from the College of Letters and Science and the professional schools and colleges and may be spread over the four years of college attendance. See the College of Letters and Science's Guide to Earning Your Degree for details and a list of the approved courses that you may take to fulfill the requirement.

Six-Course Breadth Requirement

Students who were admitted to Berkeley before fall 1994, or before fall 1996 with 56 or more transfer units, must complete at least six courses outside the major, for a minimum total of 16 units. The fields of knowledge are defined as the humanities, the natural sciences, and the social sciences. You may satisfy the requirement over the four years of college attendance and include courses from the College of Letters and Science and the professional schools and colleges. Please see the College of Letters and Science's Guide to Earning Your Degree for details and a list of the approved courses that you may take to fulfill this requirement.

Major Programs. All students must pursue and complete a major program, the object of which is to
provide them with a limited experience in specialization. There are more than 60 departmental major programs ranging from the humanities (e.g., art, comparative literature, English, foreign languages, etc.) and the social sciences (e.g., anthropology, economics, geography, psychology, etc.), to the biological sciences (e.g., integrative biology, molecular and cell biology, human biodynamics) and the physical sciences (e.g., geology, mathematics, statistics, etc.). In addition, there are group majors in American studies, Asian studies, Celtic studies, cognitive science, development studies, Dutch studies, environmental sciences, ethnic studies, film, Latin American studies, legal studies, mass communications, Middle Eastern studies, peace and conflict studies, political economy of industrial societies, religious studies, and social welfare. There are also field majors in the physical sciences and interdisciplinary studies. Moreover, students who have completed at least 60 semester units and at least one semester of enrollment at Berkeley, and who have attained a minimum 3.0 Berkeley and overall grade-point average may, with the permission of the dean and support and supervision of a college faculty member and a faculty member who acts as second reader of the individual major thesis, pursue an individual major designed to satisfy special academic goals. Thus, the options available to students outside traditional disciplines are many and varied.

Minor Programs. Minor programs are intended as optional programs that will encourage coherence in the work that students undertake outside their major field(s) of study. Students may complete one or more minor programs, normally in a field both academically and administratively distinct from their major. The college has set the following minimum requirements for completion of a minor program:

1) Course requirements: a minimum of five upper division courses, completed on a letter-graded basis, are required for the minor. At least three of the five upper division courses must be completed at Berkeley.

2) Grade-point average requirements: Students must maintain a minimum overall grade-point average of 2.0 in upper division courses required for the minor program. At present the college offers minor programs in the following departments:

**African American Studies**
- Humanities Minor
- Social Science Minor

**Art, History of Asian Studies**
- Minor in Chinese Studies
- Minor in Japanese Studies
- Minor in Southeast Asian Studies

**Celtic Studies**
- Classics
  - Minor in Greek
  - Minor in Latin
  - Minor in Classical Civilization
- Demography

**Dutch Studies**

**English**
- American Literature
- Literature in English

**Ethnic Studies**
- Asian American Studies
- Chicano Studies
- Ethnic Studies
- Native American Studies

**French**
- Geography

**German**

**Italian**
- Mathematics

**Music**

**Near Eastern Studies**
- Ancient Egyptian and Near Eastern Civilizations
- Arabic
- Hebrew
- Persian
- Turkish

**Peace and Conflict Studies**

**Philosophy**

**Physics**

**Political Economy of Industrial Societies**
- European Studies

**Religious Studies**

**Rhetoric**

**Scandinavian**

**Slavic Languages and Literatures**
- Russian Language
- Russian Literature
- Slavic Language and Literature

**South and Southeast Asian Studies**
- South Asian Civilization
- South Asian Archaeology

**Spanish and Portuguese**
- Spanish Language and Literatures
- Luso-Brazilian Language and Literatures

**Undergraduate and Interdisciplinary Studies**
- Creative Writing

**Women's Studies**

Students should consult the department or group in charge of the minor for additional requirements and specific information regarding the minor program in which they are interested. Admission to the minor and certification of completion of the minor are determined by the department or group in charge of the program. When a student completes a minor program, the department or group in charge will notify the Office of the Registrar, so that the completion may be noted on the student's transcript.

Additional minor programs are offered by other schools and colleges on campus. Consult their listings in this catalog for more information.
Division of Undergraduate and Interdisciplinary Studies

The Division of Undergraduate and Interdisciplinary Studies (UGIS) is located in 301 Campbell Hall (642-0108). The mission of the division is to develop and administer innovative and interdisciplinary courses and programs in the College of Letters and Science that do not belong to a single department. At present the division administers the field major in interdisciplinary studies, the individual major, and the group majors in American studies, cognitive science, environmental sciences, film, mass communications, peace and conflict studies, religious studies. UGIS also supports the following majors in international and area studies (207 Moses Hall, 642-4466): Asian studies, development studies, Latin American studies, Middle Eastern studies, and political economy of industrial societies (PEIS).

Minor programs are offered in creative writing, peace and conflict studies, and religious studies. For complete descriptions of the major and minor programs and courses, please see the entries listed alphabetically by major in the courses section of this catalog.

The College Writing Programs (216 Dwinelle Annex, 642-5570), designed to help undergraduates establish fluency and control over their reading and writing skills, are also part of the Division of Undergraduate and Interdisciplinary Studies.

The Freshman Seminar Program is also housed in the division. Seminars are created and taught by faculty members from nearly every campus department. The UGIS office distributes descriptions of these special course offerings to freshmen in time for Tele-BEARS registration each semester.

The division also sponsors the Western and world civilization course series (UGIS 44A-44B-44C, and 55A-55B, respectively), and an undergraduate colloquium that offers lower division students an introduction to the ideas and issues facing different academic disciplines from across the campus. The undergraduate colloquium is offered through the interdisciplinary studies field major as ISF 79.

The Undergraduate Research Apprentice Program, administered through this division, is designed to provide highly motivated undergraduates with opportunities to work closely with senior faculty on research projects. Students selected as research apprentices may enroll in the program for 1-4 units through UGIS 192.

The Rhodes, Marshall, and Truman Scholarships, as well as the Haas-Koshland and Kraft Awards, are also administered through this division.

Organizational Units

African American Studies
American Studies
Ancient History and Mediterranean Archaeology
Anthropology
Art
Practice of Art
History of Art

Doe Library is the centerpiece of a system of more than 25 campus libraries ranked among the top university libraries in the country, with more than eight million volumes.
When I was a student, two scholars deeply affected me. One, my high school principal, taught us the manners of human discourse: the courtesies of logic and accuracy, the imperatives of tolerance and suspended disbelief, the decencies of candor and sticking to the subject. The other scholar, a man I met in college, maintained that scholarship unsustained by love was insufficient. To combine reason with love: that was what these men thought teaching stood for.

—William Muir, Jr.
Professor of Political Science
Distinguished Teaching Award, 1974

Asian American Studies
Astronomy
Biostatistics
Buddhist Studies
Celtic Studies
Chemistry
Chicano Studies
Classics
Cognitive Science
College Writing Programs
Comparative Literature
Computer Science
Demography
Development Studies
Dramatic Art*
Dance
Dramatic Art
Dutch Studies
East Asian Languages
East European Studies
Economics
Law and Economics
English
Environmental Sciences
Ethnic Studies
Ethnic Studies Graduate Group
Film
Folklore
French
Geography
Geology and Geophysics
German
History
Human Biodynamics
Integrative Biology
Interdisciplinary Studies
Italian
Latin American Studies
Legal Studies
Linguistics
Logic and the Methodology of Science
Mass Communications
Mathematics
Medieval Studies
Middle Eastern Studies
Molecular and Cell Biology
Music
Native American Studies
Near Eastern Studies
Peace and Conflict Studies
Philosophy
Physical Science
Physics
Political Economy of Industrial Societies
Political Science
Population Studies
Psychology
Religious Studies
Rhetoric
Romance Philology
Scandinavian

Science and Mathematics Education
Slavic Languages and Literatures
Social Welfare
Sociology
South and Southeast Asian Studies
Spanish and Portuguese
Statistics
Undergraduate and Interdisciplinary Studies
Women's Studies

School of Library and Information Studies

Office: 102 South Hall, 642-1464

Acting Dean: Nancy A. Van House, Ph.D.

Modern societies need information professionals to organize, manage, and provide access to their vast and rapidly growing stocks of information. New information technology, especially the computer, has provided revolutionary new opportunities for a new kind of information professional. People are needed to design and operate computer-based information systems; to manage information resources, systems, and services; and to provide individualized information service. In addition, people are needed to conduct research aimed at the improvement of access to information and the increase of knowledge about the production, transmission, and utilization of knowledge and information.

The campus is in the process of replacing the School of Library and Information Studies with a new School of Information Management and Systems as this catalog goes to press. As a result, neither school will be accepting applications for new students for 1995-96. For current information on the nature and status of either school's program, please write or visit the School of Library and Information Studies, or call 642-1464.

*The Dramatic Art Department is being replaced with a new Center for Theater Arts.
The College of Natural Resources

Office of the Dean: 101 Giannini Hall, 642-7171
Dean: Gordon C. Rausser, Ph.D.
Office of the Associate Dean—Instruction and Student Affairs, 137 Giannini Hall, 642-0542: Sally K. Fairfax, Ph.D.
Office of the Associate Dean—Academic Affairs, 101 Giannini Hall, 642-7171: Richard Malkin, Ph.D.
Office of the Associate Dean—Research, 108 Giannini Hall, 642-7171: William McKillop, Ph.D.

Teaching and research in the College of Natural Resources (CNR) integrate the natural and social sciences to address ecological problems in urban and rural landscapes, agriculture, rangelands, forests, wetlands, and watersheds. The goals of the college are to increase knowledge and understanding of ecosystems, promote sustainable use of natural resources, and provide the foundations of sustainable and equitable environmental management.

The College of Natural Resources has intellectual roots in two former campus units—the College of Agricultural Sciences and the School of Forestry and Conservation—which were combined in 1974 to provide a broad interdisciplinary approach to natural resource problems. In 1993 the college was reorganized again, paring eight departments to four in order to better integrate natural and social sciences and to focus on undergraduate teaching. Undergraduate and graduate programs are available in four departments: Agricultural and Resource Economics; the newly formed Environmental Science, Policy, and Management (ESPM); Nutritional Sciences; and Plant Biology.

- The Department of Agricultural and Resource Economics emphasizes the social science of natural resources, especially aspects of economic and political institutions and cultural values that affect the development, management, and conservation of natural resources.
- The Department of Environmental Science, Policy, and Management coordinates and strengthens CNR’s interdisciplinary approaches to critical environmental problems. Its faculty is drawn from former departments of Conservation and Resource Studies, Entomology, Forestry and Resource Management, Plant Pathology, and Soil Science.
- The Department of Nutritional Science provides basic study of nutrition and food science and a professionally accredited undergraduate program in clinical dietetics.
- The Department of Plant Biology has a strong focus on basic plant biology from the molecular to the organismal levels, with a direct connection to plant biotechnology.

Undergraduate Programs

Undergraduate programs in the college fall into three categories. Some are prescribed professional programs designed for students with interests in specific professions, such as forestry and nutrition. Some provide a foundation in sciences that prepares students for graduate and professional programs in biology, health sciences, or economics. Most are integrative programs that emphasize flexible, interdisciplinary approaches and prepare students for employment or graduate study in areas such as land management, law, public policy, medicine, and environmental planning.

The Department of Agricultural and Resource Economics. The Department of Agricultural and Resource Economics offers an undergraduate major in political economy of natural resources. The core of the program provides a fundamental education in economics and statistics, with a focus in mathematics. In the major, students integrate the rationality of economics with an understanding of the way natural resource systems work. They develop a sense of how the choices people make affect the environment, of the conflict between economic development and environmental quality, and of how the conflict can be resolved. Students are encouraged to use conditions in California as a learning tool.

The Department of Environmental Science, Policy, and Management. The Department of Environmental Science, Policy, and Management (ESPM) offers coordinated, interdisciplinary learning that addresses environmental problems. The current majors are conservation and resource studies, entomology, forestry, resource management, and soil environment. The department is restructuring some of the current majors and developing new undergraduate majors. Further information can be obtained from the Undergraduate Student Service Office in Mulford Hall.

Conservation and resource studies is designed for students interested in the interaction between issues of sustainable resources, population, technology, economics, cultural values, and societal institutions. The program emphasizes a social science foundation in the lower division years; in their junior and senior years, students create, in conjunction with faculty, and upper division plan which defines their course work for the remainder of their undergraduate study. The program is ideal for highly motivated students who have strong ideas about where they want to make an impact.

The current entomology major provides training for research, teaching, and public service in the many commercial fields where knowledge of entomology and parasitology is applied. The current major in forestry is designed to prepare students to manage forests and wildlands to produce wood, water, forage, wildlife, recreational opportuni-
ties, and other environmental benefits. Graduates are employed by various international, federal, state, local, and private agencies and organizations.

The major in resource management incorporates sociology, diverse other social sciences, and public policy into a strong science curriculum. The interdisciplinary major trains students to make decisions about the management of ecosystems in the face of changing demographics and societal values. Undergraduates are required to take a summer field program in which they spend eight weeks in CNR's "summer camp" analyzing an ecosystem and its historic and current use, making decisions about its management, and creating a workable management plan.

The current major in soil environment encourages students to use creativity in constructing a course program that combines soil science, cognate areas, and elective courses to qualify for graduate studies or employment in agriculture, soil and water management, environmental protection, soil survey, consulting, etc. Students in the major study soils, plants, and their interrelationships that support all terrestrial life.

The Department of Nutritional Sciences. CNR's Department of Nutritional Sciences offers a major in nutritional sciences that applies biology and chemistry to everyday issues regarding food and health, from improving athletic performance to feeding disadvantaged populations. The major offers a strong foundation in natural sciences: biochemistry, microbiology, and physiology. It also explores the cultural and societal forces affecting nutrition—the reasons behind an individual's choices of diet. Undergraduate study includes practical background in principles of education, business administration, and economics. The major has two tracks: undergraduates choosing the Physiology and Metabolism track usually prepare for careers in medicine, research, or government; Dietetics, a professional track, prepares students for careers as dietitians.

The Department of Plant Biology. The Department of Plant Biology offers a major in genetics and plant biology that combines traditional plant sciences—physiology, biology, and anatomy—with newer biological disciplines such as genetics, molecular biology, and biochemistry. The major is split into two tracks: Plant Biology and Plant Genetics. The Plant Biology track concentrates on the spectrum of cellular and organismal aspects of plants; Plant Genetics focuses on cellular development, molecular genetics, and agricultural biotechnology. Both recognize the role plants play in the global environment.

Major Requirements. Detailed course requirements for each major, along with college requirements for the B.S. degree, are listed in the Announcement of the College of Natural Resources. Available from the Dean's Office, Student Affairs, University of California, Berkeley; 137 Giannini Hall # 3100, Berkeley, CA 94720-3100. For further information, call the Office of Student Affairs at 642-0542.

Minor Programs. The college offers minors in conservation and resource studies, entomology, forestry, political economy of natural resources, and soil environment.

Please contact the appropriate departmental office or the Dean's Office, Office of Student Affairs, for information.

Limited Status. Qualifications for limited status include (1) a previous bachelor's degree or substantial previous college work, and (2) a specific well-defined academic goal for which additional undergraduate work in natural resources is necessary. Students must also have a GPA of 3.0 or better. For further qualifications and information, contact the Instruction and Student Affairs Office at 642-0542 in 137 Giannini Hall.

Undergraduate Advisers. Undergraduate advisers in each major serve as a crucial link between students and the college. Advisers are available throughout the year to discuss major requirements and to assist students in planning a program best suited to their individual needs and interests. All students are required to see their advisers—at least once a semester in connection with each registration period—for advice in planning their academic programs.

Tele-BEARS Registration. Students must have an adviser's approval before filing their Tele-BEARS registration lists. The minimum course load for students is 13 units. Exceptions require either (1) an employment verification form on file, (2) a part-time status form on file, or (3) authorization from the Dean's Office. For further information, contact the Dean's Office, Office of Instruction and Student Affairs, 642-0542.

Graduate Programs

Academic and professional graduate degree programs are available in agricultural and environmental chemistry, agricultural and resource economics, comparative biochemistry, entomology, forestry, nutrition, plant biology, plant pathology, range management, soil science, wildland resource science, and wood science and technology. In addition, an ad hoc interdisciplinary doctoral program is offered.

Inquiries regarding details of the various graduate programs may be directed to the appropriate graduate adviser in the chosen field.

Organizational Units

Agricultural and Resource Economics
Department Office, 207 Giannini Hall, 642-3345
Chair: David Zilberman, Ph.D.

Environmental Science, Policy, and Management
Department Office, 135 Giannini Hall, 642-3794
Chair: Mary K. Firestone, Ph.D.
Nutritional Sciences
Department Office, 119 Morgan Hall, 642-6490
Chair: Barry Shane, Ph.D.

Plant Biology
Department Office, 111 Koshland Hall, 642-5167
Chair: Wilhelm Gruissem, Ph.D.

Graduate Programs
Ad Hoc Interdisciplinary Doctoral Program
(administered by the dean of the Graduate Division)
Comparative Biochemistry
127 Morgan Hall, 642-2879
Nutrition
127 Morgan Hall, 642-2879
Plant Biology
111E Koshland Hall, 642-5167
Range Management
133 Mulford Hall, 642-6410
Soil Science
133 Hilgard Hall, 642-6410
Wildland Resource Science
145 Mulford Hall, 642-6410
Interdisciplinary Graduate Group
Wood Science and Technology
Building 478, Richmond Field Station, 231-9452

School of Optometry
Office of the Dean (642-3414) and Admissions (642-9537): 351 Minor Hall
Dean: Anthony J. Adams, O.D., Ph.D.
Associate Dean for Academic Affairs: Gunilla Hagerstrom-Portnoy, O.D., Ph.D.
Associate Dean for Clinical Academic Affairs: Kenneth A. Polse, O.D., M.S.
Assistant Dean for Student Affairs and Director of Residency Programs:
Michael G. Harris, O.D., J.D., M.S.

The School of Optometry provides professional training in the art and science of vision care. Drawing upon the principles of anatomy, optics, physiology, and psychology, the four-year professional program leads to the degree of Doctor of Optometry, which qualifies one to take state board examinations.

Doctors of Optometry are health care professionals. Optometry is a primary health care profession that encompasses the prevention and remediation of disorders of the vision system through examination, diagnosis, treatment, and/or management of visual efficiency, eye health, and related systemic manifestations. Optometry graduates are able to diagnose patients with ocular disease or systemic diseases with ocular manifestations. Recent changes in optometry laws across the United States have expanded the scope of optometric practice, giving practitioners responsibility for nonsurgical pharmaceutical

"Doctors of optometry are independent primary health care providers who specialize in the examination, diagnosis, treatment and management of diseases and disorders of the visual system, the eye and associated structures as well as the diagnosis of related systemic conditions."

—The official definition of an optometrist, adopted by the American Optometric Association Board of Trustees

The interior of the Hearst Memorial Mining Building, constructed in 1907, is one of the campus's most striking architectural features.
treatment of eye disorders and diseases.

Doctors of Optometry are educated in the sciences of anatomy, zoology, chemistry, physics, mathematics, neurology, bacteriology, microbiology, disease processes, and detection, pharmacology, behavioral science, social science, public health, and many other related fields. The school provides four years of comprehensive training in vision care aimed at training primary eye care practitioners. The first year emphasizes advanced study of sciences which form the background of optometry, such as ocular anatomy, medical physiology and biochemistry, ocular pathology, physiology, microbiology and virology, neuroanatomy, the psychology of vision, vision science, geometric optics, ophthalmic optics, pharmacology, and theoretical and practical optics. The second and third years are devoted to the science of optometry and the acquisition of skills in examination procedures. Although clinic participation is involved in all four years, active responsibility for patient care begins in the summer preceding the third year. The fourth year is devoted to primary care practice of optometry and the detailed study of specialized areas, including contact lenses, binocular and infant vision, vision functions, ocular health, aniseikonia, vision of the elderly, and low vision.

Optometry offers a wide variety of interesting, challenging, and rewarding careers in private practice, in hospitals and other health organizations, and in public service. The education acquired at the School of Optometry provides today’s Doctors of Optometry with the knowledge and skill necessary to meet the challenges of providing vision care.

The school also offers a graduate program in vision science which leads to the M.S. and Ph.D. degrees. Offered in cooperation with other departments of the University, this program is designed to prepare students for a career in teaching and research in the science of vision. Research facilities available to graduate students in vision science are unequaled anywhere in the world, and a distinguished resident and visiting faculty is available to provide guidance in the field.

A one-year Optometric Residency program is available for graduate optometrists who want to expand their skills in one or more clinical areas and/or seek training in specialty areas. The areas of study include binocular/pediatric vision, family practice optometry, corneal and contact lenses, low vision care, and advanced diagnostic procedures and diagnosis. Special combined or unique programs may be considered.

For optometrists interested in reading disabilities, a Master of Arts degree program is offered in the School of Education in cooperation with the School of Optometry. This post-O.D. program is designed for optometrists who want to specialize in the handling of children with reading problems, particularly those problems that are visually based. Additional information for this program may be obtained by writing to the Admissions Office, School of Education, University of California, Berkeley; Tolman Hall # 1670; Berkeley, CA 94720-1670 (642-5345).

For further information about any of the school’s programs, please consult the Announcement of the School of Optometry, available from the Admissions Office, School of Optometry, University of California, Berkeley; 390 Minor Hall # 2020; Berkeley, CA 94720-2020.

Vision Science

The graduate program in vision science leads to the M.S. and Ph.D. degrees. The program is administered by the Group in Vision Science, representing faculty from the School of Optometry and other departments.

Students interested in this graduate program should become familiar with the regulations of the Graduate Division and should contact the adviser of the Group in Vision Science as early as possible. Admission to this program requires a bachelor’s degree in a science field or a doctoral degree in medicine or optometry.

An undergraduate program in vision science leads to the B.S. degree. The primary purpose of this program is to prepare students for the graduate program in vision science rather than the practice of optometry.

For further details about the requirements for the B.S., M.S., and Ph.D. degrees, please consult the graduate assistant, Group in Vision Science, School of Optometry.

Trivial Pursuit
No. 29

What three American presidents spoke at Berkeley in the 20th century? What years and at what events?

(Answer on page 444.)
Promotion and protection of the health of human populations require a scientific understanding of epidemiology, biostatistics, and the biological, physical, environmental, social, behavioral, informational, and administrative and policy sciences. In the School of Public Health, these and other disciplines focus on health problems of particular populations, selected diseases or disabilities, and issues associated with the application of resources to public health systems. SPH faculty, support resources, and curricula focus on both the fundamental disciplines and their applications to particular problems. Within the University and wider community, faculty strive to advance the understanding of the fundamental disciplines, apply them to problems faced by human populations, and provide the interdisciplinary context in which future public health practitioners and scholars may develop needed skills and capacities.

The professional degrees, Master of Public Health (M.P.H.) and Doctor of Public Health (Dr.P.H.), are offered in biostatistics, environmental health sciences, epidemiology, infectious diseases, forensic science, behavioral sciences/community health education, maternal and child health, health policy and administration, and public health nutrition.

Programs of study leading to the following academic degrees are administered by groups of faculty from the School of Public Health and other departments:


Students are encouraged, and in most programs are required, to begin studies in the fall semester because of the sequence in which courses are scheduled. Both the School of Public Health and the Graduate Division require a separate set of application materials. Domestic applicants should return all their application documents (both School of Public Health and Graduate Division) in one packet to Student Services and Admissions, School of Public Health. International applicants should mail the School of Public Health application materials directly to the School of Public Health and their Graduate Division application materials to the Graduate Division. The final deadline is February 10. Applicants to the General Preventive Medicine Program must submit all application materials by December 15.

For further information, consult the Announcement of the School of Public Health, available from the school.

### Graduate School of Public Policy

Office: 2607 Hearst Avenue, 642-4670

Dean:

Eugene Smolensky, Ph.D.

For many decades now, the problems American society faces have steadily grown in number, variety, and complexity. Most of these problems come for resolution, sooner or later, to the doorstep of government. In response, public officials are increasingly involved with devising solutions to social problems and improving governmental services. They wrestle with such difficult questions as political conflict, policy choice, the implementation of policy, bureaucratic behavior, program effectiveness, and the equity and efficiency with which public resources are distributed. Heightened concern with this broad policy terrain is also evident within the private sector, which is developing greater capability in the analysis of public policy. As a consequence of these trends, the need for well-trained analysts and managers in the policy field remains strong.

The Graduate School of Public Policy prepares students to join the ranks of policy analysts in both the public and private sectors. The strong first-year core curriculum is enhanced by the diversity offered in the second year. The school’s program provides students with the benefits of and access to the resources of the entire Berkeley campus. Second-year students can take their elective courses from the full array of campus offerings.

### Undergraduate Courses

The undergraduate courses in public policy deal with the substance of American public policy, how it is made, how its effects can be gauged, and what the purposes of policy should be. The courses consider both the policy process and particular policy issues. By examining different policy problems in their political and social contexts, students should gain a greater sensitivity to the forces which shape and carry out public policies and to the impact of social, political, economic, and legal power.

Courses are designed for students in diverse disciplines and professional schools. There are no prerequisites for enrollment in the courses unless specifically noted otherwise in the course descriptions. The training provided by the courses is useful to those interested in combining the substantive perspectives of the social sciences with the immediacy of contemporary problems; to those considering professional study; and to the informed and politically aware citizen.

**Minor Program.** The undergraduate minor in public policy introduces students from other departments and colleges to the field and practice of policy analysis. The minimum requirements are five courses in public policy, at least three of which must be upper division. All classes must be taken at the School of Public Policy. **PP 101** is required of all students in the minor.
Students must achieve at least a C average (2.0) in the five courses. When students complete the minor, the school notifies the Office of the Registrar. Completion of the minor will be noted on the students’ transcripts of Berkeley work.

Graduate Courses

Through an examination of a wide variety of contemporary American domestic policy areas, graduate courses enable students to conduct systematic work in the design and assessment of public policies. Among the skills emphasized are those facilitating the application of political, organizational, economic, quantitative, and legal analysis to the full range of the policy process—from policy initiation through policy adoption, implementation, and evaluation. By developing these skills, students from the professional schools and academic disciplines should find their strengthened analytical capabilities of direct use when applied to their own field of concentration.

Master's Degree in Public Policy

The professional degree, the Master of Public Policy, is designed to provide students with the knowledge, analytical skills, and sensitivities needed to conduct public policy studies. The primary focus is on American domestic policy issues. Students from diverse disciplinary backgrounds are accepted into this program. Those completing the master’s program are qualified to take responsible positions with government and policy research organizations and to work in the private sector on matters related to public policy. Some graduates work primarily as policy analysts while others pursue administrative and political careers which involve the initiation and utilization of policy studies. The two-year master’s degree program consists of a required first-year core curriculum, a summer internship, and a second year devoted to elective courses and a policy study of the student’s choice. The first-year core curriculum includes courses in political and organizational analysis, economic analysis, quantitative techniques, legal analysis, and a workshop where students perform policy studies on selected issues.

Ph.D. in Public Policy

The Ph.D. program prepares students for careers in advanced policy research in academic institutions, research institutes, and government agencies. The Ph.D. program is oriented toward the generation of new knowledge, theories, and methodologies in public policy analysis. The program is small and admission is highly selective.

Further Information

Brochures and information on admissions procedures and student financial assistance are available from the Graduate School of Public Policy, University of California, Berkeley; 2607 Hearst Avenue # 7320, Berkeley, CA 94720-7320.

School of Social Welfare

Office: 120 Haviland Hall, 642-4341
Acting Dean:
Neil Gilbert, Ph.D.

Graduate Program

The School of Social Welfare is a graduate professional school dedicated to educating men and women for careers in public and community service. The complexities and vicissitudes of modern society create enormous problems, such as economic dependency, physical and mental illness, child abuse and neglect, marital disruption, homelessness, and substance abuse. The field of social welfare and the profession of social work help people (most of whom are disadvantaged and from minority backgrounds) who experience these problems. Professional education focuses on the institutions, organizations, programs and policies, and methods of practice that address these problems. In short, the School of Social Welfare is for people who care about their fellow men and women and the communities in which they live. Graduates of the school can be found in both public and private social agencies, working with individuals, families, groups, organizations, and communities, and contributing in a variety of ways to the formulation and implementation of solutions to social problems.

The school offers the following programs:

- A program of study leading to the Ph.D. in Social Welfare, which prepares students for careers in teaching, research, policy development and analysis, and administration in the field of social welfare and the profession of social work. It is open to applicants who hold a master’s degree in social work or social welfare or comparable preparation in a closely related field and who show evidence of intellectual and other qualifications essential to successful doctoral study.

Also offered is a combined program of master’s doctoral studies which begins in the first graduate year, leads to both Master of Social Welfare and Ph.D. in Social Welfare degrees, and prepares for the same careers. Applicants must show evidence of ability to complete doctoral study successfully and must have undergraduate preparation as outlined below.

- A two-year program of studies for the Master of Social Welfare degree in preparation for the professional practice of social work. Classroom and field courses are designed to teach professionals to use tested knowledge and skill and research methods and techniques in
their practice. Applicants for admission must have strong academic preparation in the liberal arts and sciences, including course work in the social, behavioral, and biological sciences. In addition, introductory course work in social welfare and social work, research methods, and quantitative reasoning is given special attention. Knowledge of the social welfare field and professional commitment to social work are also evaluated. Such knowledge and commitment are usually demonstrated in part by successful paid employment related to social welfare. Paid experience, however, is not a requirement for admission; those who demonstrate sufficient knowledge and commitment through voluntary experience may also qualify.

The school sponsors several special programs: the Intercambio Academico project, the M.S.W./M.P.H. dual degree program, the social welfare/law concurrent degree program, the pupil personnel services credential, the Title IV-E Master of Social Work Child Welfare Training Program, and the American Indian Graduate Program.

Applications for admission to any of these programs should be submitted as early as possible beginning in September and no later than February 10 for admission in the following academic year. Admission to the school is contingent on admission to graduate standing; for details see the booklet Admission to Graduate Study.

The M.S.W. program is accredited by the Council on Social Work Education.

For further information, consult the Announcement of the School of Social Welfare, available from the School Office, 120 Haviland Hall.

Undergraduate Group Major, Letters and Science

The Department of Social Welfare administers an undergraduate group major in social welfare in the College of Letters and Science leading to the degree of Bachelor of Arts. For major requirements, see the Social Welfare section of this catalog.

Interdisciplinary Programs

Interdisciplinary Education

In some sense, all knowledge is interdisciplinary. Ideas, approaches, and problems do not cluster themselves "naturally" into disciplines. The organization of knowledge into specialized academic departments is a result of the complicated historical development of the modern university. Therefore, students will find that topics and methodologies are often shared by many disciplines and departments.

When we refer to interdisciplinary education we generally mean one of four approaches:

1. the attempt to unify and synthesize ideas, as in a course on Topics in Western Civilization,
2. the attempt to broaden traditional disciplines, as in the development of subfields such as political economy or social psychology,
3. the study of new fields that are emerging outside departmental boundaries, such as cognitive science or mass communications,
4. the attempt to solve problems or address specific issues by bringing together work from a number of disciplines and fields.

Students at Berkeley can pursue an interdisciplinary education formally by deciding to major in one of the interdisciplinary group or field majors, or informally by including special interdisciplinary courses in their curriculum or clustering their elective courses with an interdisciplinary focus.

Major Programs

Division of Undergraduate and Interdisciplinary Studies: The mission of the Division of Undergraduate and Interdisciplinary Studies is to develop and administer innovative and interdisciplinary courses and programs in the College of Letters and Science that do not belong to a single department. At present it administers the field major in interdisciplinary studies and the group majors in American studies, Celtic studies, cognitive science, environmental sciences, film, mass communications, peace and conflict studies, and religious studies. For complete descriptions of the Undergraduate and Interdisciplinary Studies majors and major courses, please see the entries in the courses section of this catalog. In addition to these majors, it offers special interdisciplinary courses such as Topics in Western Civilization and The Development of World Civilization. Minor programs are offered in Celtic studies, creative writing, and religious studies. Students should consult the Division of Undergraduate and Interdisciplinary Studies (301 Campbell Hall, 642-0108) for more information.
Special Studies: There are several innovative and interdisciplinary programs of study not within the colleges and schools. Special studies courses provide credits directly applicable to a University degree and are established through interrelationships among colleges, schools, and departments, and, in certain cases, in conjunction with community groups, other UC campuses, and other universities. The following are designated as Special Studies programs (see individual listings for details): programs in Asian American Studies, Chicano Studies, and Native American Studies in the Ethnic Studies Department; Energy and Resources Group; International Education; and the Military Officers' Education Program (ROTC), which includes Military Affairs courses and programs in Aerospace Studies (Air Force ROTC), Military Science (Army ROTC), and Naval Science (Navy ROTC).

Clustering Electives with an Interdisciplinary Focus
Students may organize their interests in interdisciplinary clusters by choosing elective courses from a number of departments in Letters and Science and in the professional schools and colleges. For example, a student interested in literature will find courses in all the foreign language departments, in Ethnic Studies, in Rhetoric, in history courses, in social theory courses, etc., as well as in the Departments of English and Comparative Literature. Economic issues are addressed in courses offered by many Letters and Science departments including Political Science, Sociology, African American Studies, History, Geography, etc., in courses offered by the professional schools and colleges (Business, Public Policy, City Planning, Natural Resources) as well as in the Department of Economics. Students interested in religion will find courses in South and Southeast Asian Studies, History, Middle Eastern Studies, etc., as well as in Religious Studies. In addition, a number of departments offer cross-listed courses which use interdisciplinary methods. These are listed in departmental offerings. (You may consult your college adviser for help in planning your course of study to include an interdisciplinary focus.)

Environmental Studies at Berkeley
Environmental studies at Berkeley include courses, curricula, research, and public service that cover aspects of sciences and arts, engineering and management, law and policy, planning and design. Several degree-granting programs specifically emphasize aspects of the environment, and hundreds of courses in other departments apply the principles of those
## Environmental Studies at Berkeley

### Basic Environmental Science

<table>
<thead>
<tr>
<th>Degree Program or Emphasis</th>
<th>Department/Unit</th>
<th>Level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioresource Sciences</td>
<td>Environmental Science, Policy, and Management</td>
<td>U</td>
</tr>
<tr>
<td>Entomological Science</td>
<td></td>
<td>UG, G</td>
</tr>
<tr>
<td>Environmental Science (proposed)</td>
<td></td>
<td>UG</td>
</tr>
<tr>
<td>Molecular Environmental Biology (proposed)</td>
<td></td>
<td>UG</td>
</tr>
<tr>
<td>Plant Pathology</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Soil Science</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Wildlife Resource Science</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Geography</td>
<td>Geography</td>
<td>UG, G</td>
</tr>
<tr>
<td>Earth Science</td>
<td>Geology and Geophysics</td>
<td>UG</td>
</tr>
<tr>
<td>Integrative Biology</td>
<td>Integrative Biology</td>
<td>UG, G</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>Interdepartmental Graduate Groups</td>
<td>G</td>
</tr>
<tr>
<td>Agriculture and Environmental Chemistry</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Nutrition (nutrition and metabolism)</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Nutrition and Food Science</td>
<td>Nutritional Sciences</td>
<td>UG</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Plant Biology</td>
<td>Plant Biology</td>
<td>UG, G</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>Undergraduate and Interdisciplinary Studies</td>
<td>UG</td>
</tr>
</tbody>
</table>

### Applied Science and Environmental Engineering

<table>
<thead>
<tr>
<th>Degree Program or Emphasis</th>
<th>Department/Unit</th>
<th>Level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Engineering</td>
<td>Civil Engineering</td>
<td>UG, G</td>
</tr>
<tr>
<td>Geotechnical Engineering</td>
<td></td>
<td>UG, G</td>
</tr>
<tr>
<td>Environmental Engineering Science</td>
<td>Engineering Science</td>
<td>UG</td>
</tr>
<tr>
<td>Environmental Technology</td>
<td>Chemical Engineering</td>
<td>UG</td>
</tr>
<tr>
<td>Parasitology</td>
<td>Interdepartmental Graduate Group</td>
<td>G</td>
</tr>
<tr>
<td>Earth Resources Engineering</td>
<td>Materials Science and Mineral Engineering</td>
<td>UG</td>
</tr>
<tr>
<td>Engineering Geoscience</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>Mechanical Engineering</td>
<td>UG, G</td>
</tr>
<tr>
<td>Nutrition and Clinical Dietetics</td>
<td>Nutritional Sciences</td>
<td>UG</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>School of Public Health</td>
<td>G</td>
</tr>
<tr>
<td>Biostatistics</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Environmental Health Sciences</td>
<td></td>
<td>G</td>
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</tbody>
</table>

### Environmental Management, Planning, Policy and Design

<table>
<thead>
<tr>
<th>Degree Program or Emphasis</th>
<th>Department/Unit</th>
<th>Level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Resource Economics</td>
<td>Agriculture and Resource Economics</td>
<td>G</td>
</tr>
<tr>
<td>Political Economy of Natural Resources</td>
<td></td>
<td>UG</td>
</tr>
<tr>
<td>Architecture (specific courses)</td>
<td>Architecture</td>
<td>UG, G</td>
</tr>
<tr>
<td>City and Regional Planning (specific courses)</td>
<td>City and Regional Planning</td>
<td>G</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>Landscape Architecture</td>
<td>UG, G</td>
</tr>
<tr>
<td>Environmental Planning</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Urban Design (concurrent program)</td>
<td>City and Regional Planning</td>
<td>G</td>
</tr>
<tr>
<td>Conservation and Resource Studies</td>
<td>Environmental Science, Policy, and Management</td>
<td>UG</td>
</tr>
<tr>
<td>Resource Management (forest, soil, range, wildlife)</td>
<td></td>
<td>UG</td>
</tr>
<tr>
<td>Wildlife Resource Management</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Forestry</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>Range Management</td>
<td>Interdepartmental Graduate Groups</td>
<td>G</td>
</tr>
<tr>
<td>Political Economy of Industrial Societies (group major)</td>
<td>International and Area Studies</td>
<td>UG</td>
</tr>
<tr>
<td>Law (specific courses)</td>
<td>Law</td>
<td>G</td>
</tr>
</tbody>
</table>

### Integrated Science, Technology, and Policy

<table>
<thead>
<tr>
<th>Degree Program or Emphasis</th>
<th>Department/Unit</th>
<th>Level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy and Resources Group</td>
<td>Interdepartmental Graduate Groups</td>
<td>G</td>
</tr>
</tbody>
</table>

*In the column below, UG refers to undergraduate and G refers to graduate.
International and Area Studies Programs

Center for African Studies: 642-8338
Canadian Studies Program: 642-0531
Institute of East Asian Studies: 642-2809
Center for Chinese Studies: 643-6321
Center for Japanese Studies: 642-2809
Center for Korean Studies: 642-5618
European Community Program: 642-4555
Center for German and European Studies: 643-5799
Institute of International Studies: 642-2472
Berkeley Roundtable on the International Economy (BRIE): 642-3067
Center for International and Development Economic Research (CIDER): 642-2474
MacArthur Interdisciplinary Group in International Security Studies: 642-2474
Program in Population Research: 642-9800
Center for Latin American Studies: 642-2086
Center for Middle Eastern Studies: 642-8288
Center for Slavic and East European Studies: 642-3320
Center for South Asia Studies: 642-3608
Center for Southeast Asia Studies: 642-3699
Center for Western European Studies: 642-9314
Catalonian Studies Program: 643-7856
French Cultural Studies Program: 643-5799
Iberian Studies Program: 642-5326
Berkeley Program in Soviet and Post Soviet Studies: 643-6737
Office for Resources in International and Area Studies: 643-0868

Disciplines to issues in the environment. By judiciously selecting courses, students can develop curricula that bridge the boundaries among departments and take advantage of the diverse resources from several programs.

The chart on page 111 identifies the principal degree-granting environmental curricula described in more detail under corresponding headings in this catalog. Further detail is available in the announcements of individual colleges and schools.

Individual Majors

Students whose interests lie outside or between the degree programs listed in the chart on page 111 should consider designing individual majors that satisfy their academic goals. For example, students interested in the ways that societal principles and cultures affect the environment might consider individual majors in such departments as Anthropology, History, Legal Studies, Peace and Conflict Studies, Psychology, and Sociology.

Departments with Related Courses

In addition to the degree programs or emphases identified in the chart, each of the following headings in the General Catalog offers several relevant courses:

- Anthropology
- Business Administration
- Chemistry
- Demography
- Development Studies
- Economics
- Engineering
- Environmental Design
- Interdepartmental Studies
- Molecular and Cell Biology
- Nuclear Engineering
- Physics
- Political Science
- Public Policy
- Social Welfare
- see also University Extension

For a complete listing of courses that focus on environmental matters, see Enviro-Studies: A Guide to Environmental Studies at Berkeley, available at bookstores and through academic advisers.

International and Area Studies

Berkeley's international teaching programs and centers for research and outreach are part of our rich multicultural environment. International issues are the focus of six undergraduate and three graduate interdisciplinary majors offered by the International and Area Studies Teaching Programs. Through the undergraduate group majors in Asian studies, development studies, Latin American studies, Middle Eastern studies, and political economy of industrial societies, you can focus your education on a variety of geographical or issue-oriented areas and topics. You can also enjoy the advantages of close relationships with many of the centers of research affiliated with International and Area Studies. These centers sponsor concerts, lectures, special events, conferences, and seminars and assist the teaching programs in bringing internationally renowned scholars and faculty to teach courses in the IAS Teaching Programs as well as departments in the humanities, sciences, and social sciences. In addition, the teaching programs collaborate with the various centers in promoting student internships and research opportunities. For more information about International and Area Studies at Berkeley, contact the IAS Teaching Programs Office, 207 Moses Hall, 642-4466 or one of the research centers listed to the left.
Berkeley is any academic's desired destination. I was irresistibly attracted by the University's dynamic capacity to generate new ideas, its willingness to nurture intellectual movement in novel directions, and its profound commitment to socially useful scholarship. In particular, I was eager to come work with first-rate colleagues and students on the development of the next phase in the comparative study of race, ethnicity, and nationalism.

—J. Jorge Klor de Alva

Class of 1940 Professor of Comparative Ethnic Studies and Anthropology

Leaving his post as professor at Princeton University, Klor de Alva, Berkeley '71, returned to his alma mater in 1994. He also has a J.D. from Boalt, '74.
Key to Symbols

The following symbols are used in the departmental faculty lists in the “Courses and Curricula” section that follows:

*Professor in the Graduate School: An honorific title to recognize emeritus faculty who continue to be active in the graduate teaching and research programs of the department

†Recipient of Distinguished Teaching Award

“Above the Line” and “Below the Line”
The faculty lists of many departments are divided by a short line that separates full members of a department from members affiliated with the department by a “courtesy appointment.” Faculty members whose names appear above the line are full members of the department. Faculty members whose names appear below the line are affiliated with the department but are not members of it.

Organization of “Courses and Curricula” Section

In the following section of the catalog, departments are listed alphabetically regardless of the college or school to which they belong. Interdepartmental groups, special studies, special projects, and other nondepartmental units are also listed alphabetically wherever possible. Interdepartmental Studies courses are reproduced together under that heading as well as in each sponsoring department. If you are unable to locate the department or program which interests you, consult the Index.

The colleges and schools are introduced in the “Colleges, Schools, and Interdisciplinary Programs” section, beginning on page 87. The introductions discuss the scope and educational goals of each college and school and list the departments and organizational units within each.

Course Listings

Note: Not all of the courses listed in the following section are offered every year. For current information, see the Schedule of Classes or consult with departmental advisers.

You should carefully note prerequisites for courses, although they are sometimes waived at the discretion of the instructor.

Courses with double numbers (for example, English 1A-1B) are two-semester sequences that usually begin in the fall semester. Except as noted, each course in a sequence is normally prerequisite to the one following, and you may normally receive credit for completing the first half of a sequence. Course numbers preceded by the letter H are special honors courses that may be subject to restrictions imposed by the department.

The number in parentheses following the course title indicates the credit value; the abbreviation in parentheses indicates the semester in which the course is offered: (F) fall, (SP) spring. Since this is a two-year catalog and course offerings are not yet known for the 1996-97 academic year, these notations apply to 1995-96 only. Summer Session courses are listed separately in the Summer Sessions Catalog except for a few courses that are part of a department’s degree requirements.

Course numbers are assigned as follows:

1-99

Lower division courses, including courses designated by a letter. Open to freshmen and sophomores; not acceptable for upper division credit.

100-196

Upper division courses. You must ordinarily have completed at least one lower division course in the given subject or two years of college work.

98, 99, 197, 198, 199

Special Studies courses. (See limitations listed below.) Effective fall 1983, you may use no more than 16 semester units of courses numbered 98, 99, 197, 198, and 199 to meet requirements for the bachelor’s degree. Exceptions to this rule may be granted by the dean of your college or school.

197

Field study (upper division). Courses with this number are restricted to passed/not passed grading. To take them you must have completed 60 units of undergraduate study and be in good academic standing (2.00
grade-point average or better). Exceptions to these rules may be granted by the dean of your college or school.

**98, 99, 198, 199**

These courses allow you to pursue study of special topics, in groups or individually, under the direction of a faculty member. You may aggregate no more than 4 units of credit for independent studies or group studies in a single semester.

**98**

Directed group study by lower division students. Each section of a 98 course must receive approval by the chair of the department, based upon a written proposal by the instructor who is to supervise the course. Only a grade of passed/not passed is to be assigned. The dean of your college or school, on advice of the instructor, may authorize exceptions to the grading limitation.

**99**

Supervised independent study by academically superior, lower division students. You must have a 3.3 GPA and prior consent of the instructor who is to supervise the study, and you must submit a written proposal to the chair of the department for approval. Only a grade of passed/not passed is to be assigned. The dean of your college or school, on the advice of the instructor, may authorize exceptions to the grading limitation.

**198**

Directed group study (upper division). Each section of a 198 course must receive approval by the chair of the department, based upon a written proposal by the instructor who is to supervise the course. To enroll in 198 courses, you must have completed at least 60 units of undergraduate study and be in good academic standing (2.00 grade-point average or better). Only a grade of passed/not passed will be assigned. The dean of your college or school, on the advice of the instructor, may authorize exceptions to the above limitations.

**199**

Supervised independent study (upper division). You must have prior approval of your major adviser, the instructor who is to supervise the study, and the chair of the department. Approval must be based on a written proposal that you submit to the chair. The instructor must indicate consent in writing. To enroll in 199 courses, you must have completed at least 60 units of undergraduate study and be in good academic standing (2.00 grade-point average or better). Only a grade of passed/not passed will be assigned. The dean of your college or school, on the advice of the instructor, may authorize exceptions to the above limitations.

**200-299**

Graduate courses. Adequate preparation, subject to the instructor's approval, is normally 12 upper division units of work basic to the subject matter of the course.

**300-399**

Professional courses for teachers or prospective teachers.

**400-499**

Professional courses which, like teaching courses, are acceptable toward academic degrees only within the limitations prescribed by the various colleges or schools or the Graduate Division.

**601**

Special study for graduate students in preparation for the master's examination.

**602**

Special study for graduate students in preparation for the doctoral qualifying examination.

**Experimental Courses**

The University offers a number of experimental courses. Information about these courses is contained under (1) Self-Paced Courses, discussed in the Appendix; and (2) some of the Interdepartmental Studies courses, listed in the Interdepartmental Studies section of this catalog as well as in each sponsoring department.

**Use of Animals in the Instructional Program**

Certain courses offered at the University of California, Berkeley require the use of animals, living or preserved, vertebrate or invertebrate, and/or their preserved and/or extracted parts, in the course of instruction. Such animal use is determined judiciously by the instructors of the courses to be necessary and appropriate to the intellectual and technical education of students. All use of animals in teaching and research is approved by the campus Animal Care and Use Committee. It is the responsibility of students to ascertain course requirements before enrollment, and the responsibility of instructors to provide that information clearly and unequivocally. Should the students find enrollment in such courses not appropriate to their interests or beliefs, they should see their advisers to recommend alternative courses, or, if appropriate, alternative majors.

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**Trivial Pursuit No. 30**

Who designed the University of California seal, and when?

(Answer on page 444.)
Berkeley is one of the few places I would have left the University of Michigan for. It really has everything: a topnotch anthropology department in a great university in a great location. In addition, Berkeley has wonderful interdisciplinary resources for me: Women's Studies, the Humanities Center, the International Institute, American Cultures, and South Asian Studies. I'm delighted to be here.

—Sherry Ortner
Professor of Anthropology

Professor Ortner was formerly the Sylvia L. Thrupp Professor of Anthropology and Women's Studies at the University of Michigan. She is also the winner of a MacArthur "genius" award.