# 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](http://catalog.umt.edu/academics/general-education-requirements)) of the catalog.

## Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Division Core</td>
<td>8</td>
</tr>
<tr>
<td>Degree Electives</td>
<td>24</td>
</tr>
<tr>
<td>Cognate Sciences</td>
<td>30</td>
</tr>
<tr>
<td>Physics</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td></td>
</tr>
<tr>
<td>Upper Division Writing</td>
<td>3-10</td>
</tr>
<tr>
<td>Languages</td>
<td>4</td>
</tr>
<tr>
<td>Total Hours</td>
<td>69-76</td>
</tr>
</tbody>
</table>

## 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 Lab 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: 24
  - 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

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. BI0B 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</td>
<td>5</td>
</tr>
<tr>
<td>CHMY 142N</td>
<td>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>College Chemistry II Lab</td>
<td></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**
    | Course | Description                           |
    |--------|---------------------------------------|
    | M 162  | Applied Calculus                      |
    | M 263  | Applied Differential Equations (Applied Differential Equations) |
  - **Math Option 2**
    | Course | Description |
    |--------|-------------|
    | M 171  | Calculus I  |
    | M 172  | Calculus II |

**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:
<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 172</td>
<td>Intro to Computer Modeling</td>
<td>3-4</td>
</tr>
<tr>
<td>CSCI 250</td>
<td>Computer Mdlng/Science Majors</td>
<td></td>
</tr>
<tr>
<td>GPHY 284</td>
<td>Intro to GIS and Cartography</td>
<td></td>
</tr>
<tr>
<td>STAT 216</td>
<td>Introduction to Statistics</td>
<td></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.

- GEO 320 Global Water 3-10
  - or GEO 499 Senior Thesis /Capstone 3-10

**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>
</tr>
</thead>
<tbody>
<tr>
<td>M 162</td>
<td>Applied Calculus</td>
</tr>
<tr>
<td>or M 171</td>
<td>Calculus I</td>
</tr>
</tbody>
</table>

**Total Hours:** 4

**Minimum Required Grade:** C-