Syllabus: GEO 302E  Earth, Wind & Fire (Spring 2022)

Location and Time:
- Main Lecture WEL 1.316, Tuesday & Thursday 3:30-4:45, or Zoom when necessary (Zoom links in Canvas)
- Lab sections: JGB 2.308, or Zoom when necessary (Zoom links in Canvas).
Unique #s 27165, 27190, 27195, 27215, 27220, 27230 (but everyone’s Canvas probably says 27165)

Instructor:
- Dr. Joel Johnson (he/him/his), Associate Professor, Dept. of Geological Sciences
- Office: EPS 3.136
- Zoom Office: https://utexas.zoom.us/j/5364780374
- Office hours: Wednesdays 11-12, or by appointment
- E-mail: joelj@jsg.utexas.edu

I check email regularly, voicemail never. Use email to schedule an in person or Zoom meeting with me (if office hours don’t work for you), ask short logistical questions about the course, or to send me links to interesting geo-related articles or videos. Apologies, but I won’t answer/explain long science questions by email.

Teaching Assistants:
- Estefania Salgado Jauregui, esalgadoj@utexas.edu
  - Office hours: Tuesdays 10-11, JGB courtyard (or Zoom when university is online).
  - Lab sections: T 12:30-2 (27195), T 2-3:30 (27220), Th 2-3:30 (27230)
- Steven Wedel, wedel@utexas.edu
  - Office hours: Thursdays 11-12, JGB courtyard (or Zoom when university is online)
  - Lab sections: M 9:30-11 (27165), M 12:30-2 (27190), M 2-3:30 (27215),

Overview:
This course is an introduction to Earth and environmental sciences for non-geoscience majors, focusing on topics relevant to society including natural hazards, anthropogenic climate change, biological evolution, and Earth resources that we all consume. I think of it as geosciences literacy—what every educated person should understand about the functioning of Earth and human environments. This is NOT an intro-to-geology class that primarily focuses on rocks.

This course is part of the Core Curriculum for Natural Science and Technology, which is “designed to help students understand the methods, approaches and theories that scientists use to answer questions about the natural world” (https://ugs.utexas.edu/core/competencies). The course is supposed to help you:

1. Effectively communicate what scientific theories and methods tell us.
2. Work effectively with others when approaching a scientific problem.
3. Identify, analyze, and synthesize the information needed to solve a scientific problem.
4. Accurately apply quantitative methods when solving scientific problems.

Attendance: Don’t come to lecture or lab when you’re sick! Email Dr. Johnson (for lecture) or your TA (for lab) if you’re not feeling well and we will make accommodations for that day, although lab and written assignments will still generally be due on time. Extended or repeated absence due to health reasons will require documentation.
Lecture attendance and participation: 3% of total grade, measured by iClicker (Cloud or physical device) when class meets in person, through Zoom polling and attendance when online. Log in to Zoom using your UT account for polling to work for you. Also, you’ll do better in the class if you attend the lectures and engage with the material! You won’t do as well if you multitask during lectures. Please sit in the back or to the side if you want to use a laptop or other device, as they are distracting to people behind you.

Lab attendance is mandatory. However, again if you’re feeling sick, email your TA ahead of time and we will accommodate, although you will still need to turn in assignments on time.

Powerpoint slides will be posted to Canvas after class. Lectures will be recorded, and available after class as well. Class recordings are reserved only for the use of members of this class (students, TAs, and the instructor) and only for educational purposes. Recordings should not be shared outside the class in any form. Violation of this restriction could lead to Student Misconduct proceedings.

Weekly Readings, written reflections, and lab section discussions: Journalism articles about science will be assigned for you to read most weeks, posted as assignments in Canvas. These will come from various sources including Scientific American, The New Yorker, NY Times, etc. Before each lab meeting, you will be required to write a summary and reflection (typically 300-400 words long) about each article or articles, as well as two discussion questions, to be submitted through Canvas BEFORE the lab meeting. “Turnitin” will be used as a first check for plagiarism. Details of the assignments will be provided in class.

Two Entirely Optional Textbooks
These book won’t be used directly, but if you think you’d read them, either one will help you. Many students have told me that they’re happy they got a book, that it helped them tie together the information. However, if you get annoyed that professors make you buy books that you then almost never use in the class, don’t get it.

UNDERSTANDING EARTH. BY GROTZINGER, JOHN AND JORDAN, THOMAS H. PUBLISHED BY FREEMAN & COMPANY, W. H. PUBLICATION DATE: DEC. 17, 2019. 9781319055325


Course Grading:
Four exams (taken online in Canvas during lecture time): 51% of total grade.
- The lowest exam score is dropped (0% of final grade), the other 3 exams are 17% each.
- If you are happy with your first 3 exam scores you do not have to take the 4th exam.
- Content of the journalism articles and lab assignments will be covered on the exams.
- Multiple choice, taken through Canvas. Open book/notes/internet, NOT open other people by any communication means. Not using Proctorio or similar.

Attendance in lecture and answering polling/iClicker questions: 3% of total grade.
- To get full credit for attendance that day you have to be logged in to the lecture for the entire time (if measured by Zoom) and enter answers to any questions I ask.
There are about 26 lectures in the class, so each lecture attendance is about 0.115% of your grade. Point is: don’t worry if you miss a single class (whether due to technical difficulties or life challenges), but if you skip most lectures your letter grade may be lower.

Lab: 46% of total grade. Lab attendance each week is mandatory: You cannot get credit for a lab assignment (or journalism article discussion) if you did not attend the corresponding lab period, unless you’ve been excused for illness.

- Weekly journalism article summary, due (submitted online) BEFORE start of your lab period: 13% of total grade.
- Weekly article discussion, ~15 minutes at start of lab period: 5% of total grade. You have to actively participate—say things/contribute to the article discussion—to get full participation credit.
- Weekly Lab Assignments, usually due at start of next lab, sometimes at end of that lab period: 18% of total grade. Probably 8 labs, 2.25% each.
- Semester-long project: Local Community Impact of Earth/Environmental Science. 10% of total grade. Project draft or summary due by Friday March 11. Final project due Thursday April 28.

Grades will be assigned as: A (100-93), A- (92.99-89.5), B+ (89.49-87), B (86.99-83), B- (82.99-79.5), C+ (79.49-77), C (76.99-73), C- (72.99-69.5), D+ (69.49-67), D (66.99-63), D- (62.99-59.5), F (< 59.5). +/- Grades will be used.

Exam dates:
- Exam 1: February 10 (Thursday)
- Exam 2: March 8 (Tuesday before spring break)
- Exam 3: April 12 (Tuesday)
- Exam 4: May 5 (Thursday, last week of classes)

Exams will not be cumulative in general, although information in the course does build on itself, and so content covered earlier is still relevant to later parts of the course. There is no final during finals week. Exams will be given through Canvas, and will be open lectures/notes/books/internet, but not open communication with other humans.

Makeup exams or alternate dates will only be allowed on a case-by-case basis. You are welcome to ask me for flexibility in accommodating various things that come up in life, although I may say no. I may refer you to:
- Student Emergency Services
  (512) 471-5017
- Student Services Building Room 4.104
- http://deanofstudents.utexas.edu/emergency/

Lab Section Information
Labs meet in JGB 2.308 (when in person) or Zoom (links on Canvas site).

Attendance is mandatory. But if you are feeling ill, email your TA and we will accommodate (documentation may be required). You must attend the lab for which you are registered. Lab periods will usually start with a group discussion about the article you read and summarized. You must be
present for the full discussion to get participation credit for it. In general, you must stay for at least 1 hour of the lab period time, although you’ll do better in the course if you stay for the full time.

If you must miss your scheduled lab section, contact your TA ahead of time to ask for permission to attend a different lab section that week.

Reading summaries are due submitted online by the start time of the lab period you are registered for. If you have a conflict one week and arrange to attend a different section later in the week, you still have to have your reading summary submitted by the start of your lab period. Similarly, lab assignments are due to your TA by the start time of your assigned lab period.

Late Labs: Some lab assignments will be due at the start of your lab the following week; others at the end of that lab period (in particular before exams). Late lab assignments will not be accepted, nor will late journalism article summaries. Lab assignments will also not be accepted if you missed the lab period when the topic was covered.

For some of the labs you will need to use Excel (preferable) or Google Sheets. Microsoft Office (online at least) is available to UT students.

Grading discrepancies: if you think an assignment or test question was graded incorrectly, let me or the TA know as soon as possible after it is returned. It is your responsibility to promptly check the grading. No changes will be made to the grading of an assignment or exam question after it has been handed back for one week. This applies to both lab and lecture.

Academic integrity is critical. In my experience, plagiarism is the most common violation. Don’t do it!

Plagiarism: Copying sentences or recognizable parts of sentences and turning them in as your own writing constitutes plagiarism. Using quotes (“”) to identify this writing does not constitute plagiarism, but extensively using direct quotes it also does not meet the expectations of the assignment (because it is not in your own words). More information on academic integrity (especially online) is here: https://deanofstudents.utexas.edu/conduct/studentonlineintegrity.php

Working together policy: I encourage you to learn from each other by working together on some aspects of the assignments. However, I expect everyone to make their own plots and figures, and the wording of the final written reports and answers to specific questions must be completed on your own, and should not be similar in wording to other people’s work. Everyone must turn in their own separate assignments.

For the journalism article summaries, you can discuss the content of the original articles with other students, but you must do all of the writing on your own. This will ensure that the wording is not similar to other people’s work. Similar or identical wording will be treated as academically dishonest.

For the lab assignments (that are always worked on during lab), you can work together on calculations and short answer questions. Questions that require longer writing can be discussed together, but the actual wording you use must be done on your own. “Working together” does NOT mean that you can copy work from anybody else, during lab or any other time.

The University Honor Code: “The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University
is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.” Students are expected to read and to strictly adhere to the University’s written policies on academic dishonesty.

I turn cases of cheating in to the Dean of Students. Sharing answers on social media is totally cheating. If you share your answers/writing/work with another student, then YOU are cheating (you’re both cheating).

**Students with disabilities** are encouraged to request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259. You are also welcome to talk to me directly about possible accommodations.

**Schedule:** **Exam dates are fixed,** everything else may change.

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<thead>
<tr>
<th>Date</th>
<th>Lecture Topic, weekly reading</th>
<th>Lab topic</th>
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<tbody>
<tr>
<td>1/18</td>
<td>Why are we here (taking this class)? Plate Tectonics 1</td>
<td>No lab this week.</td>
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<tr>
<td>1/20</td>
<td>How Earth Works: Plate Tectonics 2; What is science?</td>
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Two readings for lab:

<table>
<thead>
<tr>
<th>1/25</th>
<th>Volcanoes!</th>
<th>Tectonics</th>
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<tr>
<td>1/27</td>
<td>Supervolcanoes!</td>
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<table>
<thead>
<tr>
<th>2/01</th>
<th>Earthquake!</th>
<th>Earthquakes &amp; Volcanoes</th>
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<tbody>
<tr>
<td>2/03</td>
<td>More earthquakes, with tsunamis!</td>
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No reading or lab assignment

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<tr>
<th>2/08</th>
<th>Rocks and review</th>
<th>No lab</th>
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<tr>
<th>2/15</th>
<th>Ghosts of Climates Past: proxies</th>
<th>CO2 in the Atmosphere</th>
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<td>2/17</td>
<td>Climate foundations</td>
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“Realities vs. Misconceptions about the Science of Climate Change”

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<tr>
<th>2/22</th>
<th>Climate change 1</th>
<th>Climate Science vs Pseudoscience</th>
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<tbody>
<tr>
<td>2/24</td>
<td>Climate change 2</td>
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Reading for lab: “A Warmer Austin: The Future is Now”

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<th>3/01</th>
<th>Climate 2</th>
<th>Vostok Ice Core</th>
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<tbody>
<tr>
<td>3/03</td>
<td>Climate 3</td>
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No readings or lab, but **PROJECT DRAFTS or summaries due by end of week.**

| 3/08  | Exam 2 | |
|-------|--------||
| 3/10  | No class | |
| 3/14-3/18 | Spring Break | |
Reading for lab: “Saving the Ogallala Aquifer” by Jane Little, Scientific American 2009
3/22 Groundwater
3/24 Rivers

Reading for lab: “Down Go the Dams” by Jane Marks, Scientific American, 2007
3/29 Flooding
3/31 Hurricanes

Reading for lab: “The Sixth Extinction?” by Elizabeth Kolbert, The New Yorker, 2009
4/05 Speed Dating (No Dates, No Rates)
4/07 Geological time 2

No reading or lab assignment
4/12 Exam 3
4/14 Biological evolution and Earth

Reading for lab: “The Truth About Fracking” by Chris Mooney, Scientific American 2011
4/19 History of life
4/21 Fossil fuels

4/26 Fracking, Natural Gas and Climate
4/28 No Alternative (energy)

No reading or lab assignment
5/03 Population and exam review
5/05 Exam 4.

Commented [JJP3]: Could do a shorter one here, although I do really like the article.