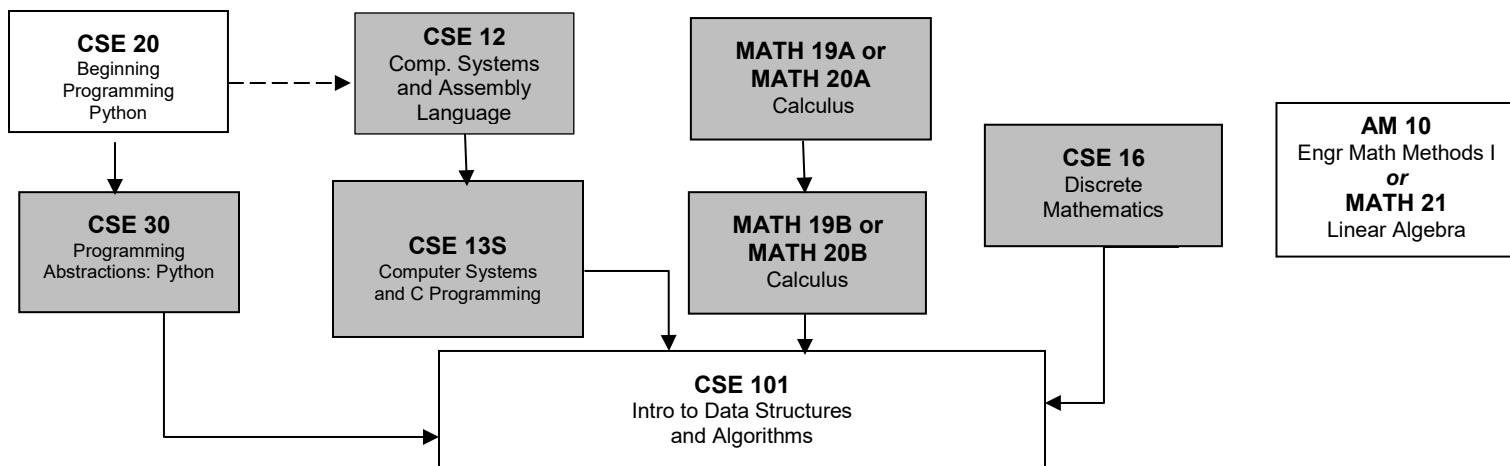
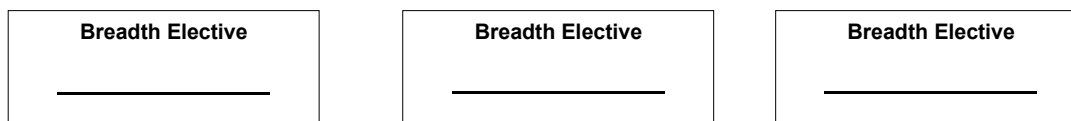


# Computer Science B.A. Degree 2022-2023 Curriculum Chart



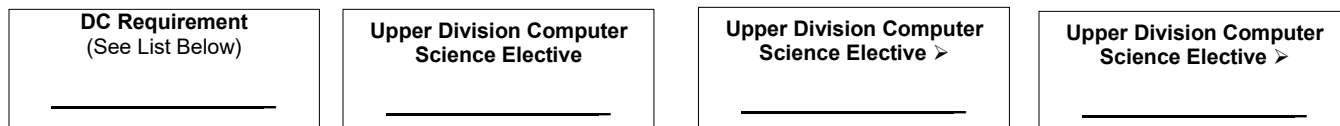
Students must complete **three** courses from this Breadth list:

- |  |                                 |                                     |
|--|---------------------------------|-------------------------------------|
| CSE 102 Introduction to Analysis of Algorithms | CSE 120 Computer Architecture   | CSE 142 Machine Learning            |
| CSE 103 Computational Models                   | CSE 130 Computer Systems Design | CSE 143 Natural Language Processing |
| CSE 110A Compiler Design I                     | CSE 132 Computer Security       | CSE 144 Applied Machine Learning    |
| CSE 112 Comparative Programming Languages      | CSE 138 Distributed Systems     | CSE 160 Computer Graphics           |
| CSE 114A Foundations of Programming Languages  | CSE 140 Artificial Intelligence | CSE 180 Database Systems I          |



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 Science and Engineering
- ☐ 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 CSE Elective or Breadth Elective requirement.**

- ☐ CSE 110B Fundamentals of Compiler Design II
- ☐ CSE 115C Software Design Project III
- ☐ CSE 115D Software Design Project - Accelerated
- ☐ CSE 134 Embedded Operating Systems
- ☐ CSE 138 Distributed Systems
- ☐ CSE 140 Artificial Intelligence
- ☐ CSE 143 Introduction to Natural Language Processing
- ☐ CSE 144 Applied Machine Learning
- ☐ CSE 145 Introduction to Data Mining
- ☐ CSE 156/L Network Programming / Lab
- ☐ CSE 157 Internet of Things
- ☐ CSE 160 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
- ☐ CSE 187 Full Stack Web Development II
- ☐ CMPM 172 Game Design Studio III

**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.

# Computer Science B.A. Degree 2022-2023 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 Baskin Engineering except those numbered 191 through 194 and 196 through 199 and CSE courses numbered 185E, 185S, and 115A. (*AM, CPM, and STAT 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, MathIntensive
- ◆ ECON 100N Intermediate Macroeconomics, MathIntensive
- ◆ 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 Baskin 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-requirements>
- Many graduate courses can also be used to satisfy electives; however, students will need instructor and department approval.
- The Baskin Engineering major declaration process requires an earlier start than the deadline on the UCSC Academic/Administrative calendar. Our deadlines and process can be found on:  
<http://undergrad.soe.ucsc.edu/current-students/declare-your-major>