# Paleontology Option

The paleontology option focuses on understanding fossils within their geologic context, while Montana’s geology provides the opportunity for hands-on fieldwork. The paleontology option in the Department of Earth Sciences is designed for those students who have a strong interest in either invertebrate or vertebrate fossils (evolution, biology of ancient organisms, the environment in which the organism lived, and the changes the fossil has undergone since death). Students who study paleontology find employment with colleges and universities (e.g., teaching paleontology, earth sciences, comparative anatomy), natural history museums (e.g. fossil preparation, collection, curation, exhibit design, education), as scientific illustrators, writers, paleontology consultants for energy resource companies, and resource specialists for local, state, and federal land-management agencies or parks. Because students who study this option are trained in core geology courses, employment may be found in areas outside paleontology that require geologic expertise. Graduate training beyond the bachelor’s degree is recommended for those seeking careers in the paleontology (normally a master’s degree) or in teaching and/or research (typically a doctorate). This option combines training in geology and paleontology. The paleontology option builds on courses that form the core of the traditional geology option, while providing strong background in paleontology through four required courses (in addition to the paleontology field course) and three elective courses. All of the paleontology courses offered through the department provide upper division credits. These courses prepare the student for a variety of jobs and/or graduate school. Internships and summer field research experience are available to some students.

## Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHMY 141</td>
<td>College Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHMY 143</td>
<td>College Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>ERTH 101IN</td>
<td>Earth System Sciences</td>
<td>4</td>
</tr>
<tr>
<td>GEO 211</td>
<td>Earth History and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>M 171Q</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>M 172Q</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>University Core and Electives</td>
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<td>4</td>
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<td><strong>Year Total:</strong></td>
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## Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOB 170IN</td>
<td>Principles of Biological Diversity</td>
<td>4</td>
</tr>
<tr>
<td>GPHY 284</td>
<td>Intro to GIS Science &amp; Cartog</td>
<td>3</td>
</tr>
<tr>
<td>PHSX 205</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHSX 207</td>
<td>College Physics II</td>
<td>4</td>
</tr>
<tr>
<td>University Core and Electives</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>GEO 309</td>
<td>Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEO 419</td>
<td>Field Paleontology (Summer between SO &amp; JR Year)</td>
<td>2</td>
</tr>
<tr>
<td>GEO 302</td>
<td>Mineralogy and Optical Mineral</td>
<td>4</td>
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<td><strong>Year Total:</strong></td>
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## Junior Year

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEO 315</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>STAT 332</td>
<td>Statistics for Scientists and Engineers</td>
<td>3</td>
</tr>
<tr>
<td>GEO 428</td>
<td>Field Methods</td>
<td>3</td>
</tr>
<tr>
<td>GPHY 384</td>
<td>Adv GIS and Spatial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>University Core and Electives</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>ERTH 303</td>
<td>Weather and Climate</td>
<td>3</td>
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<td><strong>Year Total:</strong></td>
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## Senior Year

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEO 429R</td>
<td>Field Geology (Summer between JR &amp; SR Year)**</td>
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</table>

## Required Program Credits:

- **Total Program Credits:** 112

### Required Upper Division Paleontology Course Electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEO 310</td>
<td>Invertebrate Paleontology</td>
<td>3</td>
</tr>
<tr>
<td>GEO 330</td>
<td>Paleontology Lab Techniques</td>
<td>2</td>
</tr>
<tr>
<td>GEO 411</td>
<td>Vertebrate Paleontology</td>
<td>3</td>
</tr>
<tr>
<td>GEO 417</td>
<td>Taphonomy: Fossil Preservation</td>
<td>3</td>
</tr>
<tr>
<td>GEO 419</td>
<td>Field Paleontology ***</td>
<td>2</td>
</tr>
</tbody>
</table>

** GEO 429R Should be taken SUMMER of either Junior or Senior year.

*** Taken during summer of Sophomore or Junior year.

### Required Elective Course Options:

Take TWO of the following required electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOO 310</td>
<td>Comparative Vertebrate Anatomy</td>
<td>6</td>
</tr>
<tr>
<td>ERTH 307</td>
<td>Principles of Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td>GEO 305</td>
<td>Igneous &amp; Metamorphic Petrology</td>
<td>4</td>
</tr>
<tr>
<td>ERTH 484</td>
<td>Quaternary Environment</td>
<td></td>
</tr>
<tr>
<td>ERTH 494</td>
<td>Seminar</td>
<td></td>
</tr>
<tr>
<td>GEO 312</td>
<td>Dinosaur Paleontology</td>
<td></td>
</tr>
<tr>
<td>GEO 413</td>
<td>Macroevolution/Fossil Record</td>
<td></td>
</tr>
<tr>
<td>GEO 433</td>
<td>Tectonics</td>
<td></td>
</tr>
<tr>
<td>GEO 439</td>
<td>Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GEO 471</td>
<td>Geochronology and Thermochronology</td>
<td>3</td>
</tr>
<tr>
<td>GEO 490R</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
<tr>
<td>GEO 491</td>
<td>Special Topics</td>
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<tr>
<td>GEO 492</td>
<td>Independent Study</td>
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<tr>
<td>GEO 498</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>GPHY 411</td>
<td>Biogeography</td>
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### Note:

Only GEO 491 courses that cover a specific paleontology topic are applicable.

A C- minimum is required in all curriculum courses to graduate by Regents’ policy. This includes electives in the curriculum.

A minimum of 120 credits is required for graduation; 42 of these credits must be in courses numbered 300 or above.