

# COMPUTER SCIENCE - ASSOCIATE OF SCIENCE DEGREE (AS)

Explore More About This Program: <https://cwi.edu/program/computer-science>

## Degree Quick Facts

- **Instructional School:** Science, Technology, and Math
- **Department:** Computer Science and Information Technology
- **Program Code:** CPSC.AS
- **Program Type:** Academic Transfer
- **Available Fully Online:** No
- **Eligible for Federal Financial Aid:** Yes

NOTE: Courses required for this program *may* have an additional fee; more information can be found on the [Special Course Fees](#) web page.

## Degree Requirements

Course	Course Title	Min Credits
<b>General Education Requirements <sup>1</sup></b>		
CWI 101	Connecting With Ideas	3
<u>Global Perspectives course</u>		3
ENGL 101	Writing and Rhetoric I (GEM 1)	3
ENGL 102	Writing and Rhetoric II (GEM 1)	3
COMM 101	Fundamentals of Oral Communication (GEM 2)	3
or COMM 112	Argumentation and Debate	
MATH 147	College Algebra and Trigonometry (GEM 3) <sup>2,3</sup>	5
or MATH 170	Calculus I	
PHYS 211	Physics for Scientists and Engineers I (GEM 4)	4
PHYS 211L	Physics for Scientists and Engineers I Lab (GEM 4)	1
<u>GEM 4 - Scientific Ways of Knowing course</u> <sup>4</sup>		3-4
<u>GEM 5 - Humanistic &amp; Artistic Ways of Knowing course</u>		3
<u>GEM 5 - Humanistic &amp; Artistic Ways of Knowing course</u> <sup>4</sup>		3
<u>GEM 6 - Social &amp; Behavioral Ways of Knowing course</u>		3
<u>GEM 6 - Social &amp; Behavioral Ways of Knowing course</u> <sup>4</sup>		3
<b>Major Requirements</b>		
CPSC 121	Computer Science I <sup>5</sup>	4
CPSC 221	Computer Science II	3
ENGR 290	Engineering Capstone	2
MATH 170	Calculus I <sup>3</sup>	5
Select 5-11 credits from the Major Electives course list below to bring the total credits earned to 60 <sup>6</sup>		5-11
<b>Minimum Credit Hours Required</b>		<b>60</b>

<sup>1</sup> Students must select an "E" designated course to fulfill one of their general education requirements.

<sup>2</sup> In order to graduate, Computer Science majors are required to complete MATH 170 Calculus I. If students do not have high enough ACT, SAT, or CWI Math Diagnostic exam scores to place directly into MATH 170, they will need to complete MATH 147 College Algebra and Trigonometry in their first semester to fulfill their GEM 3 requirement and the prerequisite requirement for MATH 170.

<sup>3</sup> MATH 170 Calculus I cannot count as both GEM 3 and a Major Requirement. If students completed MATH 170 to fulfill their GEM 3 requirement, they need to take five (5) additional elective credits from the Major Electives course list to get to a total of 60 credits for the degree.

<sup>4</sup> Course must come from a different discipline.

<sup>5</sup> Includes an integrated lab component.

<sup>6</sup> Review transfer institution requirements (if known) to help select the most beneficial elective course(s) from the Major Electives list below.

## Computer Science: Major Electives

Course	Course Title	Min Credits
CHEM 101	Introduction to Chemistry	3
CHEM 101L	Introduction to Chemistry Lab	1
CHEM 111	General Chemistry I	3

CHEM 111L	General Chemistry I Lab	1
CPSC 111	Introduction to Python Programming	3
ENGL 202	Technical Communication	3
MATH 175	Calculus II	4
MATH 176	Discrete Mathematics	4
MATH 230	Introduction to Linear Algebra	3
MATH 275	Calculus III	4
MATH 285	Differential Equations with Matrix Theory	4
PHYS 212	Physics for Scientists and Engineers II	4
PHYS 212L	Physics for Scientists and Engineers II Lab	1

## Degree Plan

*The course sequence listed below is strongly recommended in order to complete your program requirements. Please register for each semester as shown using the Student Planning tool in myCWI. Plans may be modified to fit the needs of part-time students by adding additional semesters. Consult your advisor for any questions regarding this course sequence plan.*

### First Year

		Credit Hours
<b>Fall</b>		
CWI 101	Connecting With Ideas	3
ENGL 101	Writing and Rhetoric I (GEM 1)	3
MATH 147 or MATH 170	College Algebra and Trigonometry (GEM 3) <sup>1,2</sup> or Calculus I	5
GEM 4 - Scientific Ways of Knowing course <sup>3</sup>		3-4
<b>Total Semester Credit Hours</b>		<b>14</b>

<b>Spring</b>		
COMM 101 or COMM 112	Fundamentals of Oral Communication (GEM 2) or Argumentation and Debate	3
ENGL 102	Writing and Rhetoric II (GEM 1)	3
MATH 170	Calculus I <sup>2</sup>	5
GEM 5 - Humanistic & Artistic Ways of Knowing course		3
GEM 6 - Social & Behavioral Ways of Knowing course		3
<b>Total Semester Credit Hours</b>		<b>17</b>

### Second Year

<b>Fall</b>		
CPSC 121	Computer Science I <sup>4</sup>	4
PHYS 211	Physics for Scientists and Engineers I (GEM 4)	4
PHYS 211L	Physics for Scientists and Engineers I Lab (GEM 4)	1
GEM 5 - Humanistic & Artistic Ways of Knowing course <sup>3</sup>		3
GEM 6 - Social & Behavioral Ways of Knowing course <sup>3</sup>		3
<b>Total Semester Credit Hours</b>		<b>15</b>
<b>Spring</b>		
CPSC 221	Computer Science II	3
ENGR 290	Engineering Capstone	2
Global Perspectives course		3
Major Electives	Select 0-8 elective credits from the list below to bring the total credits earned to 60 <sup>5</sup>	0-8
<b>Total Semester Credit Hours</b>		<b>14</b>
<b>Minimum Credit Hours Required</b>		<b>60</b>

**\*Students must select an "E" designated (Ethical Reasoning) course to fulfill one of their General Education requirements.\***

<sup>1</sup> In order to graduate, Computer Science majors are required to complete MATH 170 Calculus I. If students do not have high enough ACT, SAT, or CWI Math Diagnostic exam scores to place directly into MATH 170, they will need to complete MATH 147 College Algebra and Trigonometry in their first semester to fulfill their GEM 3 requirement and the prerequisite requirement for MATH 170.

- <sup>2</sup> If students completed MATH 170 Calculus I to fulfill their GEM 3 requirement, they should complete 3-5 credits of coursework from the Major Electives course list during their second semester instead.
- <sup>3</sup> Course must come from a different discipline.
- <sup>4</sup> Includes an integrated lab component.
- <sup>5</sup> Students should work with their intended transfer institution to determine the most beneficial elective course(s) from the Major Electives list below.

## Computer Science: Major Electives

Course	Course Title	Min Credits
CHEM 101	Introduction to Chemistry	3
CHEM 101L	Introduction to Chemistry Lab	1
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Lab	1
CPSC 111	Introduction to Python Programming	3
ENGL 202	Technical Communication	3
MATH 175	Calculus II	4
MATH 176	Discrete Mathematics	4
MATH 230	Introduction to Linear Algebra	3
MATH 275	Calculus III	4
MATH 285	Differential Equations with Matrix Theory	4
PHYS 212	Physics for Scientists and Engineers II	4
PHYS 212L	Physics for Scientists and Engineers II Lab	1

## Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Understand the fundamentals of computer science.
- Apply fundamental principles and methods of computer science to a wide range of applications.
- Apply mathematical and scientific reasoning to a variety of computational problems.
- Design, correctly implement, and document solutions to significant computational problems.
- Develop proficiency in the practice of computing.
- Formulate solutions to computing problems.
- Analyze and compare alternative solutions to computing problems.
- Design and implement software systems that meet specified design and performance requirements.
- Apply algorithmic and mathematical concepts to the design and analysis of software.
- Apply sound principles to the synthesis and analysis of computer systems.
- Prepare for continued professional development.
- Work effectively in teams to design and implement solutions to computational problems.
- Communicate effectively, both orally and in writing.
- Think critically and creatively, both independently and with others.
- Recognize the social and ethical responsibilities of a professional working in computer science.
- Adapt to new developments in the field of computer science.