

# COMPUTER SCIENCE (B.S.)

3.00 overall GPA required.

Students in the Computer Science or Information Technology majors must also successfully complete the following courses with a C- or higher by the end of their second semester in the major: CSIT 104, CSIT 111, and MATH 111 or MATH 122 or AMAT 120.

Please note: The above majors have a retention policy. Students must maintain a minimum 2.60 cumulative GPA during their first three semesters.

120 credits of coursework is required for the baccalaureate degree.

## Program Requirements Overview

Code	Title	Credits
General Education Requirements		32
World Languages and Cultures Requirements		3-9
Major Requirements		74
Free Electives		11-5
<b>Total Credits</b>		<b>120</b>

## Major Requirements

Code	Title	Credits
<b>Collateral Courses</b>		
Select one of the following sequences:		8
PHYS 191 & PHYS 192	University Physics I and University Physics II	
CHEM 120 & CHEM 121	General Chemistry I and General Chemistry II	
BIOL 112 & BIOL 113	Principles of Biology I and Principles of Biology II	
<b>Required Mathematics Courses</b>		
AMAT 120 or MATH 122	Applied Calculus A Calculus I	4
AMAT 220 or MATH 221	Applied Calculus B Calculus II	4
AMAT 240	Introduction to Linear Algebra	4
CSIT 170	Discrete Mathematics	3
STAT 230	Data Science and Statistics	3
<b>Required Computer Science Courses - Core</b>		
CSIT 104	Python Programming I	3
CSIT 111	Fundamentals of Java Programming	3
CSIT 112	Fundamentals of Programming II	3
CSIT 212	Data Structures and Algorithms	3
CSIT 230	Computer Systems	3
CSIT 231	Systems Programming	3
CSIT 379	Computer Science Theory	3
CSIT 315	Software Engineering I	3
CSIT 415	Software Engineering II	3
CSIT 460	Computer Security	3
<b>Required Computer Science Advanced Courses</b>		
CSIT 313	Fundamentals of Programming Languages	3

CSIT 340	Computer Networks	3
CSIT 345	Operating Systems	3
CSIT 355	Database Systems	3

### Computer Science Electives

Complete any two CSIT courses at the 300 or 400 level (except CSIT 416 or 432). See the list below.	6
---	---

<b>Total Credits</b>	<b>74</b>
----------------------	-----------

## Major Electives

Code	Title	Credits
CSIT 317	System Analysis and Design	3
CSIT 321	Introduction to Numerical Computing	3
CSIT 335	Introduction to Human-Computer Interaction (HCI)	3
CSIT 337	Internet Computing	3
CSIT 356	Introduction to Data Science	3
CSIT 357	Artificial Intelligence	3
CSIT 359	Data Visualization	3
CSIT 365	Information Assurance and Security	3
CSIT 429	Parallel and Distributed Computing	3
CSIT 431	Introduction to Robotics	3
CSIT 437	Web Services	3
CSIT 440	Principles of Data Mining	3
CSIT 451	Mobile Computing	3
CSIT 456	Advanced Techniques in Data Science	3
CSIT 491	Cooperative Education in Computer Science and Information Technology	3-8
CSIT 495	Special Topics in Undergraduate Computer Science	1-3
CSIT 497	Undergraduate Research I	1-3
CSIT 498	Undergraduate Research II	3

## General Education Requirements

Click here for a list of courses that fulfill General Education categories. (<http://catalog.montclair.edu/programs/general-education-requirements-ba-bs/>)

Code	Title	Credits
<b>A. New Student Seminar</b>		
Complete one course from the list.		1
<b>C. Communication</b>		
1. Writing		3
2. Literature		3
3. Communication		3
<b>D. Fine and Performing Arts</b>		
Complete one course from the list.		3
<b>F. Humanities</b>		
1. Great Works and Their Influences		3
2. Philosophical and Religious Perspectives		3
<b>G. Computer Science</b>		
CSIT 111	Fundamentals of Java Programming (Fulfilled in the major.)	
<b>H. Mathematics</b>		
MATH 122	Calculus I (Fulfilled in the major.)	
<b>I. Natural Science Laboratory</b>		

Fulfilled by a collateral course in the major.

<b>J. Physical Education</b>	<b>1</b>
<b>K. Social Science</b>	
1. <i>American and European History</i>	3
2. <i>Global Cultural Perspectives</i>	3
3. <i>Social Science Perspectives</i>	3
<b>L. Interdisciplinary Studies</b>	
Complete one course from the list.	3
<b>Total Credits</b>	<b>32</b>

## World Languages and Cultures Requirements

Click here for a list of courses that fulfill World Languages and Cultures categories. (<http://catalog.montclair.edu/programs/world-languages-and-cultures-requirements/>)

Code	Title	Credits
<b>World Languages</b>		
Based on language placement exam, complete one or two sequential courses in the same language. <b>Requirement is automatically fulfilled by language major courses.</b>		
<b>World Cultures</b>		
Requirement may be fulfilled by course selected in General Education 0-3 - Social Science: Global Cultural Perspectives. Requirement may also be fulfilled by major coursework. See list of courses.		
<b>Total Credits</b>		<b>3-9</b>

## Recommended Roadmap to Degree Completion

This recommended four-year plan is provided as an outline for students to follow in order to complete their degree requirements within four years. This plan is a recommendation and students should only use it in consultation with their academic advisor.

### First Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION: (A) New Student Seminar	1	GENERAL EDUCATION: (C2) Literature	3
GENERAL EDUCATION: (C1) Writing	3	GENERAL EDUCATION: (F1) Humanities – Great Works and Their Influences	3
World Language 1	3	World Language 2	3
CSIT 104	3	CSIT 111	3
MATH 122 or AMAT 120	4	MATH 221 or AMAT 220	4
	<b>14</b>		<b>16</b>

### Second Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION: (C3) Communication	3	GENERAL EDUCATION: (K2) Social Science – Global Cultural Perspectives	3

GENERAL EDUCATION: (K3) Social Science – Social Science Perspectives	3	CSIT 212	3
CSIT 112	3	CSIT 230	3
CSIT 170	3	CSIT 231	3
Collateral Sequence course	4	Collateral Sequence course	4
	<b>16</b>		<b>16</b>

### Third Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION: (F2) Humanities – Philosophical and Religious Perspectives	3	GENERAL EDUCATION: (D) Fine and Performing Arts	3
GENERAL EDUCATION: (L) Interdisciplinary Studies	3	GENERAL EDUCATION: (K1) Social Science – American and European History	3
AMAT 240	4	World Cultures	3
CSIT 313	3	CSIT 340	3
CSIT 355	3	CSIT 345	3
	<b>16</b>		<b>15</b>

### Fourth Year

Fall	Credits	Spring	Credits
CSIT 315	3	GENERAL EDUCATION: (J) Physical Education	1
CSIT 379	3	CSIT 415	3
CSIT 460	3	Major Elective	3
STAT 230	3	Major Elective	3
Free Elective	2	Free Elective	3
	<b>14</b>		<b>13</b>

**Total Credits 120**