

CEE 29N: Managing Natural Disaster Risk

*"Society avoids truth about uncertainty and rewards overconfidence."
— Daniel Kahneman*

Schedule and location 9:00 am – 10:15 am, Tuesday and Thursday
Thornton 211

Instructor
Jack Baker

Teaching Assistant
Maryia Markhvida

I do hope that you will visit during my office hours. It's a chance to talk about the course, assignments, study strategies, or whatever else you'd like to discuss. You don't have to have a problem to visit, but please do come if you have any questions about the course work. If the regular office hours are impossible for you, please let me know and we can schedule an appointment at an alternate time.

Course website coursework.stanford.edu

Learning objectives

This course is designed to introduce first-year students to concepts and applications of natural disasters, engineering, and risk. By the end of this class, you will be able to:

- Understand the components of natural disaster risk (hazard, exposure, vulnerability), and identify these components in a new circumstance not considered in class
- Utilize probability calculations to perform basic risk calculations
- Report on and assess factors associated with disaster risk for a problem of your choosing, and advocate a position for addressing that risk
- Utilize effective public speaking skills and appropriate logical structure to present technical material
- Develop and utilize strategies for acquiring and synthesizing knowledge in university level courses

Textbook

You will not need to purchase any books for this course. The course readings are all available electronically in the public domain or via Stanford's subscriptions.

Assessment

Grades will be computed using the following weighting scheme:

Writing and calculation assignments	40%
In-class presentations	20%
Project report	30%
Participation	10%

We will have regular writing and calculation assignments throughout the quarter, where we more deeply explore concepts and analysis approaches discussed in class. At the end of the quarter, you will give a presentation and report where you present risk analysis and proposed risk management strategies for a city of your choosing. You will give one additional interim presentation in class as well. Finally, you are expected to be an active participant in class. This does not just mean talking a lot. It means coming to class prepared, contributing to discussions, and showing interest in the material and in other people's thoughts. Additional information regarding the assignments and report will be distributed soon.

Course policies

- Regular attendance in class is expected, and your active participation is required. If you need to miss a class due to sports team travel, illness, etc., please send me an e-mail to let me know (and let me know as far ahead of time as possible).
- Any late assignments will be penalized at a rate of 10% per day late.

Honor code

It is expected that Stanford's Honor Code will be followed in all matters relating to this course. You are encouraged to meet and exchange ideas with your classmates while studying and working on assignments, but you are individually responsible for your own work and for understanding the material.

In your writing assignments and presentations, every source you use must be properly referenced, including websites and reports. Omission of citation can be viewed as an attempt to pass off someone else's words or thoughts as your own, whether this was intended or not.

If you have any questions regarding this policy, feel free to contact Prof. Baker.

Tentative schedule

In addition to these scheduled meetings, we will have outside-of-class field trips where we can explore the Bay Area and observe about the geology and engineering solutions relevant to earthquake risk in San Francisco. Dates of these field trips will be announced at the start of the quarter.

Date	Topics
1/7/2014	Introductions, natural disasters and risk, components of risk
1/9/2014	Overview of earthquake risk assessment
1/14/2014	Uncertainty and decision making
1/16/2014	Giving technical presentations, Hurricane Sandy
1/21/2014	Uncertainty and decision making
1/23/2014	Resilience
1/28/2014	Natural hazards
1/30/2014	Modeling exposure
2/4/2014	Modeling vulnerability
2/6/2014	Student presentations
2/11/2014	Engineering - building codes and professional societies
2/13/2014	Engineering – new technologies
2/18/2014	Engineering – research
2/20/2014	Student presentations
2/25/2014	Policy decisions – history and current context
2/27/2014	Policy decisions – San Francisco
3/4/2014	Risk management – Stanford University
3/6/2014	Risk management – natural catastrophe insurance
3/11/2014	Student presentations
3/13/2014	Student presentations
3/17/2014	Final project report due