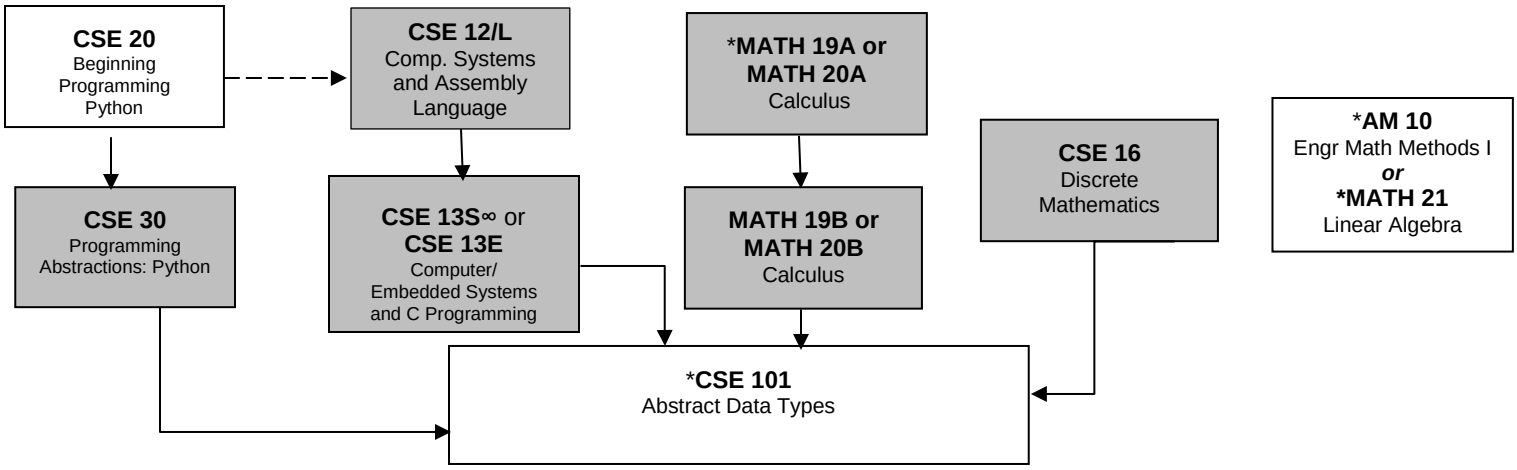
Computer Science B.A. Degree
2019-2020 Curriculum Chart



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

CSE 102 Introduction to Analysis of Algorithms
CSE 103 Computational Models
CSE 110A Compiler Design I
CSE 112 Comparative Programming Languages
CSE 115A Introduction to Software Engineering
CSE 120 Computer Architecture
[One of: CSE 130 Computer Systems Design **OR**
CSE 131 Operating Systems**]**
CSE 132 Computer Security
CSE 138 Distributed Systems
CSE 140 Artificial Intelligence
CSE 142 Machine Learning
CSE 143 Natural Language Processing
CSE 160/L Computer Graphics
CSE 180 Database Systems

Breadth Elective	**Breadth Elective**	**Breadth Elective**
_____	_____	_____

2. Students must complete *four* 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, or CSE 195.

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

Upper Division Computer Science Elective	**Upper Division Computer Science Elective**	**Upper Division Computer Science Elective ➢**	**Upper Division Computer Science Elective ➢**
_____	_____	_____	_____

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. **The DC course can also satisfy an upper division elective.***

CSE 115A Introduction to Software Engineering
*(CSE 115A can satisfy DC **and** Breadth Elective)*
CSE 104 & CSE 104W** Computability and Computational Complexity
CSE 185S Technical Writing and Communication in CS
CSE 195 Senior Thesis
♦ **CSE 185E** Technical Writing for CE

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.

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 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 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

* Check catalog/SOE course descriptions for additional prerequisites.
∞ CSE 13S is recommended for students pursuing a Computer Science major
** In order for these courses to satisfy the DC requirement, the W section must be completed.
♦ CSE 185E enrollment restricted to majors in Computer Engineering, Bioengineering, Bioinformatics, Biomolecular Engineering and Bioinformatics, Robotics Engineering, and Network and Digital Technology

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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, AM and STAT courses strongly recommended.)*
- **Any 5-credit upper division course from the Division of Physical and Biological Sciences** except those numbered 190 and above. *(MATH, PHYS, CHEM and BIOL courses strongly recommended.)*
- **ART 120/121** Intermedia I/II
- **ARTG 118** Digital Drawing/Painting for Game Design
- **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
- **MUSC 123** Electronic Sound Synthesis
- **MUSC 124** Intermediate Electronic Sound Synthesis
- **MUSC 125** Advanced Electronic Sound Synthesis

- **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**

Student Name:

Staff Advisor Signature: