

## Environmental Geology (ERS 102)

Andrew Reeve Instructor 220 BGSC,

Phone: [REDACTED], E-mail: asreeve@maine.edu

Class Hours: Tu. and Th. from 9:30 to 10:45

Office Hours: Tu. and Th. 1:30 to 2:30

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**Recommended Textbook:** Environmental Geology, Merritts, Menking and DeWet, 2nd Edition. W.H. Freeman.

### Course Goals and Learning Outcomes

After successfully completing this course, students will be able to critically evaluate information communicated through the media (internet, television, radio, newspaper) related to human interaction with environmental earth systems. Specific tasks students will be able to do include:

- summarize basic scientific concepts underlying environmental hazards and the impact of environmental hazards on humans
- explain human-induced environmental issues that impact Earth's systems
- identify samples of the most common rocks and minerals
- use topographic maps
- calculate population size using simple growth models
- interpret graphs of geologic data such as flood recurrence intervals, population projections, contoured hydraulic head data, and global temperature data.
- describe the different energy resources used by humans and the consequences of their use.

### Grading:

Exams	3 × 14.% and 1 × 08%)
Final Exam	22% (Tues. May 05, 2020 @ 8:00am)
Lab Grade	24%
Attendance	04%

The lowest exam score will be weighted lower (8%) than the other three exam scores (14%).

Grades will be assigned based on the following scale:

- A 84+%
- A- 82-84%
- B+ 78-82%
- B 72-78%
- B- 70-72%
- C+ 68-70%
- C 57-68%
- C- 55-57%
- D 50-55%
- F 0-50%

## **Classroom Policies**

### *Attendance*

Students are expected to attend and participate in class and are responsible for all information presented in class. A small portion of your total grade will be based on classroom attendance and participation evaluated through the in-class (Telegram) exercises. These exercises will be collected through the use of the telegram messaging application. This application has been selected for use because it is available for a wide variety of platforms (Mac and android smartphone, laptop computers, web interface...) and is freely available (you do not need to buy a clicker). About once a week, students will be asked to write 'one minute essays' during class based on a writing prompt or provide answers to in-class exercises. Examples of writing prompts include: 'What portion of the lecture material is unclear to you?', 'What is a likely test question to come from the lecture?', 'What did you find confusing about last weeks lab?', etc. These will be graded as 'one', 'zero' or 'minus two'. Zero's will only be given to students who do not respond or who give an inadequate response. A score of negative two will be given to anyone who sends in a response that does not attend class (based on IP address, must be sent from classroom using UMaine's Wifi).

## **Classroom Policies**

### *Exams/Quizzes*

Students will be required to write down their student ID number on all exams. Please bring this number with you to all exams.

Students unable to attend a quiz or exam must notify the instructor and make alternative arrangements before the exam/quiz. In some circumstances will students be allowed to miss an exam or quiz. In these circumstances, the students final exam grade will be substituted for the missed exam grade.

## **Course Structure**

### *Lecture*

This course focuses on the interaction of humans with the environment; how humans impact the environment and how earth processes impact humans. Each segment of the course will start with a discussion of the materials and processes within each earth system, followed by descriptions of geologically relevant environmental problems associated with each system.

## **Course Structure**

### *Labs*

During laboratory sessions, students will work together in small groups to complete exercises that require the application of tools used by earth scientists. These exercises are intended to develop skills and improve understanding and require the use of basic math skills. Lab activities will require the written responses to questions related to the lab material. Short, 10 to 15 minute long, quizzes will be given at the start of each laboratory session that assess student understanding of the previous lab activity. Quizzes and completed laboratory worksheets will be weighted 60% and 40%, respectively to assign the final laboratory grade.

## **Required Policy Statements**

Information required on a syllabus by the University of Maine are listed below:

- Academic Honesty
- Sexual Violence
- Special Accommodations
- Course Schedule
- Religious Holidays

Policy statements can be found at this internet link: <https://umaine.edu/citl/teaching-resources-2/required-syllabus-information/#Academic>.

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### Lecture and Lab Schedule

All students must complete a weekly lab. Lab materials will be posted on the classes Blackboard site and must be downloaded, reviewed before the lab, and brought to each lab.

Exams will be given about every three weeks as indicated on the class schedule(below). Make up exams will not be given. Students with an acceptable and properly documented excuse may substitute a missed exam grade for the score received on the final exam. The Final Exam (Tues. 5/05/2020, 8:00am-10:00am) will be comprehensive. Please bring your Student ID with you to each exam as you will be required to write a student ID number on each exam.

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Date	Topic	Reading
Mon Jan 20	<b>Lab This Week: No Lab: First Week</b>	
Tue Jan 21	Geologic Materials	Ch 4 and Appdx 4
Thu Jan 23	Geologic Materials	Ch 4
Mon Jan 27	<b>Lab This Week: Igneous Rocks</b>	
Tue Jan 28	Earth Systems	Ch 1
Thu Jan 30	Human-Environmental Interactions	Ch 1
Mon Feb 3	<b>Lab This Week: Sedimentary Rocks</b>	
Tue Feb 4	Mineral Resources	Ch 4
Thu Feb 6	Soils and weathering	Ch 8
Mon Feb 10	<b>Lab This Week: Metamorphic Rocks</b>	
Tue Feb 11	TEST 1	
Thu Feb 13	Geologic Time	Ch 6
Mon Feb 17	Pres. Day	
Tue Feb 18	Plate Tectonics	Ch 2
Thu Feb 20	Earthquakes	Ch 3
Mon Feb 24	<b>Lab This Week: Earthquakes</b>	
Tue Feb 25	Biosphere and chemical cycles	Ch 7
Thu Feb 27	Population and sustainability	
Mon Mar 2	<b>Lab This Week: Topographic Maps</b>	
Tue Mar 3	TEST 2	
Thu Mar 5	Slope Failure	Ch 8
Mon Mar 9	<b>Lab This Week: Vernal Pools</b>	
Tue Mar 10	Water Resources	Ch 9
Thu Mar 12	Surface Water and hydrographs	
Mon Mar 16	Spring Break	
Tue Mar 17	NO CLASS:Spring Break	
Thu Mar 19	NO CLASS:Spring Break	
Mon Mar 23	<b>Lab This Week: The Crooked River</b>	
Tue Mar 24	Rivers and Flooding	Ch 9
Thu Mar 26	Groundwater Flow	Ch 10
Mon Mar 30	<b>Lab This Week: Groundwater</b>	
Tue Mar 31	TEST 3	
Thu Apr 2	Water Chemistry and Pollution	Ch 10
Mon Apr 6	<b>Lab This Week: Simulating Earth's Temperature</b>	
Tue Apr 7	Marine Systems and Coastal Hazards	Ch 12
Thu Apr 9	Atmosphere	Ch 11
Mon Apr 13	<b>Lab This Week: Peat for Energy</b>	
Tue Apr 14	Air Pollution/Climate Change	Ch 14
Thu Apr 16	Air Pollution/Climate Change	Ch 15
Mon Apr 20		
Tue Apr 21	TEST 4	
Thu Apr 23	Energy Use	Ch 13
Mon Apr 27		
Tue Apr 28	Human Energy Sources	Ch 13
Thu Apr 30	Waste Production/disposal	

This schedule is intended to serve as a guide and may be changed to accommodate the pace of the class or unforeseeable events (eg. snow days). Changes will be announced in lecture and in labs.