

EAS 2600: Earth Processes (Majors/Honor Section)

THE GEORGIA INSTITUTE OF TECHNOLOGY

January 11 - May 2, 2022

Lecture: Tues., Thurs. 9:30 - 10:45 am in ES& T L1116

Lab: Tues. 3:30 - 6:15 pm in Kendida 298 (mostly)

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office: (online only) (online only)

Online material: Canvas and <http://geophysics.eas.gatech.edu/classes/EarthProcesses>

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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: 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*, 6th (or 7th) 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 are expected to have a good mask covering their mouth and nose at all times when inside. All interactions should be with at least 6 feet of separation. Materials and discussions are planned to be made available for remote instruction. Your safety, that of your families, our TA, 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 Thursday class (including 1st week), we will have a brief quiz (~10 min) on the prior weeks material. These will be administered through Canvas, and can only be taken at that time. There are 14 planned (last on April 21). The lowest two grades can be replaced by a comprehensive final quiz during the final exam period. If you are content with your grade before the final, you do not need to take it. *Quizzes will focus on lecture and discussion material.*

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. We are planning at least 2 off-site field trips during labs, or optionally on a Saturday.

Attendance: You are expected to attend the class in-person. If health-measures require, we will offer a remote, likely synchronous option. 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: $S \geq 70\% > U$

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>.

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 inevitable. The jargon that I expect you to know are usually underlined during my lectures.

Lectures

Date	Chapter	Topic
Jan 11	Ch 1	Earth system/Intro.
Jan 13 (Q)	Ch 2	Plate Tectonics
Jan 18	Ch 3	Materials: Rocks/Minerals
Jan 20 (Q)	Ch 4	Igneous
Jan 25	Ch 12	Volcanoes: I
Jan 27 (Q)	Ch 12	Volcanoes: II
Feb 01	Ch 13	Earthquakes: I
Feb 03 (Q)	Ch 13	Earthquakes: II
Feb 08	Ch 14	Earth's interior: I
Feb 10 (Q)	Ch 14	Earth's Interior: II
Feb 15	Ch 6	Metamorphic
Feb 17 (Q)	Ch 7	Deformation of Rocks/Mtn Bldg: I
Feb 22	Ch 7	Deformation of Rocks/Mtn Bldg: II
Feb 24 (Q)	Ch 5	Sedimentary
Mar 01	Ch 8	Clocks in Rocks
Mar 03 (Q)	Ch 9	Planetary
Mar 08	Ch 10	History of the Continents
Mar 10 (Q)	Ch 11	Geobiology
Mar 15	Ch 16	Weathering/Erosion/Mass Wasting
Mar 17 (Q)	Ch 15	Climate
<i>Spring Break</i>		
Mar 29	Ch 17	Hydrology: I
Mar 31 (Q)	Ch 17	Hydrology: II
Apr 05	Ch 21	Glaciers (Guest Lecture: R. Clavette)
Apr 07 (Q)	Ch 22	Landscape Development (Guest Lecture: K. Lang)
Apr 12	Ch 18	Stream Transport
Apr 14 (Q)	Ch 19	Winds & Deserts
Apr 19	Ch 23	Human Impacts: I
Apr 21 (Q)	Ch 23	Human Impacts: II
Apr 26	Ch 1-23	(review)
May 2 (Mon. 8a - 10:50a)	Chs. 1-23	Final Quiz worth 2x
Topics and timing are subject to change during the semester.		
Quizzes (Q) are on most Tuesdays Thursdays .		

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.symplcity.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