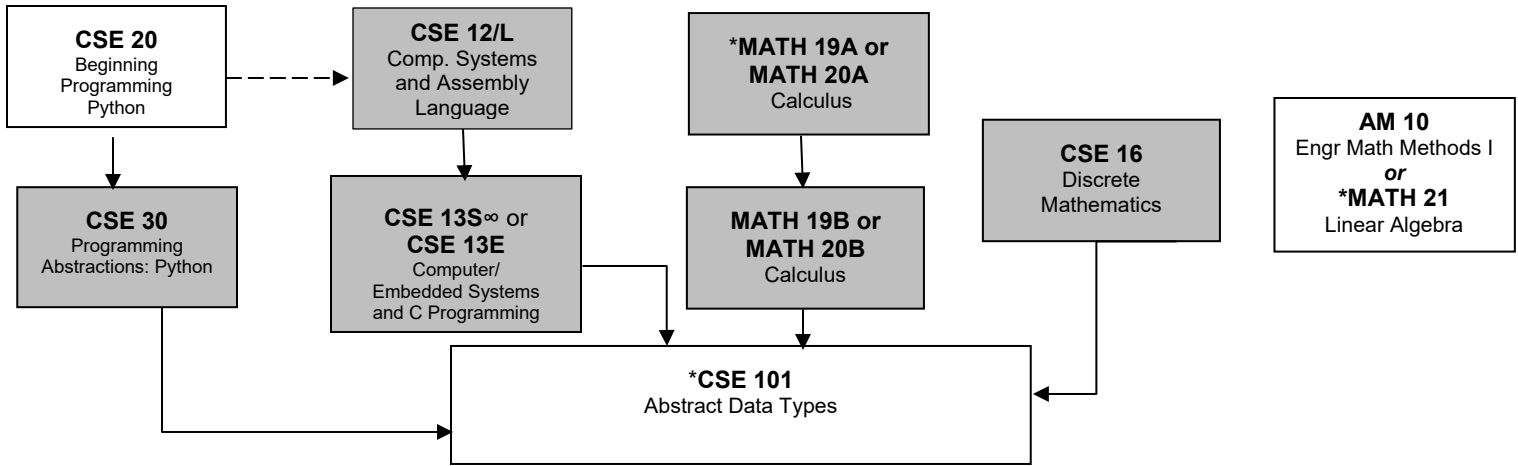
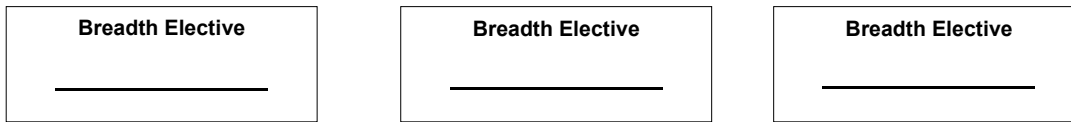


# Computer Science B.A. Degree 2020-2021 Curriculum Chart



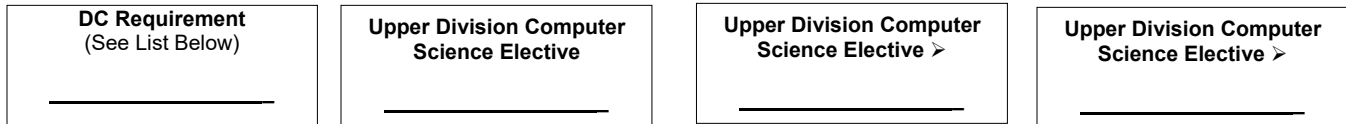
Students must complete **three** courses from this Breadth list:

- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li>CSE 102 Introduction to Analysis of Algorithms</li> <li>CSE 103 Computational Models</li> <li>CSE 110A Compiler Design I</li> <li>CSE 112 Comparative Programming Languages</li> <li>CSE 115A Introduction to Software Engineering</li> <li>CSE 120 Computer Architecture</li> </ul> | <ul style="list-style-type: none"> <li><b>[One of:</b> CSE 130 Computer Systems Design <b>OR</b></li> <li>CSE 131 Operating Systems]</li> <li>CSE 132 Computer Security</li> <li>CSE 138 Distributed Systems</li> <li>CSE 140 Artificial Intelligence</li> </ul> | <ul style="list-style-type: none"> <li>CSE 142 Machine Learning</li> <li>CSE 143 Natural Language Processing</li> <li>CSE 160/L Computer Graphics</li> <li>CSE 180 Database Systems</li> </ul> |
|---|--|--|



Students must complete **three** additional 5-credit (or more) upper division Computer Science and Engineering (CSE) elective courses selected from all 5-credit (or more) upper division CSE courses numbered below 170 or between 180-189. At least 1 Upper Division Elective must satisfy the Comprehensive Requirement.

➤ Students may substitute **two** of these upper division Computer Science and Engineering electives with courses from the list on the back of the chart.



### Disciplinary Communication

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement for the Computer Science B.A. is satisfied by completing one of the following courses.

- CSE 115A Introduction to Software Engineering
- CSE 185E/185S Technical Writing for Computer S
- Ψ CSE 195 Senior Thesis

**DC courses cannot be used to satisfy any of the Upper Division Electives.**

### Capstone Courses

Many Capstone course options require additional prerequisites not already required in major requirements. Advance planning is crucial. **The capstone course can also satisfy an upper division elective.**

- CSE 110B Fundamentals of Compiler Design II
- CSE 115C Software Design Project III
- CSE 115D Software Design Project - Accelerated
- CSE 118 Mobile Applications
- CSE 121/L Microprocessor System Design / Lab
- CSE 138 Distributed Systems
- CSE 140 Artificial Intelligence
- CSE 143 Introduction to Natural Language Processing
- CSE 144 Applied Machine Learning
- CSE 156/L Network Programming / Lab
- CSE 157 Internet of Things
- CSE 160/L Introduction to Computer Graphics / Lab
- CSE 161/L Introduction to Data Visualization / Lab
- CSE 162/L Advanced Computer Graphics and Animation / Lab
- CSE 163 Data Programming for Visualization
- CSE 168 Introduction to Augmented Reality and Virtual Reality
- CSE 181 Database Systems II
- CSE 183 Web Applications
- CSE 184 Data Wrangling and Web Scraping
- CMPM 172 Game Design Studio III
- ECE 118/L Introduction to Mechatronics / Lab

**Comprehensive Requirement** - Students have two options to fulfill the Computer Science exit requirement:

1. Pass one of the Capstone Courses (which can also fulfill an elective requirement, see Capstone Courses list →)
2. Successfully complete a Senior Thesis.

<sup>∞</sup> CSE 13S is recommended for students pursuing a Computer Science major

# Computer Science B.A. Degree 2020-2021 Curriculum Chart

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

## Upper Division Elective List

◆ Any 5-credit upper division course offered by the Baskin School of Engineering except those numbered 191 through 194 and 196 through 199.

(CMPM and AM courses strongly recommended.)

- ◆ ARTG 118 Character Creation for Video Games
- ◆ EART 124 Modeling Earth's Climate
- ◆ EART 125 Statistics and Data Analysis in the Geosciences
- ◆ EART 172/OCEA 172 Geophysical Fluid Dynamics
- ◆ ECON 100M Intermediate Microeconomics, Math Intensive
- ◆ ECON 100N Intermediate Macroeconomics, Math Intensive
- ◆ ECON 101 Managerial Economics
- ◆ ENVS 115A/L Geographic Information Systems and Environmental Applications
- ◆ FILM 170A Fundamentals of Digital Media Production
- ◆ LING 112 Syntax I
- ◆ LING 113 Syntax II
- ◆ LING 118 Semantics III
- ◆ LING 125 Foundations of Linguistic Theory
- ◆ MATH 110 Introduction to Number Theory
- ◆ MATH 115 Graph Theory
- ◆ MATH 116 Combinatorics
- ◆ MATH 117 Advanced Linear Algebra
- ◆ MATH 118 Advanced Number Theory
- ◆ MATH 134 Cryptography
- ◆ MATH 145/L Introductory Chaos Theory / Lab
- ◆ MATH 148 Numerical Analysis
- ◆ MATH 160 Mathematical Logic I
- ◆ MATH 161 Mathematical Logic II
- ◆ MUSC 123 Electronic Sound Synthesis
- ◆ MUSC 124 Intermediate Electronic Sound Synthesis
- ◆ MUSC 125 Advanced Electronic Sound Synthesis
- ◆ PHYS 115 Computational Physics
- ◆ PHYS 150 Quantum Computing

- All students admitted to a School of Engineering major, or seeking admission to a major, must take all courses required for that major for a letter grade.

- Courses in which you receive a grade of C-, D+, D, or D- earn credit toward graduation, but cannot be used to satisfy a major requirement or a general education requirement, and cannot satisfy a prerequisite for another course.

- Shaded boxes represent foundation courses. Major qualification requirements for this major can be found at:

<https://undergrad.soe.ucsc.edu/major-qualification>

- Many graduate courses can also be used to satisfy electives; however, students will need instructor and department approval.

- The School of Engineering has different major declaration deadlines than the UCSC Academic/Administrative calendar. Our deadlines and process can be found on:

<http://undergrad.soe.ucsc.edu/declare-your-major>