Computer Science B.S. Degree  
2018-2019 Curriculum Chart

**CMPS 13H/L** Intro to Prog. & Data Structures (Honors)

CMPS 12A/L  
Intro to Prog. (Accelerated)

CMPS 11  
Intermediate Programming

CMPS 5J  
Intro to Prog: Java

CMPE 13/L  
Computer Systems and C Programming

CMPS 12B/M  
Data Structures

Students may take CMPS 13H/L in lieu of both CMPS 12A/L and CMPS 12B/M.

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*MATH 19A or 20A  
Calculus

*MATH 19B or 20B  
Calculus

*MATH 23A  
Multivariable Calculus

AMS 10  
Engr Math Methods I

AMS 21  
Linear Algebra

**CMPE 16**  
Discrete Math

**CMPE 12/L**  
Computer Systems & Assembly Language

CMPE 110  
Computer Architecture

CMPS 111  
Operating Systems

CMPS 102  
Analysis of Algorithms

CMPS 112  
Comparative Prog. Languages

CMPS 130  
Computational Models

CMPS 104B  
Fundamentals of Compiler Design II

CMPS 117  
Software Design Project II

CMPS 161/L  
Introduction to Data Visualization

CMPS 162/L  
Advanced Computer Graphics and Animation

CMPS 165  
Data Programming for Visualization

CMPS 181  
Database Systems II

CMPS 183  
Web Applications

CMPS 184  
Data Wrangling and Web Scraping

CMPE 172  
Game Design Studio III

CMPS 107  
Probability and Statistics

AMS 131  
Intro to Probability Theory

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**MATH 23A**  
Multivariable Calculus

MATH 19B or 20B  
Calculus

MATH 19A or 20A  
Calculus

**Upper Division Elective:** 5 credit (or more than 5 credit) upper-division computer science (CMPS) courses with course number 190 or below, or CMPS 195.  
**CMPS 195** can satisfy both the DC and Capstone requirement, and 1 upper division elective.

**Upper Division Electives:** 5 credit (or more than 5 credit) upper-division computer science (CMPS) or computer engineering (CMPE) courses with course number 190 or below, or CMPS 195, or courses from the Computational Media electives on the back of this chart. Up to two of these electives may be replaced by upper-division mathematics electives listed on the back.

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**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
### Computer Science B.S. Degree
#### 2018-2019 Curriculum Chart

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### Mathematics Electives List

- AMS 114 Introduction to Dynamical Systems
- AMS 129 Foundations of Scientific Computing for Scientists and Engineers
- AMS 132 Classical and Bayesian Inference
- AMS 147 Computational Methods and Applications
- MATH 115 Graph Theory
- MATH 116 Combinatorics
- MATH 117 Advanced Linear Algebra
- MATH 134 Cryptography
- 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] OR [PHYS 6A and PHYS 6B] OR [PHYS 6A and PHYS 6C]!

### 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://ua.soe.ucsc.edu/major-qualification](https://ua.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://ua.soe.ucsc.edu/declare-your-major](http://ua.soe.ucsc.edu/declare-your-major)

* Course has additional prerequisites. Please consult UCSC General Catalog course descriptions.
** In order for these courses to satisfy the DC requirement, the W section must be completed.
*** Physics courses have required co-requisite labs
♦ Enrollment restricted to majors in Computer Engineering, Electrical Engineering, Bioengineering, Bioinformatics, Robotics Engineering, or Network and Digital Technology, or by permission of instructor.
Ω Only one course (Math 23A or AMS 10/Math 21 or AMS 131) is required as a pre-requisite for CMPS 101 but all of Math 23A and either AMS 131 or CMPE 107 and either AMS 10 or Math 21 must be taken to fulfill the major requirements

Student Name:

Staff Advisor Signature:

http://undergrad.soe.ucsc.edu • advising@soe.ucsc.edu • (831) 459-5840 • 7/6/2018