BACHELOR OF SCIENCE WITH A MAJOR IN COMPUTER SCIENCE (STEM)

The bachelor of science (BS) program in computer science provides general education, strength in mathematics and science, communication, and an in-depth program in computer science, including an 8-credit senior design project that closely models "industrial-strength" project development.

As part of a residency requirement, all BS in computer science majors must take a minimum of 30 upper-level credits in computer science at GW. These credits include courses that students might take in an approved study abroad program.

Detailed information concerning the program curriculum is available in this Bulletin, which is the definitive statement of degree requirements and is updated to reflect and archive (http://bulletin.gwu.edu/archives/) the requirements for each entering class.

Double major

SEAS and non-SEAS students interested in pursuing the BS in computer science as a double major should see Double Major under SEAS Regulations (http://bulletin.gwu.edu/engineering-applied-science/#seasregulationstext) in this Bulletin.

This is a STEM designated program.

Visit the program website (https://www.cs.seas.gwu.edu/bachelor-science-program/) for additional information.

ADMISSIONS

For more information on the admission process, please visit the Office of Undergraduate Admissions website. Applications may be submitted via the Common Application.

Supporting documents not submitted online should be mailed to:
Office of Undergraduate Admissions
The George Washington University
800 21st Street NW, Suite 100
Washington DC 20052

Contact for questions:
gwadm@gwu.edu or 202-994-6040

REQUIREMENTS

Residency requirement—As part of a residency requirement, all BS computer science majors, whether majors within SEAS or secondary majors in another school, must take a minimum of 30 upper-level credits in computer science courses at GW. Should a student pursue an approved study abroad program, credits earned in that program count toward this requirement.

Recommended program of study

Code	Title	Credits
First semester		**15**
UW 1020	University Writing [1]	4
CSCI 1010	Computer Science Orientation	1
CSCI 1111	Introduction to Software Development	3
SEAS 1001	Engineering Orientation	1
Mathematics requirement [3]		3
Humanities, social science, or non-technical elective [2]		3
Second semester		**16**
CSCI 1112	Algorithms and Data Structures	3
CSCI 1311	Discrete Structures I	3
Mathematics requirement [3]		3
Science requirement [4]		4
Humanities, social science, or non-technical elective [2]		3
Third semester		**16**
CSCI 2113	Software Engineering	3
CSCI 2312	Discrete Structures II	3
CSCI 2410	System Programming	3
Science requirement [4]		4
Humanities, social science, or non-technical elective [2]		3
Fourth semester		**15**
CSCI 2541W	Database Systems and Team Projects	3
CSCI 3313	Foundations of Computing	3
CSCI 3401	Computer Architecture and Organization	3
Policy and Ethics requirement [5]		3
Statistics or linear algebra requirement [6]		3
Fifth semester		**14**
CSCI 3212	Algorithms	4
CSCI 3411	Operating Systems	4
CS technical elective [7]		3
Humanities, social science, or non-technical elective [2]		3
Sixth semester		**15**

CS technical elective [7]	3
Statistics or linear algebra requirement [6]	3
Humanities, social science, or non-technical elective [2]	3
General elective [8]	3
General elective [8]	3
Seventh semester	**16**
CSCI 4243W — Capstone Design Project I	4
CS technical elective [7]	3
Humanities, social science, or non-technical elective [2]	3
General elective [8]	3
General elective [8]	3
Eighth semester	**16**
CSCI 4244 — Capstone Design Project II	4
General elective [8]	3
General elective [8]	3
General elective [8]	3
General elective [8]	3

[1] Course satisfies the University General Education Requirement (http://bulletin.gwu.edu/university-regulations/general-education/) in mathematics, science, or writing. UW 1020 must be completed prior to enrolling in any writing course in the major, including CSCI 2441W and CSCI 2541W.

[2] Humanities, social science, and non-technical elective requirements: All BS in computer science students must take one humanities course and two social science courses from the University General Education Course List (https://bulletin.gwu.edu/university-regulations/general-education/) and three additional humanities, social science, and/or non-technical courses from the SEAS Humanities, Social Science, and Non-Technical Elective Requirement list (https://engineering.gwu.edu/humanities-and-social-science-requirement/). All courses selected to satisfy this requirement must be at least 3 credits and approved by the faculty advisor.

[3] Mathematics requirement: Can be met by taking MATH 1220 and MATH 1221 and MATH 1232 or by taking MATH 1231 and MATH 1232. All students must take two MATH courses not counting MATH 1220; students who take MATH 1220 must take it one of their general electives.

[4] Science requirement: Can be met by choosing two courses from BISC 1111, BISC 1112, CHEM 1111, CHEM 1112, PHYS 1021, or PHYS 1022.

[5] Policy and Ethics Requirement: Can be met by taking one of the following: CSCI 2211, PHIL 2135, ANTH 3625, or CSCI 3532.

[6] Statistics or linear algebra requirement: Students must take both a statistics class, and a linear algebra class. The Statistics requirement can be met by choosing from APSC 3115, CSCI 3362, CSCI 6362, CSCI 4341, or STAT 4157. The Linear algebra requirement can be met by taking one of the following: MATH 2184, MATH 2185, CSCI 4342, or EMSE 2705.

[7] Computer science technical elective requirement: All students in the BS in computer science program are required to take three technical courses (for a minimum of 9 credits) of computer science coursework. All courses must be numbered CSCI 4000 and above.

[8] General elective requirement: All students in the BS in computer science are required to complete 24 credits of general elective courses. All courses transferred to the University as Advanced Placement (AP) credit must have the explicit, documented approval from the faculty adviser. Both technical and non-technical courses from across the university can be taken to meet these requirements, however, they must meet the following guidelines:

1. Classes that provide any number of credits are allowed, and they can be combined toward the minimum of 24 credits. Note that LSPA classes (https://publichealth.gwu.edu/departments/exercise-and-nutrition-sciences/lifestyle-sport-and-physical-activity-courses-lspa/) cannot count toward SEAS degree requirements.
2. Variable Topics (typically 1099) and Special Topics courses outside of Computer Science require advisor approval. Credit cannot be given for internships.
3. Only a single Research class (e.g. CSCI 3908) for up to three credits can be taken a semester.
4. Courses from other departments that significantly overlap with, or are not as advanced as, the required content for the computer science degree program do not count toward this requirement. Such courses include, but are not limited to, basic programming classes and the following: BADM 2301 (http://bulletin.gwu.edu/search/?P=BADM+2301), EMSE 4197 (http://bulletin.gwu.edu/search/?P=EMSE+4197), ISTM 3119 (http://bulletin.gwu.edu/search/?P=ISTM+3119), ISTM 4120 (http://bulletin.gwu.edu/search/?P=ISTM+4120), ISTM 4121 (http://bulletin.gwu.edu/search/?P=ISTM+4121), ISTM 4123 (http://bulletin.gwu.edu/search/?P=ISTM+4123), STAT 1051 (http://bulletin.gwu.edu/search/?P=STAT+1051), STAT 1053 (http://bulletin.gwu.edu/search/?P=STAT+1053), STAT 1129 (http://bulletin.gwu.edu/search/?P=STAT+1129), and classes from the PSIS and PSCS programs.
5. CSCI courses numbered below 3000 may not count toward this requirement. Exceptions may be granted for students

who took such courses prior to transferring into a CS BS degree program.

6. Students taking MATH 1220 (https://bulletin.gwu.edu/search/?P=MATH%201220) as a prerequisite for MATH 1221 (https://bulletin.gwu.edu/search/?P=MATH%201221) may count MATH 1220 (https://bulletin.gwu.edu/search/?P=MATH%201220) as a General Elective.

7. SEAS has the following requirements for foreign language courses taken to meet general electives, humanities, or social sciences requirements:
     - The foreign language studied may not be a native language of the student unless the courses taken are literature courses.
     - If a student has studied the language previously, the student must first take a placement test given by the language department and enroll in a course recommended by the respective language department.

COMBINED PROGRAMS

Combined programs

- Dual Bachelor of Science with a major in computer science and Master of Science in the field of computer science (http://bulletin.gwu.edu/engineering-applied-science/computer-science/combined-bs-ms-computer-science/)
- Dual Bachelor of Science with a major in computer science and Master of Science in the field of cybersecurity in computer science (http://bulletin.gwu.edu/engineering-applied-science/computer-science/combined-bs-ms-cybersecurity/)
- Dual SEAS Bachelor of Science majors and Master of Science in the field of computer science (http://bulletin.gwu.edu/engineering-applied-science/computer-science/combined-seas-bs-ms-computer-science/)
- Dual SEAS Bachelor of Science majors and Master of Science in the field of cybersecurity in computer science (http://bulletin.gwu.edu/engineering-applied-science/computer-science/combined-seas-bs-ms-cybersecurity/)