

# COMPUTER SCIENCE (B.S.) (COMBINED B.S./M.S. DATA SCIENCE)

A Combined Degree program enables undergraduate students to enroll in graduate courses in their senior year, which can be counted towards the completion of both their Bachelor's and Master's degree requirements.

The ability to take these "swing courses" allows students to earn both their Bachelor's and Master's degrees in a shortened period of time, typically within five years. Undergraduate students interested in this option can find more information regarding program requirements on the University's Combined Programs website (<https://www.montclair.edu/combined-programs/programs-of-study/>).

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
	New Student Seminar	1
	SEEDS General Education Requirements	24-27
	Major Requirements (including Graduate Swing courses)	74
	Free Electives	21-18
	<b>Total Credits</b>	<b>120</b>

## Major Requirements

Requirements for the Graduate portion of this dual degree program can be found here. (<http://catalog.montclair.edu/programs/data-science-ms/>)

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: Introduction to the Cell and Principles of Biology: Organisms and Diversity	

### Required Mathematics Courses

AMAT 120	Applied Calculus A	4
AMAT 220	Applied Calculus B	4
AMAT 240	Introduction to Linear Algebra	4
CSIT 170	Discrete Mathematics	3
STAT 230	Data Science and Statistics	3

### Required Computer Science Courses - Core

CSIT 104	Python Programming I	3
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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 315	Principles of Software Design	3
CSIT 379	Computer Science Theory	3
CSIT 415	Software Reliability, Verification and Validation	3
CSIT 460	Computer Security	3

### Required Computer Science Advanced Courses

CSIT 313	Fundamentals of Programming Languages	3
CSIT 340	Computer Networks	3
CSIT 345	Operating Systems	3

### Graduate Swing Courses

CSIT 528	Statistics for Data Science	3
CSIT 553	Exploratory Data Analysis and Visualization	3
CSIT 558	Data Mining	3

**Total Credits** **74**

## New Student Seminar

**Code** **Title** **Credits**

Students in the Adult Learner program must take GNED 100.

Complete one course from the following. Some courses may be restricted by major. Consult with an academic advisor. 1

ADVS 198	Pathways to Success	
CHEM 190	Freshman Seminar in Chemistry	
FYS 100	First Year Seminar	
GNED 100	Adult Academic Success Seminar	
GNED 199	New Student Seminar	
HPEM 199	Freshman Seminar in Health and Physical Education	
IDS 155	Pathways to Adult Learning	
JUST 199	New Student Seminar	
MATH 102	New Student Experience for Mathematical Sciences	
MUGN 199	Freshman Seminar for Music Majors	
NURS 199	Introduction to Nursing	
POLS 199	Freshman Seminar in Political Science and Law	

## SEEDS General Education Requirements

Click here for a list of courses that fulfill the SEEDS requirements. (<http://catalog.montclair.edu/programs/seeds-general-education-requirements/>)

Code	Title	Credits
<b>Foundations</b>		
	<i>Effective Writing I</i>	
	Complete one Effective Writing I course.	3
	<i>Effective Writing II</i>	
	Complete one Effective Writing II course.	3
	<i>Interactive Communication</i>	
	Complete one Interactive Communication course.	3
	<i>Quantitative Reasoning</i>	
	Fulfilled by CSIT 170 in the major.	

<i>Political and Civic Life</i>	
Complete one Political and Civic Life course.	3
<i>World Language</i>	
Complete two sequential classes in one World Language when starting at the Beginner I or Beginner II level. Complete one class when starting at the Intermediate/Advanced Level.	3-6
<b>Exploration</b>	
Complete one course from four different Exploration categories.	9
<i>Analyzing Cultures and Societies</i>	
<i>Creative Expression</i>	
<i>Ethical Inquiry</i>	
<i>Historical Thinking</i>	
<i>Literary and Artistic Analysis</i>	
<i>Scientific Reasoning</i>	
Fulfilled by CSIT 104 in the major.	
<b>Total Credits</b>	<b>24-27</b>