

GEOL 101: Fundamentals of Geology

Summer Session I 2012

Tuesday/Thursday 3:20 – 6:30 PM

Hunter West 511

Lecturer: Kimberly Handle
Office: 1035N **Hours:**
Office hours: T/Th 2:45 --- 3:15, or by appt.
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Course Description:

This course will be of interest to any student who wants to learn more about the Earth as well as to those contemplating a major in Environmental Studies. This course describes the Earth and the forces that shape it. We will begin with a discussion of the formation of the Earth. Next, plate tectonics, earth materials and geologic time will be discussed. The goals of the course include introducing students to geology, "systems thinking", the methods of scientific inquiry, and engendering an appreciation for the Earth and an awareness that the Earth must be stewarded wisely.

This course fulfills the 2E portion of the General Education Requirement (GER).

Course objectives

Upon completion of this course students will understand the scientific method, the formation and evolution of the Earth, plate tectonics, the rock cycle and the formation and distribution of natural resources.

Suggested Text: Essentials of Geology 3ed + Free Essentials eBook + Hunter 255 Custom Lab Manual: 978-0-393-13162-8;

Essentials of Geology 3ed 3-punch hole + Free Essentials eBook + Hunter 255 Custom Lab Manual: 978-0-393-13163-5;

Essentials of Geology 3ed eBook only + Hunter 255 Custom Lab Manual:978-0-393-13164-2;

Supplementary materials may be supplied at no extra cost

Required lab text: **Introductory Geology**, Hunter College edition
ISBN: 13:978-0-393-15716-1
Ludman and Marshack

Materials Needed: Notebook for lecture and separate marble composition notebook for lab. Pens, pencils, ruler, protractor, optional, colored pencils or similar colored writing utensils.

Overview:

This is an introductory geology course designed to fulfill the GER 2 Science requirements of CUNY-Hunter College. Fundamentals of geology is the study of the physical aspects of our planet. The goal of this course is to provide the students with a basic understanding of the forces continuously shaping the surface of our planet and the influence they have on our environment, so that their appreciation and interest in our planet is heightened. At the same time, this course provides a strong fundamental background for students who want to pursue more advanced geology courses. Topics covered will include rocks, landforms, water processes, geologic history, topics in astronomy, and also basic physics and chemistry -- and how all of these topics create an Earth system. Some basic mathematics will be included.

Creative Project:

Students have full license on how they will present their project which will be based on either the field trip or something that has caught their attention within the class content. Examples of past successful projects which convey an understanding of the material in a creative fashion, usually related to the students major, are a film prop displaying the Earth's interior with tectonic plates and convergent/divergent zones from a film major; a children's book about the formation of the solar system and planets from a child studies major; a legal deposition of one continent suing another for damages after a continental collision from a political science/law major; an intact interview of a metamorphic rock into therapy from a psychology major. The task is to accurately convey your understanding of a geologic topic.

Final/Group Presentations:

The final exam is a group project in which students selected by lottery work together on an emergency contingency plan for the survival of the species following a dramatic event such as major climate change or another mass extinction event. Students are expected to utilize the content that has been presented in class and through homework given since the midterm to think critically about their actions and society.

Students will be graded on their ability to successfully work in a group and cover all the requirements for survival (e.g. food supply, energy supply, land for living, clean water, population issues, etc.). Students will be grading each other within their groups anonymously, a rubric will be supplied. Groups will also be graded by me on their presentation, accuracy of information and other similar components, a rubric will be distributed. Presentations will be limited to 15 minutes per group. The class as a whole will also decide which contingency plan was clearest and best for the goals; the top group will be given up to 5 extra points for winning. Each group is expected to submit a formal written contingency plan; a guide will be provided.

Students' Responsibility:

Come to lecture fully prepared to participate in discussion, answer questions and engage in small group discussions where necessary. Students are advised to form study groups as soon as possible - there is a lot of material to be covered in a short amount of time, working in groups helps learning.

Grading Policy:

50% of your overall grade comes from the lecture portion of this course, 50% of your grade is the grade given by either myself or Feinberg in your lab section.

Lecture Grade Breakdown:

- 30% Creative Project**
- 30% Midterm**
- 30% Final/Group Project & Presentation**
- 10% Class Attendance and Participation**

A+	100 – 97
A	96 – 93
A-	92 – 90
B+	89 – 87
B	86 – 83
B-	82 – 80
C+	79 – 77
C	76 – 73

C-	72 – 70
D	70 – 65
F	>65

IN – incomplete is an option for exceptional circumstances
Credit/No Credit– will only be granted up until 10 minutes before final examination. Otherwise your actual grade stands.

General Rules:

Excessive lateness will not be tolerated; it is expected that you be in class on time as I will not regress in the material missed for those who show up late. If you do arrive late you must get the class information from another willing classmate or attend office hours. Excessive lateness/absences will result in a reduction of your grade by 1/3 of a letter grade for each class exceeding the maximum absenteeism of 2 classes (summer). Entrance into the classroom after we have begun can be distracting to your classmates as well as the instructor.

Lab attendance:

Lab is meant to compliment what is taught in lecture, attendance is mandatory. All policies which pertain to lecture also adhere to lab section.

Cellular and other hand held devices are not tolerated. All ringers **MUST BE TURNED OFF** or set to vibrate; this is distracting to those in the class including the instructor. Use of electronic devices during class will result in a reduction of your grade. I do not recommend the use of a laptop during lecture, this will be explained.

Academic Integrity: What is cheating or plagiarism?

Not knowing is no excuse - there is a copy of Hunter College's stand on plagiarism in Student Handbook which is available online on the college website.

If a professor suspects a violation of academic integrity it MUST be reported by the professor. This can result in academic probation, expulsion from the college... read up on the policies!

Hunter College Statement on Academic Integrity:

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures. Plagiarism, dishonesty, or cheating in any portion of the work required for this course will be punished to the full extent allowed according to Hunter College regulations.

Web Pages to supplement lecture and lab content:

http://www.curriki.org/xwiki/bin/view/Coll_kimhandle/Unit1?bc= (Units 1, 3, 4, 5, applicable to this course)

<http://webpace.ship.edu/cjwolt/geology/>

<http://ocw.mit.edu/courses/earth-atmospheric-and-planetary-sciences/12-001-introduction-to-geology-spring-2011/lecture-notes/>

<http://science.pppst.com/geology.html>

<http://ruby.colorado.edu/~smyth/G101-1.html>

SCHEDULE

Date	Notes	Material	Topic	Assignments	Laboratory
June 5	First Class Lecture 1 Chapter 1	Introduction to Syllabus, Icebreaker, Lecture	Formation of the solar system, planetary accretion, intro chemistry (atoms)	Star Formation and Planetary Accretion PDFs	Introduction to book, materials, methods
June 7	Lecture 2 Chapter 1, 10 (parts)	Discuss readings in brief <u>Moon Phase Activity</u>	Chemical bonds, planets, geologic time, moon	GeoTime Scale PDF http://www.geosociety.org/science/timescale/ Homework: Research and Write about another Earth/Planetary body collision	Lab 1: Minerals
June 12	Lecture 3 Chapter 2, 3, 4	Discuss Readings Group Homework discussion breakouts	Discuss Hmwk The way the Earth works: Earth's interior, plate tectonics, super volcanoes, igneous rocks	http://scign.jpl.nasa.gov/learn/plate.htm Home work: Research and Write down a paragraph or two on Super Volcanoes	Lab 1: Minerals & Mineral Practical
June 14	Lecture 4 Chapter 5, 6	Group Hmwk discussion breakouts <u>Sediments in water activity AND looking at real fossils</u>	Discuss Hmwk Introduction to Sedimentary Rocks	Homework: Relate fossils back to ideas on geologic time scales. Research and write a paragraph or two	Lab 2: Igneous Rocks
June 19	Lecture 5 Chapter 7, 8	Group Hmwk Discussion breakouts	Discuss Hmwk Introduction to metamorphic rocks and their formation	Research the formation of NYC in prep for field trip: http://research.amnh.org/eps/nycgeology Mannahatta Project and Welikia Projects http://welikia.org/	Lab 3: Sedimentary Rocks
June 21		Inwood OR Central Park Field trip TBD		<u>Wear appropriate walking shoes and clothing, bring water and food as you see fit.</u>	Lab 4: Metamorphic Rocks
June 26			<u>Midterm Exam</u>	Multiple choice and short answer questions, possible diagrams to draw and/or to label	Rock Practical & Begin Lab 5
June 28	Lecture 6 Chapter 11, 12	Midterms will be returned Lecture will be mainly focused on group and class discussions	Interactions of the atmosphere and hydrosphere on Earth and anthropogenic influence on today's Climate	Introduction to the Creative Project IPCC Climate Change PDF Hmwrk: Read and write critically about your own thoughts on the IPCC reading	Lab 5
July 3	Lecture 7 Chapter		Mass Extinctions,	Gaia Theory PDF http://www.gaiatheory.org/	Lab 6

	12		causes, loses and benefits		
July 5	Lecture 8	Class Discussion On Reading and web-page	The biosphere today (man) and the future, Multiple views of Earth Climate change.	Introduction to Final Project Project teams will be selected at random lottery	Lab 7
July 10			Group Project Work	<u>In class work on group projects, please bring materials for research including literature, books and computer devices.</u>	Lab 8
July 12			<u>Final Project Presentations</u>	<u>Creative Projects due</u>	Finish up