



GEOS218: Geological Disasters and Society - Online Class

Description of Course

Catastrophic and hazardous earth processes (earthquakes, volcanism, severe weather, hurricanes, climate change, etc.) are inevitable and important in shaping the Earth. This course will first illustrate the scientific principles governing these processes. Once the science is understood we will then consider how damages to life and property have happened in the past and are mitigated in the future.

Instructor and Contact Information

Instructor Dr. Martin Pepper - mpepper@email.arizona.edu, office Gould-Simpson rm# 344

Class Website - <https://d21.arizona.edu/d21/home/903873>

Week/Module	Spring 2021 Dates	Topic	Textbook Chapters
1	Thurs(3/11)-Weds(3/17)	Intro – Hazards vs. Disasters – Intro Earth's interior	1 & 2
2	Thurs (3/18)-Weds(3/24)	Earth's layers - Plate Tectonics - Earthquakes	3-5
3	Thurs (3/25)-Weds(3/31)	Volcanos - Destruction and Climate Change	6 & 7
4	Thurs (4/1)-Weds(4/7)	Atmosphere Characteristics - Hurricanes and tornados	9-11
5	Thurs (4/8)-Weds(4/14)	Ocean Characteristics - Wind Waves, Rogue Waves and Tsunamis	8
6	Thurs (4/15)-Weds(4/21)	Climate Change and Frequency of Natural Disasters	12
7	Thurs (4/22)-Weds(4/28)	Floods, Impacts and Outbreaks	13 & 17
Final Exam	Starts @12am 4/29 Due by Fri (4/30) @11:59pm	Final Exam will happen at the end of week 7	

Assessment	Percentage of Course Grade
Discussion board	25%
Quizzes	25%
Lecture Notes	30%
Exam	20%

Grades are straight A, B, C, D and E:

A = $\geq 90\%$; B = 80% to 89.9%; C = 70% to 79.9%; D = 60% to 69.9%; E = $< 60\%$

Every point counts! We will NOT adjust your grade at the end of the semester so please don't ask and make sure you take advantage of all the extra credit!

Course Format and Teaching Methods (Online)

This course is taught online. All class material is delivered through D2L: lectures will consist of video presentations through Panopto, animations and videos of phenomena delivered as podcasts on D2L. Class begins on Thursday 3/11 and Lectures for the week will be available each Thursday by 12am, and you have 7 days to turn in the exercises to get full credit.

- Lecture notes, homework quizzes, discussions and extra credit opportunities will be available digitally and can be turned in either directly on D2L or written out on paper and then scanned to D2L or sent to me by email.
- **Exam will only be given through D2L.** We are offering 2 days at the end of the class to take the final exam – **please review the EXAM section of this Syllabus carefully** and mark your calendars – make-up exams will only be offered in extreme circumstances.

It is your responsibility to:

1. Watch lectures and complete all assignments sooner rather than later. We've noticed that the students that are last to complete each week's activities begin missing assignments as class continues, due to either procrastination and/or last minute overload.
2. If you are unclear about anything discussed in this class be sure to read the associated chapter in the Abbott textbook. You are expected to understand what is in each chapter, although all class content will focus on material discussed in lectures and videos.
3. Complete the online assignments/homework, quizzes by the assigned due date posted in the schedule.
4. Bring your questions and concerns to my attention by posting these to the discussion groups or emailing Dr. P.
5. Be polite and respectful of your peers and the teaching team when communicating via email or through the discussion forums.
6. **DO YOUR OWN WORK – avoid the appearance of cheating. We take this very seriously and will report any incidents.**
7. Have fun! Contact us if you want more out of the class and I can send you more info.

You will need to have an up-to-date browser, operating system and some additional software on your computer to take this class and successfully complete the final exam. Some material will be delivered as word documents, powerpoint files and/or PDF files: the appropriate software is freely available to all UA students at <http://softwarelicense.arizona.edu/students>.

Course Objectives and Expected Learning Outcomes

Our *course objectives* are to:

- Use geologic concepts and principles to demonstrate a working knowledge of earth processes in order to educate students about the underlying natural processes that give rise to natural hazards such as earthquakes, volcanic eruptions, tsunamis, floods, and more.

- Understand how society evaluates and confronts the dangers posed by these natural processes in order to minimize the costs (both life and property) to society when they do occur.
- Expose students to the technological innovations that allow an increasingly large human population to monitor, predict, and warn society about natural hazards and mitigate disasters, both before and after they occur.
- Examine how modern human society has caused changes on a global scale that affect the frequency and magnitude of natural disasters, and how we might assess and mitigate these outcomes.

Upon successful completion of this course, you will be able to:

- Explain the differences between hazards and disasters around humanity.
- Discuss the causes of different natural disasters and how they arise within the context of a larger understanding of geological processes, like plate tectonics and climate.
- Assess the relative risks associated with natural disasters and how society reduces these risks.
- Characterize how different locations are more or less prone to different types of hazards.
- Describe significant historical disasters and how they've shaped our planning.
- Gather and assess information from maps and other data visualization tools.

Our main *goals* for this class are to:

- Give you a sound physical understanding of the causes, likelihoods and risks associated with geological disasters.
- Inform you about how geological disasters can affect your daily life so that you become better informed citizens.
- Help you do well in this course.
- Facilitate your success as an online student at the University of Arizona.

Absence and Class Participation Policy

- To do well in this course, you should watch all of the lectures and other learning materials as many times as you need and take careful notes! This will provide you with the information you need to do well on homework assignments and exams.
- All material presented in D2L is fair game for the final exam.
- While you have some flexibility as to when you view each lecture, we expect you to keep up on a weekly basis so you are prepared for the final exam.

OFFICIAL UA CLASSROOM POLICIES – most of these are moot as this is an online class, but they are included for reference:

- The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>
- The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.
- Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <https://deanofstudents.arizona.edu/absences>

Makeup Policy for Students Under Extreme Circumstances

We do not accept any late assignments and we offer extra credit to make up for missed assignments. We will not extend any deadlines for students who register late, but might offer exceptions for students under extreme circumstances, determined on an individual student basis. Extreme circumstances are students that experienced any of the phenomena discussed in this class while taking this class or other accidents or medical circumstances that can be backed up by a doctor/professional written note.

Course Communications

- All information for this course is available on [D2L](#). All material will be posted on the "Course Home", "Content" and "Panopto" pages.

ONLINE OFFICE HOURS

While there are no regularly scheduled online office hours, I can be reached email or can schedule a Zoom meeting to answer any questions you may have. I will also monitor the Discussion Forums and add any clarifications and or corrections as are needed. If necessary, additional material and/or lectures may be posted for clarification purposes.

Optional Text (Lectures are structured around the following text) -

- ***Natural Disasters, Patrick L. Abbott, (10th Edition) ISBN 978-0078022982***
- The 11th Edition is coming out soon and is not substantially different for our purposes if you want to purchase it. The 9th and 8th editions are also largely similar and may be used as a substitute and should cost around \$12.50 online. Currently, the 11th editing is much cheaper than the older editions if you are going to buy new on Amazon. Textbook readings are only included to augment the information you learn in lectures and videos and explain facets of course material in more detail. If you understand the lectures and course assignments then you will do fine in this course without purchasing the textbook.

Graded Work

- Grades will be available through D2L.
- All grades will be entered into D2L within one week after the due date – please do not ask about your grade before the week is up.
- **Please make sure you do your own work on each assignment.** It is fine to work with others, but the information you write down must be in your own words and in your own format. **Identical work (content & format) will receive zero credit.** Repeat offenders of this policy will be reported to the Dean (see CHEATING section below).
- The quizzes under the Quizzes tab will be graded automatically on D2L.
- Other material will be submitted to the Assignments or Discussions sections of D2L - Comments will be made available on D2L with each grade.
- Please note the due date for each assignment: we encourage you to get your assignments in early as possible. **This online course allows you to work ahead. This is to facilitate busy students the chance to stay caught up if there happens to be an upcoming week where they will not be able to stay caught**

up. Please take advantage of this if you foresee any upcoming scheduling issues.

- **Late assignments are not accepted unless you have a doctor's note or a dean's excuse.**
- If you do not have a grade or are unhappy with your grade – please contact Dr. P. so he can address your concerns ASAP. University policy regarding grades and grading systems is available at <http://catalog.arizona.edu/policy/grades-and-grading-system>.

Get-To-Know-You (1% extra credit)

Help us all get to know you! We would like students taking this class to get to know each other this semester. Help make this happen by giving us a short video answering the questions on the form on the web page. Feel free to provide more information in the video so we can get an idea of your personality and look forward to discussion groups. Please put the video on a sharing site like YouTube, Vimeo or upload to D2L with Panopto (can be an unlisted link just for class) and email the video link to mpepper@arizona.edu by **Thursday at the start of week 2**. Please let Dr. P. know if you do not want your video shared with other students. Students that make a video get the links of the other student videos. If you do not make a video you won't get to see the other student videos.

LECTURE NOTES (30%):

There are a list of lecture questions in the D2L Assignments tab for each week. These questions help you to learn the important points of each lecture and emphasize material that will be on the exams. Students should answer these questions as they watch the lectures and videos. When you finish answering these questions, **in your own words**, they can be submitted to the assignments section of D2L either with answers imbedded in original Word file or by uploading a scanned/photographed image of completed written assignment. The due date for each Homework is by the end of each week that it was assigned. Late submissions will be docked by 25% after one day, and 50% after one week. Feel free to paste lecture info into these for your own study guides, but if you do not also answer these in your own words you will get no credit.

HOMEWORK QUIZZES (25%)

There will be online quizzes during each week. Each will consist of ~20 multiple-choice questions. These quizzes should be completed after reading/watching the related content. These quizzes can be used as a personal metric to see if you understand the material. You get one extra attempt on each quiz. The first attempts will be graded right after submission. Your highest score on each attempt automatically gets counted toward your final grade in the course and there will be no make-ups available once they close. Questions on the quizzes and lecture notes will be very similar to questions on the exam.

DISCUSSION BOARD (25%)

You will be required to post at least one unique and original comment to the discussion board each week and read and respond to other students' posts. These are part of your grade (see above) so please engage in the discussion. Discussion forums are to facilitate

communication between students and promote peer-to-peer learning and interactions. All discussions will be open at the beginning of the start of this course to allow time for all to interact. To prime these discussion forums each student must post a comment that relates to a posted link on the current forum each week to receive discussion credit. All weeks will require both posting a question and answering another student's question. If you have a question, ask. No question is too simple. We encourage you to answer any questions from your peers that you feel comfortable addressing – **the best way to learn something is to teach it to someone else**. Discussions will end on the week of their topic so make sure you post your material early to avoid missed deadlines. We will monitor the forums for content and to correct imprecise or erroneous answers. Please note that all communication in this class is open to everyone, so be polite and respectful of your peers and the teaching team (see next section).

EXAM (20%):

- One **cumulative final exam** will be given at the end of the 7-week semester (as we near the end additional info will be in D2L under Content – Final Exam Resources).
- **The dates of the exam are fixed (12:30am 4/29 to 11:59pm 4/30), please adjust your schedule accordingly.**
- **You will take the exam through D2L.**
- This exam focuses on material for the entire course and will emphasize a general understanding of the topics, rather than an ability to memorize small details. Slides, diagrams, and videos shown in class on the homework quizzes or lecture notes are commonly used during exams. Format will consist of 50 multiple-choice questions.
- To help you prepare for the exams, a brief study guide will be available on D2L a week before the exam.
- ***IMPORTANT*** Students requiring accommodations should let Dr. P know 2 weeks in advance of necessary accommodations.

EXTRA CREDIT (Up to 5%)

There will be several opportunities to earn extra credit during the semester, 4 of which are described below. **You will be allowed to earn up to 5% total extra credit**, where each extra credit point is added to your final grade. Opportunities below will not be announced in this course so you are responsible for getting these to me before deadlines lapse. EC opportunities are as follows:

- **Get to Know you Form** (1%, only one person per form): follow the guidelines in the first lecture and submit Thursday, the start of week 2.
- **Video Presentation** (2%, only one presentation per person): This is an opportunity to earn extra credit by presenting non-traditional information to the class. Your presentation could be (1) a slide show in which you describe the setting and events of a geologic disaster you experienced first-hand, (2) a 3-5 slide summary about a famous natural disaster (e.g. Great San Francisco Earthquake of 1906, Hurricane Sandy, Krakatoa, etc.), (3) a public service announcement on disaster preparedness, (4) a 3-5 slide slideshow on new construction materials or techniques designed to protect people and structures from tornadoes, etc. *Almost anything goes!!* **All presentations must be**

captured in video format and uploaded to a site like Youtube with a link sent to Dr. P. Note that **we need to approve your idea beforehand** – no credit will be given without prior approval of the subject matter. You should submit the video file and/or the link to access it (on Vimeo, Panopto or Youtube is fine) by emailing link to me by the end of the week 6. You may work with up to one other person if you know others in the class or by possibly connecting online through a platform like Zoom and recording it, but each of you must be seen and/or heard equally for credit.

- **“Disasters in Hollywood”** (1%, only one per person): watch a movie that features a natural disaster (earthquake, volcanic eruption hurricane, tornado, flood, radical climate change, etc.). In either a written report or preferably a video describe the setting of the event portrayed, the likelihood of the scale of event shown happening in reality, and assess the “believableness” of the impacts on people and property portrayed. Your report should be either 3-5 minutes in video or about 1 page in length: 12-point font, single spaced. For either video or written report you should include a figure (hand-drawn, covering 1/3 page) describing this type of disaster. Please email me these by the end of week 6 with attached files if this is a written assignment or upload video and email me the link and we or you can post to the discussion board to show classmates your video creations.
- **Extra effort and creativity in discussions** (1%): If you stand out in the discussion comments with creative ideas or solutions to the problems posed you will receive extra credit. If you feel you accomplished this please feel free to reach out to Dr. P. to discuss your post history.

NETIQUETTE

In an online classroom, our primary means of communication is written. The written language has many advantages: more opportunity for reasoned thought, more ability to go in-depth, and more time to think through an issue before posting a comment. However, written communication also has certain disadvantages, such a lack of the face-to-face signaling that occurs through body language, intonation, pausing, facial expressions, and gestures. As a result, please be aware of the possibility of miscommunication, give people the benefit of the doubt, and compose your comments in a positive, supportive, and constructive manner.

For this course, you agree to interact with others in a positive, cooperative and supportive manner and display respect for the privacy and rights of others. We do not expect any difficulties, but any inappropriate, rude or hostile communication will result in loss of privileges and may be subject to sanctions, up to and including failing the course and being reported to the Dean’s Office. If you see inappropriate material in any of the discussion forums, please let me know immediately.

Notification of Objectionable Materials

This course may contain material of a mature nature, which may include explicit language, depictions of unsettling injuries, death and/or violence. The instructor will provide advance notice when such materials will be used. Students are not automatically excused from interacting with such materials, but they are encouraged to speak with the instructor to voice concerns and to provide feedback.

Dispute of Grade Policy:

It is **YOUR** responsibility to address grading concerns promptly. We will post grades to D2L and return materials to you within one week of the due date or exam date. You then have one additional week to retrieve your graded material and make sure that it was graded and entered correctly. If no grade is posted, it is our assumption that you did not hand in the assignment, so it is your responsibility to let us know if we are in error. **If a week has passed since you handed in an assignment and you do not have a grade or are unhappy with your grade** – please contact us so we can address your concerns.

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

Inclusiveness

- Inclusive Excellence is a fundamental part of the University of Arizona's strategic plan and culture. As part of this initiative, UA embraces both the principles and the practices of diversity and inclusiveness. These values are expected, respected and welcomed in this course.
- This course supports elective gender pronoun use and self-identification; rosters indicating such choices will be updated throughout the semester, upon student request. It is vitally important for us to create an educational environment of inclusion and mutual respect.

Classroom Behavior Policy (included for completeness)

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed.

Disruptive Behavior Policy

UA Policy on Disruptive Behavior In An Instructional Setting:

See <http://deanofstudents.arizona.edu/accountability/disruptive-student-behavior> and <http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting> for the complete policy.

- **Disruptive Behavior is Prohibited:** "Disruptive behavior" means conduct that materially and substantially interferes with or obstructs the teaching or learning process in the context of a classroom or educational setting. Disruptive behavior includes conduct that distracts or intimidates others in a manner that interferes with instructional activities, fails to adhere to an instructor's appropriate classroom rules or instructions, or interferes with the normal operations of the University.
- Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave the discussion and may be reported to the Dean of Students.

Threatening Behavior Policy

UA Policy on Threatening Behavior By Students:

See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students> for the complete policy.

- **Threatening Behavior is Prohibited:** “Threatening behavior” means any statement, communication, conduct or gesture, including those in written form, directed toward any member of the University community that causes a reasonable apprehension of physical harm to a person or property. A student can be guilty of threatening behavior even if the person who is the object of the threat does not observe or receive it, so long as a reasonable person would interpret the maker’s statement, communication, conduct or gesture as a serious expression of intent to physically harm.
- The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself.

Accessibility and Accommodations

Our goal in this online classroom is that learning experiences be as accessible as possible. If you anticipate or experience academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <http://drc.arizona.edu>.

If you have reasonable accommodations, please plan to discuss with Dr. P to determine necessary accommodations and how these course requirements and activities may impact your ability to fully participate.

If at any time you are not doing as well in the class as you should be, please quickly seek some advice!

Code of Academic Integrity

Policies of the University of Arizona

See <http://deanofstudents.arizona.edu/codeofacademicintegrity> for the complete policy.

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog.

See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at <http://new.library.arizona.edu/research/citing/plagiarism>.

Violations of the UA Code of Academic Integrity are serious offenses at the University of Arizona. As your instructor, I will deal with alleged violations in a fair and honest manner. As students, you are expected to do your own work and follow class rules on all assignments unless I indicate differently. Alleged violations of the UA Code of

Academic Integrity will be reported to the Dean of Students Office and may result in sanction(s) (i.e., loss of credit on assignment, failure in class, suspension, etc.)

UA Nondiscrimination and Anti-harassment Policy

UA Policy on Nondiscrimination and Anti-harassment

See <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy> for the complete policy.

- The University is committed to creating and maintaining an environment **free of discrimination**.
- Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

- UA Academic policies and procedures are available at: <http://catalog.arizona.edu/policies>.
- Student Assistance and Advocacy information is available at: <http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>
- Office of Diversity (<http://diversity.arizona.edu/>)
- Campus Health Counseling and Psych Services: <http://www.health.arizona.edu/counseling-and-psych-services>
- Campus Health OASIS Sexual Assault and Trauma Services: <http://www.health.arizona.edu/oasis-sexual-assault-and-trauma-services>

Confidentiality of Student Records

<http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa>

Subject to Change Statement (This version is dated 1/26/21)

Information contained in the course syllabus, other than the grade policy, may be subject to change with advance notice, as deemed appropriate by the instructor.