

EARTH AND ENVIRONMENTAL SCIENCES 16
EARTH SCIENCE AND THE SILVER SCREEN
FALL 2006

Instructor: Dr. Weston Dripps, 121A Plyler Hall

Class Times: 12:00 – 12:50 PM Monday – Friday; 2 – 5 PM Wednesday (Lab)

Office Hours: just drop in and see me or make an appointment

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Course Webpage: <http://blackboard.furman.edu>

Course Description and Goals:

As the global population continues to grow exponentially and the associated stress to the world's environmental systems escalates, the need for good stewards and better scientific literacy and understanding of these often complex environmental issues by the general public is becoming increasingly important. Unfortunately for many, personal perceptions and knowledge about environmental issues have been influenced by or sometimes limited to the entertainment industry's often inaccurate portrayal of these topics in film and television. The result is often a confused or misinformed general public that has difficulty separating fact from fiction with regards to many contemporary science and environmental issues.

As such, this course intends to:

- introduce you to the basic concepts of earth and environmental sciences
- engage you in scientific discussions of the world's most pressing environmental issues / debates by exploring the mass media's often inaccurate portrayal of earth science in mainstream television and film
- provide you the skills to critically evaluate scientific data / observations
- foster a better appreciation and understanding of your natural surroundings
- show you how earth science is integrally linked to your everyday lives
- make you a better informed, environmentally conscious citizen

Required Reading:

There is no explicit textbook for this course. Instead I will be providing you with a virtual textbook (in an effort to save you money and save a few trees as well). The textbook will be digitally available via the class blackboard site and will consist of scientific articles and textbook chapters that cover the wide range of topics to be discussed. **It is essential for you to have read the assigned material before coming to class so that we can have an informed, productive discussion on these topics!**

Classroom Policies:

1. *Attendance:* Attendance is mandatory! **More than three unexcused absences will result in the loss of one half letter grade on your final grade.** Social engagements will not be counted as an excused absence. It is the responsibility of the student to present evidence of illness or any other acceptable reason for missing class. If you have a special situation which will require you to miss several classes, come talk with me as soon as possible so that we can deal with your absence before the end of the term. Attendance will be taken daily. If you miss class, it is your responsibility to find out what you missed and pick up any materials (assignments, handouts, etc ...) distributed during class.

2. *In-class and out-of-class learning:* I expect you to come to class prepared! It will be necessary to have read the assigned readings and have thought about the reading **before** coming to class. You will be responsible for the information covered in the assigned readings.

3. *Late Assignments and Make Up Work:* During the course of the term you will be receiving a number of out of class assignments. The due date will be printed on each exercise. All work will be due by 5 pm on the date specified in order to receive full credit. I will accept late work up to three class days past the due date, but all late work will be subject to significant grade reductions. After three days, no work will be accepted and a grade of “0” will be recorded. If you miss an exam, lab, quiz, or assignment, you will be allowed to make up the work only if you are able to provide evidence that your absence was due to serious illness or providential reasons (death in the family, personal tragedy, etc ...). Otherwise a grade of “0” will be recorded.

Course Evaluation

My evaluation of you will be based on a combination of exams, assignments, team based exercises, quizzes, and class participation. The breakdown of the grading and the grading scheme are as follows (expressed as a % of the total grade):

Exam #1:	20%
Exam #2:	20%
Final Exam:	20%
Assignments / Exercises / Quizzes	35%
Class Participation:	5%

Exams

There will be two in class exams over the course of the term as well as a cumulative final exam. The exams will cover the content discussed in class, labs, assignments, in-class exercises, and the assigned readings. I will detail the exam format a few days before each exam. The dates for the three exams are:

Exam #1	Wednesday, October 4th
Exam #2	Friday, October 27th
Final Exam	Tuesday, December 12th at 2:30 PM

Assignments / Exercises

Over the course of the term there will be a number of out of class assignments (some individual, others with your team) that will allow you to apply your new earth science knowledge to try to answer environmental questions and problems. Many of these exercises will involve some basic quantitative analysis, which even math-phobic folks should be able to handle! An important component of being a good environmental scientist is being able to communicate your findings, both written and orally. As part of this course you will be working in small groups to research, write, and present your findings on various environmental topics. I will be providing the details for these exercises as the semester progresses.

Quizzes

Over the course of the term, there will be a number of announced short in-class quizzes on the reading material to ensure that you are doing the reading.

Class Participation

This class is intended to be an interactive introductory class which requires that you, as the student, play an active role in the class lectures, labs, and discussions. Your participation grade will be based on your performance, preparedness, and contributions in class

Your participation grade will be judged as follows:

- Excellent:* Demonstrates consistent preparedness and willingness to participate in all classroom assignments and activities (labs, lectures, in class exercises). Rarely, if ever, misses class. Enthusiastically and insightfully contributes to class discussions. Asks questions. Not only responds if called upon, but also routinely volunteers answers and questions.
- Good:* Demonstrates regular preparedness and willingness to participate in classroom assignments and activities (labs, lectures, in class exercises). Rarely, if ever, misses class. Asks frequent questions. Enthusiastically contributes to class discussions. Not only responds when called upon, but also volunteers answers and opinions with frequency.
- Fair:* Demonstrates a superficial level of preparedness and willingness to participate in classroom assignments and activities. Inconsistent attendance. Asks few questions; cannot always respond when called upon. Contributes minimally to class discussions.
- Poor:* Regularly unprepared and unable to respond to direct questions about the material. Rarely, if ever, volunteers answers or opinions. Asks few questions. Demonstrates a very low level of contribution to class discussion.

Grading Scale

A+ (99 – 100)	B+ (88 – 89)	C+ (78 – 79)	D+ (68 – 69)
A (93 – 98)	B (83 – 87)	C (73 – 77)	D (63 – 68)
A- (90 – 92)	B- (80 – 82)	C- (70 – 72)	D- (60 – 62)
F (0 – 59)			

Students with Special Needs: If a student with a disability desires an accommodation, it is the student’s responsibility to identify him or herself as having a disability and to make a formal request for appropriate accommodations. The Disabilities Services Coordinator at Furman is Gina Parris.

Academic Dishonesty: Integrity gives the educational enterprise its legitimacy. Honesty, respect, and personal responsibility are principles that guide academic life at Furman, in and out of the classroom. Academic misconduct in any form (plagiarism, cheating, inappropriate collaboration, and other efforts to gain an unfair academic advantage) threatens the values of the campus community and will have severe consequences, such as failure in the course and/or suspension or dismissal from the university.

Please familiarize yourself with Furman’s Academic Integrity and Plagiarism policies available at <http://www.furman.edu/integrity/index.htm>

Tentative Class Schedule

Week 1, Sept. 12 – 15

Tuesday: Course Introduction; Video: Geology – Why Bother?

Wednesday: The Scientific Method

Lab Period #1 – “The Core” (Burgiss Theater)

Thursday: The Earth’s Interior

Friday: Origins of Rocks and Minerals

Week 2, Sept. 18 – 22

Monday: Igneous Rocks and Features

Tuesday: Metamorphic Rocks and Features

Wednesday: Sedimentary Rocks and Features

Lab Period #2 – “10.5” (Burgiss Theater)

Thursday: Introduction to Plate Tectonics

Friday: Plate Tectonics Theory

Week 3, Sept. 25 – 29

Monday: Plate Tectonic Theory continued

Tuesday: Plate Boundaries

Wednesday: Summary of Plate Tectonics; Geology of the US

Lab Period #3 – Local Field Trip

Thursday: Earthquakes I

Friday: Earthquakes II

Week 4, Oct. 2 – 6

Monday: Video Clip Analysis

Tuesday: Review for Exam #1

Wednesday: Exam #1

Lab Period #4 – “Jurassic Park” (Burgiss Theater)

Thursday: Geologic Time

Friday: Relative Dating

Week 5, Oct. 9 - 13

Monday: Fossils and Earth History

Tuesday: Evolution

Wednesday: Evolution / Intelligent Design Debate

Lab Period #5 – “Armageddon” (Burgiss Theater)

Thursday: Catastrophism vs Gradualism

Friday: Mass Extinctions

Week 6, Oct. 16 – 20

Monday: Causes of Mass Extinctions

Tuesday: The Asteroid Threat

Wednesday: Catastrophic Events – Asteroids; Megafloods; Tsunamis

Lab Period #6 – “Tsunami” and “Megaflood” (Burgiss Theater)

Thursday: Case Study: 2004 Tsunami

Friday: Case Study: Scablands Megaflood

Week 7, Oct. 23 - 27

Monday: No Class Meeting; Work on Team Assignments

Tuesday: No Class Meeting; Work on Team Assignments

Wednesday: No Class Meeting; Work on Team Assignments

No Lab This Week

Thursday: Review for Exam #2

Friday: **Exam #2**

Week 8, Nov. 1 - 3

Wednesday: Human Impacts to the Earth

Lab Period #7 – “Day After Tomorrow” (Burgiss Theater)

Thursday: Global Warming Overview

Friday: Global Warming Impacts

Week 9, Nov. 6 – 10

Monday: Global Warming Dataset Analysis I

Tuesday: Global Warming Dataset Analysis II

Wednesday: Video Clip Analysis

Lab Period # 8 – “Category 6” (Burgiss Theater)

Thursday: Sea Level Rise Exercise

Friday: Introduction to Natural Disasters

Week 10, Nov. 13 – 17

Monday: Extreme Weather Events

Tuesday: Hurricanes

Wednesday: Case Study: *Hurricane Katrina*

Lab Period #9 – “Dante’s Peak” (Burgiss Theater)

Thursday: Volcanic Eruptions

Friday: Case Study: *Galeras Incident*

Week 11 Nov. 27 – Dec. 1

Monday: Video Clip Analysis

Tuesday: Environmental Risk

Wednesday: Case Study: *Mississippi Floods*

Lab Period #10 – First Year Seminar / Maymester Proposals

Thursday: Critique of First Year Seminar / Maymester Proposals

Friday: Course Summary

Week 12 Dec. 4 - 6

Monday: Relevant Current Events

Tuesday: Relevant Current Events

Wednesday: Review for Final; Course Evaluation

No Lab This Week.

Comprehensive Final Exam on Tuesday, December 12th at 2:30 PM