BACHELOR OF SCIENCE WITH A MAJOR IN COMPUTER SCIENCE

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 (https://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 (https://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 1311	Discrete Structures I	3
CSCI 1112	Algorithms and Data Structures	3
Mathematics requirement [3]		3
Science requirement [4]		4
Humanities, social science, or non-technical elective [2]		3
Third semester		**16**
CSCI 2312	Discrete Structures II	3
CSCI 2410	System Programming	3
CSCI 2113	Software Engineering	3
Science requirement [4]		4
Humanities, social science, or non-technical elective [2]		3
Fourth semester		**15**
CSCI 3401	Computer Architecture and Organization	3
CSCI 2541W	Database Systems and Team Projects	3
CSCI 3313	Foundations of Computing	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		3
Humanities, social science, or non-technical elective [2]		3
Sixth semester		**15**

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

[1]Course satisfies the University General Education Requirement (https://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 Columbian College General Education Curriculum (G-PAC) (https://advising.columbian.gwu.edu/gpac-course-list/) and three additional humanities, social science, and/or non-technical courses from the SEAS Humanities, Social Science, and Non-Technical Elective Requirement list (https://www.seas.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 as 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.

Computer science technical electives

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.

General electives

All students in the BS in computer science are required to complete eight general elective courses (a minimum of 3 credits each for a minimum total of 24 credits). All courses used to fulfill this requirement must have the explicit, documented approval from the faculty adviser, even when such courses are required for a minor or have transferred to the University as Advanced Placement (AP) credit. Guidance concerning general electives is available on the Department of Computer Science website (https://www.cs.seas.gwu.edu/).

The following guidelines and/or restrictions apply to selecting courses to satisfy this requirement:

1. Additional CSCI courses numbered above 2461 may count toward this requirement. Students may take a maximum of two research and independent study courses, each requiring advisor approval, for which the student must provide documentation of output, such as papers, presentations, or software. See the department website for more information on research and independent study courses. For courses from other departments, the student must obtain the approval of the faculty advisor.

2. Approved courses from the SEAS Humanities, Social Science, and Non-Technical Electives (https://www.seas.gwu.edu/humanities-and-social-science-requirement/) list may count toward this requirement.

3. Computer science courses taught by another department generally do not count toward this requirement. Courses 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, the following: BADM 2301, EMSE 4197, ISTM 3119, ISTM 4120, ISTM 4121, ISTM 4123, STAT 1051, STAT 1053, and STAT 1129.

4. Courses that significantly overlap with any other course(s) used towards the computer science degree, regardless of the department(s) in which they are taken, may not count toward this requirement.

5. Because of content overlap among courses in general, some courses may be approved for one student and not for another, based on other courses the student has taken. For example, if a student uses PHYS 1021 towards either the science requirement or General Elective requirement, PHYS 1011 may not be used to fulfill this requirement, but PHYS 1011 would count for a student who has not taken PHYS 1021.

COMBINED PROGRAMS

Combined programs

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