

**GSCI 340: Environmental Geology
Fall 2010**

COURSE SYLLABUS

Instructor: Ron Schott

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Office Hours: MWF 8:00am-9:00am and TuTh 10:30am-11:30am, or by appointment (please schedule appointments by e-mail)

Meeting Times: TT 9:00am - 10:15am in 124 Tomanek Hall

Textbooks: Introduction to Environmental Geology (4thEd.) Keller (2008): Prentice Hall, Upper Saddle River, NJ, 661 p. ISBN: 0-13-255150-7

The Control of Nature by John McPhee (1989), Farrar; Straus & Giroux, 272 p. ISBN: 0-374-52259-6



*"Civilization exists by geologic consent,
subject to change without notice."*

--Will Durant, American historian

Course Website: <http://hays.outcrop.org/GSCI340/> Also via Blackboard.

Course Schedule: A schedule for this course, which includes lecture topics, reading assignments and exams, is posted on the course website. Exam dates will be confirmed, during class, one week in advance.

Course Description: A survey of earth materials and processes with emphasis on environmental implications - includes natural hazards such as earthquakes and volcanoes, water and other resources, and applications of land-use planning concepts.

The major goal of this course is to increase your understanding of the principles and methods of science as applied to environmental issues on Planet Earth. During the first part of the course, you will learn about the materials (minerals, rocks, sediments and soils) that constitute the Earth, in particular the near surface portion of the crust. The second part of the course involves the study of processes originating within the Earth's interior and their expression at the surface, both on the continents and beneath the oceans. The third portion will deal with processes active at the surface that continually modify the Earth's landscape. Later sections will deal with Earth resource issues and waste disposal issues. As a result, students will receive a broad exposure to the major aspects of the Earth's geological environment and humans place in it.

Student Objectives: The goals of this course are to develop your understanding and appreciation of the methods of science as applied to the solution of geological and environmental problems and to promote an understanding the consequences of human interaction with the physical world. Students who successfully complete this course should possess a basic ability to:

- Identify systems and cycles of the Earth (including Plate Tectonics, the Rock Cycle, the Hydrologic Cycle, etc.) and understand how humans interact with these systems and cycles
- Understand the geological origin and societal importance of a variety of common rocks & minerals
- Recognize and describe common geologic hazards, understand their geologic and anthropogenic origins and methods by which their negative impacts on civilization can be mitigated
- Understand the occurrence and geologic origin of natural resources and evaluate environmental issues involved with their extraction, use, and disposal
- Critically evaluate scientific data that relates to environmental issues
- Critically evaluate both scientific and news media accounts of geologic events and of the probabilities and risks of geologic and environmental hazards.

General Education Objectives: This course qualifies for general education credit in the area of the natural sciences. As such, this course should contribute to your liberal arts education in the following ways:

- You will learn how the scientific method is applied in the field of environmental geology.
- You will gain an appreciation of the ways in which geologic materials and processes affect you as an individual and society as a whole, both directly and indirectly, throughout history and in everyday life.
- You will employ critical thinking skills to interpret geologic maps and reports, and to weigh the environmental, social, and political ramifications of geologic resource issues.
- You will demonstrate computer literacy by using computer technology to gather, synthesize, and deliver information and to communicate with your professor.
- You will further your understanding and appreciation of the aesthetic qualities of nature in geologic contexts. (There should be lots of “oohs and aahs” during slide shows of geologic landforms and videos of earthquakes and volcanic eruptions.)

Student Workload: In order to get the most from your educational dollar, students are advised to spend about two to three hours of studying and preparation for each hour spent in class. That amounts to about ten hours of studying *per week* in order to get an average grade in this class. The time you need to spend may vary, depending on your study skills and your academic goals. For most of you, your final grade will be a direct reflection of the time and effort you put into being prepared and engaged in this class on a daily basis.

Do not deceive yourself with the false expectation that because this is a general education course with no prerequisites it will be easy or will involve less work than your other classes. In fact, since most students receive little or no exposure to the subject of geology in high school, it is not uncommon that you will need to dedicate *more* time than usual to learning the vocabulary of environmental geology. This course counts just as much in terms of GPA as a 3 credit upper level class in your major – allocate your time and effort accordingly. The payoff should be worth the effort – the Earth is a fascinating system and your life will be richer when you have a better understanding of how it works.

Course Grade: Credit for GSCI 340 is only awarded upon the successful completion of the course.

The distribution of points for your final grade is as follows:

Exams (best 4 of 5 @ 15% each)	60%
Homework & Projects	20%
Lecture Quizzes (best 15)	15%
<u>Lecture Attendance and Participation</u>	<u>5%</u>
Final Course Grade	100%

Nominally and at a minimum, final grades will be assigned according to the following grading scale:

A = 100% - 90% B = 90% - 80% C = 80% - 70% D = 70% - 60% U = 60% - 0%

In general, the class average is expected to fall in the B-/C+ range (~ 2.5 to 2.7 on a 0 to 4.0 point GPA scale - excluding drops). Because I prefer to give more challenging exams, I reserve the right to modify this curve slightly (only adjusting grades upward), if necessary. This modification will occur at the end of the semester when all scores are compiled. In order to gauge your progress during the semester the best barometer will be grade distribution curves which I will publish on the class website after each exam. Any student who is concerned about their grade is encouraged to discuss their progress during office hours.

I want each and every one of you to succeed in this course and I will make every reasonable effort to help you do so. Any student experiencing difficulty with course material should contact me by e-mail or visit during office hours, as soon as possible - don't wait until it's too late! Don't be bashful - I'm being paid to work for you. Many times performance problems can be overcome if they are brought to the attention of the instructor in a timely manner. Office hours are an underutilized resource, in my experience. E-mail is also a reliable way to contact me, day or night - I'll try to get back to you as soon as I can. (Keep in mind,

though, that I'm outnumbered by my students by about a 120:1 ratio this semester, so please be patient.) A tutor may also be available for this course. And don't hesitate to ask your classmates for help!

Exams: There will be five lecture exams, of which the lowest will be dropped. Lecture exams constitute the largest subtotal of your final grade. Even though you may drop one you are advised to take them all and be well prepared for each. Each exam will cover 3-5 chapters of the textbook. They will consist of 40 multiple-choice questions. Each exam will consist of individual and collaborative sections. Study guides will be posted to the class website approximately one week in advance of each exam; an evening review session may be scheduled a few days prior to the exam. Make-up exams will only be given by *prior* arrangement or in extremely extenuating circumstances (that's the price of being able to drop an exam) - contact me ASAP to schedule make-ups. Absolutely NO make-up exams will be given after graded exams are returned in class (normally the next scheduled lecture). Check the schedule on the class website for the relevant dates and chapters covered by each exam.

Quizzes: Approximately twenty short on-line quizzes will be given during the course of the semester. These are meant to test your comprehension of the reading and lecture material and to prepare you for exam-type questions. Only the top fifteen quiz grades will count toward your final grade. Generally the quizzes will be made available on-line from the time we begin covering the material until the subsequent exam - after that they disappear into the ether. Absolutely NO make-up quizzes will be offered (except in exceptional circumstances or because of technical difficulties). Keep on top of these!

Homework & Projects: Throughout the course of the semester about ten to twelve homework and in-class projects will be given in order to give you practice with and/or expand your understanding of concepts covered in class. Five to seven will be collected and graded. I highly recommend taking the time to complete all of them, graded or not. The graded homeworks/assignments will together constitute 20% of your grade – slightly more than a test, but not droppable.

Attendance and Participation: Five percent of your final grade will be based on attendance and participation. Attendance in lecture is required. An attendance sheet will be passed around in each class. It is *your* responsibility to make sure you initial the attendance sheet (even if I forget to pass the sheet or you show up late and the sheet has already been passed). If you are absent it is your responsibility to contact a classmate to find out what was covered in lecture. It is courteous for you to contact me (preferably by e-mail) if you have a good reason for missing class and/or to arrange to make up assignments that you may have missed (or which you foresee missing, if you know you'll be absent in advance).

To receive full credit in this category you are expected to attend class regularly (<3 absences for the entire semester, barring extenuating circumstances) *and* demonstrate your active involvement in the class by asking questions, paying attention, and answering intelligently when called upon. Additional absences, unpreparedness, and general malaise will result in a lower grade.

Computer Policy: I make fairly heavy use of the internet in class and I strongly encourage students to bring their laptop/tablet/mobile computing devices to class regularly, as well. During the course of the semester there will be one or more lectures (announced in advance) when I require students to have access to a mobile computing device in class that runs, at a minimum, a Flash-enabled web browser and Google Earth. I expect every student to use their computer responsibly in support of their learning experience. Any usage that distracts other students or otherwise hinders the teaching of the subject matter will not be tolerated.

Disability Accommodations: In compliance with Fort Hays State University policy and equal access laws, disability-related accommodations or services are available. Students who desire such services are to meet with the professor in a timely manner, preferably the first week of class, to discuss their disability-related needs. For more information on university policies see the FHSU catalog beginning on page 30.

Study Tips: Always read textbook assignments prior to class meetings and bring the textbook to class. When reading the assigned chapters, it is useful to write down terms and concepts that are not clear to you. Ask about these terms and concepts in class, on the discussion board, via e-mail, or during office hours. In order to get the most out of the textbook you should review the Chapter Summary, Key Terms, answer the Review Questions, and the Critical Thinking Questions found at the end of each chapter. Also, surf the web resources and work through the quizzes for each chapter on the textbook's companion website. Lecture notes should be reviewed on a daily basis and coordinated with textbook assignments. Before exams, be sure to work through all of the questions on the study guides that are posted on the class website. Finally, discuss geology with your classmates, roommates, and anyone else who's interested!

Office Visits: Come early and often. I expect everyone to stop by at least once during the first two weeks of class. You don't need to have an environmental geology question. Just stop by and shoot the breeze once in a while. Of course, if you do have environmental geology questions don't hesitate to ask. If you can't make it during my scheduled office hours e-mail me your question or make an appointment to meet me at another time. Anyone who receives an exam grade of C or worse is expected to make an office visit to discuss a strategy for improving your performance.

Extra Credit: Extra credit is no substitute for doing the regular credit in this class. To that end, students who do not complete all of the regular credit in this class (exams, discussion contributions, quizzes, homeworks - a.k.a. "slackers") will need to do twice as much extra credit as those who complete all assignments to achieve the same level of extra credit - it is, after all, "extra" credit not "alternate" credit. Extra credit will be assigned by the instructor at his sole discretion, based on each student's performance on extra credit opportunities. Although no specific point values will be assigned to extra credit, it may be worth up to 10% of the regularly offered credit for the class (nominally one full letter grade) - your mileage may vary. Whatever you do, though, **DO NOT ASK FOR EXTRA CREDIT JUST FOR SHOWING UP!!!** (You're already getting credit for showing up.)

There are three basic ways to earn extra credit in this class:

- General effort to apply the topics of this course beyond that which is required for a grade. For example, if you (or your kid/neighbor/ roommate) have a neat rock that you want to know more about, bring it in and we'll see what we can figure out. Participation in Sternberg Geosciences Club events and/or optional field trips is always a plus.
- An extra credit reading/writing/discussion opportunity - details on the class website.
- Occasional "Geochallenges" that are designed to encourage exploration of the geosciences beyond what is covered in class may be made available via the class website. Consistent participation and successful completion of more than a few Geochallenges constitutes consideration for extra credit.

Homework Assignment #1: After today's class (as soon as humanly possible) you are to surf the class Blackboard website, and fill out the information form for Homework #1. I ask for this information because I'm trying to get to know each of you a little better. This assignment is due by the end of the second week of class (Friday, 8/27) - the sooner the better!

"The quality of a person's life is in direct proportion to their commitment to excellence, regardless of their chosen field of endeavor."

-- Vince Lombardi