# **Computer Science** (Letters and Science)

College of Letters and Science (<u>http://</u> ls.berkeley.edu)

### Department Office: 377 Soda Hall, (510) 642-7214

#### Department Contact: Christopher Hunn Department Website: Computer Science (L&S) (http://ls-advise.berkeley.edu/major/compsci.html)

Choice of College

#### There are two ways to study computer science at UC Berkeley. One is to be admitted to the Electrical Engineering & Computer Sciences (EECS) major in the College of Engineering (COE) as a freshman. Admission to the COE, however, is extremely competitive. The other way is to enter the College of Letters and Science and, after two years and successful completion of required courses, be admitted to the L&S computer science major. The EECS path is appropriate for people who want an engineering education. The L&S path is appropriate for people who are interested in a broader education in the sciences and arts, and/or are not sure at the time of application that they can gain admission to EECS.

Details about the computer science and engineering program in the Department of Electrical Engineering and Computer Sciences may be found on the Electrical Engineering and Computer Sciences website. (http://eecs.berkeley.edu)

## Computer Science Major in the College of Letters and Science

Berkeley emphasizes the *science* of computer science, which means much more than just computer programming. It includes the theory of computation, the design and analysis of algorithms, the architecture and logic design of computers, programming languages, compilers, operating systems, scientific computation, computer graphics, databases, artificial intelligence, and natural language processing. Our goal is to prepare students both for a possible research career and long-term technical leadership in industry. We must therefore look beyond today's technology and give students the primary ideas and the learning skills that will prepare them to teach themselves about tomorrow's technology.

It is necessary to achieve an overall and technical grade point average (GPA) of 2.0 to declare the computer science major. The technical GPA (that is, the GPA in the lower division courses required for the major) is the main determining factor and students meeting the criteria are routinely approved. Applications to the major should be submitted to the Computer Science Advising Office, 377 Soda Hall, (510)-642-7214, during the semester in which the final technical prerequisites are being completed.

Transfer students admitted to Berkeley must, in addition, apply separately to the computer science major. Not all transfer students will meet the criteria required for the major. Therefore, we recommend that transfer students be prepared to pursue an alternative major at Berkeley. For further information, contact the Advising Office.

#### **Major Requirements**

**Lower Division Requirements:**The following lower division courses are required for admission to the major:

- 1. College-level calculus and linear algebra/differential equations (Math 1A-1B, 54).
- 2. Discrete Mathematics and Probability Theory (CS 70).
- 3. Electronics (EE 20 or 40).
- 4. Computer science (CS 61A-61B-61C).

All the above courses must be graded. All of the above courses *except* EE 20 or 40 must be taken prior to declaring. EE 20 or 40 must be taken before graduation.

**Upper Division Requirements:** A total of 27 units of upper division courses including:

- 1. One Design course from the following: CS 149, 150, 152, 160, 162 164, 169, 184 or EE 125, 128, 130, 140, 141, 143, 149, 192;
- Any two additional upper-division CS courses\*: (in addition to above list) CS 150, 152, 160, 161, 164, 169, 184, 186, 188;
- 3. Any two additional EE/CS courses\*: (in addition to above lists) EE 105, 113, 117, 118, 120, 121, 122, 123, C125, 126, 127, C128, 129, 130, 134, 137A, 137B, 140, 141, 142, 144, C145B, C145L, C145M, C145O, 147, and C149;
- Technical Electives\* to 27 units: (in addition to above lists) Any course from the approved list of non-CS technical electives found at eecs.berkeley.edu/csugrad/tech\_electives (<u>http://eecs.berkeley.edu/</u> <u>csugrad/tech\_electives</u>).
- 5. Total of at least 27 upper division units.

\* Denotes that all courses for the major must be technical in nature. 199, 198, 197, 195 and various seminars do not count.

*Note:* Please check the following website (<u>http://eecs.berkeley.edu/</u> <u>csugrad</u>) for updates and/or current information.

#### **Minimum Scholarship**

All courses taken in satisfaction of the major requirements must be graded; none may be taken *passed/not passed*. A GPA of 2.0 in the upper division courses is required for graduation. The division monitors the progress of majors and expects them to maintain a 2.0 GPA from semester to semester.

#### **Honors Program**

Computer science majors with an overall GPA of 3.75 or above are eligible to apply to the EECS Honors Program. Information is available here. (http://eecs.berkeley.edu/Programs/honors.html.html)

#### **Minor Requirements**

A minor in computer science is available to all undergraduate students at Berkeley with a declared major, with the exception of CS majors in EECS. Requirements for the minor are CS 61A, 61B or 61BL, 61C or 61CL, CS70 plus any three upper division courses in CS. Students submit applications to the minor program only after completing the majority of the lower division requirements with a technical GPA of at least 2.0. The computer science minor is awarded when all courses are completed with a technical GPA of 2.0. A notation is made on the final transcript. For more information, please see the EECS minor website. (http://eecs.berkeley.edu/csugrad/minor.html)

#### **Advanced Degree Program**

The Five-Year Bachelor/Master's Program in EECS (BA/MS or BS/ MS): The combined Bachelor's/Master's Program is designed to take outstanding EECS and CS L&S undergraduates immediately into an intensive two-semester program conferring the Master of Science degree. This combined program promotes interdisciplinary focus and is best suited to those who are more "professionally oriented," as opposed to those wishing to pursue a more traditional research-based and discipline-specialized advanced course of study. As such, a distinguishing feature of this five-year program is its emphasis upon extended study in interdisciplinary, though allied, technical fields, such as physics, biology, and statistics, or in professional disciplines, such as business, law, or public policy. The program is aptly entitled, Educating Leaders for the Emerging Global Economy, and reflects a growing need for those who are technically skilled and also possess an understanding of the business, legal, and social context of technology development and use.

Conferral of the degree requires either writing a thesis (Plan I) or reporting on a project (Plan II), as is required of our other master's students.

Complete information is available at the Five-Year MS website. (<u>http://eecs.berkeley.edu/FiveYearMS</u>)

#### **Graduate Program**

Graduate degree programs are available as preparation for research and teaching (Master's of Science and Doctor of Philosophy in computer science or engineering) and for careers in design, development, and management (Master's of Engineering and Doctor of Engineering). For details on graduate programs and procedures, see the Electrical Engineering and Computer Sciences section of the *Berkeley Bulletin*.