

# COMPUTER SCIENCE MAJOR (BS)

Department website (<https://www.uwp.edu/learn/programs/computersciencemajor.cfm>)

College: College of Business, Economics, and Computing

## Program Learning Outcomes

1. Reasoned Judgment
2. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
3. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
4. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
5. Social and Personal Responsibility
6. An ability to function effectively on teams to accomplish a common goal.
7. An understanding of professional, ethical, legal, security and social issues and responsibilities.
8. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
9. Recognition of the need for and an ability to engage in continuing professional development.
10. Communication
11. An ability to communicate effectively with a range of audiences.
12. An ability to use current techniques, skills, and tools necessary for computing practice.

## Requirements for the Computer Science Major

In addition to meeting the general university requirements of a UW-Parkside degree, students seeking to graduate with a major in computer science must satisfy the following:

- Completion of computer science major requirements.
- Attainment of a minimum UW-Parkside cumulative GPA of 2.50 in all courses eligible to meet the student's computer science major requirements, including courses that meet the computer science major breadth requirement.

Code	Title	Credits
<b>Required Mathematics Course</b>		
MATH 221	Calculus and Analytic Geometry I	5
Required Mathematics Course Subtotal		5
<b>Required Science Course</b>		
Select one of the following:		5
PHYS 201	General Physics I	
CHEM 101 & CHEM 103	General Chemistry I and General Chemistry Lab I	
Required Science Course Subtotal		5
<b>Required Major Courses</b>		
<i>Computer Science Courses</i>		
CSCI/MATH 231	Discrete Mathematics	3

CSCI 241	Computer Science I	5
CSCI 242	Computer Science II	4
CSCI 245	Assembly Language Programming	3
CSCI 309	Probability and Statistics	3
CSCI 333	Programming Languages	3
CSCI 340	Data Structures and Algorithm Design	3
CSCI 355	Computer Architecture	3
CSCI 370	Operating Systems	3
CSCI 380	Database Management Systems	3
CSCI 475	Software Engineering Principles and Practice I	3
CSCI 476	Software Engineering Principles and Practice II	3
CSCI 495	Computer Science Seminar	2

### Elective Major Courses

Select four of the following:		12
CSCI 323	Mobile Development in Android	
or CSCI 324 Mobile Development in iOS		
CSCI 405	Artificial Intelligence	
CSCI 410	Introduction to Data Science	
CSCI 411	Data Science Programming and Visualization	
CSCI 412	Data Mining and Machine Learning	
CSCI 415	Data Science/Machine Learning Project	
CSCI 420	Computer Graphics	
CSCI 421	Computer Vision	
CSCI 424	Client/Server Development	
CSCI 431	Computational Models	
CSCI 435	Linux System Administration	
CSCI 440	Compiler Design and Implementation	
CSCI 444	Event-Driven Programming	
CSCI 445	Web Application Security	
CSCI 467	Computability and Automation	
CSCI 477	Computer Communications and Networks	
CSCI 478	Network Security	
CSCI 479	Information Security Planning	
CSCI 480	Advanced Databases	
CSCI 490	Special Topics In Computer Science	

### Required Computer Science Breadth Requirement

Select nine to ten credits <sup>1</sup>	9-10
Required Major Courses Subtotal	62-63

**Total Credits** 72-73

<sup>1</sup> Students must complete a package of 9 or more credits outside of computer science in a coherent collection of courses that are relevant to computer science and that meet the approval of the computer science faculty. Several such packages have been pre-approved, in areas such as mathematics, the sciences, art, business and economics. Pre-approved packages include:

- MATH 222 Calculus and Analytic Geometry II and MATH 301 Linear Algebra
- MATH 222 Calculus and Analytic Geometry II and PHYS 202 General Physics II
- CHEM 102 General Chemistry II/CHEM 104 General Chemistry Lab II and either CHEM 206 Quantitative Chemical Analysis or CHEM 215 Organic and Biochemistry

- PMGT341 Basics of Project Management and two of: PMGT342 Essential Personal Skills For Project Management, PMGT441 Advanced Project Management Tools and Techniques, or PMGT442 Project Management Simulation
- Select any 3 courses from: ACCT 201 Financial Accounting, BUS 272 Legal Environment of Business, FIN 330 Managerial Finance, MGT 349 Organizational Behavior, or MKT 350 Marketing Principles
- ECON 320 Intermediate Micro Theory or ECON 321 Intermediate Macro Theory, and two additional 300-level ECON courses
- GEOG 350 Cartography and GIS, GEOG 460 Introduction to Geographic Information Systems Analysis and GEOG 465 Advanced Geographic Information Systems Applications
- CRMJ 316 Criminal Procedure, CRMJ 380 Criminal Law and BUS 272 Legal Environment of Business
- ART 105 Introduction to Graphic Design, ART 377 Interactive Design I and ART 477 Interactive Design II

Optionally, a student may submit an individually designed computer science breadth package of 9 or more credits for approval by the computer science faculty. The breadth area should include 6 credits at the 300 or above level. Email the department chair to request a special breadth area, describing your three courses and how they pertain to your career goals.

## General University Degree Requirements (Bachelor's Degree)

In addition to individual program requirements, students must also fulfill the following requirements:

Requirement	Credits
Skills	7-8
General Education	36
Foreign Language**	6-8
Ethnic Diversity	3
Total	52-55

\*\* Transfer students in sustainable management, and health information management and technology collaborative, online degree-completion programs, the business management online degree-completion program, and the flexible option degree-completion program will be exempt from the university's foreign language requirement. See appropriate academic section for further information.

Skills Requirement (<https://catalog.uwp.edu/policies/#skills>)

Code	Title	Credits
<b>Reading and Writing</b>		
ENGL 101	Composition and Reading	3
<b>Computational Skills</b>		
Select one of the following:		4-5
MATH 102	Quantitative Reasoning	
MATH 103	Elementary Statistics	
MATH 104	College Mathematics with Applications	
MATH 111	College Algebra I	
<b>Total Credits</b>		<b>7-8</b>

General Education (<https://catalog.uwp.edu/policies/#general>)

- General Education Course List (<https://catalog.uwp.edu/programs/general-education-program/#coursestext>)

Foreign Language (<https://catalog.uwp.edu/policies/#language>)

Ethnic Diversity (<https://catalog.uwp.edu/policies/#ethnic>)

Degree Requirements

Requirement	Credits
Minimum Total Credits	120
Upper Level Credits (300 level or above)	36
Residency	30

Cumulative Degree GPA: 2.0 minimum

Course	Title	Credits
<b>Year 1</b>		
<b>Fall Semester</b>		
MATH 111	College Algebra I	5
ENGL 100	Fundamentals of English	3
Introductory Language		4
General Education (HU)		3
General Education (SS)		3
General Education (SS)		3
<b>Credits</b>		<b>18</b>

<b>Spring Semester</b>		
ENGL 101	Composition and Reading	3
MATH 114	College Algebra II/Trigonometry	5
General Education (HU)		3
General Education (SS)		3
<b>Credits</b>		<b>14</b>
<b>Total Credits</b>		<b>32</b>

Course	Title	Credits
<b>Year 2</b>		
<b>Fall Semester</b>		
CSCI 241	Computer Science I	5
CSCI 231	Discrete Mathematics	3
General Education (HU)		3
Introductory Language		4
<b>Credits</b>		<b>15</b>
<b>Spring Semester</b>		
CSCI 242	Computer Science II	4
MATH 221	Calculus and Analytic Geometry I	5
General Education (SS)		3
Introductory Language		4
<b>Credits</b>		<b>16</b>
<b>Total Credits</b>		<b>31</b>

Course	Title	Credits
<b>Year 3</b>		
CSCI 245	Assembly Language Programming	3
CSCI 380	Database Management Systems	3
Computer Science Elective		3
Computer Science Breadth		3
General Education (HU)		3
<b>Credits</b>		<b>15</b>
<b>Spring Semester</b>		
CSCI 309	Probability and Statistics	3

CSCI 333	Programming Languages	3
CSCI 340	Data Structures and Algorithm Design	3
CSCI 355	Computer Architecture	3
Computer Science Elective		3
<b>Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>30</b>
<b>Course</b>	<b>Title</b>	<b>Credits</b>
<b>Year 4</b>		
<b>Fall Semester</b>		
CSCI 370	Operating Systems	3
CSCI 495	Computer Science Seminar	2
Computer Science Breadth		3
CSCI 475	Software Engineering Principles and Practice I	3
CHEM 101/103 or PHYS 201	General Chemistry I or General Physics I	5
<b>Credits</b>		<b>16</b>
<b>Spring Semester</b>		
CSCI 476	Software Engineering Principles and Practice II	3
Computer Science Elective		3
Computer Science Elective		3
Computer Science Breadth		3
General Elective OR DV course (if needed)		3
<b>Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>31</b>