General Field Geology
Geology 2080

Instructor: Dr. Erin Campbell-Stone, Geol 207, 766-2053, erincs@uwyo.edu
Office Hours: Tues 1:30-3:30 Thurs 10-11 AM.

Class Schedule
Monday 1:10-3:00 On-campus exercises
Wednesday 1:10-3:00 On-campus exercises
Friday 1:10-5:00 Field Trips

Course Goals

1. Introduce and reinforce understanding of the fundamental principles of geology through observation and interpretation in the field.
2. Examine scientific concepts, form and test hypotheses, and apply the scientific approach to geologic analysis.
3. Use tools and processes of geologic investigation in the field.
4. Develop skills in observation, critical thinking, scientific reasoning.
5. Assess and improve skills through data collection, systematic and clear field notes, and well-reasoned interpretation.

Safety

The first priority is that everyone returns home safely from each field trip. Do not engage in any activities that endanger yourself or others. Rock climbing, bouldering, and boulder rolling are never permitted. Never climb any cliff or mountain that makes you uncomfortable.

Lightning is a very real danger in the Rocky Mountains. At the first sign of lightning, quickly get down from any ridge or mountain. Even if you do not see flashes, you are in striking range if you can hear thunder. Return to the vehicles and get inside with the windows closed. Do not touch the frame or lean against the vehicle. If there is no shelter, crouch in the open (to avoid direct strikes) twice as far from the tallest tree as it can fall (to avoid ground strikes). You can also crouch in a grove of small trees. Stay away from water. Move away from a group of people and drop your pack and hammer. An enclosed vehicle is safer than an open picnic shelter.

Snakes and biting insects are always a risk in the outdoors. We suggest you wear long pants tucked into your shoes (preferably hiking boots) and use mosquito repellent. A current tetanus shot is also recommended.

West Nile Virus is common in the Rocky Mountains. It is contracted through mosquito bites, and can be prevented by wearing mosquito repellent. The incubation period for the virus is 3-14 days. According to the CDC, people over 50 are at greatest risk for severe reactions. When someone is infected with West Nile virus they will typically have one of three outcomes: No symptoms (80% of people), West Nile Fever (about 20%) or severe West Nile disease, (less than 1%). If you develop a high fever with severe headache, consult your health care provider.

Dehydration and heat illness can be avoided. The sun is very strong at these high elevations. Please wear sunscreen, light colored shirts that cover your shoulders, and a hat. Drink plenty of water.

Hypothermia is caused by exposure to cold, aggravated by wet, wind, and exhaustion. It is the number one killer of outdoor recreationists. The moment your body begins to loose heat faster than it produces it, you are undergoing exposure. Persistent or violent shivering is a clear warning
that you are on the verge of hypothermia. Symptoms may also include vague, slow, slurred speech; memory lapses or incoherence; immobile, fumbling hands; frequent stumbling; drowsiness; apparent exhaustion. To prevent hypothermia: 1) stay dry, 2) wear wool, not cotton, 3) beware of the wind, 4) understand cold (most hypothermia cases develop in 30-50 degrees, dangerous temperatures if you are wet or exhausted), 5) avoid alcohol on cold nights, 6) sleep inside a tent.

**Your safety during class is ultimately your own responsibility.** If you are concerned about your safety at any time, you have the right to choose not to participate in that activity and should alert the instructor immediately.

**Travel**

This course is taught as a series of lectures, classroom exercises, and half-day field trips to areas within 50 miles of Laramie. One-way travel should always be 1 hour or less. Transportation is provided via university vehicles.

**Communication**

Be sure to check your UW email account frequently for field trip information and class reminders. If there is a change of plans due to weather, you will receive an email by 10 AM the morning of the trip.

**Equipment**

**Required:**
Small ruler in metric and inches
Protractor (can be combined on ruler)
Tape
Scissors
Pencils/pens/colored pencils
Clipboard, mapboard, or hard surface with clips to hold down maps
Calculator
Footwear for walking on rough terrain—If you wear sandals or other inappropriate shoes into the field, you will not be allowed to participate in the field work and will not receive credit for the project
Batteries for GPS
Belt for compass

**Provided in Class:**
Field Notebook (yours to keep)
Brunton compass (to be returned, replacement $300)
Hand lens with grain size chart (to be returned, replacement $20)
GPS (to be returned, replacement $200, you must provide batteries)
Stereoscope (to be returned, replacement $30)
Acid bottle (to be returned, replacement $5)

**Recommended for field days:**
Sunscreen
Hat
Warm coat/ Raincoat
Hiking Boots
Field pouch (available at Atmosphere Mountain Works downtown)
Water bottle

**Texts:**
There are no assigned texts for this course. However, if you have not had a geology course recently, I recommend checking out any Physical Geology textbook from the library to use as a reference. Another resource is "Roadside Geology of Wyoming", which has a nice general overview of geology and interesting facts about geology in this state.

Attendance
Attendance is mandatory for this course. Field days and many class exercises cannot be made up. If you miss class for a University Excused Absence, you will be given the opportunity to write a paper in lieu of the field day you have missed.

Student Support Services
The university offers a variety of services to assist students:
In case of an accident or anything that prevents you from attending class for an extended period, contact the Office of Student Life (307)766-3296, dos@uwyo.edu.
For free counseling, contact the University Counseling Center (307)766-2187, uccstaff@uwyo.edu.
For disability support, the University Disability Support Services can be reached at (307)766-6189, udss@uwyo.edu.
The UW Veterans Services Center can be reached at (307)766-6908, uw-vets@uwyo.edu.

Academic dishonesty
Academic dishonesty is defined by UW regulation 802, revision 2, as “an act attempted or performed which misrepresents one’s involvement in an academic task in any way, or permits another student to misrepresent the latter’s involvement in an academic task by assisting the misrepresentation.” Academic dishonesty is not tolerated, and there is a well-defined university procedure to judge such cases.
Students who obtain work from previous field course students will be dismissed from the course with a grade of F.
**Tentative Grading System**

Because weather will affect our field work, this grading program will probably change during the semester. It provides an example of how the grading would work if all projects were completed without any problems.

Field Notebook Checks (Clear and complete writing in your field notebook is important!):
- Preliminary Check = 10 pts
- Midterm Check = 50 pts (including rock description from the field, data entry, etc)
- Final Check = 50 pts (including rock description from the field, data entry, etc)

Possible Projects:
- Pace and Compass Map = 10 pts
- Vedawoo Topo Map Exercise = 5 pts
- GPS Map = 5 pts
- Vedawoo Stratigraphic Column and Rock Descriptions = 15 pts
- Medicine Bow Mountains: Archean History, Glaciology and Metamorphic Rocks (in field notebook) = 20 pts of field notebook score
- Centennial Valley Stratigraphic Column = 20 pts
- Cemetery Weathering Exercise = 5 pts
- Air Photo Interpretation = 5 pts
- Map interpretation and cross sections = 20 pts
- Structure Map and Cross Section = 30 pts

Quizzes:
- Quiz 1 = 50 pts
- Quiz 2 = 50 pts
- Quiz 3 = 50 pts

Late work will be docked 10% for each day it is late (after the start of class on the due date), unless you have a University excused absence. There will be no curve in assigning final grades.

Grades will be assigned in the following designations:
- A, A-, B+, B, B-, C+, C, D, F.

There are 3 quizzes in this class. The quizzes will test you on geologic tools, skills, rock identification, and knowledge. You may use your field notebook on some of the quizzes, but no additional sheets of paper are allowed. Anything taped into your field notebook must fit on one page—no full size sheets folded up and taped in. If your notebook fails these criteria, you will not have use of it during the quiz.

Use the field notebook provided to you for this class only. Do not use this field notebook for another class this semester.

You are welcome to discuss your grade and progress at any time. Please bring your questions as soon as you can, so you will not repeat the same mistakes in future projects.
### Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 31</td>
<td>Introduction, Gear, Field Notebook Setup, Map basics, Pace and Compass Map of Campus</td>
<td>On Campus</td>
</tr>
<tr>
<td>September 2</td>
<td>More Map Basics, Igneous Rocks in Hand Sample, Rock Descriptions</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>September 4</strong></td>
<td>Vedawoo: Topo Map Basics and Igneous Rock Description; Turn in Field Notebook for Preliminary Check</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>September 7</td>
<td>Holiday</td>
<td></td>
</tr>
<tr>
<td>September 9</td>
<td>Sedimentary Rocks in Hand Sample, Rock Descriptions, Drafting Strat Columns</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>September 11</strong></td>
<td>Vedawoo: Great unconformity and stratigraphy</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>September 14</td>
<td>Paleozoic/Mesozoic History of Wyoming, Map locations (Lat Long, T&amp;R, UTM), Field Sketches</td>
<td>On Campus</td>
</tr>
<tr>
<td>September 16</td>
<td>Metamorphic Rocks, Rock Descriptions, Archean History and Glaciology</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>September 18</strong></td>
<td>Medicine Bow Mountains I</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>September 21</td>
<td>Quiz Review, Strike and Dip, Trend and Plunge</td>
<td>On Campus</td>
</tr>
<tr>
<td>September 23</td>
<td>Quiz 1</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>September 25</strong></td>
<td>Medicine Bow Mountains II</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>September 28</td>
<td>Jake Staffs, GPS, Turn in Field Notebook for Midterm Check</td>
<td>On Campus</td>
</tr>
<tr>
<td>September 30</td>
<td>Weathering: Visit to Graveyard</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>October 2</strong></td>
<td>Centennial Valley Stratigraphy I</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>October 5</td>
<td>Centennial Valley Data Analysis</td>
<td>On Campus</td>
</tr>
<tr>
<td>October 7</td>
<td>Campus Geology</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>October 9</strong></td>
<td>Centennial Valley Stratigraphy II</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>October 12</td>
<td>Quiz Review, Geologic Structures, Geologic Maps, PG Exam-style Mapping</td>
<td>On Campus</td>
</tr>
<tr>
<td>October 14</td>
<td>Quiz 2</td>
<td>On Campus</td>
</tr>
<tr>
<td>October 16</td>
<td>Geologic Mapping</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>October 19</td>
<td>Constructing a Geologic Cross Section, PG Exam-style Mapping</td>
<td>On Campus</td>
</tr>
<tr>
<td>October 21</td>
<td>Air Photo Interpretation</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>October 23</strong></td>
<td>Geologic Mapping</td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>October 26</td>
<td>Quiz Review, Cross Sections</td>
<td>On Campus</td>
</tr>
<tr>
<td>October 28</td>
<td>Quiz 3</td>
<td>On Campus</td>
</tr>
<tr>
<td><strong>October 30</strong></td>
<td>Field Make-up Day</td>
<td><strong>Field</strong></td>
</tr>
</tbody>
</table>

This schedule is tentative and will probably change due to weather.