GEOSCIENCES B.S.

Bachelor of Science - Geosciences

College Humanities & Sciences

Degree Specific Credits: 62
Required Cumulative GPA: 2.0
Catalog Year: 2017-2018

Note: This option is designed for students who seek post-graduate employment as a professional geoscientist or preparation for graduate study in geosciences.

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
Lower Division Core 8
Degree Electives 24
Cognate Sciences 30

Physics
Chemistry
Math
Computer Science
Upper Division Writing 3-10
Languages 4
Total Hours 69-76

Lower Division Core
Rule: Must complete all of the courses in one of two options

Note: Completion of either option fulfills the Lower Division Core requirements.

Option 1

GEO 101N Introduction to Physical Geology 3
GEO 102N Introduction to Physical Geology Lab 1
GEO 211 Earth's History and Evolution 4
Total Hours 8
Minimum Required Grade: C-

Option 2

GEO 103N Introduction to Environmental Geology 3
GEO 104N Introduction to Environmental Geology Laboratory 1
GEO 211 Earth's History and Evolution 4
Total Hours 8
Minimum Required Grade: C-

Degree Electives
Rule: Must complete 24 credits from the following list of courses
Select 24 credits from the following:

GEO 225 Earth Materials
GEO 305 Igneous & Metamorph Petrology
GEO 309 Sedimentation/Stratigraphy
GEO 311 Paleobiology
GEO 315 Structural Geology
GEO 318 Climate System Dynamics
GEO 320 Global Water
GEO 327 Geochemistry
GEO 420 Hydrogeology
GEO 421 Hydrology
GEO 433 Global Tectonics
GEO 443 Principles of Sedimentary Petrology
GEO 460 Process Geomorphology
GEO 482 Global Change
GEO 488 Snow, Ice and Climate
GEO 491 Special Topics

Total Hours 24
Minimum Required Grade: C-

Cognate Sciences
Rule: In addition to completing course work in Geosciences, a minimum of 30 credits in cognate science classes must be completed.

Note: More advanced courses in Chemistry, Computer Science, Math, and Physics may be used to meet the 30 credit minimum total in cognate sciences. BIOB 101N or above is also appropriate. Course substitutions for the 30 credit minimum in cognate sciences must be approved by a departmental advisor.

Physics
Rule: Must complete 1 of the following sequences

Select one of the following sequences: 10

Option 1:

PHSX 205N College Physics I
PHSX 206N College Physics I Laboratory
PHSX 207N College Physics II
PHSX 208N College Physics II Laboratory

Option 2 with Calculus:

PHSX 215N Fund of Physics w/Calc I
PHSX 216N Physics Laboratory I w/Calc
PHSX 217N Fund of Physics w/Calc II
PHSX 218N Physics Laboratory II w/Calc

Minimum Required Grade: C-
### Chemistry

**Rule:** Must complete the following courses

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

Total Hours: 10

Minimum Required Grade: C-

### Math

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

7-8 Total Credits Required

**Math Option 1**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 162</td>
<td>Applied Calculus</td>
</tr>
<tr>
<td>M 263</td>
<td>Applied Differential Equations (Applied Differential Equations)</td>
</tr>
</tbody>
</table>

**Math Option 2**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 171</td>
<td>Calculus I</td>
</tr>
<tr>
<td>M 172</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

Minimum Required Grade: C-

### Computer Science

**Rule:** Must complete 1 course in Computer Science (Programming or Modeling)

**Note:** These courses are recommended to complete the Computer Science requirement. Credit may be received for only 1 of these 4 courses for the 30 credit minimum cognate science requirement.

Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 172</td>
<td>Intro to Computer Modeling</td>
</tr>
<tr>
<td>CSCI 250</td>
<td>Computer Mdlng/Science Majors</td>
</tr>
<tr>
<td>GPHY 284</td>
<td>Intro to GIS and Cartography</td>
</tr>
<tr>
<td>STAT 216</td>
<td>Introduction to Statistics</td>
</tr>
</tbody>
</table>

Total Hours: 3-4

Minimum Required Grade: C-

### Upper Division Writing

**Rule:** Must complete 1 upper division writing course

**Note:** These courses are recommended to complete the upper division writing requirement in Geosciences but students may also select from the university-approved list of upper division writing courses to fulfill this requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 320</td>
<td>Global Water</td>
</tr>
<tr>
<td>or GEO 499</td>
<td>Senior Thesis /Capstone</td>
</tr>
</tbody>
</table>

Total Hours: 3-10

Minimum Required Grade: C-

### Languages

**Rule:** Must complete 1 of the following courses

**Note:** Students graduating in Geosciences may substitute one of these courses in place of the Modern and Classical Language requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 162</td>
<td>Applied Calculus</td>
<td>4</td>
</tr>
<tr>
<td>or M 171</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 4

Minimum Required Grade: C-