

Program Comparison: 2018-2019

Computer Science/Computer Science and Engineering/Computer Engineering/ Electrical Engineering

For information on University and general education requirements, refer to

<http://www.seasoasa.ucla.edu/ge-for-students-who-entered-fall-2005-and-thereafter/>

Computer Science B.S.	Computer Science and Engineering B.S.	Computer Engineering B.S.	Electrical Engineering B.S.
Preparation for the Major	Preparation for the Major	Preparation for the Major	Preparation for the Major
<i>Required:</i> Computer Science 1, 31, 32, 33, 35L, M51A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 1C, and Physics 4AL or 4BL.	<i>Required:</i> Computer Science 1, 31, 32, 33, 35L, M51A; Electrical and Computer Engineering 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 1C, and Physics 4AL or 4BL.	<i>Required:</i> Computer Science 1 (or Electrical and Computer Engineering 1), 31, 32, 33, 35L, M51A; Electrical and Computer Engineering 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 1C, and Physics 4AL or 4BL; Engineering 96C	<i>Required:</i> Computer Science 31, 32, M51A; Electrical and Computer Engineering 2, 3, 10, 11L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Chemistry 20A; Physics 1A, 1B, 1C, and Physics 4AL and 4BL
The Major	The Major	The Major	The Major
<p><i>Required:</i> Computer Science 111, 118, 131, M151B, M152A, 180, 181; one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, or Statistics 100A; one capstone software engineering or design course from Computer Science 130 or 152B; 20 units of elective courses selected from Computer Science 111 through CM187 or Electrical and Computer Engineering 133A, at least one of which must be Computer Science 112 or 170A or Electrical and Computer Engineering 133A, and at least two of which must be selected from Computer Science CM121, CM122, CM124, 143, 161, or 174A, with at least one of the two courses from 143, 161, or 174A; 12 units of science and technology courses (not used to satisfy other requirements) that may include 12 units of upper division computer science courses or 12 units of courses selected from an approved list available in the Office of Academic and Student Affairs; and 12 units of technical breadth courses selected from an approved list available in the Office of Academic and Student Affairs.</p> <p>Students must take at least one course from Computer Science 130 or 132. Computer Science 130 or 152B may be applied as an elective only if it is not taken as the capstone course. Credit is not allowed for both Computer Science 170A and Electrical and Computer Engineering 133A unless at least one of them is applied as part of the science and technology requirement or as part of the technical breadth area. Four units of either Computer Science 194 or 199 may be applied as an elective by petition.</p> <p>A multiple-listed (M) course offered in another department may be used instead of the same computer science course (e.g., Electrical and Computer Engineering M116C may be taken instead of Computer Science M151B). Credit is applied automatically.</p>	<p><i>Required:</i> Computer Science 111, 118, 131, M151B, M152A, 180, 181, Electrical and Computer Engineering 102, 100, 115C; one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, or Statistics 100A; one capstone design course (Computer Science 152B); 4 units of elective courses selected from Electrical and Computer Engineering 113, 115A, 132A, 141; 12 units of elective courses selected from Computer Science 111 through CM187 or Electrical and Computer Engineering 133A, at least one of which must be Computer Science CM121, CM122, CM124, 143, 161, or 174A; and 12 units of technical breadth courses selected from an approved list available in the Office of Academic and Student Affairs.</p> <p>Students who want to deepen their knowledge of electrical engineering are encouraged to select that discipline as their technical breadth area.</p> <p>Credit is not allowed for both Computer Science 170A and Electrical and Computer Engineering 133A unless at least one of them is applied as part of the technical breadth area. Four units of either Computer Science 194 or 199 may be applied as an elective by petition.</p> <p>A multiple-listed (M) course offered in another department may be used instead of the same computer science course (e.g., Electrical and Computer Engineering M116C may be taken instead of Computer Science M151B). Credit is applied automatically.</p>	<p><i>Required:</i> Computer Science 111, 118 (or Electrical and Computer Engineering 132B), M151B, M152A, 180; Electrical and Computer Engineering 102, 100, 113, 115C; one course from Electrical and Computer Engineering 131A, Civil and Environmental Engineering 110, Mathematics 170A or Statistics 100A; 8 units of Electrical and Computer Engineering electives and 8 units of Computer Science electives from among upper division courses; 12 units of technical breadth courses selected from an approved list available in the Office of Academic and Student Affairs; 8 units capstone design from either Electrical and Computer Engineering 180DA/DB or 183DA/DB</p> <p><u>Suggested Tracks</u></p> <p>1. Network Embedded Systems Students pursuing this track are strongly encouraged to take Electrical and Computer Engineering/Computer Science M119 in junior year, and to choose three electives from courses such as Computer Science 130, 131, 132, 133, 136, 181, 188; Electrical and Computer Engineering 2, 115A, 115B, M117, 132A, 133A, 141, 142, 188. Students who pursue a technical breadth area in either Electrical and Computer Engineering or Computer Science can choose an additional three courses from this list.</p> <p>2. Data Science Students pursuing this track are strongly advised to take Computer Science 143 and Electrical and Computer Engineering/Computer Science M146, and to additionally choose two electives from courses such as Computer Science CM121, 136, 144, 145, 161, 188; Electrical and Computer Engineering 114, 133A, 133B, 134, 188. Students who pursue a technical breadth area in either Electrical and Computer Engineering or Computer Science can choose an additional three courses from this list.</p> <p>Students are also free to design ad hoc tracks. The technical breadth area requirement provides an opportunity to combine elective courses in Electrical and Computer Engineering and Computer Science with those from another HSSEAS major to produce a specialization in an interdisciplinary domain. As noted above, students can also select a technical breadth area in either Electrical and Computer Engineering or Computer Science to deepen their knowledge in either discipline.</p>	<p><i>Required:</i> Electrical and Computer Engineering 101A, 102, 110, 111L, 113, 131A; six core courses selected from Computer Science 33, Electrical and Computer Engineering 101B, 115A, 121B, 132A, 133A, 141, 170A; one two-term Electrical Engineering capstone design course (8 units); 12 units of major field elective courses, at least 8 of which must be upper division Electrical and Computer Engineering courses – the remaining 4 may be from upper division Electrical and Computer Engineering courses or from another HSSEAS department; and 12 units of technical breadth courses selected from an approved list available in the Office of Academic and Student Affairs.</p> <p><u>Suggested Tracks</u></p> <p>1. Bioengineering and Informatics Students may take Chemistry and Biochemistry 20B and two courses from Bioengineering 100, C101, CM 102, and 110 and/or 12 units from Computer Science CM121, Electrical and Computer Engineering 114, 133B, 134, and 176 and 8 capstone design courses from 180DA/180DB.</p> <p>2. Computer Engineering Students might take a 12-unit technical breadth area in computer science such as Computer Science 111, 130, and 180 and/or 12 units of electives from Electrical Engineering 115C, M116C, M116L, M117, and 132B, and 8 capstone design units from 113DA/113DB or 180DA/180DB or 183DA/183DB.</p> <p>3. Cyber Physical Systems (CPS) Students may take a 12-unit technical breadth area in computer science such as Computer Science 111, M117, and 180 and/or 12 units of electives from Electrical and computer Engineering M116C, 132B, and 142 and 8 capstone design units from 183DA/183DB.</p>