

George Mason University
The Volgenau School of Engineering
B.S. Degree in Applied Computer Science, Software Engineering Concentration
4300 Nguyen Engineering, 703-993-1530
<http://cs.gmu.edu/>
2020-2021 Catalog Degree Planner

Degree Requirements

For the BS ACS degree, students must complete 120 credits, including the Mason Core requirements. The program requires foundation, core, and concentration courses as described below. These course requirements provide expertise in programming, computer systems, software requirements and modeling, formal methods, and analysis of algorithms.

Mason Core (31 Credits)

Course Name	Credits:	Term Taken	Grade
Written Communication: ENGH 101/100 & 302 (Natural Sciences)	Credits: 6		
Literature	Credits: 3		
Arts	Credits: 3		
Western Civilization/World History: HIST 100 or 125	Credits: 3		
Social and Behavioral Science	Credits: 3		
Global Understanding	Credits: 3		
Natural Science	Credits: 7		
COMM 100/101 – Oral Communication	Credits: 3		

ACS Foundation Courses (24 Credits)

CS 110 - Essentials of Computer Science	Credits: 3		
CS 112 - Introduction to Computer Programming	Credits: 4		
CS 211 - Object-Oriented Programming	Credits: 3		
MATH 113 - Analytic Geometry and Calculus I	Credits: 4		
MATH 114 - Analytic Geometry and Calculus II	Credits: 4		
MATH 125 - Discrete Mathematics I	Credits: 3		
MATH 203 - Linear Algebra	Credits: 3		

ACS Core (25 credits)

CS 262 - Introduction to Low-Level Programming	Credits: 3		
CS 310 - Data Structures	Credits: 3		
CS 321 - Software Engineering	Credits: 3		
CS 330 - Formal Methods and Models	Credits: 3		
CS 367 - Computer Systems and Programming	Credits: 4		
CS 471 - Operating Systems	Credits: 3		
CS 483 - Analysis of Algorithms	Credits: 3		
ACS elective (3 credits): One CS course numbered above 400, except CS 498	Credits: 3		

▲ Concentration in Software Engineering (SWE)			
Foundation (6 credits)			
Course Name	Credits:	Term Taken	Grade
STAT 344 - Probability and Statistics for Engineers and Scientists I	Credits: 3		
CS 306 - Synthesis of Ethics and Law for the Computing Professional	Credits: 3		
Core (10 credits)			
SWE 205 - Software Usability Analysis and Design	Credits: 3		
SWE 301 - Internship Preparation	Credits: 0		
SWE 401 - Internship Reflection	Credits: 1		
SWE/CS 332 - Object-Oriented Software Design and Implementation	Credits: 3		
SWE 437 - Software Testing and Maintenance	Credits: 3		

SWE related (15 credits) chosen from:			
CS 450 - Database Concepts	Credits: 3		
CS 455 - Computer Communications and Networking	Credits: 3		
CS 463 - Comparative Programming Languages	Credits: 3		
CS 465 - Computer Systems Architecture	Credits: 3		
CS 468 - Secure Programming and Systems	Credits: 3		
CS 475 - Concurrent and Distributed Systems	Credits: 3		
CS 477 Mobile Application Development	Credits: 3		
SWE 432 - Web Application Development	Credits: 3		
SWE 443 - Software Architectures	Credits: 3		
CS 491 - Industry-Sponsored Senior Design Project (Full Year)	Credits: 6		

Cross-disciplinary (6 credits)			
ENGH 388 - Professional and Technical Writing	Credits: 3		
PSYC 333 - Industrial and Organizational Psychology OR COMM 320 - Business and Professional Communication OR COMM 335 - Organizational Communication	Credits: 3		

Electives (3 credits)			
Total: 120 credits (with 45+ Upper Division)			

Note: MATH 104, MATH 105, and MATH 108 cannot be counted toward this degree.

Grades: Students must earn a C or better in any course intended to satisfy a prerequisite for a computer science course. Computer science majors may not use more than one course with grade of C- or D toward department requirements.

Repeating Courses: A third attempt at a VSE course requires approval of the department offering the course (except STAT 250). The CS Department may prohibit retaking CS courses solely to improve GPA beyond a C grade.

Termination from the Major: No math, science, or VSE course, required for the major, may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in VSE who do not successfully complete a course required for a VSE major within three attempts will also be terminated. For more information, see the "Termination from the Major" section under AP.5 Undergraduate Policies. Students who have been terminated from a VSE major may not register for a VSE course without permission of the department offering the course. This applies to all undergraduate courses offered by VSE except IT 104 and STAT 250.

Writing-Intensive Requirement: Computer science majors complete the writing-intensive requirement through a sequence of projects and reports in CS 306 (C or better required) and CS 321. Faculty members provide feedback on students' expository writing.

CS Honors Program The Department offers a CS Honors Program for students with strong computational foundations and the drive to delve deeper into computing. It is based on the Bachelor of Science in computer science and applied computer science curriculum and is distinct from the University Honors College curriculum. Please talk to a CS Advisor for more information.