Computer Science B.S. Degree 2020-2021 Curriculum Chart

*Course has additional prerequisites. Please consult UCSC General Catalog course descriptions.
∞ CSE 13S is recommended for students pursuing a Computer Science major
Ψ CSE 195 can satisfy the DC requirement OR an Upper Division Elective, but NOT both.

The capstone course can count toward 1 of the 4 required upper division electives.

** Many upper division Computer Science courses are restricted to enrollment by declared Computer Science majors during first-pass or priority enrollment.

Capstone Courses Many Capstone course options require additional prerequisites not already required in major requirements. Advance planning is crucial.
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 150/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
CMPSM 372 Game Design Studio III
ECE 118/L Introduction to Mechatronics / Lab

These courses can be used to satisfy Upper Division Electives.

Comprehensive Requirement - Students have two options to fulfill the Computer Science exit requirement:
1. Pass one of the Capstone Courses
2. Successfully complete a Senior Thesis.

Disciplinary Communication Requirement – Students have two options to fulfill the DC requirement:
1. Pass one of the Disciplinary Communication Courses
2. Successfully complete a Senior Thesis

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### Mathematics Electives List

- AM 114 Introduction to Dynamical Systems
- AM 147 Computational Methods and Applications
- 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

**One of the following combinations:**

- [PHYS 5A and PHYS 5B] OR [PHYS 5A and PHYS 5C]
- [PHYS 6A and PHYS 6B] OR [PHYS 6A and PHYS 6C]

- STAT 132 Classical and Bayesian Inference

### Computational Media Electives List

- CMPM 120 Game Development Experience
- CMPM 131 User Experience for Interactive Media
- CMPM 146 Game AI
- CMPM 163 Game Graphics and Real-Time Rendering
- CMPM 164/L Game Engines / Lab
- CMPM 171 Game Design Studio II
- CMPM 172 Game Design Studio III

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- All courses being applied to requirements for the Computer Science major must be taken for a letter grade. Grades of P will not count toward major requirements.
- 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 major qualification courses. The full major qualification requirements for this major can be found at: [https://undergrad.soe.ucsc.edu/major-qualification](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](http://undergrad.soe.ucsc.edu/declare-your-major)

*** Physics courses have co-requisite labs required for enrollment. These associated labs are not part of the Computer Science B.S. major requirements.

Student Name:

Staff Advisor Signature: