12.001: Introduction to Geology – Spring 2010

Course Information
Time & Location: Monday, Wednesday & Friday, 12:00 - 14:00, 54-317

Instructors: Oliver Jagoutz Taylor Perron
Email: jagoutz@mit.edu perron@mit.edu
Office: 54-1018 54-1022
Office hours: by appointment by appointment

Teaching Assistants: Terry Blackburn Alexandra Jordan
Email: terrence@mit.edu amjordan@mit.edu
Office: 54-1118 TBA
Office hours: TBA TBA

Course website: http://stellar.mit.edu/S/course/12/sp10/12.001

Course Description and Objectives
Geology is the core discipline of the earth sciences and encompasses many different phenomena, including plate tectonics & mountain building, formation of volcanoes, earthquakes, landscape formation, earth history, and carbon cycling. Because of the ever-increasing demand for commodities and the changing climate, geology is of considerable societal relevance. This course introduces students to the basics of geology. Through a combination of lectures, labs, and field observations, we will address topics ranging from formation of the elements, mineral and rock identification, and geological mapping to plate tectonics, erosion and climate engineering.

The course is designed to be accessible to students from all disciplines. No geology background is assumed.

Course Structure
The course consists of lectures, 2 field trips, and laboratory exercises, all of which are mandatory. The material presented in lectures roughly parallels the topics of the field trips and lab exercises. Labs will be used to prepare for field trips and subsequently analyze field observations and measurements. There are four quizzes in the course.

Assessment
Grades: Grades will be assigned based on evaluation of reports from field trips and lab exercises (60%), quizzes (35%), and class participation (5%). Reports will be evaluated on clarity of presentation as well as soundness of analysis. The “rock of the week” exercises distributed every Friday throughout the semester will be equivalent to one lab.
Collaboration: Students are encouraged to collaborate on laboratory exercises, but each student must perform all the required calculations and write his/her own reports. Students who submit work that is not their own will receive no credit for the assignment.

Late assignments and missed field trips: Late assignments will be penalized one fractional letter grade (a +/- unit) per day late. Missed field trips must be excused in advance, and students must instead prepare a major written report and oral presentation on a related topic that will be assigned.

Course Materials
Textbook: Understanding Earth by John Grotzinger, Thomas H. Jordan, Frank Press and Raymond Siever, Fifth Edition. Quizzes may include material from assigned readings, even if it is not covered in lecture.

Optional reading: Building a Habitable Planet by Wallace Broecker.

Labs: Colored pencils, ruler, and calculator. Hand lenses for mineral identification will be made available to students for the labs.

Field trips: All students will need sufficient clothing and footwear to stay warm and (mostly) dry in changeable New England weather conditions. More details about equipment required for the field trips will be provided in lab sessions.