MATHEMATICAL SCIENCES-COMPUTER SCIENCE B.S. (COMBINED MAJOR)

The purpose of the combined program is to provide a thorough background in both allied disciplines and to inculcate a deeper understanding of their goals and methods. A student must complete 62 credits in the two disciplines:

- 31 of these credits in Computer Science courses and
- 31 of these credits in Mathematical Sciences courses.

Each student plans a program in consultation with both a Computer Science and a Mathematical Sciences advisor. Students planning to attend graduate school in computer science or the mathematical sciences should consult with their respective advisors.

General Degree Requirements

To earn a baccalaureate degree, all students must complete successfully, in addition to any other requirements, the University of Montana General Education Requirements. Please refer to the General Education Requirements page (https://catalog.umt.edu/academics/general-education-requirements/) for more information.

Additional requirements for graduation can be found on the Degree/Certificate Requirements for Graduation page (https://catalog.umt.edu/academics/graduation-requirements/).

Unless otherwise noted in individual program requirements, a minimum grade point average of 2.00 in all work attempted at the University of Montana-Missoula is required for graduation. Please see the Academic Policies and Procedures page (https://catalog.umt.edu/academics/policies-procedures/) for information on how your GPA is calculated.

Courses taken to satisfy the requirements of a major, minor, or certificate program must be completed with a grade of C- or better unless a higher grade is noted in the program requirements.

Bachelor of Science - Mathematical Science-Computer Science

Course Requirements

Code	Title	Hours
Mathematical Sciences Core		
Complete all of the following courses:		
M 171	Calculus I	4
or M 181	Honors Calculus I	
M 172	Calculus II	4
or M 182	Honors Calculus II	
M 221	Introduction to Linear Algebra	4
M 273	Multivariable Calculus	4
M 307	Introduction to Abstract Mathematics	3
or M 225	Introduction to Discrete Mathematics	
Mathematical Sciences Electives [1]		
Complete 12 credits of the following courses:		12
M 274	Introduction to Differential Equations	
M 325	Discrete Mathematics	
M 326	Number Theory	
M 361	Discrete Optimization	
M 362	Linear Optimization	
M 381	Advanced Calculus I	
M 412	Partial Differential Equations	
M 414	Deterministic Models	
M 429	History of Mathematics	
M 431	Abstract Algebra I	
M 432	Abstract Algebra II	
M 439	Euclidean and NonEuclidean Geometry	
M 440	Numerical Analysis	
M 445	Statistical, Dynamical, and Computational Modeling	
M 461	Data Science Analytics	
M 462	Theoretical Basics of Big Data Analytics and Real Time Computation Algorithms	
M 472	Introduction to Complex Analysis	
M 473	Introduction to Real Analysis	
M 485	Graph Theory	
STAT 342	Probability and Simulation	
STAT 421	Probability Theory	
STAT 422	Mathematical Statistics	
STAT 451	Statistical Methods I	
STAT 452	Statistical Methods II	
Computer Science Core		
Complete all of the following courses:		
CSCI 150	Introduction to Computer Science	3
CSCI 151	Interdisciplinary Computer Science I	3
CSCI 152	Interdisciplinary Computer Science II	3
CSCI 232	Intermediate Data Structures and Algorithms	4
CSCI 258	Web Application Development	3
CSCI 332	Advanced Data Structures and Algorithms	3
CSCI 340	Database Design	3
Computer Science Electives [1, 2]		
Complete 9 credits of upper-division (300-level or higher) CSCI courses.		9
Public Speaking Requirement		
Complete the following course:		
COMX 111A	Introduction to Public Speaking	3
Total Hours		**65**

[1] The combined nine credits of Computer Science Electives and twelve credits of Mathematical Sciences Electives must include at least three 3- or 4-credit courses numbered 400 or above with at least one chosen from each department (not including M 429 and STAT 451, STAT 452).

[2] A total of at most three of the nine credits of Computer Science Electives may be in CSCI 398 or CSCI 498.

Four Year Plan

Course	Title	Hours
Freshman		
Autumn		
CSCI 150	Introduction to Computer Science [1]	3
M 171	Calculus I [2]	4
WRIT 101 or COMX 111A	College Writing I or Introduction to Public Speaking	3-4
General Education Requirement		4
	Hours	**14-15**
Spring		
CSCI 151	Interdisciplinary Computer Science I [1]	3
M 172	Calculus II	4
COMX 111A or WRIT 101	Introduction to Public Speaking or College Writing I	3-4
General Education Requirement		6
	Hours	**16-17**
Sophomore		
Autumn		
CSCI 152	Interdisciplinary Computer Science II	3
CSCI 258	Web Application Development	3
M 225 or M 307	Introduction to Discrete Mathematics or Introduction to Abstract Mathematics	3
General Education Requirement		6
	Hours	**15**
Spring		
CSCI 232	Intermediate Data Structures and Algorithms	4
M 273	Multivariable Calculus	4
General Education Requirement		3
Elective		3
	Hours	**14**
Junior		
Autumn		
CSCI 332	Advanced Data Structures and Algorithms	3
M 221	Introduction to Linear Algebra	4
General Education Requirement		3
Elective		6
	Hours	**16**
Spring		
CSCI 340	Database Design	3
Math Elective 300+ [3]		3
Math Elective 300+ [3]		3
General Education Requirement		3
Elective		3
	Hours	**15**
Senior		
Autumn		
CSCI Elective 300+ [3]		3
CSCI Elective 300+ [3]		3
Math Elective 300+ [3]		3-4
Elective		6
	Hours	**15-16**
Spring		
Math Elective 300+ [3]		3-4
CSCI Elective 300+ [3]		3
Elective		9
	Hours	**15-16**
	Total Hours	**120-124**

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1. Students may begin with CSCI 151 in their first semester if they can pass a programming skills entrance exam.
2. This degree template can be adapted for students who are not ready to take M 171 (Calculus I) in their first semester.
3. Details regarding the Math and Computer Science Electives are in the Catalog and on Degree Works. Choose these courses with your advisor.