GEOL105 – PLANET EARTH

Department of Earth Sciences, USC

First lecture for Fall 2016 semester will be given at 2 pm, Monday Aug 22, in SAL101

Welcome to GEOL105, "Planet Earth." This course provides an introduction for non-geologists and non-scientists to the inner workings, origin, and history of our dynamic planet. We learn how the Earth's internal heat drives the engine that builds mountains, moves the continents, creates the ocean basins, and produces earthquakes and volcanoes. We examine the way the circulation of the atmosphere and hydrosphere are driven by solar energy, and interact with the solid earth to produce landscapes, erode and deposit sediment, and create environments for life and evolution. We investigate the techniques by which we can image the Earth's interior, measure the rates of plate motion, and infer how the planet has evolved in deep time. Each step of the way we ask ourselves how we know what we know, what we don't know, and how science establishes a body of knowledge that is generally accepted by the scientific community. This syllabus outlines the course contacts, requirements, and schedule. Additional information will be posted on Blackboard during the course.

Lectures: MWF 2:00-2:50 pm, Room SAL101
First lecture: 2 pm, Monday, Aug 22, 2016

Instructor: Professor John Platt ZHS 313 ext. 11194 jplatt@usc.edu

Textbook: E.J. Tarbuck et al., *Earth - An Introduction to Physical Geology* (11th edition, but but earlier editions are OK), published by Pearson, ISBN-13: 978-0-321-81406-7. All assigned readings will be from this textbook.

Lab Manual: *Laboratory Manual in Physical Geology* (custom edition, only available from the University bookstore). Busch (editor), AGI/NAGT, Prentice-Hall. This is required for the lab course.

Instructional Material: Announcements, illustrative material, grades, etc. will be posted on Blackboard.

Class Etiquette: Students should arrive for class prior to the 2 pm start time. Cell phones may not be used in class for either voice or text messaging, and students should refrain from talking to their neighbors during lectures. Questions to the lecturer are encouraged!

Laboratory: You must register separately for lab classes, which meet for 2 hours each week. Lab sessions will begin on Tuesday August 30 (second week of classes); no labs will be held during the first week. Lab exercises can be downloaded from Blackboard. Teaching Assistants will schedule tests on lab material and will grade all lab work; the professor will intervene only in the case of conflicts.

Field Trip: All students are required to attend a one-day field trip, during a weekend to be arranged. The field-trip grade will be based on a simple lab exercise to be carried

out in the field. If you have a valid academic or medical excuse for missing the field trip, you *must* notify Professor Platt in advance.

Provisional Schedule of Lectures

DATE		DAY	SUBJECT
Aug	22	M	Introduction to Planet Earth
	24	W	Scientific Methods in the Earth Sciences
	26	F	Plate Tectonics
	29	M	Plate Tectonics
	31	W	Plate Tectonics
Sept	2	F	Earth Materials: Minerals
	5	M	*Labor Day* (holiday)
	7	W	Earth Materials: Rocks
	9	F	Igneous Rocks
	12	M	Melting in the Earth
	14	W	Volcanoes
	16	F	Volcanic Hazards
	19	M	Sedimentary Rocks
	21	W	Metamorphic Rocks
	23	F	Geologic Time
	26	M	Geologic Time
	28	W	***Midterm Exam 1***
	30	F	Rock Deformation
Oct	3	M	Rock Deformation
	5	W	Origin of the Earth and the Solar System
	7	F	The Early Earth
	10	M	History of Life on Earth
	12	W	Evolution of the Continents
	14	F	Evolution of the Continents
	15 (Sa) or16 (Su) Field Trip (every student must attend one day)		
	17	M	Weathering and Erosion
	19	W	Mass Wasting
	21	F	Streams and Rivers
	24	M	Streams and Rivers
	26	W	Hydrologic Cycle and Groundwater
	28	F	The Climate System
	31	M	Desert Environments
Nov	2	W	***Midterm Exam 2***
	4	F	Coastal Environments and Processes
	7	M	The Deep Ocean Basins
	9	W	Glaciers
	11	F	Glaciations in Earth History
	14	M	Earthquakes
	16	W	Earthquakes
	18	F	Exploring Earth's Interior
	21	M	Exploring Earth's Interior
	23, 25	W,F	*Thanksgiving recess*
	28	M	Natural Resources
Dec	2	W	Human Impact on Earth's Environment
	4	F	Review session
	11	F	***Final Examination***: **2 – 4 p.m. in SAL101**

Maximum Scoring for Each Grade Element: Student grades are based on the cumulative score across six grade elements: laboratory work, in-class quizzes, two mid-term exams, a final exam, and a one-day field trip. The maximum number of points that can be earned for each element is given in the following table:

Grade Element	Max Credit
Laboratory Work	200 points
In-class quizzes	100 points
Midterm Exam 1	100 points
Midterm Exam 2	100 points
Final Exam	200 points
Field Trip	50 points
Total Max Credit	750 points

Extra credit is given for partipation in JEP (see below).

Examinations: The three examinations will evaluate student comprehension of the lecture and textbook material.

- Midterm Exam 1 will be given in class on Wednesday Sept 28; it will cover the material presented in lectures from Aug 22 through Sept 23.
- Midterm Exam 2 will be given in class on Wednesday November 2; it will cover the lectures from Sept 26 through October 28.
- The Final Exam will be given from 2 - 4 pm on Friday, December 9; it will be a *comprehensive examination*, covering all lectures and reading assignments throughout the semester, but a special emphasis will be placed on the material in lectures from Oct 31 to the end of classes.

If you want to do well on the exams, we encourage you to attend class faithfully, take notes in class, read the textbook, and review the lectures. Pdf versions of the lecture slides will be posted on Blackboard. All exams will be objective (true/false or multiple choice), and grading will be done using Scantron.

Missed examinations
If you have to miss an examination because of illness or an academic conflict, you must inform the Professors by email in advance, and provide documentation. Make-ups of examinations will, in general, NOT be permitted except for extraordinary circumstances (e.g., documentable conflicts with other USC-related commitments).

Assignment of Final Grades: Each student will receive a final grade based on their cumulative score. The grading curve will have an *approximate* distribution as follows:

A: 15% of total enrollment
B: 35% " "
C: 35% " "
D: 15% " "

Based on previous classes, a grade of F is typically assigned to a cumulative score that is less than 45%. Note that the cut-off for Pass/No Pass is equivalent to a C- letter grade.

Extra Credit: Students can earn extra credit for participation in JEP (Joint Educational Project) The credit will be added to your grade *after* the class grades are curved, and the increase in grade will be limited to one-third of a grade step (e.g., from a B+ to an A- or from a C to a C+). *No other forms of extra credit will be given at any time during the class or at the end of the semester for any reason.*

Field-Trip Make-Up Report. If you miss the field trip due to a documented sickness or valid academic excuse *approved beforehand by the Professors*, you can make up the lost credit by turning in a written 4-page report based on a geological topic assigned by the instructor.

Disability Services: Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. P*lease be sure the letter is delivered to an instructor as early in the semester as possible*. DSP is located in Grace Ford Salvatori Hall, 120, and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number is (213) 740-0776; email is ability@usc.edu