Risk Analysis & Environmental Management
OIDD-761 / Fall 2021
Monday and Wednesday 10:15am – 11:45am EST
SHDH 215

Instructor: Dr. Carolyn Kousky
Office hours: Tuesday 3:00 – 4:00pm at 217 St. Leonard’s Court or Zoom (sign up on Canvas calendar for a 15 min slot)

TA: Ella Schuster

Course Email: oidd761@gmail.com
- All questions about the course, including assignments, should be sent to the course email address. Please do not email the instructor or TA at their personal address for course-related questions or comments.

Course Description
This course will introduce students to concepts in risk governance. We will delve into the three pillars of risk analysis: risk assessment, risk management, and risk communication. The course will spend time on risk financing, including insurance markets. There will be particular emphasis on climate risks, although the course will also discuss several other examples, including pandemics, biodiversity loss, and systemic risks, among others. The course will cover how people perceive risks and the impact this has on risk communication and management. We will explore public policy surrounding risk management and how the public and private sector can successfully work together to build resilience, particularly to changing risks.

Course Grading
Weekly quizzes 20%
Weekly discussion posts 20%
Mid-term 25%
Final group project 35%

Assignments

Readings: Each day has required readings. You should finish the readings before the scheduled class day on which they are listed. Material from the readings may be necessary for completing online discussion assignments or for the weekly quizzes.

Weekly Quizzes: Each week (with a couple exceptions) there will be a mandatory online quiz. Each weekly quiz needs to be taken sometime between the end of class on Wednesday and Friday at noon. Each quiz will be available on Canvas for this time period. Each quiz will be approximately 3 - 5 questions and will draw on the lectures and readings of the week. To
succeed on the quizzes, you must do the readings and attend the lectures. Quizzes are open-note but they do have a time limit—if you have to look up every answer, you will not have time to finish. You are not to share quiz questions with other students in the course after you take the quiz. Students will not have the option to take quizzes late or to make-up missed quizzes. Your lowest quiz grade will be dropped from your final grade.

**Weekly discussion postings:** Students will be broken into groups for online discussions. Each week, a discussion prompt will be posted on Monday. Students should respond to the prompt sometime before the end of the day Friday. Students should also respond to at least 2 other posts of classmates. Students will be graded on both their participation in the discussion (responding to the prompt and responding to at least 2 classmate responses) and will be graded on the thoughtfulness of their responses. Responses to the prompt and to classmates that demonstrate the student has read the course readings, has attended lectures, and is thinking critically about the discussion will receive higher grades. *The initial response to the prompt should be roughly 250-300 words. The responses to peers can be between 50 and 150 words.* Discussions will close at midnight Friday and no further responses will be allowed. Students will not be allowed to make up discussion if they fail to post during the week. Your lowest discussion post grade will be dropped from your final grade.

**Mid-term:** There will be an online midterm that will be taken in Canvas. It will be a 60 minute exam that can be taken anytime in the 24 hour period of October 27. You can take this exam during the normally scheduled class; you are also free to take it another time in this window. Questions will be short answer and multiple choice. You are to work independently on the midterm and not speak to classmates about the questions or answers. The midterm may cover any reading or lecture material prior to the date of the exam.

**Final group project:** All students will participate in a final group project for this course. This project is designed to enable you to apply the concepts discussed in the course to a particular risk management problem. In the beginning of the class, students will have the opportunity to choose their group in Canvas by picking the risk management topic they are most interested in examining. Your group is then responsible for producing a 6-7 page report on this topic, due December 13th by midnight in Canvas. Note: your report should not exceed 7 pages; you will be marked down for writing over this limit. Please use 1” margins and a standard, 11 or 12 point font. Your report should contain the following:

- **Risk assessment (1-2 pages):** This should first provide a succinct statement of the risk management challenge being examined and then provide a summary of what is known about the risk. This section should cite peer-reviewed research studies about the topic, demonstrating evidence of independent research. If necessary for your topic, this section may also cite interviews with experts, government reports, or NGO reports.
- **Stakeholders and their views (1 page):** Who are the key stakeholders in this problem and what are their views of the risk? This section should be informed by citing studies, news articles, reports, or undertaking interviews.
- **Risk management proposal: (3-4 pages):** Please propose and discuss solutions to your risk management challenge. This should include a detailed proposal of who would
implement the recommendations, how they would do so, and the impact your recommendations would have on the problem. Please discuss any possible challenges to success and how they could be addressed.

Each person will also be asked to submit a confidential assessment of the contributions of all team members to the final project. Your team should also designate one individual to provide a 3 minute overview of your risk challenge and solution on the final day of class. You will not be allowed to exceed this time limit and should, therefore, plan accordingly.

Collaboration and Plagiarism Guidelines
Students are encouraged to discuss course themes and topics with each other, but all research, idea generation, and writing for the midterm, weekly quizzes, and discussion posts must be done individually.

All literature or other work used in assignments must be documented using a standard citation format accompanied by a reference list at the end of the paper. See guidelines online here. Plagiarism is taken seriously and will be dealt with according to university policy. Students must adhere at all times to the University of Pennsylvania’s Code of Academic Integrity.

Students are not allowed to download and repost or share course videos anywhere. Doing so is a violation of the Code of Academic Integrity.

Course Outline and Readings

1. September 1 (W): Introduction to Risk Management
   Readings:
   - Global Risks Report 2021, World Economic Forum

   Topic 1: Risk Identification and Risk Assessment

2. September 6 (M): Labor Day – No Class

   Readings:

4. September 13 (M): Risk Assessments
   Readings:

→ You are only required read Chapter 3, pages 65-73.

5. September 15 (W): Uncertainty in Risk Assessment
   Readings:
   • Expert Judgement Provides Better Understanding of the Effect of Melting Ice Sheets

6. September 20 (M): Flooding in the U.S.
   Readings:

Topic 2: Risk Perceptions and Risk Communication

7. September 22 (W): Risk Communication
   Readings:
   • The Psychology of Climate Change Communication, CRED, 2009.
   • Play this game online: [https://ncase.me/trust/](https://ncase.me/trust/)

8. September 27 (M): Behavioral Decision-Making
   Guest Lecture from Howard Kunreuther, University of Pennsylvania
   Readings:

9. September 29 (W): Making Choices with Decision Analysis
Readings:

Topic 3: Structuring a Decision Problem

Readings:

11. October 6 (W): Valuation and Discounting—Putting a Number of Benefits
Readings:

Topic 4: Risk Management
12. October 11 (M): (Enterprise) Risk Management
Readings:

13. October 13 (W): The Precautionary Principle
Readings:

14. October 18 (M): Disaster Risk Management in the United States
Guest Lecture from Paul Huang, Acting Associate Administrator of Resilience, FEMA
(Note: MBA Opportunity Week)
Readings:

15. October 20 (W): Risk Management in Practice
Guest Lecture from Dave Heller, Vice President, Enterprise Risk Management & Insurance, Edison
(Note: MBA Opportunity Week – no quiz this week)
Readings:

16. October 25 (M): Horizon Scanning and Scenario Planning
Readings:

17. October 27 (W): NO CLASS: MIDTERM

18. November 1 (M): The Politics of Risk and the Risks of Politics
Readings:

Topic 5: Risk Transfer

19. November 3 (W): Overview of Insurance and Risk Transfer
Readings:
• Insurance Information Institute. Insurance 101

20. November 8 (M): ILS and Cat Bonds
Readings:

Readings:
• The World Bank Group. Sovereign Catastrophe Risk Pools.

Topic 6: Current Risk Challenges

22. November 15 (M): Climate Impacts
Readings:
• Managing Climate Risk in the U.S. Financial System, Report of the Climate-Related Market Risk Subcommittee, Market Advisory Committee of the U.S. Commodity Futures Trading Commission (Executive Summary only)
• https://drawdown.org/solutions/ (choose half a dozen to read in detail)

23. November 17 (W): Pandemics
Readings:

24. November 22 (M): Equity and Risk
Readings:
• Henisz, W. (2020). “Why We Need a Social Solidarity (i.e., Wealth) Tax to Recover from COVID-19.” LinkedIn, April 16.

25. November 24: Thanksgiving Break – No Class

26. November 29 (M): Disinformation
Readings:
• Stoycheff, E. (2020). 4 Ways to Protect Yourself from Disinformation. The Conversation, September 17.

27. December 1 (W): Systemic Threats
   Readings:
   • Futures Platform. Key Success Factors of a Foresight Program.

   Readings:

29. December 8 (W): Wrap up
   • 3 minute summaries of group projects