

# BACHELOR OF ARTS WITH A MAJOR IN COMPUTER SCIENCE

The bachelor of arts (BA) program in computer science is designed for students who wish to combine computer science with a second major or with a set of secondary fields (minors), typically in natural science, liberal arts, or business. The program provides a foundation in computer science, along with lots of room in the curriculum to select courses in other disciplines. Students are required to elect a second major or two secondary fields. As part of a residency requirement, all computer science majors must take a minimum of 30 credits in computer science at GW. These credits include courses that might be taken as part of an approved study abroad program.

For those who want to combine core skills in computer science with another major, the BA program is the right choice. The BS in computer science program may be more appropriate for students who wish to have more depth and focus in computer science.

Students in the bachelor of arts program work with their advisors to select a technical track. Detailed information on the curriculum, elective courses, and the technical track is available in the University Bulletin (<http://bulletin.gwu.edu/engineering-applied-science/computer-science/ba/#requirements>) which is the definitive statement of degree requirements and is updated to reflect and archive (<http://bulletin.gwu.edu/engineering-applied-science/computer-science/ba/bulletin.gwu.edu/archives/>) the requirements for each entering class.

Visit the program website (<http://bulletin.gwu.edu/engineering-applied-science/computer-science/ba/cs.seas.gwu.edu/bachelor-arts-program/>) for more 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](mailto:gwadm@gwu.edu) or 202-994-6040

## REQUIREMENTS

**Residency requirement**—As part of a residency requirement, all computer science majors within SEAS must take a minimum of 30 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. For students in another school who have declared a second major in computer science, at least 24 credits in computer science courses must be completed in SEAS.

**Second major or two minors requirement**—All BA in computer science majors are required to declare and complete either a second major or two minors in another academic department.

### Recommended program of study

Code	Title	Credits
<b>First semester</b>		<b>15</b>
CSCI 1010	Computer Science Orientation	1
CSCI 1111	Introduction to Software Development	3
SEAS 1001	Engineering Orientation	1
UW 1020	University Writing <sup>1</sup>	4
Mathematics requirement <sup>1</sup>		3
Social sciences elective <sup>2</sup>		3
<b>Second semester</b>		<b>15</b>
CSCI 1112	Algorithms and Data Structures	3
CSCI 1311	Discrete Structures I	3
Mathematics requirement <sup>1</sup>		3
Natural or physical sciences with a lab elective <sup>1</sup>		3
Social sciences elective <sup>2</sup>		3
<b>Third semester</b>		<b>15</b>
CSCI 2113	Software Engineering	3
Humanities elective <sup>2</sup>		3
Natural or physical sciences with a lab elective <sup>1</sup>		3
Second major or minor elective		3
Statistics requirement <sup>3</sup>		3
<b>Fourth semester</b>		<b>15</b>
CSCI 2441W	Database Systems and Team Projects	3
CSCI 2460	Introduction to Computer Systems	3
Humanities elective <sup>2</sup>		3
Natural or physical sciences with a lab elective <sup>1</sup>		3
Unrestricted elective <sup>4</sup>		3

<b>Fifth semester</b>	<b>15</b>
One of the following computer science restricted electives:	3
CSCI 3212      Algorithms	4
CSCI 3313      Foundations of Computing	3
CSCI 3410      Systems Programming	3
CSCI 3411      Operating Systems	4
Arts elective	3
Three second major or minor electives (3 credits each)	9
<b>Sixth semester</b>	<b>15</b>
CS technical track elective <sup>5</sup>	3
Global or cross-cultural elective <sup>2</sup>	3
Humanities elective <sup>2</sup>	3
Two second major or minor electives (3 credits each)	6
<b>Seventh semester</b>	<b>15</b>
One of the following computer science restricted electives other than that already taken in the fifth semester:	3
CSCI 3212      Algorithms	4
CSCI 3313      Foundations of Computing	3
CSCI 3410      Systems Programming	3
CSCI 3411      Operating Systems	4
CS technical track elective <sup>5</sup>	3
Global or cross-cultural elective <sup>2</sup>	3
Two second major or minor electives (3 credits each)	6
<b>Eighth semester</b>	<b>15</b>
CS technical track elective <sup>5</sup>	3
Humanities elective <sup>2</sup>	3
Unrestricted elective <sup>4</sup>	3
Two second major or minor electives (3 credits each)	6
Significant independent project <sup>6</sup>	

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

can be met by taking MATH 1220 and MATH 1221 or MATH 1231 and MATH 1232.

<sup>2</sup>This course should be selected from the Columbian College General Education Curriculum (G-PAC) (<https://advising.columbian.gwu.edu/general-education-curriculum/>). From the G-PAC webpage, select the corresponding types of classes. For example, choose “G-PAC: Global or Cross-cultural” to find the courses that satisfy the “Global and cross-cultural elective”. Two of the natural or physical sciences with lab electives must have a laboratory section.

<sup>3</sup>Statistics requirement—The statistics requirement can be satisfied by completing one of the following courses: APSC 3115, CSCI 3362 or CSCI 6362, CSCI 4341, STAT 1051, or STAT 1053. See note (\*) below.

<sup>4</sup>Unrestricted electives—All students in the BA in computer science program are required to complete two unrestricted elective courses. All courses used to fulfill this requirement must have the explicit, documented approval from the faculty advisor, even when such courses are required for a minor or have transferred to the University as Advanced Placement (AP) credit. Guidance for unrestricted 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, for which the student must provide documentation of output, such as papers, presentations, or software. For courses from other departments, the student must obtain the approval of the faculty advisor.
2. Approved courses from the SEAS Humanities and Social Science Electives lists may count toward this requirement.
3. Approved courses listed in non-technical track lists may count toward this requirement. However, such courses cannot count toward both the non-technical track requirement and as an unrestricted elective.
4. 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.
5. Courses that significantly overlap with any other course(s) used toward the computer science degree, regardless of the department(s) in which they are taken, may not count toward this requirement.

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 toward either the science, math/science, or unrestricted electives 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.

<sup>5</sup>Technical Track Requirement. All students in the BA in computer science program are required to take three technical courses (for a minimum of 9 credits) of computer science coursework for their technical track. These courses must have CSCI 2113 as a prerequisite or within their prerequisite chain. The faculty advisor's documented approval is required before these courses may be applied towards degree completion.

<sup>6</sup>Significant Independent Project. Students pursuing a second major must complete a significant independent project. This requires completion of either (1) a course in the second major that includes a thesis or significant project, or (2) completion of CSCI 4243 and CSCI 4244 . The student's selection is subject to approval of the advisor.

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\*This requirement was labeled and detailed incorrectly as "Statistics or linear algebra requirement," when this Bulletin was published in fall 2020. The corrected version, "Statistics requirement," above, replaces the version published in error.

The version published in error was "Statistics or linear algebra requirement--The statistics requirement can be met by choosing APSC 3115, CSCI 3362, CSCI 6362, CSCI 4341, or STAT 4157. The linear algebra requirement can be met by taking one of MATH 2184, CSCI 4342, or EMSE 2705. Students who were admitted prior to fall 2014 may count STAT 1051 and STAT 1053 toward the statistics requirement, if they took the course prior to the spring 2015 semester. Students doing a premedical concentration may substitute the linear algebra requirement with a science course required by the premedical requirements."

## COMBINED PROGRAM

- Dual Bachelor of Arts 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-ba-ms-computer-science/>)
- Dual Bachelor of Arts 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-ba-ms-cybersecurity/>)