COMPUTER SCIENCE B.S.

Bachelor of Science - Computer Science

College Humanities & Sciences

Degree Specific Credits: 87

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (http://catalog.umt.edu/academics/general-education-requirements) of the catalog.

Summary

Computer Science Core Courses 33
Degree Electives 18
Communication 3
Mathematics 18
Science Core 8-10
Biology
Chemistry
Physics
Science Electives 6-10
Total Hours 86-92

Computer Science Core Courses

Rule: Must complete all of the following courses:

Note: 100-level CSCI courses other than CSCI 106, CSCI 135-CSCI 136, and 200-level CSCI courses other than CSCI 205 and CSCI 232 do not count toward the degree or track requirements. However, they do count in the 60 credit limit in the major.

CSCI 315E will fulfill the upper division writing requirement.

CSCI 106 Careers in Computer Science 1
CSCI 135 Fund of Computer Science I 3
or CSCI 250 Fund of Computer Science II
CSCI 136 Fund of Computer Science III
CSCI 205 Programming Languages w/ C/C++ 4
CSCI 232 Data Structures and Algorithms 4
CSCI 315E Computers, Ethics, and Society 3
CSCI 323 Software Science 3
CSCI 332 Design/Analysis of Algorithms 3
CSCI 361 Computer Architecture 3
CSCI 426 Adv Prgrmng Theory/Practice I 3
CSCI 427 Adv Prgrmng Theory/Practice II 3
Total Hours 33

Minimum Required Grade: C-

Degree Electives

Rule: Must complete 18 credits from the following courses

Note: A total of at most 3 of the 18 credits of CS electives may be in CSCI 398 or CSCI 498.

Select 18 credits from the following:

CSCI 340 Database Design
CSCI 390 Research
CSCI 391 Special Topics
CSCI 394 Seminar
CSCI 398 Internship
CSCI 411 Advanced Web Programming
CSCI 412 Game and Mobile App
CSCI 441 Computer Graphics Programming
CSCI 443 User Interface Design
CSCI 444 Data Visualization
CSCI 446 Artificial Intelligence
CSCI 447 Machine Learning
CSCI 448 Pattern Recognition
CSCI 451 Computational Biology
CSCI 460 Operating Systems
CSCI 466 Networks
CSCI 477 Simulation
CSCI 490 Research
CSCI 491 Special Topics
CSCI 494 Seminar
CSCI 498 Internship
CSCI 499 Senior Thesis/Capstone

Total Hours 18

Minimum Required Grade: C-

Communication

Rule: Must complete 1 of the following courses

Note: A total of at most 3 of the 18 credits of CS electives may be in CSCI 398 or CSCI 498.

Select 18 credits from the following:

CSCI 340 Database Design
CSCI 390 Research
CSCI 391 Special Topics
CSCI 394 Seminar
CSCI 398 Internship
CSCI 411 Advanced Web Programming
CSCI 412 Game and Mobile App
CSCI 441 Computer Graphics Programming
CSCI 443 User Interface Design
CSCI 444 Data Visualization
CSCI 446 Artificial Intelligence
CSCI 447 Machine Learning
CSCI 448 Pattern Recognition
CSCI 451 Computational Biology
CSCI 460 Operating Systems
CSCI 466 Networks
CSCI 477 Simulation
CSCI 490 Research
CSCI 491 Special Topics
CSCI 494 Seminar
CSCI 498 Internship
CSCI 499 Senior Thesis/Capstone

Total Hours 18

Minimum Required Grade: C-

Mathematics

Rule: Take the following:

Note: A total of at most 3 of the 18 credits of CS electives may be in CSCI 398 or CSCI 498.

Select 18 credits from the following:

M 171 Calculus I 4
M 172 Calculus II 4
M 221 Introduction to Linear Algebra 4
M 225 Introduction to Discrete Mathematics 3
STAT 341 Introduction to Probability and Statistics 3

Total Hours 18

Minimum Required Grade: C-
**Science Core**

**Rule:** Must complete 1 of the following subcategories of science sequences

9-10 Total Credits Required

**Biology**

**Rule:** May complete the following sequence

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOB 160N</td>
<td>Principles of Living Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIOB 161N</td>
<td>Prncpls of Living Systems Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIOB 170N</td>
<td>Prncpls Biological Diversity</td>
<td>3</td>
</tr>
<tr>
<td>BIOB 171N</td>
<td>Princpls Biological Dvrsty Lab</td>
<td>2</td>
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</table>

Total Hours: 9

Minimum Required Grade: C-

**Chemistry**

**Rule:** May complete the following sequence

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHMY 141N</td>
<td>College Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHMY 142N</td>
<td>and College Chemistry I Lab</td>
<td></td>
</tr>
<tr>
<td>CHMY 143N</td>
<td>College Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHMY 144N</td>
<td>and College Chemistry II Lab</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 10

Minimum Required Grade: C-

**Physics**

**Rule:** May complete the following sequence

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHSX 215N</td>
<td>Fund of Physics w/Calc I</td>
<td>4</td>
</tr>
<tr>
<td>PHSX 216N</td>
<td>Physics Laboratory I w/Calc</td>
<td>1</td>
</tr>
<tr>
<td>PHSX 217N</td>
<td>Fund of Physics w/Calc II</td>
<td>4</td>
</tr>
<tr>
<td>PHSX 218N</td>
<td>Physics Laboratory II w/Calc</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Hours: 10

Minimum Required Grade: C-

**Science Electives**

**Rule:** Must complete 2 of the following courses

**Note:** The Biology, Chemistry, or Physics sequence chosen to fulfill the science core may not count toward the science electives requirement.

Laboratory courses must be taken in conjunction with their associated lecture course.

Select two of the following: 6-10

- ASTR 131N & ASTR 134N Planetary Astronomy and Planetary Astronomy Lab
- ASTR 132N & ASTR 135N Stars, Galaxies, and the Universe and Stars, Galaxies, and the Universe Lab
- BIOB 160N & BIOB 161N Principles of Living Systems and Prncpls of Living Systems Lab
- BIOB 170N & BIOB 171N Prncpls Biological Diversity and Princpls Biological Dvrsty Lab
- BIOM 250N & BIOM 251 Microbiology for Hlth Sciences and Microbiology Hlth Sciences Lab
- CHMY 141N College Chemistry I

**CHMY 143N** College Chemistry II

**FORS 201** Forest Biometrics

**GEO 101N** Introduction to Physical Geology & GEO 102N and Introduction to Physical Geology Lab

**GEO 225** Earth Materials

**PHSX 215N** Fund of Physics w/Calc I & PHSX 216N and Physics Laboratory I w/Calc

**PHSX 217N** Fund of Physics w/Calc II & PHSX 218N and Physics Laboratory II w/Calc

**PHSX 343** Modern Physics & PHSX 444 and Advanced Physics Lab

Total Hours: 6-10

Minimum Required Grade: C-

This is an advising track only and not an official program as recognized by the University of Montana (UM) or the Montana University System. This information will not appear on your UM transcript, diploma, university lists, student data system, or university publication. You do not fill out a major change for a track. After completion of this track the student will be awarded a Bachelor of Science in Computer Science.