

Syllabus for GEOS218: Geological Disasters and Society, Spring 2020

(Subject to minor revision)

Spring Semester 2020	Hybrid/Online Offering	
Instructor	Paul Goodman Department of Geosciences Office: Gould-Simpson 305 Office Hours: Tuesday 1:00-1:55pm; Wednesday 11:00-11:55am	pgoodman@email.arizona.edu
Teaching Assistant	Alejandro Blanco-Ocampo Office: Gould-Simpson XXX Office Hours: Thursday TBA	ablao20@email.arizona.edu

COURSE DESCRIPTION

Catastrophic and hazardous earth processes (earthquakes, volcanism, severe weather, hurricanes, climate change, etc.) are important in shaping the Earth. This course will acquaint students with the scientific principles governing these processes and also to consider their impact on society.

COURSE OBJECTIVES

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 process 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

EXPECTED LEARNING OUTCOMES

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

- Explain the differences between hazards and disasters
- 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

GOALS:

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 a student at the University of Arizona

FORMAT

This course will be taught as a hybrid/online class with material delivered almost entirely through D2L (<http://d2l.arizona.edu>). Lecture assessments, homework and quizzes will be distributed and turned in on D2L. **Exams, however, will be given in person.** We are offering 4 opportunities to take each of the four exams – **please review the EXAMS section of this Syllabus carefully** and mark your calendars – make-up exams will only be offered in extreme circumstances.

RESPONSIBILITIES/WHAT WE EXPECT

Unlike in-person classes where we would see each other two or three times a week, this hybrid/online course will function a bit differently, especially with regard to announcements and the usual preparation for upcoming material, assignments and short-term opportunities. It is your responsibility to:

1. Lectures for the week will generally be posted every Monday by 12 noon in the Content Section on D2L: watch them sooner rather than later.
2. It is your responsibility to read the associated chapter in the Abbott textbook. You are expected to understand what is in each chapter, although exam and quiz questions and homework assignments will focus on material discussed in lecture.
3. Complete the online assignments, homeworks, quizzes and writing assignments and/or post them to the appropriate Dropbox in D2L by the assigned due date posted in the schedule.
4. In order to get credit for viewing the lectures (attendance), you must complete the associated online lecture assessments by 5pm on Monday of the following week – see the schedule for specifics.
5. Bring your questions and concerns to our attention by posting to the discussion groups or attending the in-person office hours.
6. Be polite and respectful of your peers and the teaching team when communicating via email or through the discussion forums.
7. **DO YOUR OWN WORK** – avoid the appearance of cheating. We take this very seriously and will report any incidents.
8. Have fun! Contact us if you want more out of the class and we'll see what we can do.

COMPUTER REQUIREMENTS

If you lack access to a computer off campus, there are many computer labs on campus you can use to participate in the course including those available through OSCR (<https://oscr.arizona.edu/>) or the UA Libraries (<http://www.library.arizona.edu/services/study-spaces/computers>). You will need to have an up-to-date browser, operating system and some additional software on your computer to take this class. Some material will be delivered as powerpoint files or PDF files: the appropriate software is freely available to all UA students at <http://softwarelicense.arizona.edu/students>.

REQUIRED COURSE MATERIALS

- *Natural Disasters*, Patrick L. Abbott, (10th or 11th Editions) ISBN 978-0078022982

D2L

- **All information** for this course is available on D2L (<http://d2l.arizona.edu>). Most material will be posted on the “Course Home” and “Content” pages.
- We provide: lecture slides, animations, movie clips, review sheets, sample exams, etc. -- there is no need for you to acquire additional study materials (e.g., Notehall, ShareNotes, etc.).

ONLINE LECTURES

- Lectures for the week are recorded will be made available on D2L by 12 noon each Monday.
- The online video lectures will generally present material in a similar format to an in-class lecture with powerpoint slides and explanations, including frequent video clips, and animations.
- Short, online, lecture assessment questions (2-4 each) are assigned to ensure that the material is understood. These lecture assessments are loosely graded, and you will have the opportunity to

- review the material and retake each assessment if you wish.
- The recording will include me speaking, the lecture powerpoint, and any additional material included in the lecture
- Lecture slides are posted to D2L **after** each lecture.

ONLINE OFFICE HOURS

While there are no regularly scheduled online office hours, I and/or the TA can be reached in a D2L Chat Room to answer any questions you may have. We will also monitor the Discussion Forums and add any clarifications and or corrections as are needed. We will also be happy to answer any questions over email. If necessary, additional material and/or lectures may be posted for clarification purposes.

DISCUSSION FORUMS:

We will make available discussion forums to facilitate communication between students and promote peer-to-peer learning. 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**. 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).

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.

OFFICIAL UA CLASSROOM POLICIES – most of these are moot as this is a hybrid/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>

COMMERCIAL SELLING OF LECTURES AND OTHER COURSE MATERIALS

The University's Intellectual Property Policy, states that "course notes" and other original course material created by faculty are considered intellectual property owned by the faculty member. Consequently, if a student sells this material without the faculty member's permission, the student has improperly infringed on that faculty member's property rights.

- The lectures and course materials associated with this course are copyrighted.
- This copyright includes student notes or summaries based on these lectures and materials.

- These materials are made available only for a student's personal use.
- Students may not distribute or reproduce the materials for **commercial** purposes without my express written approval.
- Violation of this copyright may result in course sanctions as it violates the Code of Academic Integrity.

You are welcome to share your notes with your classmates in a non-commercial setting.

GRADED WORK

- Grades will be available through D2L.
- All grades will be entered into D2L within one week of 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 papers (content & format) will receive zero credit.** Repeat offenders of this policy will be reported to the Dean (see CHEATING section below).
- The lecture assessments and quizzes will be graded automatically on D2L.
- Other material will be submitted to a D2L Dropbox – these will be graded and the grades will be posted within one week of the due date. Comments will be made available on D2L.
- Please note the due date for each assignment: we encourage you to get your assignments in early as possible.
- **Late assignments will be accepted, but docked 20% per day.**
- If you do not have a grade or are unhappy with your grade – please contact us so we can address your concerns. University policy regarding grades and grading systems is available at <http://catalog.arizona.edu/policy/grades-and-grading-system>.

EXAMS (40%):

- Five 50-minute exams will be given during the semester, **four midterms**, and a **cumulative final**. Your four highest scores will count - i.e. we will drop your lowest exam score, including the final.
- **The dates of the exams are fixed, please adjust your schedule accordingly.** If you must miss an exam for a valid reason, please let Paul know as soon as possible – we will try to accommodate you, but we do drop one exam.
- **You will need your Cat Card or some other picture ID with you for each exam.**
- Each of the four midterm exams focuses on material since the previous exam.
- Exams will emphasize a general understanding of the topics, rather than an ability to memorize small details. Slides, diagrams, and videos shown in class or on the homework are commonly used during exams! Format will consist of about 20-30% written answers or drawing diagrams, and about 70-80% multiple-choice questions.
- To help you prepare for the exams, a brief study guide and an exam from a previous semester will be available on the class web site.
- ***IMPORTANT*** Students requiring accommodations should plan to take their exams at the DRC.
- ***IMPORTANT* The exam dates are set: and are as follows:**
 - Exam #1 - 2/13 or 2/14; Exam #2 - 3/5 or 3/6; Exam #3 - 4/9 or 4/10; Exam #4 - 5/5 or 5/6
 - **Optional Final Exam – 5/8 or 5/11**

HOMEWORK (15%):

There will be 7 homework assignments during the semester. These assignments emphasize material that will be on the exams. Homework will be submitted to the appropriate Dropbox on D2L. The due date for each Homework is posted in the Schedule. Late submissions will be docked by 25% if received within 2 days of the due date, and by 50% after that. **We will drop your lowest score.**

WRITING ASSIGNMENTS (15%):

There will be 3 writing assignments during the semester. These assignments fulfill a large part of the University of Arizona General Education writing requirement related to the development of various writing strategies, such as focusing ideas, drafting, revising, critical reading, and research using outside sources (<http://gened.arizona.edu/content/writing-component>). These assignments emphasize material that will be covered on the exams. Writing assignments will constitute 15% of your grade; the due dates for each assignment are posted in the Schedule. Late submissions will be docked by 25% if received within 2 days of the due date, and by 50% after that. You will have the opportunity to revise and resubmit each writing assignment (but you will NOT be able to earn back points taken away for a late submission).

QUIZZES (10%)

There will be 4 online quizzes during the semester. Each will consist of 10 multiple-choice and/or true/false questions. **We will drop your lowest score.** Questions on the quizzes will be similar to questions on upcoming exams.

ONLINE LECTURE ASSESSMENTS (ATTENDANCE, 20%)

- There will be a 2-4 question lecture assessment associated with each lecture (i.e. attendance).
- These questions are designed to ensure understanding of the main concept(s) in each lecture.
- Lecture assessments must be completed by **Monday at 5pm of the following week.**
- You will receive instant feedback on these questions and we encourage you to review the material and try the question again if you don't get it the first time. **There is no reason not to get full credit on every assessment since you can take each one over until you get a perfect score.**
- You will be graded on your 25 highest assessment scores.

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 are as follows:

- **Help us get to know you (1%):** We would like to get to know you this semester. Help make this happen by giving us a mug shot and telling us a bit about your background and interests -- use the form on the web page. Be sure to attach a photo that shows your face. Please submit the form to the appropriate Dropbox by **Monday 1/27 at 5pm.**
- **Video/Powerpoint Presentation (2%, only one presentation per person):** This is an opportunity to earn extra credit by presenting non-traditional geologic 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 powerpoint on new construction materials or techniques designed to protect people and structures from tornadoes, etc. *Almost* anything goes!! **A powerpoint presentation must include your narration, either embedded or as a transcript.** 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 Panopto or Youtube is fine) to the Dropbox by **Monday, 5/4 at 5pm.** You make work with up to one other person, but each of you must be seen and/or heard for credit.
- **Disasters in Hollywood (1%, only one per person):** watch a movie that features a geological disaster (earthquake, volcanic eruption hurricane, tornado, flood, radical climate change, etc.). Describe the geologic 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 about 1 page in length: the text of your report should be ~2/3 of a page (12-point font,

single-spaced), and you should include a figure (hand-drawn, covering 1/3 page) describing this type of disaster. This extra credit is due into the Dropbox by **Monday, 5/4 at 5pm**.

- **Extra activities** (1% each): there will be several on-line movies describing various geological disasters that will be viewed during the semester. For some of these, we will offer extra credit for a summary, answering a few questions and/or a little bit of further research.
- **Extra Participation** (1%): if you complete 30 or more lecture assessments, we will add an additional 1% to your final grade.

GRADING

Exams will make up 40% of your grade, homework will make up 15% of your grade, writing assignments will make up 15%, quizzes will make up 10% of your grade, and lecture assessments will make up 20% of your grade. You may also earn up to 5% in extra credit during the semester.

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

A = $\geq 89.5\%$; B = 79.5% to 89.4%; C = 69.5% to 79.4%; D = 59.5% to 69.4%; E = $\leq 59.4\%$

Every point counts! We will NOT adjust your grade at the end of the semester if you miss the cutoff by 0.1%, so please don't ask!

HONORS STUDENTS

Honors students can earn Honors credit in this course by signing and fulfilling the requirements of an Honors Contract. The main requirement is generally to do outside research into one particular kind of disaster of your choosing (tornadoes, landslides, hurricanes, earthquakes, tsunamis, flooding, etc.) and prepare a 10-15 minute presentation toward the end of the semester, although other Contracts will be considered. Please contact P. Goodman for further details before Feb. 1, 2020.

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. As the course includes group work and in-class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect.

ACCESSIBILITY AND ACCOMMODATIONS

- Our goal is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let us know immediately so that we can discuss options. You are also welcome to contact Disability Resources (520-621-3268, <http://drc.arizona.edu/>) to establish reasonable accommodations.
- If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my 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 seek some advice!**

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://health.arizona.edu/counseling-psych-services>)
- Campus Health OASIS Sexual Assault and Trauma Services: <http://www.health.arizona.edu/oasis-sexual-assault-and-trauma-services>

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.
- The University Libraries have some excellent tips for avoiding plagiarism, available at <http://new.library.arizona.edu/research/citing/plagiarism>.
- Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.
- 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 tests and 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.)

Policies of the Department of Geosciences, University of Arizona

1. Underlying Principle: Unless specified in the assignment, all work and all words used to describe the results of an assignment must be the student's own. No material, whether paragraphs, sentences or phrases may be copied from another student or from any external source. External material that is used, usually for a specific reason, must be accompanied by a citation of the source.
2. Individual Assignments: In some cases, students will be told that no conferring is allowed; if that is the case, students must not discuss their work with others, or show others their work. More often, Geosciences faculty will encourage discussion among students, because this facilitates learning. In such a case, any ideas and concepts may be discussed openly, but the student is still responsible for his/her own work turned in for grading. Identical paragraphs, sentences, phrases, or notations on a map/illustration cannot be used by two or more students. The best way to avoid this is for students to discuss the assignment, but then separate from each other in order to produce the work to be turned in for grading, and not share electronic files using e-mail, flash drives or other methods.
3. Group Assignments: Geosciences faculty routinely give two kinds of group assignments. Category 1 is a group assignment where students work in parallel on the same material (for instance a mapping exercise), but then turn in individual work for grading. Discussion is encouraged, but it is essential that each student do the written or map work individually first, after which ideas may be exchanged and interpretations modified before the work is graded. Copying of another's work is prohibited, and this can be avoided in the same way as for individual assignments. Category 2 is a group assignment where students work explicitly as teams, perhaps with each member performing parts of a complex task (such as a geophysical or analytical experiment), and a combined product will be graded with equal scores for all members of the team. In this case, full discussion of the work, before any write-up takes place, is expected. The instructor will inform students if a group assignment is Category 1 or 2.

4. Reporting of Cheating: All incidents of cheating or plagiarism, including facilitating of same, will be reported to the Dean of Students' office and the College of Science. As well as the violations in take-home or field assignments detailed above, this will include any violations during quizzes and exams. The University's procedure and forms give students an opportunity to explain to the instructor, and to comment upon (or rebut) any accusations in writing before the forms are turned in. But the forms can be turned in, reporting the cheating incident, even if the student fails to meet with the instructor or does not countersign the paperwork.
5. Expectation of Student Integrity: Instructors in the Department of Geosciences set a high standard for themselves as educators, and they expect that students, both in general education and majors' classes, will do the same for their own education. Thus cheating and plagiarism will not be tolerated.
6. UA Code of Academic Integrity: The above policies are a statement of what students and faculty should expect within Department of Geosciences, or in general education courses offered by the Department. It does not replace the UA's Code of Academic Integrity (see next section).

DISRUPTIVE BEHAVIOR

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 are asked to refrain from disruptive conversations with people sitting around them during lecture. 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 lecture or discussion and may be reported to the Dean of Students.

THREATENING BEHAVIOR

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.

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.

SUBJECT TO CHANGE STATEMENT

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