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
General Education Requirements		32
World Languages and Cultures Requirements		3-9
Major Requirements		65
Graduate Swing Courses		9
Free Electives		11-5
Total Credits		**120**

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
Collateral Courses		
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
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	Software Engineering I	3
CSIT 379	Computer Science Theory	3
CSIT 415	Software Engineering II	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
Total Credits		**65**

Major Electives

Code	Title	Credits
CSIT 256	Introduction to Data Science	3
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 357	Artificial Intelligence	3
CSIT 359	Data Visualization	3
CSIT 360	Advanced Techniques in Data Science	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 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

Graduate Swing Courses

A combined degree program allows students to complete 6-12 graduate credits ("graduate swing courses") while enrolled as an undergraduate. These courses count for both their bachelor and master's degrees. Graduate swing courses will count toward undergraduate free electives, unless noted otherwise.

The Graduate Swing Courses for this program:

Code	Title	Credits
CSIT 528	Statistics for Data Science	3
CSIT 555	Database Systems	3
CSIT 558	Data Mining	3
Total Credits		**9**

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
A. New Student Seminar		
Complete one course from the list.		1
C. Communication		
1. Writing		*3*
2. Literature		*3*
3. Communication		*3*
D. Fine and Performing Arts		
Complete one course from the list.		3
F. Humanities		
1. Great Works and Their Influences		*3*
2. Philosophical and Religious Perspectives		*3*
G. Computer Science		
CSIT 111	Fundamentals of Java Programming (Fulfilled in the major.)	
H. Mathematics		
AMAT 120	Applied Calculus A (Fulfilled in the major.)	
I. Natural Science Laboratory		
Fulfilled by a collateral course in the major.		
J. Physical Education		**1**
K. Social Science		
1. American and European History		*3*
2. Global Cultural Perspectives		*3*
3. Social Science Perspectives		*3*
L. Interdisciplinary Studies		
Complete one course from the list.		3
Total Credits		**32**

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
World Languages		
Based on language placement exam, complete one or two sequential courses in the same language. **Requirement is automatically fulfilled by language major courses.**		3-6
World Cultures		
Requirement may be fulfilled by course selected in General Education - Social Science: Global Cultural Perspectives. Requirement may also be fulfilled by major coursework. See list of courses.		0-3
Total Credits		**3-9**

Recommended Roadmap to Degree(s)

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

Fifth year courses are taken at the graduate level, after matriculation into the graduate portion of this combined degree program.

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
AMAT 120	4	AMAT 220	4
	14		**16**

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
	16		**16**

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
STAT 230	3	CSIT 345	3
	16		**15**

Fourth Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION: (J) Physical Education	1	CSIT 379	3
CSIT 315	3	CSIT 415	3
CSIT 460	3	CSIT 528	3
CSIT 555	3	Free Elective	2

CSIT 558	3	Free Elective	3
	13		**14**

Total Credits 120

Fifth Year

Fall	Credits	Spring	Credits
CSIT 571	3	CSIT 553	3
CSIT 598	3	CSIT 697 or 698	3
CSIT 696	3	Graduate Elective	3
Graduate Elective	3		
	12		**9**

Total Credits 21