BACHELOR OF ARTS WITH A MAJOR IN COMPUTER SCIENCE

Bachelor of Arts Degree Program
The bachelor of arts with a major in computer science degree program provides a broad-based liberal arts curriculum for students who wish to augment technical knowledge with humanities, social sciences, business, communication, or management skills. Foundation courses focus on mathematics, science, software design and programming, computer systems and architecture, and algorithm design. Additional breadth or depth is afforded by selection of technical track courses that build on the foundations to provide in-depth exposure to a specific field in computer science. The program is designed for those with interests in two or more disciplines; students complete a second major or two minors in another academic department.

The minimum number of credits required for the BA with a major in computer science is 121; the credit total depends on the second major or minors chosen by the student. Students interested in pursuing a computer science major with preparation for application to medical school can also choose the medical preparation option. Students select a technical track in which at least three technical track elective courses are selected in consultation with the advisor.

Additional information about the Bachelor of Arts with a major in computer science is available on the program website (http://www.cs.seas.gwu.edu/bachelor-arts-program).

Second Major in Computer Science
Students who are not enrolled in the School of Engineering and Applied Science (SEAS), who are enrolled in a bachelor of arts program and wish to declare a second major in computer science, must apply and be admitted to the computer science program.

Criteria for admission
To be considered for admission to the second major in computer science, a student must satisfy the following criteria:
• Complete CSCI 1111 Introduction to Software Development or CSCI 1011 Introduction to Programming with Java or CSCI 1121 Introduction to C Programming with a minimum grade of B or CSCI 1112 Algorithms and Data Structures with a minimum grade of B; and complete MATH 1220 Calculus with Precalculus I and MATH 1221 Calculus with Precalculus II, or MATH 1231 Single-Variable Calculus I, with a minimum grade of B–.
• A minimum overall grade-point average of 3.0 at the time of application to the major.

Application Deadline
The application is due no later than the start of the 5th semester of study at GW or completion of the 60th credit, whichever comes first. Contact the School of Engineering and Applied Science Undergraduate Advising Office (https://www.seas.gwu.edu/academic-advising) for specific application deadlines.

Credits in residence requirement
• For a second major, at least 24 credits in computer science courses must be completed in SEAS.

Graduation grade-point average criteria
• To satisfactorily complete a second major in computer science, a student must have a minimum grade-point average of 2.2 in all the computer science courses. See the department website (http://www.seas.gwu.edu/department-computer-science) for more information about curriculum requirements for the second major in computer science.

REQUIREMENTS

Residency Requirement
As part of a residency requirement, all computer science majors 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 a second major, at least 24 credits in computer science courses must be completed in SEAS.

Recommended program of study

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First semester</td>
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<tr>
<td>CSCI 1010</td>
<td>Computer Science Orientation</td>
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<tr>
<td>CSCI 1111</td>
<td>Introduction to Software Development</td>
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<td>SEAS 1001</td>
<td>Engineering Orientation</td>
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<td>UW 1020</td>
<td>University Writing *</td>
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<td>Math requirement *</td>
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<tr>
<td>Social and behavioral sciences elective **</td>
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<tr>
<td>Second semester</td>
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<tr>
<td>CSCI 1112</td>
<td>Algorithms and Data Structures</td>
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<tr>
<td>CSCI 1311</td>
<td>Discrete Structures I</td>
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<tr>
<td>Math requirement *</td>
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<tr>
<td>Science requirement *</td>
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<tr>
<td>Social and behavioral sciences elective **</td>
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<tr>
<td>Third semester</td>
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<tr>
<td>CSCI 2113</td>
<td>Software Engineering</td>
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<td>CSCI 2461</td>
<td>Computer Architecture I</td>
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Science requirement *

Humanities elective **

One of the following to fulfill the statistics requirement:

- APSC 3115 Engineering Analysis III
- CSCI 3362 Probability for Computer Science
- CSCI 4341 Continuous Algorithms
- STAT 1051 Introduction to Business and Economic Statistics
- STAT 1053 Introduction to Statistics in Social Science

**Fourth semester**

- CSCI 2501 Ethical Issues in Computing
- CSCI 2541W Database Systems and Team Projects
- Humanities elective **
- Second major elective
- Science requirement *
- Unrestricted elective

**Fifth semester**

One of the following Computer Science restricted electives:

- CSCI 3212 Algorithms
- CSCI 3313 Foundations of Computing
- CSCI 3410 Systems Programming
- CSCI 3411 Operating Systems
- CSCI 4223 Principles of Programming Languages

Creative arts elective

Three Second Major Elective Courses (3 or more credits each)

**Sixth semester**

- Technical track elective
- Humanities elective **
- Foreign languages and culture elective

Three Second Major Elective Courses (3 or more credits each)

**Seventh semester**

One of the following Computer Science restricted electives:

(if not taken above)

- CSCI 3212 Algorithms
- CSCI 3313 Foundations of Computing
- CSCI 3410 Systems Programming
- CSCI 3411 Operating Systems
- CSCI 4223 Principles of Programming Languages

Technical track elective

Foreign languages and culture elective

Two Second Major Elective Courses (3 or more credits each)

**Eighth semester**

- Technical track elective
- Humanities elective **
- Unrestricted elective

Two Second Major Elective Courses (3 or more credits each)

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

**At least two social and behavioral sciences courses must be selected from the University General Education Requirement list (http://bulletin.gwu.edu/university-regulations/general-education); the remaining course must be selected from either the University General Education Requirement list or the SEAS General Education Requirement list (http://www.seas.gwu.edu/sites/www.seas.gwu.edu/files/downloads/HSS%20Form%20Fall%202015%20Admits%201_0.pdf).

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. The computer science courses selected must have a common theme and must have CSCI 2113 as a prerequisite or within the prerequisite chain. The faculty advisor’s documented approval is required before these courses may be applied toward degree completion. The Department of Computer Science website lists choices for the technical track in more detail.