Earlham College, Geosciences 211, Physical Geology
Fall 2005 4 Credits

Course Description: Geology is one of the most intriguing and exciting disciplines of scientific inquiry. Geologic phenomenon have created the hospitable surface on which humans - and all creatures - exist. As historian Will Durant remarked "Civilization exists by geological consent, subject to change without notice." At no time has this sentiment more germane than in the aftermath of the December 26, 2004 Sumatran Earthquake and resulting Indian Ocean tsunami. Geologic hazards (earthquakes, volcanoes, landslides, floods, etc.) continue to make headlines by threatening those who insert themselves in dangerous areas. For this reason alone, an understanding of geologic phenomenon is relevant for modern humans. The next 100 years will test the limits of the Earth system for assimilating environmental degradation and sustaining natural resource exploitation. depletion. As the rate of petroleum resource depletion continues to create unprecedented price increases and global tension, the need for understanding fossil fuel and mineral resource genesis becomes increasingly apparent. Comprehending geologic processes is paramount for global citizens as we confront our future in the 21st century and beyond.

This course explores the breadth of the current state of knowledge of geology, which is the science of the Earth. We will start with a discussion of Plate Tectonics, the revolutionary theory that explains how the world works. Tectonics explains the reason earthquakes, volcanoes, mountains and deserts are situated where they are. We will then study the materials that constitute our living planet (minerals and rocks) and then move on to the processes that shape and modify our Earth (and have done so back through the abyss of time).

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Ron's webpage: http://www.earlham.edu/~parkero

Office Hours Monday and Friday 11:00 - 11:30 PM, 329 Dennis or by appointment.

Class Time: Class Tuesday - Thursday 10:30 -11:50 in 014 Dennis Hall (basement).

Course Web Site: I have devised a course website that will be a useful addition to the more traditional course materials. I will post information, resources and assignments on this web page. The URLis http://www.earlham.edu/~parkero/211.htm
I will be making periodic changes to the syllabi as the term proceeds and this web site and the Moodle site are to be considered the authoritative sources for the most recent information on course assignments.

Moodle page: A Moodle site has also been set up to facilitate information transfer for the course. https://moodle.earlham.edu/ Please visit the Moodle website and register using the enrolment key provided by the instructor. You should check the Moodle course page on a weekly basis for course updates.

Lab Time: This is a lab science course. Labs are an important component of the course content because they serve to bring abstract concepts into literal focus. Lab attendance and participation are mandatory. Labs will start the second week of classes (Monday, August 29th or Tuesday, August 30th) and will meet in Dennis 314. Throughout the semester, some laboratory classes will go outside on field trips. Field trips will depart from the East Dennis Hall parking lot at 1:10 and will return to campus by 3:50. Please show up at 1:00 to hear the introductory material for field trips.

TA.s: The course has 2 Teaching Assistants, both Geosciences Majors: Nathan Henderson (hendena) and Mike Bubb (bubbmi). Nathan will be working Monday labs; Mike Tuesday labs. The TAs will play a number of roles to assist students in making progress in the course. These include: helping to prepare and teach labs; offering pre-test study sessions; answering student questions and grading quizzes and homework exercises. Please consider the T.A.s as a resource to help you.

Textbook: **Earth: Portrait of a Planet, 2nd Edition**, by Stephen Marshak, 2005, New York: W. W. Norton Company. ISBN: 0393925021. The text is mandatory. This is not the same book used in previous offerings of this course (although it is the same author).

Exams: There will be 3 exams and 1 cumulative final in this course. Exams occur approximately every 7 class meetings. The final exam is Tuesday, December 13th at 3:30 PM.

Grading: Exams/labs/homework/quizzes are 50/25/25/10 % of your grade, respectively. The exams and final are worth 12%, 12%, 12% and 14% of your grade (total of 50%), respectively. Letter grades follow: [A:90 -100%; B:80- 89%; C:70 - 79%; D:60 - 69%; F:<60%].

Final Exam: Graduating seniors may forego the final exam under the following conditions:
1.) They have a B+ (87 or higher) average after the 3rd exam, and
2.) They have perfect attendance at lecture and lab classes after the 3rd exam.

Attendance: Tuesday vocabulary quizzes and Thursday homework be used to monitor attendance. Good attendance may be considered to help those students with borderline grades.

Quizzes: Geology, like many of the natural sciences, has a language all its own. Many of the terms used in geology have specific meanings and knowledge of these meanings helps one to become conversant in this scientific language. In an effort to help students master the jargon of geology, a list of key vocabulary terms is provided with the syllabus. These words are also posted on the class website and the class Moodle site. Students will be quizzed on the definition of 5 of 10 vocabulary words at the beginning of many Tuesday classes. Quizzes account for 10% of your total grade. Missed quizzes **cannot be retaken**.

Homework: The answers to 6 questions will be due at the beginning of most Thursday classes. The 6 questions are listed on the course calendar and on the web and Moodle sites. Answers to the questions MUST be complete sentences but need not be excessively long. In most cases a sentence or two may suffice.

Webpage: As one component of your lab grade, you will each be required to design a web page that describes a geologic process, phenomenon or event. This will be done over the period of several lab sessions.

Important Fine Print:

The Americans with Disabilities Act (ADA) is a federal anti-discriminatory statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guarenteed a learning environment that provides for reasonable accommodation of their disabilities. This class is held in a building that has full ADA compliant access via the South Dennis or Wildman Science Library ramps and the Dennis Hall elevator.