COMPUTER SCIENCE B.S. - DATA SCIENCE

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 - Computer Science; Data Science Concentration

Course Requirements

Code	Title	Hours
Computer Science Core Courses		
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 315E	Computers, Ethics, and Society (fulfills the Advanced Writing Requirement)	3
CSCI 332	Advanced Data Structures and Algorithms	3
CSCI 340	Database Design	3
CSCI 406	Careers in Computer Science	1
M 171	Calculus I	4
M 225	Introduction to Discrete Mathematics	3
Communication Requirement		
COMX 111A	Introduction to Public Speaking	3
Data Science Concentration Required Courses		
Complete all of the following courses:		
M 172	Calculus II	4
M 221	Introduction to Linear Algebra	4
STAT 342	Probability and Simulation	3
CSCI 444	Data Visualization	3
CSCI 447	Machine Learning	3
CSCI 477	Simulation	3
Upper-Division Computer Science Electives		
Complete at least 18 credits of Computer Science (CSCI) courses numbered 300 and above, including one course from the approved upper-division math elective courses list below. [1]		18
Approved upper-division math elective courses:		
M 273	Multivariable Calculus	
M 274	Introduction to Differential Equations	
M 440	Numerical Analysis	
M 445	Statistical, Dynamical, and Computational Modeling	
M 461	Data Science Analytics	
Total Hours		**74**

[1] A maximum of 3 credits from each of the following groups may count toward Computer Science electives. Total credits across all groups may not exceed 6.

- Research (CSCI 390 or CSCI 490)
- Independent study (CSCI 392 or CSCI 492)
- Learning Assistant (CSCI 394)
- Internship (CSCI 398 or CSCI 498)

Four Year Plan

Course	Title	Hours
Freshman		
Autumn		
CSCI 150	Introduction to Computer Science	3
CSCI 106	Careers in Computer Science	1
COMX 111A	Introduction to Public Speaking	3
General Education Requirement		6
	Hours	**13**
Spring		
CSCI 151	Interdisciplinary Computer Science I	3
WRIT 101	College Writing I	4
M 121 or M 122 or M 151	College Algebra (if needed) [1] or College Trigonometry or Precalculus	3-4
General Education Requirement		6
	Hours	**16-17**
Sophomore		
Autumn		
CSCI 152	Interdisciplinary Computer Science II	3
M 171	Calculus I	4
CSCI 258	Web Application Development	3
Lab Science seq I		4-5
	Hours	**14-15**
Spring		
CSCI 232	Intermediate Data Structures and Algorithms	4
M 225	Introduction to Discrete Mathematics	3
CSCI 444	Data Visualization	3
Lab Science seq II		4-5
General Education Requirement		3
	Hours	**17-18**
Junior		
Autumn		
CSCI 332	Advanced Data Structures and Algorithms	3
CSCI 340	Database Design	3
M 172	Calculus II	4
Science Elective		3-5

Intermediate Writing Course		3
	Hours	**16-18**
Spring		
CSCI 315E	Computers, Ethics, and Society	3
CSCI 447	Machine Learning	3
M 221	Introduction to Linear Algebra	4
Science Elective		3-5
General Education Requirement		3
	Hours	**16-18**
Senior		
Autumn		
CSCI 477	Simulation	3
STAT 342	Probability and Simulation	3
CS Core Elective		6
General Education Requirement		3
	Hours	**15**
Spring		
BMIS 482 or CSCI 426 ***and*** CSCI 427 or CSCI 490 or CSCI 498 or M 467	Big Data Project (Data Science Applications Elective) or Software Design & Development I ***and*** Software Design and Development II or Research or Internship or Data Science Projects	3
M 273 or M 274 or M 440 or M 445 or M 461	Multivariable Calculus (Advanced Math Elective) or Introduction to Differential Equations or Numerical Analysis or or Data Science Analytics	3-4
CS Core Elective		6
General Education Requirement		3
	Hours	**15-16**
	Total Hours	**122-130**

Last updated Autumn 2024

1 Preparatory course - no credit towards degree, must be taken at this time to assure progression through degree

2 M 162 will not be accepted for this concentration