

**UNIVERSITY OF SOUTHERN CALIFORNIA**  
**Environmental Studies Program**  
**Spring 2021**

**ENST 530: Environmental Risk Analysis**

Wednesdays 3.30-6.20 pm, online  
Zoom link provided on blackboard

Monalisa Chatterjee (She/her/hers)

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Office Hours: Mondays and Thursdays Noon-1.30pm  
(Make an APPOINTMENT at [calendly.com/monalisa-chatterjee](https://calendly.com/monalisa-chatterjee))

**Course Overview:**

Analyzes various environmental risks and their methods of evaluation, management and communication.

**Course Materials:**

Readings will be assigned and shared via Blackboard. Students must check blackboard regularly for new reading assignments.

**Learning Objectives:**

In this course students will learn:

- about risk related concepts
- the critical importance of environmental risk assessment, and the importance of risk identification
- the complexities and differences in the drivers of risk for different environmental events
- to compare the main approaches to evaluation, communication and management of environmental risks
- to examine the role of science in environmental decision making and its limitations
- to identify the role of culture and values in individual and risk management decisions
- to practice and improve on existing excel/other statistical program skills
- to develop broader environmental risk management skills
- to work with real data, cleaning and processing publicly available data

**Course Requirements:**

Routine attendance and active participation are an important part of each class session. For the best experience, students are expected to have read the course materials by the date it is discussed in class. Roll will be taken periodically in the form of thought exercises, and in-class questions/discussions. You are responsible for all information, announcements, date changes, and any other course material presented, regardless of your participation in the classroom.

You will be graded on the basis of your performance on exam, assignments, critiques, and class participation (e.g., Blackboard assignments, oral presentations, etc.). Lecture presentations and recordings will be posted on Blackboard for download and subsequent study. Take home exam questions will be drawn from course readings, assignments and lectures. No make-up exams will be allowed nor will any assignments be accepted after the posted deadline without explicit permission from the instructor.

**Ground rules for classroom -**

- Share responsibility for including all voices in the conversation.

- Listen respectfully.
- Be open to changing your perspectives based on what you learn from others.
- Understand that we are bound to make mistakes in this space.
- Understand that your words have effects on others.
- Take pair work or small group work seriously.
- Understand that others will come to these discussions with different experiences from yours.
- Make an effort to get to know other students. Introduce yourself to students sitting near you.
- Understand that there are different approaches to solving problems.

### **Class attendance and participation**

Students located in time zones considered as reasonable learning hours (**7:00am to 10:00pm** in the student's time zone) are expected to maintain normal attendance and participation. If the class falls outside those hours, accommodations will be extended but you must let me know at the beginning of the semester. Live sessions will be recorded and shared on blackboard for students who cannot attend these sessions and they must keep up with the lectures and the schedule of the class.

Class dynamics are substantially compromised without the ability to see the people in class. It is expected in this class that students will have their cameras on during synchronous online sessions. Students are encouraged to use virtual backgrounds to eliminate privacy concerns, and earphones or headsets to improve audio quality. However, if required accommodations are available for the video-on policy. Email me.

Students are expected to responsibly handle Zoom recordings, asynchronous activities, or other academic materials existing under SCampus policies. Students are not permitted to create their own class recordings or share recorded sessions and other material with anyone without the instructor's permission. Violations of these policies will be met with the appropriate disciplinary sanction.

**Below is a list of the graded assignments, scheduled due dates, and their percent values:**

Midterm	March 10 <sup>th</sup>	25%
Risk Assignments	Rolling	20%
Student Case Study Presentation	Rolling	10%
Risk assessment report presentation	Apr 28 <sup>th</sup>	10%
Risk assessment report	May 1 <sup>st</sup>	25%
Participation in class	Rolling	10%
<b>TOTAL</b>		<b>100%</b>

### **Exam:**

This class will have one take home midterm with essay questions.

### **Risk Assignments:**

Students are required to submit 5-6 (problem sets, group activities, training modules) assignments over the course of the semester. Each assignment may focus on one or more of the three components of risk analysis (evaluation, management, communication). These assignments will have quantitative, theoretical and applied elements and need to be submitted individually but some of the problem sets can be worked out in

a group. More details on each assignment will be provided separately. Majority of the quantitative assignments are designed in EXCEL. You can use other programs you are familiar with to do the calculations. I strongly recommend everyone to do the EXCEL essential learning training available via Lynda.com (<https://www.linkedin.com/learning/excel-2016-essential-training/welcome?u=76870426>).

**Student Case Study Presentation:**

For this assignment, students in groups of 2-3 will present a case study and lead/moderate a short class discussion afterwards. A signup sheet with presentation dates and case studies will be circulated during the second week of lecture.

**California (wildfire, drought, or any other environmental) Risk Assessment – Presentation and report to be prepared jointly**

Main objective of the project is to assess environmental (of your choice) risk in California (or if you want to work on an individual county or specific region within the state level that should be fine too). There can be many ways to assess environmental risk, for example, in case of fire using probability based on past temperature and precipitation data, fire events and consequences experienced and other facts like forest cover, populations, built up area/asset in a county, potential risk of fire hazard can be assessed (something we are doing through the class assignments). Due to time constraints I recommend that students avoid a very complicated research topic and question but also not hesitate with challenging themselves. Additional guidance will be provided separately.

**Presentation**

On April 28<sup>th</sup> each team will present their project. Each presentation will be 40 minutes long followed by 20 minutes of discussion. All members of the team should present a portion of the presentation.

**Report**

The report will summarize the project and will include sections such as introduction, background research, data sources, detailed methodology, key findings, discussions on risk management options, challenges encountered in risk assessment, conclusion and bibliography. These are broad sections, you can change them around to work better for your project design. The report with bibliography should be approximately 5000 words, single spaced and 12 font size, with a clear title and objectives explicitly stated in the introduction. The report should be written professionally, without grammatical or spelling mistakes. The visual elements such as tables, graphs should be neatly presented with a title and numbers and sources clearly stated. A hardcopy of the report should be submitted by May 1<sup>st</sup>. You can submit the report in the last day of class as well. Additional guidance will be provided during the semester.

**Participation in class:**

Students are expected to engage and participate in discussions and be respectful of me and other students in class.

**Course Schedule:**

Readings, topics, and deadlines may be adjusted throughout the semester depending on the progress of the class.

Week	Date	Topic	Readings – Available on blackboard	Student presentations /assignments/activities
1	Week 1 January 20 <sup>th</sup> (Monday – holiday)	Intro & Course Overview		Probability exercise

				Podcast: <a href="https://knowledge.wharton.upenn.edu/article/past-30-years-taught-us-managing-risk/">https://knowledge.wharton.upenn.edu/article/past-30-years-taught-us-managing-risk/</a>
2	Week 2 January 27 <sup>th</sup>	Hazards and Risk What is Risk?	‘Against the Gods’ ‘Judgment under Uncertainty: Heuristics and Biases’	Zombie exercise - Assignment 1
3	Week 3 February 3 <sup>rd</sup>	Introduction to risk analysis	‘Social Construction of Risk’	Training module and certificate - Assignment 2
4	Week 4 February 10 <sup>th</sup>	Risk analysis approaches	‘Foundations of decision making’	Problem set: Wildfire events trends - Assignment 2
5	Week 5 February 17 <sup>th</sup> (Monday – Holiday)	Guest Speaker: Wildfires in the American West		Problem set: CDF and PDF - Assignment 3
6	Week 6 February 24 <sup>nd</sup>	Wildfire risks	‘The changing risk and burden of wildfire in the United States’	Student presentation 1 Problem set: Temperature and dew point Probability calculations - Assignment 4
7	Week 7 March 3 <sup>rd</sup>	Risk Perception	‘Risk Perception: Reflections on 40 Years of Research’ ‘Risk Perception’	Due date: Temperature and dew point Probability calculations - Assignment 4
8	Week 8 March 10 <sup>th</sup> (Friday – Wellness day)	Risk communication	‘Risk and Uncertainty Communication’ ‘Social Media and Risk Communication’	Student presentation 2
9	Week 9 March 17 <sup>th</sup>	Take home midterm – No class		<b>Midterm</b>
10	Week 10 March 24 <sup>nd</sup> (Wednesday – wellness day)	No class	No reading	
11	Week 11 March 31 <sup>st</sup>	Environment and ecological Risks – Sudden onset (Earthquakes)	‘Development of a global seismic risk model’	Student presentation 3 Problem set: Wildfire events spatial analysis – Assignment 5
12	Week 12 April 7 <sup>th</sup> (Wednesday – wellness day)	Recorded guest lecture on ‘Climate Policy in California’	‘2022 California Scoping Plan’ (climate policy strategy, if available by that time)	No class / Asynchronous work
13	Week 13 April 14 <sup>th</sup>	Environment and ecological Risks – Sudden onset (Floods)	‘Contribution of historical precipitation change to US flood damages’	Student presentation 4 Due date: Wildfire events spatial analysis – Assignment 5
14	Week 14 April 21 <sup>st</sup> (Thursday – wellness day)	Environment and ecological Risks – Slow onset (Droughts)	TBD	Student presentation 5
15	Week 15 <sup>th</sup> April 28 <sup>th</sup>	Presentations		Final report due May 1 <sup>st</sup>

	(Friday- Wellness day)			
	No Final			

**Academic Conduct:** Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Section 11, Behavior Violating University Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct at <http://policy.usc.edu/scientific-misconduct/>. Neither discrimination, sexual assault, nor harassment is tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity at <http://equity.usc.edu/> or to the Department of Public Safety at <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men at <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential-support, and the sexual assault resource center webpage at [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources. Students may not record lectures without written permission from the course instructor.

**Support Systems:** A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute at <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students.

The Office of Disability Services and Programs at [http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, USC Emergency Information at <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

**Statement on Religious Observation Accommodations:** USC policy grants students excused absences from class for observance of religious activities. Students may be given an opportunity to make up work missed because of religious observance. We are responsive to requests for an excused absence when made in advance. Please note that this applies only to religious activities that necessitate a student’s absence from class and/or a conflict with a specific aspect of the course.