

# EAS 2600: Earth Processes (Majors Section)

THE GEORGIA INSTITUTE OF TECHNOLOGY

August 23 - December 8, 2016

Lecture: Tues., Thurs. 9:35 - 10:55 am in ES& T L1175

Lab: Assigned date and times (3 hrs) in CULC 357

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Online material: <http://geophysics.eas.gatech.edu/classes/EarthProcesses>, T-Square

## General

The purpose of this course is to provide you with an understanding of how the Earth works and how it affects you. As an inhabitant of Earth, it is important that you understand the processes that shape the landscape, cause natural hazards, influence climate change, and produce natural resources. Knowledge of how the Earth works can also help you in your daily lives. For example, it is useful to be able to evaluate potential geologic hazards when buying a home, make informed decisions about the use and conservation of natural resources, and better appreciate features you might encounter in the mountains, at the beach, or when visiting a national park.

**Office Hours:** Wednesday: 1-2 pm, Thursday: 1:30-2:30 pm, or by appointment. Email is preferred for quick, short-answer questions, particularly about logistics. However, if you've run into a conceptual block, or would like to discuss a topic in more detail, this is best done during office hours, or by appointment.

**Required Text:** Grotzinger, J. & T. Jordan, *Understanding Earth, 6<sup>th</sup> (or 7<sup>th</sup>) Ed.*, Freeman Press, 672 (650) pp., ISBN: 1429219513 (1464138745), 2010 (2014).

Because the material is largely duplicative between the two versions, students may use either of the above editions of this book. Chapter numbers described in the outline on page 3 correspond to both versions.

**Online Resources and Communication:** The course webpage (listed above) and T-Square are the primary organizational resources for information about the class. *Please keep in mind that I will post class presentations when possible as an added benefit to you. Do not expect that this material will be comprehensive, and it should not be considered an adequate substitute for attending class and reading the text.*

All email associated with this class should be identified with [EAS 2600] as the beginning of the subject line. In addition to putting this in the subject line of your emails to the instructors, please add [EAS 2600] to your email whitelist in order to avoid getting email communications deemed as spam. I will not consider the argument that an important email notification was sent to SPAM as an appropriate excuse for missed information.

## Evaluation

**Exams:** There will be four (4) exams covering all material presented during the lecture portion of the course, three (3) mid-term exams, and one (1) comprehensive final. With the exception of cases of academic

misconduct, the top three (3) scores will be equally weighted to define the lecture portion of your grade. **Because of this, there will be absolutely NO make-up exams.** If you miss an exam for any reason, that exam will be considered your lowest grade. You cannot miss two exams and reasonably expect to pass this class (this is nearly impossible). Because the *final exam may be considerably longer and comprehensive*, it would make good sense to take the first three exams, if possible.

Be careful, I draw from old and develop new questions that test your understanding, and not necessarily your memorization. Thus, it is important for you to comprehend the topics discussed. If you find that you are having difficulties understanding topics, please discuss this with me outside of class, when it arises. *Do not expect to do well by cramming just before the exam.*

**Quizzes:** Throughout the course I will administer a number (5-10) of unannounced brief quizzes that will occur at the beginning or end of lecture. These quizzes will be considered *extra credit*, with each adding up to a half percentage point to your course grade. Thus you will have the opportunity to improve your final grade by 2.5 to 5%. Quizzes will be based off of material covered in either previous lectures or the book, including the reading material for that day's lecture. **No other extra credit will be considered.**

**Labs:** All students must sign up for laboratory sections, as this is a required portion of the course and represents 20% of your grade. A separate lab syllabus will be handed out during your first lab section. Keep in mind that all lab reports will count toward your course grade, and hence it is not advisable to miss any lab. As well, these labs are designed to help your overall understanding of the course, and should help you perform better during exams.

As this is the first time we will be offering a Majors (and interested) section of the class, we are not yet offering a completely separate lab section. Thus, your labs will be with the much larger class at a range of times. I will try to organize a few field-based and other exercises through the semester, but their occurrence will be dependent on your available schedules.

**Absences:** If for some reason you cannot take an exam, it will be considered your "dropped" exam. Under no circumstances will students be allowed to make up extra credit quizzes. Please remember that in all serious situations (death in the family, serious illness, etc.) you should go to the Dean of Students as they are there to help you in these cases (<http://www.deanofstudents.gatech.edu/>).

**Course Grade:** Your grades will be based on your performance during exams (80%) and labs (20%).

- Letter Grade:  $A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 60\% > F$
- Satisfactory/Unsatisfactory:  $S \geq 70\% > U$

## Academic Honesty

**General:** It is expected that all students are aware of their individual responsibilities under the Georgia Tech Academic Honor Code, which will be strictly adhered to in this class. The complete text of the Honor Code may be found at: <http://honor.gatech.edu>.

**Exam:** All information required for exams will be supplied. Reference to texts or other documents during exams is strictly forbidden. The use of electronic devices (e.g. cellular phones, computers, calculators etc.) during exams and quizzes is not allowed. If you are caught reading, or communicating on any electronic device, your exam is finished, and further disciplinary actions are likely. If you are caught cheating, or otherwise not adhering to exam rules, you will receive a 0% on that exam, and that exam **will not** count as your dropped exam grade.

## Lecture Outline

Date	Chapter	Topic
Aug 23 (Tu)	—	Intro
Aug 25 (Th)	Ch. 1	Earth system
Aug 30 (Tu)	Ch. 2	Plate Tectonics
Sep 1 (Th)	Ch 7	Deformation of Rocks/Mtn Bldg
Sep 6 (Tu)	Ch 12	Volcanoes
Sep 8 (Th)	Ch 13	Earthquakes: I
Sep 13 (Tu)	Ch 13	Earthquakes: II
Sep 15 (Th)	Ch 3	Materials: Rocks/Minerals
Sep 20 (Tu)	Ch 4	Igneous
Sep 22 (Th)	Ch 14	Earth's interior
Sep 27 (Tu)	Ch 5	Sedimentary (on test 2)
Sep 29 (Th)	<b>Chs. 1-4,7,12-14</b>	<b>Test 1</b>
Oct 4 (Tu)	Ch 6	Metamorphic
Oct 6 (Th)	Ch 8	Clocks in Rocks
Oct 10 - 11	<i>(no class)</i>	<i>Fall Break</i>
Oct 13 (Th)	Ch 9	Planetary
Oct 18 (Tu)	Ch 10	History of the Continents
Oct 20 (Th)	Ch 11	Geobiology
Oct 25 (Tu)	Ch 15	Climate
Oct 27 (Th)	<b>Chs. 5,6,8-11,15</b>	<b>Test 2</b>
Nov 1 (Tu)	Ch 16	Weather/Erosion
Nov 3 (Th)	Ch 17	Hydrology
Nov 8 (Tu)	Ch 18	Stream Transport
Nov 10 (Th)	Ch 19	Winds & Deserts
Nov 15 (Tu)	Ch 20	Coast lines & Ocean Basins
Nov 17 (Th)	Ch 21	Glaciers
Nov 22 (Tu)	Ch 22	Landscape Development
Nov 23 - 25	<i>(no class)</i>	<i>Thanksgiving Break</i>
Nov 29 (Tu)	Ch 23	Human Impacts
Dec 1 (Th)	<b>Chs. 16-23</b>	<b>Test 3</b>
Dec 6 (Tu)	Class Review	
Dec 8 (Th 2:50 - 5:40 pm)	<b>Chs. 1-23</b>	<b>Final Exam</b>

\* *Topics and timing are subject to change during the semester.*