

Course Syllabus

GEOL 111 – Spring Semester 2008

Geology and the Environment

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| Lecturer: Susann Pinter 203 Parkinson Lab Office Hours: T,R,F 11:00-12:00 am Phone: 453-7375 Email: spinter@geo.siu.edu | Lecturer: Richard Fifarek 307 Parkinson Lab Office Hours: MWF 8:30-9:30 am; T 1:00-2:00 pm Phone: 453-7364 Email: fifarek@geo.siu.edu |
| Head TA: John Keller 101E Parkinson Lab Office Hours: TR 12:30-2:00 pm Phone: 453-8928 Email: jkeller@siu.edu | |

Course Rationale

The environment is the sum of all the features and conditions surrounding an organism that may influence it. An individual's physical environment encompasses rocks and soil, air and water, light and temperature, and other organisms present. Geology is the study of the earth. The earth provides the basic physical environment in which we live. All geology may, in one sense, be regarded as environmental. However, *Geology and the Environment* is geology applied to living organisms. This course will examine how geologic processes and hazards influence human activities (and sometimes the reverse) and the geologic aspects of pollution and waste disposal problems.

Why study geology and the environment? A primary reason is that we are increasingly faced with environmental problems to be solved and decisions to be made. In many cases, an understanding of one or more geologic processes is essential to finding an appropriate solution. Another valid reason is a curiosity about the way the earth works, about the how and why of natural phenomena.

Required Texts and Materials

This course utilizes an electronic textbook developed by the Department of Geology and Hayden McNeil Publishing. The cost of the development of this book is part of the purchase price of the laboratory manual required for Geology 112. All students in the course will have access to this book online for no additional cost. The front page of the laboratory manual contains an Access Agreement form that must be submitted to your Geology 112 laboratory Teaching Assistant (TA). Students without an original Access Agreement form on file by the end of the second week of the course will not be permitted to attend class and will not receive a grade upon completion of the course. Your TA will show you how to access the electronic textbook through Blackboard.

The electronic textbook was developed for three reasons: 1) we can take advantage of the remarkable content now available on the Web by linking relevant information to the textbook; 2) we can change content to reflect current events (e.g. hurricanes, major earthquakes, etc.); and 3) the net cost of a textbook for the course is greatly reduced. The cost of a new traditional textbook in environmental geology now exceeds \$100 while the electronic text is only a fraction of that. We have provided copies of an environmental geology textbook (Pipken and Trent, 3rd Edition) on reserve in the library for those that prefer a traditional text. Although you may find the electronic textbook awkward at first, please give it a chance. If you have questions or comments, contact the Chair of the Department of Geology, Steven Esling, at 453-7376 or esling@geo.siu.edu.

Course Objective

At the completion of Geology and the Environment, you will. . .

1. be able to understand the role of Geology in environmental and social issues.

2. have achieved a mastery of a vocabulary in the geosciences sufficient to read and converse in the subject in general, and analyze geological/environmental concerns.
3. be able to demonstrate a comprehension of fundamental laws and principles utilized in this course
4. be able to apply scientific laws and principles to new situations.
5. be able to exercise thoughtful judgment in decisions relating to the environment, resources, and society as a whole.

Instructional Mode

Lectures will present the overall concepts, introduce examples and analogies to elucidate the concepts, and place the concepts within the context of our environment. Prior study of the text before the topic is covered in class is helpful because the lectures complement the material presented in the text. There are two lecture pairs each week: M & W (2 p.m.) and T & R (10 a.m.). You will be expected to attend the lecture for which you are enrolled. There are several areas of courtesy and professional decorum that are expected and enforced. Please be on time as it is a distraction to other students when students arrive after the lecture has begun. Carrying on conversation with neighbors or on telephones, listening to personal stereos, reading newspapers or other material not relevant to the course, working on assignments for other courses, leaving early, or other disturbances during lectures are viewed as discourtesies to the class.

Attendance is expected. Attendance slips will be passed out at every lecture until 5 minutes after the hour, but attendance will be randomly recorded only 20 times during the semester. The slips will be collected at the end of the lecture period. You will earn 2 points if you are present on a date when attendance is taken. A student who arrives on time and remains for the whole lecture each time attendance is taken can earn 40 extra credit points.

Announcements will be given in lecture. Ignorance of the information cannot be considered a valid excuse for non-compliance. Each student is responsible for lecture material and reading assignments. On occasion, lecture topics appearing in the schedule may be replaced with other topics and reading assignments; such changes will be announced during the lectures. As a result, students who do not attend lectures may end up studying the wrong material for the exams.

Testing and Grading

A 50 minute exam will be given four times during the semester, roughly every four weeks. Due to the large number of students enrolled in Geology and the Environment, the first three exams will be given at **6:00 PM in the EVENINGS**. You will be informed of the exact location of the exams in lecture and lab the week before the exams. You will need to provide a No. 2 pencil. Also, it is necessary to have your student identification card. Because the lecture exams are computer-scored, you must know and remember your correct student I.D. number and the lecture section number. If you know before hand that you cannot attend the exam on the scheduled date and time, you must inform the Geol 111 Coordinator (John Keller) at least one week in advance. Students who miss the exam with an acceptable documented excuse and contact their TA or the Geology 111 coordinator within 24 hours after the exam by phone or email, may take a make-up. Prior permission is required. Those students showing up at the make-up exam without an acceptable, documented excuse will be subject to a 10 percent penalty off the exam grade.

Exam Procedures:

Exams will begin promptly. No talking is allowed during exams. Books, backpacks, and other materials must be placed on the floor during the exam. Earphones and radio transmitters are not permitted. Behavior such as, but not limited to, talking to another student, looking at notes or the textbook, looking at another student's paper, etc, is strictly prohibited. Students caught cheating will receive a grade of zero for the exam. In addition, the incident will be reported to the university for further disciplinary action.

PLEASE NOTE: The fourth exam is will be given **DURING FINALS WEEK** according to the published University Final Exam Schedule (published in the Daily Egyptian) under the section of “Classes with a Special Exam Time “ and **NOT** under the “regular day-of-week that the lecture meets” schedule. This exam is **NOT** comprehensive and will last 50 minutes.

Grading:

The lecture examinations (four 50-minute exams) will constitute 100% (400 points) of the course grade. It is necessary to complete all four exams. Attendance points are above and beyond the regular grades and may add points up to the total possible of 440. (400 base grade plus bonus attendance points).

Course Calendar – Lecture Sessions

| Day | Date | Topic | Readings |
|-----|------|--|----------------|
| M | 1/14 | Syllabus, Expectations | |
| T | 1/15 | Introduction to Course: What is Environmental Geology about? | |
| W | 1/16 | The Universe and Earth’s Origin | Chapter 6 |
| R | 1/17 | | |
| M | 1/21 | Martin Luther King Holiday, No Class | |
| T | 1/22 | | |
| W | 1/23 | The Human Population meets Mother Nature | Chapter 1 |
| R | 1/24 | | |
| M | 1/28 | Getting Around in Geology: | Chapter 2 |
| T | 1/29 | Atoms and Elements and Minerals | |
| W | 1/30 | Igneous Rocks and their Origin | Chapter 3 |
| R | 1/31 | | |
| M | 2/4 | Sedimentary Rocks and their Origin | Chapters 3 & 4 |
| T | 2/5 | | |
| W | 2/6 | Metamorphic Rocks and their Origin | Chapter 3 |
| R | 2/7 | | |

Wednesday, February 6, 6:00 PM Lecture Exam 1

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|---|------|---|------------|
| M | 2/11 | Plate Tectonics: Continental Drift and Seafloor Spreading | Chapter 8 |
| T | 2/12 | | |
| W | 2/13 | Plate Tectonics: The Modern View | Chapter 8 |
| R | 2/14 | | |
| M | 2/18 | Volcanoes | Chapter 13 |
| T | 2/19 | | |
| W | 2/20 | Volcanoes: Volcanic Hazard and Prediction | Chapter 13 |
| R | 2/21 | | |
| M | 2/25 | Mechanics and Effects of Earthquakes | Chapter 14 |
| T | 2/26 | | |
| W | 2/27 | Mitigation of Earthquake Damage & Earthquake Prediction | Chapter 14 |
| R | 2/28 | | |
| M | 3/3 | Time and Geology | Chapter 7 |
| T | 3/4 | | |
| W | 3/5 | Time and Geology: A Brief History of the Earth | Chapter 7 |
| R | 3/6 | | |

Wednesday, March 5, 6:00 PM Lecture Exam 2

| | | March 10-14 Spring Break | |
|---|------|--|------------|
| M | 3/17 | Global Climate Change | Chapter 17 |
| T | 3/18 | | |
| W | 3/19 | Global Climate Change | Chapter 17 |
| R | 3/20 | | |
| M | 3/24 | Global Climate Change | Chapter 17 |
| T | 3/25 | | |
| W | 3/26 | Flooding: Processes | Chapter 15 |
| R | 3/27 | | |
| M | 3/31 | Flooding: Hazard Mitigation | Chapter 15 |
| T | 4/1 | | |
| W | 4/2 | Mass Wasting and Subsidence: The Mechanics | Chapter 5 |
| R | 4/3 | | |
| M | 4/7 | Mass Wasting and Subsidence: Reducing Losses | Chapter 5 |
| T | 4/8 | | |
| W | 4/9 | Coastal Zones and Processes | Chapter 18 |
| R | 4/10 | | |

Wednesday, April 9, 6:00 PM Lecture Exam 3

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|---|------|--|------------|
| M | 4/14 | Energy Resources: Origins | Chapter 9 |
| T | 4/15 | | |
| W | 4/16 | Energy Resources: Exploitation and Environmental Issues | Chapter 9 |
| R | 4/17 | | |
| M | 4/21 | Mineral Resources: Origins | Chapter 10 |
| T | 4/22 | | |
| W | 4/23 | Mineral Resources: Exploitation and Environmental Issues | Chapter 10 |
| R | 4/24 | | |
| M | 4/28 | Water Resources | Chapter 11 |
| T | 4/29 | | |
| W | 4/30 | Meteorite Impacts | Chapter 16 |
| R | 5/1 | | |

May 5-9, Finals Week. Look for exam information in the Daily Egyptian under “exams with a special time” Announcements on locations will be made in lecture and posted on the first floor of Parkinson.