GEOLOGY 1 EARTH SYSTEM SCIENCE FALL 2014

Lecture: MWF, 11:45–12:35

Lecturer: Dr. Stephen F. Wright
Office: Room 208 Delehanty Hall (Trinity Campus), Phone: 656-4479; email: swright@uvm.edu
Office Hours: MWF 9:30 to 10:30; F 1:30 to 3; There may be other times during the week when I can meet with you; please feel free to arrange time with me outside these office hours.

Teaching Assistants:
Geology Graduate students Teaching Labs: Gina Accorsi, Hannah Blatchford, Jennifer Bower, Alison Denn, John Gilbert, Sophie Greene, Alyson Hampsch, and Sam Lagor
The graduate student office is in Room 314 Delehanty. Lab assignments (who’s teaching which labs) and contact information are posted on the Blackboard class site.


Lab Materials: Labs will be available via the Blackboard class web site for you to download as PDF files. It is your responsibility to print a copy of the current lab and bring this with you to lab. Labs will often have a page of “Pre-Lab” questions for you to answer and turn in at the beginning of your lab.

iClickers: We’ll be using “clickers” in the class to foster your participation. You will be awarded “participation” credit for regularly using these clickers. Older versions of the iClicker will be fine for this class.

Class Tutoring and Notetaker
Tutoring is usually available through The Learning Cooperative in Living & Learning Commons Room 244. I am trying to get a notetaker who’s notes will be posted on the Blackboard site.

Course Objectives:
• I would like you to come away from this class understanding some of the fundamental processes that produce geologic materials (minerals, rocks, and surficial materials), geologic structures, and landforms in the context of Plate Tectonics;
• I would like you to appreciate geologic time, both its breadth and the rates at which different geologic processes operate;
• I also want you to learn how to observe/describe/measure different types of rocks (e.g. sandstone, limestone), structures (e.g. bedding, mud cracks, folds, faults), and landforms (e.g. mountain belts, river systems, glaciated terrain);
• Based on your observations, I want you to learn how to interpret (1) the type or types of geologic processes that have taken place, (2) a sequence of events (past geologic processes and environments) that have taken place in the past that “fit” your observations, and (3) how these geologic events fit into geologic history, specifically the geologic history of northern Vermont.

Geology is the study of “Earth Materials” and the Processes that affect those materials, usually in the context of History, sometimes short, but oftentimes a very long history. Usually geologists try to understand what’s happened in the past, but we also try to predict what will happen in the future, based on our understanding of the past and the way the earth works. Geology integrates many of the physical and biological sciences and uses a wide variety of investigative tools. In this course we will introduce you to some of these materials and processes: i.e. show you how to describe rocks, surficial materials, landforms, structures, etc. and also describe the types of processes that produce these materials and move them from one place to another both on and within the earth. We will also begin to decipher some of Earth’s past history, focusing on our local history here in northern Vermont, and discuss why this is important regarding our future. Above all, geology is about making observations of the world around us and trying to understand how it works. We will try to do that in this course.
Blackboard Class Site:
Please use Blackboard to:
(1) Find a copy of the class “Description” (this document) describing course logistics, objectives, and policies) and class “Calendar” describing class and lab schedules, reading assignments, and exam dates;
(2) View/download slides presented in lecture. Class slides will be available as PDF files;
(3) Download Labs for you to print and bring to lab;
(4) Access supplemental course materials, e.g. exam review materials;
(5) Take short, required quizzes based on your reading in the textbook.

Blackboard Quizzes: As an incentive to work your way through the textbook material in a timely way, you will be given approximately weekly on-line quizzes based on the reading from the text book. Each quiz will be available for you to take any time during an approximately week-long time block. Each quiz may be taken an unlimited number of times and only your best score will be recorded. Your low quiz score will be dropped.

Labs and Field Trips
Geologic knowledge is primarily gathered from field investigations. The field trips and labs will develop your skills of observation, description, and interpretation of geological phenomenon.

Labs meet in Room 105 Delehanty (the Geology Building). Through mid October, all of your labs will be field trips. Dress appropriately!!: Be prepared for sun, wind, rain, cold weather, mud, wind, and steep, rough, slippery ground.

Labs during the late fall/early winter will be indoors. Please bring your printed lab along with a pencil/eraser, notebook, calculator, a ruler with a centimeter scale, and a couple of colored pencils to your lab.

Missed Lab: All lab sections will be doing the same lab during the same lab cycle (usually Tuesday through Monday). If you miss a lab due to illness, you should arrange, through your TA, to attend another lab during the same lab cycle. If you have a planned absence, please work with your TA to arrange a make-up time.

The lab is a required part of this course. If you do not attend the lab or otherwise fail the lab, you will not pass this course, regardless of how well you do on the exams. Students with more than 1 unexcused lab absence will fail the lab and fail the class.

TA Lab Assignments: Please check the “Syllabus” tab of the Blackboard website to find who will be teaching your lab and how to contact them.

Grading:
Blackboard Quizzes:

iClickers: You will receive a participation grade for discussing questions I pose in class with your peers and regularly using your clicker to answer these questions.

Labs: Your lab grades will be based on Graded Lab Work and your participation.

Midterms: There will be two midterm exams given during the Monday evening class time. Material presented during the lab will appear on exams. Study questions from old exams will be posted prior to the exam. Many exam questions will be culled from examples given during class as well as quiz and study questions. No electronic devices are allowed in the exam room. This includes but is not limited to mobile phones, calculators, and computers.

Final Exam: There will be a Final Exam, approximately two thirds of which will cover material from the last third of the class and approximately one third of which will be cumulative. Material presented during the lab will appear on exams. No electronic devices are allowed in the exam room. This includes but is not limited to mobile phones, calculators, and computers.

Slides (pictures) that I project in the class or similar to ones I’ve projected during the class will appear on some exams. All lecture slides will be posted as PDF files on the Blackboard site for you to review.
Final Grade: Your final grade will be based on the above criteria weighted approximately as follows:

- Midterms (2) 30%
- iClicker participation 6%
- Final Exam 19%
- Blackboard Chapter Quizzes 13%
- Lab Work 32%

Class Rules:

Please don’t talk during class unless we’re having a class discussion. It’s very distracting to other students trying to concentrate. You’re more than welcome to get up and leave the class if you need to talk to someone.

Please turn off your phone during class. If you need to talk to or text someone during class, please leave the classroom.

I you don’t come to class, you’re still responsible for material presented in class. Please don’t email me asking questions that were answered in a class you missed.

I generally will have much more time to talk to you after class than before.
<table>
<thead>
<tr>
<th>Week</th>
<th>Monday Lecture</th>
<th>Wednesday Lecture</th>
<th>Friday Lecture</th>
<th>Field Trip/Lab</th>
<th>Readings from your textbook</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>25-Aug</td>
<td>Introduction</td>
<td>Geological Materials: Minerals; Building Blocks of Rocks</td>
<td>No Labs this week</td>
<td>Prelude (pp. 1–7); Chpt 1: pp. 16, 26, 27, 31; Chpt 3: Patterns in Nature: Minerals</td>
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<td>2</td>
<td>1-Sep</td>
<td>Labor Day Holiday</td>
<td>Mineral Classes (cont)</td>
<td>Rock Groups and the Rock Cycle</td>
<td>Huntington River Field Trip, Part 1 Interlude A: Rock Groups; Interlude C: The Rock Cycle</td>
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<td>3</td>
<td>8-Sep</td>
<td>Introduction to Sedimentary Rocks</td>
<td>Sedimentary Rocks (cont)</td>
<td>Sedimentary Rocks (cont)</td>
<td>Salmon Hole Field Trip Chpt 6: Pages of Earth’s Past; Sedimentary Rocks; Interlude E: Fossils and Evolution</td>
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<td>4</td>
<td>15-Sep</td>
<td>Relative Geologic Dating Techniques</td>
<td>Absolute Geologic Dating Techniques</td>
<td>Interpreting Depositional Environments</td>
<td>Winooski River Field Trip Chpt 10: Deep Time: How Old is Old?</td>
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<td>5</td>
<td>22-Sep</td>
<td>Introduction to Weathering Processes</td>
<td>Geology and Hydrology of Karst</td>
<td>Weathering Processes (cont)</td>
<td>Winooski Gorge Field Trip Interlude B: A Surface Vener: Sediments and Soils; Chpt 16.1 &amp; 16.7: Caves and Karst</td>
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<td>6</td>
<td>29-Sep</td>
<td>1st Midterm Exam: 7 PM; Review session during class</td>
<td>Introduction to Geologic Structures</td>
<td>Geologic Structures (cont)</td>
<td>Lessor’s Quarry Field Trip Chpt 8: Crags, Cracks, and Crumpled: Crustal Deformation and Mountain Building</td>
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<td>7</td>
<td>6-Oct</td>
<td>Geologic Structures (cont)</td>
<td>Interpreting Vermont’s Geologic History</td>
<td>Vermont’s Geologic History (cont)</td>
<td>Lone Rock Point Field Trip Chpt 11.1–11.5: A Biography of Earth</td>
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<td>8</td>
<td>13-Oct</td>
<td>Metamorphic Rocks: Classification, Structures, Associations with Plate Boundaries</td>
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<td>Chpt 7: Metamorphism: A Process of Change</td>
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<td>10</td>
<td>27-Oct</td>
<td>Plate Tectonics (cont)</td>
<td>Plate Tectonics Lab</td>
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<td>Chpt 2 (cont)</td>
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<td>11</td>
<td>3-Nov</td>
<td>2nd Midterm Exam: 7 PM; Review session during class</td>
<td>Introduction to Igneous Rocks</td>
<td>Formation of Magma</td>
<td>Only the Monday Labs Meet this Week Chpt 4: Up from the Inferno: Magma and Igneous Rocks</td>
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<td>12</td>
<td>10-Nov</td>
<td>Igneous Rocks: Classification, Types of Intrusions, Volcanos and Volcanic Eruptions</td>
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<td>Igneous Rocks and Landforms Lab</td>
<td>Chpt 5: The Wrath of Vulcan: Volcanic Eruptions Readings from E. Kolbert: &quot;Field Notes from a Catastrophe&quot;</td>
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<td>13</td>
<td>17-Nov</td>
<td>The Modern Ice Age; Introduction to Glaciers</td>
<td>Glacial Processes and Landforms</td>
<td>Interpreting Past Climate from Ice in Glaciers</td>
<td>Climate Change Lab Chpt 18: Amazing Ice: Glaciers and Ice Ages</td>
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<td>14</td>
<td>24-Nov</td>
<td>Thanksgiving Break Week</td>
<td></td>
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<td>Chpt 1: Shishmaref, Alaska; Chpt 2: A Warmer Sky</td>
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<td>15</td>
<td>1-Dec</td>
<td>Glaciers and Climate (cont)</td>
<td>LAST CLASS: Summary and Course Evaluations</td>
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<td>Chpt 19: Global Change in the Earth System</td>
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<td>Exam Week 8-Dec</td>
<td>Final Exam Friday Dec 12: 10:30 AM</td>
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<td>Chpt 3: Under the Glacier; Chpt 5: The Curse of Akkad</td>
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**NOTE:** The “Reading Assignments” and lecture topics listed here are approximate. Specific assignments will be made during class.

**GEOLOGY 1 CLASS DESCRIPTION**

**Geology 1 Calendar: Fall 2014**

- **Monday Lecture**
- **Wednesday Lecture**
- **Friday Lecture**
- **Field Trip/Lab**
- **Readings from your textbook**

- **Prelude (pp. 1–7); Chpt 1: pp. 16, 26, 27, 31; Chpt 3: Patterns in Nature: Minerals**
- **Interlude A: Rock Groups; Interlude C: The Rock Cycle**
- **Chpt 6: Pages of Earth’s Past; Sedimentary Rocks; Interlude E: Fossils and Evolution**
- **Chpt 10: Deep Time: How Old is Old?**
- **Interlude B: A Surface Vener: Sediments and Soils; Chpt 16.1 & 16.7: Caves and Karst**
- **Chpt 8: Crags, Cracks, and Crumpled: Crustal Deformation and Mountain Building**
- **Chpt 11.1–11.5: A Biography of Earth**
- **Chpt 7: Metamorphism: A Process of Change**
- **Chpt 14: River Systems Chpt 2: The Way the Earth Works: Plate Tectonics**
- **Chpt 2 (cont)**
- **Chpt 4: Up from the Inferno: Magma and Igneous Rocks**
- **Chpt 5: The Wrath of Vulcan: Volcanic Eruptions Readings from E. Kolbert: "Field Notes from a Catastrophe"**
- **Chpt 18: Amazing Ice: Glaciers and Ice Ages**
- **Chpt 1: Shishmaref, Alaska; Chpt 2: A Warmer Sky**
- **Chpt 19: Global Change in the Earth System**
- **Chpt 3: Under the Glacier; Chpt 5: The Curse of Akkad**