# Geology 158 – Natural Disasters Lecture

**Fall Quarter 2015** (92719), SEC 03) **Instructor**: Sonjia Leyva

**Hours**: MW 1:30PM - 3:10PM  **Office:** Bios 125, 323-343-2149

**Room**: Bios 144  **Office Hours:** MW 1:00 –1:15 PM

 **WEB:** www.geophile.net **Email:** sleyva@calstatela.edu

### Course Description:

This course reviews the causes, characteristics, and case histories of the natural disasters that have plagued human history. Topics include earthquakes, volcanic eruptions, landslides, storms, floods, tsunami, and climate change. Students are introduced to Internet websites that enable them to pursue any topic in greater detail in order to more fully evaluate and prepare for natural events.

**Plan on spending one hour of studying for every unit you are taking. So a four unit class requires 4 hours of studying!**

### Text & Materials:

* Enrollment in this class in Moodle
* Textbook: Natural Disasters 9/e by Patrick Abbott (ISBN: 9780078022876)
* Geol 158 Lecture Notes, available in the bookstore
* Handouts, activities, videos, etc.

Schedule

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| **Week** | **Topic** | **On-Line Quiz** | **Dates Available**  |
| 1 | 9/28 | Syllabus / Intro to Natural Disasters | #1 | 9/28 | - | 10/4 |
| 9/30 | Plate Tectonics |
| 2 | 10/5 | Plate Tectonics | #2 | 10/5 | - | 10/11 |
| 10/7 | Earthquakes |
| 3 | 10/12 | Earthquakes | #3 | 10/12 | - | 10/18 |
| 10/14 | Tsunami |
| 4 | 10/19 | Volcanoes | #4 | 10/19 | - | 10/25 |
| 10/21 | Volcanoes |
| 5 | 10/26 | MIDTERM EXAM | #5 | 10/26 | - | 11/1 |
| 10/28 | Storms |
| 6 | 11/2 | Storms / Project Due! | #6 | 11/2 | - | 11/8 |
| 11/4 | Mass Wasting |
| 7 | 11/9 | Mass Wasting (Last day to turn in extra credit emergency kits) | #7 | 11/9 | - | 11/15 |
| 11/11 | Veteran's Day - Campus Closed |
| 8 | 11/16 | Floods | #8 | 11/16 | - | 11/22 |
| 11/18 | Floods |
| 9 | 11/23 | Wildfires | #9 | 11/23 | - | 11/29 |
| 11/25 | Wildfires |
| 10 | 11/30 | Climate Change | #10 | 11/30 | - | 12/6 |
| 12/2 | Climate Change |
| 11 | **12/7** | **FINAL EXAM – 1:30 – 4:00 PM** |

# Natural Disaster Project

The California Enhanced State Hazard Mitigation Plan concentrates on four main natural hazards that affect California: flood, fire, earthquake, and tsunami. The My Hazards Awareness Map Web site (<http://myhazards.calema.ca.gov/Default.aspx>) was designed to help citizens identify and prepare for natural hazards in their locality. In this activity you will be answering the following essential question: What can you do to prepare for a natural disaster? Your task will be to create a preparedness guide for yourself and family based upon the natural disasters common to Southern California. You will then compile the information you have gathered into a single document that addresses the natural hazards that may affect where you live.

DIRECTIONS

1. Learn more about the Natural Hazards that affect California. Research then write a short description of each of the following. Include what the hazard is, what causes the hazard, and the danger it poses to the public.
	* FEMA Flood Hazard
	* Dam Inundation
	* Very High Fire
	* Wildland Fire
	* Alquist-Priolo Earthquake Fault Zone Hazard
	* Seismic Hazard: HIGH Ground Shaking
	* Seismic Hazard: Liquefaction
	* Seismic Hazard: Landslide
2. Visit the My Hazards Awareness Map Web site (<http://myhazards.calema.ca.gov/Default.aspx>). Put in your home address in the search bar at the top of the page, then click “Map Search”. The program will then look up your address and determine if it is in a hazard zone.
	* Click on the tabs to learn about each one and to see if your home is at risk. Note if your property is or is not in the following hazard zones in your report either in the body of the report (copy and paste) or place it in an appendix at the back and reference it accordingly in the body of your report.
		+ Earthquake: This is the first tab, and the program will let you know if you are in a HIGH Ground Shaking, an Earthquake Fault zone, an Earthquake-Induced Landslide Hazard zone or a Liquefaction Seismic Hazard zone.
		+ Flood: This is the second tab, and it will let you know if you are in a FEMA flood zone.
		+ Fire: This is the third tab, and it will show if you are in a wildfire zone.
		+ Tsunami: This if the fourth tab, and it will indicate if you are in Tsunami Hazard zone.
	* Each tab will tell you if you are in/near a hazard zone or outside a hazard zone. If you are in/near a hazard zone, there is a list of Recommended Actions you can take to help reduce damage to you and your property. Include this list in your report either in the body of the report (copy and paste) or place it in an appendix at the back and reference it accordingly in the body of your report.
3. Go to the Be Red Cross Ready site at: http://arcbrcr.org/
	* Complete all of the modules
	* On the “Create Your Own Emergency Preparedness Kit” page, fill out all of the information for YOUR family, then click “calculate” This will show you how much of each supply you will need for your family. Then click on the “click here to send your customized emergency preparedness list”. Fill out the required information and email the list to yourself. Include this list in your report either in the body of the report (copy and paste) or place it in an appendix at the back and reference it accordingly in the body of your report.

SEE OTHER SIDE!!!

WRITING THE REPORT

1. Introduction
2. Body of report (Hazard Zone Information, Property Assessment, & Plan Ahead)
3. Hazard Zone Information
	* Research then write a short description of each of the following. Include what the hazard is, what causes the hazard, and the danger it poses to the public.
		+ FEMA Flood Hazard
		+ Dam Inundation
		+ Very High Fire
		+ Wildland Fire
		+ Alquist-Priolo Earthquake Fault Zone Hazard
		+ Seismic Hazard: HIGH Ground Shaking
		+ Seismic Hazard: Liquefaction
		+ Seismic Hazard: Landslide
		+ Seismic Hazard: Tsunami
4. Property Assessment
	* Use the information gathered on the My Hazards Awareness Map Web site to determine if your home is in the hazard zones listed above. Make sure you follow ALL of the directions on the first page of this guide!
5. Plan ahead:
	* Create an Emergency Disaster Plan for yourself and your family. This plan should be tailored to you and your family’s needs and should be for any type of emergency. Items to include are:
		1. A map of your house (or apartment) showing the location of major utilities (gas, water, etc.), escape route & earthquake supplies and potential hazards (heavy furniture, bookcases, large windows or mirrors, etc.). This map may be hand-drawn
		2. An evacuation plan
		3. A list of household members (Identify anyone with impairments or who may need help evacuating), including contact phone numbers
		4. A meeting place to gather when it is safe. Include the address and a brief description of the location (or a map).
		5. The name and phone number of an out-of-state contact
		6. Use the list you created on the Be Red Cross Ready site to plan a Home Emergency Disaster Kit for yourself and your family. It is important to be prepared to survive without electricity, phones, water, etc. For up to three days after a disaster.
6. Conclusion
7. Bibliography (in correct format!)
8. Appendices (if needed)

You will be graded on the quality of your research, the quality of your writing, answering as completely as possible the questions posed above, and neatness.

Please plan on using at least five (5) difference sources for your research, two of which must be something other than a website (i.e., a book, a magazine article, etc.). **DO NOT simply copy and paste information from websites or other documents! This is plagiarizing and will not be tolerated**. **You may not use your textbook or my lecture notes as resources.**

Requirements

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| *Class Attendance***:**  Students are expected to attend each class session and to arrive on time. It will be difficult to make up missed class sessions. However, if you miss a class session of valid reasons (illness), it will up to you to make arrangements to complete the activity. Students who miss a class due to an unexcused absence will NOT be allowed to make up the work. Make-up assignments will be given only to those who can verify a valid excuse for missing the assignment. The make-up assignment will be given at a time that is mutually agreeable to both the student and me. Failure to take the make-up assignment within one week of the original assignment date OR before the last week of class will result in the missed exam//assignment counting in as a zero. All proof of excused absences MUST be shown PRIOR to the student making up the assignment/exam, and MUST be BEFORE the last day of class. Students may be dismissed for 10 hours of absence. If you drop the class you must do so officially or you may receive an “F”. |
| *Exams* **–** Two equally weighted exams are scheduled for the course: one midterm and one final. Each exam counts 100 points. Make-up exams will be given only to those who can verify a valid excuse for missing an exam. The make-up will be given at a time that is mutually agreeable to both the student and myself, but must be arranged prior to the initial exam. **Failure to take the make-up exam within two weeks of the original exam date will result in the missed exam counting in as a zero.** In addition, the exam question sheet must be returned to me after the exam and after the exam review. Failure to do so will result in a ten (10) point reduction in the student's grade for that exam. |
| *Weekly Quizzes* **–** Students are required to log onto Moodle and take a weekly quiz. Each quiz will be worth 10 points and will be based upon the online reading assignments listed in Moodle. Students may access the quiz anytime from 8 am Monday through midnight Sunday. Students may take the quiz only once. Students who do not take the quiz during the allowed time will not be allowed to make up the quiz unless they have an excused absence. No exceptions! |

**Methods Of Evaluation**

Total possible class points will come from the following assignments:

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|  | **Assignment** | **Points Possible** | **Total Points** | **% of grade** |
| **Exams** | 2 @ 100 points each | 200 | 50% |
| **Quizzes** | 10 @ 10 points each | 100 | 25% |
| **Project** | 100 points total | 100 | 25% |
|  | **Total** | **400** | **100%** |

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| Your grade in this class is based upon the points YOU earn through completing assignments, quizzes, assignments, and exams. Nothing in this class is curved. Your grade is based upon your performance. Your final grade in this class is based on your percentage score out of 400 points. See the table to the right.You may do up to 20 points of extra credit work to raise your total points earned. Your grade is based on your percentage score out of 600 points. Grades will be assigned using + and - (i.e., B+, B or B-). **All extra credit with the exception of the EQ kit is due the last day of class - not the day of the final!** By doing extra credit you agree that you will NOT ask to have your grade “bumped up” at the end of the quarter.  | A = > 90% |  > 360.0 points |
| B = 80 - 89% | 320.0 - 359.9 points |
| C = 70 - 79%  | 280.0 - 319.9 points |
| D = 60 - 69% | 240.0 - 279.9 points |
| F = < 60% |  < 300.0 points |
|  |  |

Want to get a good grade? Here’s how:

1. Attend every class.
2. Take notes and review them after class and before exams.
3. Read your textbook / do the assignments
4. Turn in all work on time
5. Ask questions.
6. **Plan on spending one hour of studying for every unit you are taking. So a two unit class requires 2 hours of studying!**

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| **Cheating and plagiarizing will not be tolerated.** |  | **ANYONE caught cheating or plagiarizing an assignment will receive an “F” in the class. NO EXCEPTIONS.** |

IMPORTANT POLICIES (a.k.a. the “fine print”)

*Statement of Reasonable Accommodation:*

* The Department of Geological Sciences faculty members fully support the Americans with Disabilities Act (ADA). The members of the faculty will provide reasonable accommodation to any student with a disability who is registered with the Office of Students with Disabilities (OSD) who needs and requests accommodation. The faculty may wish to contact the OSD to verify the presence of a disability and confirm that accommodation is necessary. The OSD will arrange and provide for the accommodation.
* Reasonable accommodation may involve allowing a student to use an interpreter, note taker, or reader; accommodation may be needed during class sessions and for administration of examinations. The intent of the ADA in requiring consideration of reasonable accommodation is not to give a particular student an unfair advantage over other students, but simply to allow a student with disability to have an equal opportunity to be successful.

*Student Conduct:*

* Student conduct is viewed as a serious matter by the faculty members of the Department of Geological Sciences. The Department faculty members assume that all students will conduct themselves as mature citizens of the campus community and will conduct themselves in a manner congruent with university policies and regulations. Inappropriate conduct is subject to discipline as provided for in Title 5, California Code of Regulations (see student conduct: rights and responsibilities, and student discipline, CSULA General Catalog). Academic honesty is expected of all students in the Department, in accordance with University policy. There are established university reporting procedures if a student is suspected of committing an academically dishonest act.
* The University has a clearly defined policy on Academic Honesty. This policy will be enforced in this class. **Cheating and plagiarizing will not be tolerated.** Students caught plagiarizing and/or cheating will be subject to the consequences and set forth in the University Catalog, Appendix D - Academic Honesty. You can access it online at: <http://catalog.calstatela.edu>
* **Cheating and plagiarizing will not be tolerated.**

*Make-up exams:*

* Make-up exams will be given only to those who can verify a valid excuse for missing a quiz. The make-up will given at a time that is mutually agreeable to both the student and myself. **Failure to take the make-up exam within two weeks of the original exam date will result in the missed exam counting in as a zero.**

*Grading:*

* University policy allows a grade of incomplete to be given only to those who have been sick, injured, or have a similar valid excuse. A grade of “incomplete” will not be given after poor performance in the course.
* If you are repeating any Cal State L.A. course in order to remove a D or an F from your transcript, you must file an **academic renewal petition** in Administration 101 no later than the last day to add a class. Instructions for doing this may be found under **"Academic Renewal"** in your Schedule of Classes.
* University policy requires that all students shall be graded in *exactly* the same fashion. What does this mean? You may not ask for extra assignments or to repeat an exam to improve your grade, or additional assignments after the course is completed.

**Avoid the hassles.**Take the Writing Proficiency Examination (WPE) after you have completed your English Composition and prior to the completion of 135 units in order to avoid a registration hold. The dates for the WPE are published in the Schedule of Classes. Enroll by registering in UNIV 400 and paying the exam fee.

Extra Credit

You have the opportunity to earn extra credit in any of my classes if you wish. All work, with the exception of the emergency kits, must be turned in by the end of the class period before the final exam. You may earn up to 20 points of extra credit by doing any combination of the following assignments listed below.

1. (*1 point each*) Do one of the following activities from Center for Microbial Oceanography: Research and Education (C-MORE) website:
	1. Take the [Microbe Personality Quiz](http://cmore.soest.hawaii.edu/education/kidskorner/microbe_quiz.htm) to learn more about the microbes that live in the ocean. Copy/paste what microbe you are in an email and send it to me OR print out the page showing what microbe you are and hand it to me during class. (http://cmore.soest.hawaii.edu/education/kidskorner/microbe\_quiz.htm)
	2. Do the [Microbial Oceanography Word Search](http://cmore.soest.hawaii.edu/education/kidskorner/wordsearch.htm) to learn more about the microbes that live in the ocean. Then, print out the completed word search and hand it to me during class. (http://cmore.soest.hawaii.edu/education/kidskorner/wordsearch.htm)
	3. Are you smarter than a microbe? [Test Your Microbe IQ!](http://cmore.soest.hawaii.edu/education/iq/index.htm) At the end, either print out your score and hand it to me during class, or copy/paste it in an email and send it to me. Don’t forget to enter the drawing for a chance to win a plush microbe. (http://cmore.soest.hawaii.edu/education/iq/index.htm)
2. (*5 points*) In essay format, discuss three ways that you can help clean up the oceans or coasts.
	1. The ONLY item at the top of your paper should be your name.
	2. Paper should be 1 to 2 pages, typed, 1.5 spacing, standard margins and fonts and concise.
	3. The quality of your English composition is important. Don't forget to use correct essay form - Intro paragraph with thesis statement, three examples, and conclusion paragraph.
	4. Please remember that I am concerned about the environment. I do not want plastic covers, extra cover pages, or any other type of binder.
3. (*15 points*) Find 3 articles that deal with geological issues and write a summary of each article. Combine the 3 summaries into a paper that is no more than 2 pages long. Articles may be found in the Los Angeles Times, Discover Magazine, Newsweek, Time Magazine, California Geology (in the Library), etc. Provide your opinion or analysis.
	1. The ONLY item at the top of your paper should be your name.
	2. Paper should be 1 to 2 pages, typed, 1.5 spacing, standard margins and fonts and concise.
	3. The quality of your English composition is important. Don't forget to use correct essay form - Intro paragraph with thesis statement, three examples, and conclusion paragraph.
	4. A **bibliography** and **copies of your articles** are required as well.
	5. Please remember that I am concerned about the environment. I do not want plastic covers, extra cover pages, or any other type of binder.
4. (*10 points*) Do one of the Virtual Classware assignments located at [**http://www.sciencecourseware.com/**](http://www.sciencecourseware.com/). Click on "[**Geology Labs Online**](http://www.sciencecourseware.com/GLOL/)" and choose one of the activities listed below. Upon completion of the assignment, you will be awarded a certificate that you will need to print out and turn in.
	1. You may do more than one of the exercises, but they must be two DIFFERENT activities: Virtual Earthquake, Virtual river (River Discharge), Virtual river (River Flooding), Virtual Seismologist, Virtual Radiochronologist (isochron), Virtual Radiochronologist (radiocarbon) or Virtual Climatologist
	2. Your name MUST be on the certificate. No exceptions.

See other side!

1. (*15 points*) Create a [**mini-emergency kit**](http://www.geophile.net/ExtraCredit/Mini%20Earthquake%20Kit.pdf)! You must show me the completed kit and a list of the items inside. You must have EVERYTHING that is on the list - no exceptions!
	1. YOU MUST INCLUDE THE LIST WITH YOUR KIT! Here's a list (<http://www.geophile.net/ExtraCredit/Mini%20Earthquake%20Kit.pdf>) of required items.
	2. Bring the kit to my office during office hours BEFORE the date specified on your syllabus
	3. Hand-written lists are not acceptable.
	4. ALL KITS ARE DUE THE 7TH WEEK OF CLASSES (see syllabus for the date). NO EXCEPTIONS!