EAS 2600: Earth Processes (Majors/Honor Section)

THE GEORGIA INSTITUTE OF TECHNOLOGY

August 17 - December 8, 2020 Lecture: Tues., Thurs. 9:30 - 10:45 am in ES& T \underline{L} 1116 Synchronous Online: Bluejeans via Canvas

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office: (online only) (online only)

Online material: http://geophysics.eas.gatech.edu/classes/EarthProcesses, Canvas

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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: (New) After discussion with other faculty about best approaches during this year, I've determined its best to not have pre-determined office hours, as students rarely attend these. Instead, I will be open to your communications online, and will focus on establishing one-on-one and small group meetings when necessary. Canvas messages/Email are 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 by appointment.

Required Text: Grotzinger, J. & T. Jordan, *Understanding Earth*, 6^{th} (or 7^{th}) 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 4 correspond to both versions.

Required Electronics: Students must have a computer with reliable high-bandwidth internet, a functional webcam, speakers, and microphone (headphones are fine). A quiet and minimally disruptive environment for online activities and study are important.

Online Resources and Communication: Canvas is the primary organizational resource for information about the class. Lectures are planned to be live or pre-recorded with discussion to follow. We will be using The BlueJeans Meeting schedule within Canvas for classes unless you hear otherwise during the semester. All lecture material will be recorded and available on Canvas. Being at class and on-time is essential for performing best in this course.

Communication is planned too through Canvas using either the internal email-like application, Canvas

announcements, or discussion. If you need to email me outside of Canvas, please identify [EAS 2600] at the beginning of the subject line.

Health: For any face-to-face contact, all people involved must have a good mask covering their mouth and nose at all times. All interactions should be with at least 6 feet of separation. All materials and discussions are planned to be made available for remote instruction. If we have any in-class/in-lab activities attendance will only be monitored for contact-tracing, and will not be used for determination of your grades. Your safety, that of your families, our TA's, and mine are of the utmost importance, followed by a quality education. More information on GT guidance with regards to face-coverings and other COVID-related information is available at: http://health.gatech.edu/coronavirus/students

Students with Disabilities: If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Evaluation

Weekly Quizzes: At the beginning of every Tuesday class (after the first week), we will have a brief quiz (~10 min) on the prior weeks material. The only exception is the first week in November, where it will be on Thursday (Nov 5th). These will be administered through Canvas, and can only be taken at that time. There are 14 planned (last on Nov. 24th), with the lowest **two (2)** being dropped. For those unhappy with their performance during their class, they can replace two of their quiz grades with a comprehensive optional quiz during the final exam period. Otherwise, you do not need to take a quiz or exam in this class during that period. Quizzes will focus on lecture and discussion material. No extra credit will be considered.

Labs: All students must sign up for the laboratory section associated with the class, 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. The labs are designed to help your overall understanding of the course, and should help you perform better during quizzes. Normally, labs include both in-lab activities as well as on-campus, and off-campus trips. Because the nature of COVID transmission and our University guidance are both fluid and difficult to predict, it is unclear whether we will have any actual face-to-face interaction... stay tuned.

Attendance: Because of the size of this class (> 20 students) and limited classroom space, it is unlikely that we will actually meet in the room during the semester. Instead, you are expected to 'attend' class remotely. I will not be taking direct attendance, but if you miss a quiz without a university-approved reason it will count as one of your dropped scores. In any serious situation that precludes your participation in class (death in the family, serious illness, etc.) you should contact 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 Quizzes (80%) and Labs (20%).

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

Quizzes and Exams: All quizzes are planned to be administered through Canvas, and will be available for only a short window. Proper review of lectures and readings will ensure your best performance during these assessments. Relying on real-time lookup is not the intent of this course, and will likely be detrimental to your performance. You are forbidden from sharing answers during, or otherwise while a quiz or exam is still open for others to take. If there is evidence of such, you will be reported to the Dean of Students, receive a zero (0%) on the quiz and will, and that score will not be dropped in determining your final grade.

Student-Faculty Expectations

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgment, and responsibility between faculty and students. Please see http://catalog.gatech.edu/rules/22/for some basic expectation that we should have of each other. Ultimately, we should respect each others time, hard work, and quest for knowledge. We all should strive to build an environment for cordial and effective interaction.

Pathway to success:

Students do best in this course if they keep up with reading, actively participate in lecture and lab meetings, turn in assignments on time, and rapidly seek help if they begin to fall behind, or are having difficulty with a topic. Note that chapters are listed with each lecture, and I will not explicitly tell you to read beforehand. When prepping for quizzes, it is wisest to focus on content that was discussed in lecture rather than material only covered in the book. Finally, I try to focus the course on understanding processes rather than memorizing jargon. That said, a certain amount of jargon is innevitable. The jargon that I expect you to know are usually underlined during my lectures.

Lecture Outline

Date	Chapter	Topic
Aug 18	Ch 1	Earth system/Intro.
Aug 20	Ch 2	Plate Tectonics
Aug 25 (Q)	Ch 3	Materials: Rocks/Minerals
Aug 27	Ch 4	Igneous
Sep 1 (Q)	Ch 12	Volcanoes: I
Sep 3	Ch 12	Volcanoes: II
Sep 8 (Q)	Ch 13	Earthquakes: I
Sep 10	Ch 13	Earthquakes: II
Sep 15 (Q)	Ch 14	Earth's interior: I
Sep 17	Ch 14	Earth's Interior: II
Sep 22 (Q)	Ch 6	Metamorphic
Sep 24	Ch 7	Deformation of Rocks/Mtn Bldg: I
Sep 29 (Q)	Ch 7	Deformation of Rocks/Mtn Bldg: II
Oct 1	Ch 5	Sedimentary
Oct 6 (Q)	Ch 8	Clocks in Rocks
Oct 8	Ch 9	Planetary
Oct 13 (Q)	Ch 10	History of the Continents
Oct 15	Ch 11	Geobiology
Oct 20 (Q)	Ch 16	Weathering/Erosion/Mass Wasting
Oct 22	Ch 22	Landscape Development
Oct 27 (Q)	Ch 15	Climate
Oct 29	Ch 17	Hydrology: I
Nov 3	Ch 17	Hydrology: II
Nov 5 (Q^*)	Ch 18	Stream Transport
Nov 10 (Q)	Ch 19	Winds & Deserts
Nov 12	Ch 20	Coast lines & Ocean Basins
Nov 17 (Q)	Ch 21	Glaciers
Nov 19	Ch 23	Human Impacts: I
Nov 24 (Q)	Ch 23	Human Impacts: II
Dec 3 (Th 8:00a - 10:50a)	Chs. 1-23	Final Quiz worth 2x

Topics and timing are subject to change during the semester.

Quizzes (Q) are on most Mondays.

* Shifted because of Election Day (Go VOTE!)

Campus Resources for Students

In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

Academic support

- Center for Academic Success http://success.gatech.edu:
 - 1-to-1 tutoring http://success.gatech.edu/1-1-tutoring
 - Peer-Led Undergraduate Study (PLUS) http://success.gatech.edu/tutoring/plus
 - Academic coaching http://success.gatech.edu/coaching
- Drop-in tutoring for many 1000 level courses: Residence Life's Learning Assistance Program: https://housing.gatech.edu/learning-assistance-program
- Group study sessions and tutoring programs: http://omed.gatech.edu/programs/academic-support
- Individualized help with writing and multimedia projects: Communication Center (http://www.communicationcenter.gatech.edu)
- Academic advisors for your major: http://advising.gatech.edu/

Personal Support at Georgia Tech Resources

- The Office of the Dean of Students: http://studentlife.gatech.edu/content/services; 404-894-6367; Smithgall Student Services Building 2nd floor: You also may request assistance at https://gatech-advocate.symplicity.com/care_report/
- Counseling Center: http://counseling.gatech.edu; 404-894-2575; Smithgall Student Services Building 2nd floor
 - Services include short-term individual counseling, group counseling, couples counseling, testing
 and assessment, referral services, and crisis intervention. Their website also includes links to state
 and national resources.
 - Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2204.
- Students' Temporary Assistance and Resources (STAR): http://studentlife.gatech.edu/content/need-help: Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: https://health.gatech.edu; 404-894-1420: Primary care, pharmacy, women's health, psychiatry, immunization, allergy, health, nutrition
- OMED: Educational Services: http://www.omed.gatech.edu
- Women's Resource Center: http://www.womenscenter.gatech.edu; 404-385-0230
- LGBTQIA Resource Center: http://lgbtqia.gatech.edu/; 404-385-2679
- Veteran's Resource Center: http://veterans.gatech.edu/; 404-385-2067
- Georgia Tech Police: 404-894-2500