

ENVS 172: Environmental Risks
SUMMER Session II, July 28th – August 28th
Tuesday & Thursday 9 AM – 12:30 PM via zoom at <https://ucsc.zoom.us/j/97824755926>

Instructor: Ms. Stephanie Webb, ABD
Contact information: swebb1@ucsc.edu
Office hours: Tuesday 12:30 PM – 2:30 PM or by appointment
Personal zoom meeting room: <https://ucsc.zoom.us/j/3111893569>

I. Course Description:

This is an ON LINE course. The class meets in an online classroom (using Zoom), and accesses course materials via computer (using CANVAS and UCSC library resources).

This class is an introductory class that explores the relationships between science, policy and the environment. This class engages environmental problems, how they are perceived by the public, and the tradeoffs involved in managing or creating policies that attempt to eliminate or mitigate them. We will examine problems related to agriculture, water and water scarcity, pollution, waste, climate change, and sea level-rise.

II. Course Learning Goals:

1. Students will be able to provide examples of environmental problems confronting society and explain the relationship between science and policy in the context of environmental risk management.
2. Students will be able to identify key elements/concepts in designating and managing environmental risks and apply said elements to current and emerging environmental problems.
3. Students will become familiar with the inequitable distribution effects posed by environmental problems, thus, relating concepts of environmental risks to environmental (in)justice.
4. Students will demonstrate critical thinking and research skills by writing an integrative essay bringing together analysis of human-environment impacts and effects of environmental risks management.
5. Students will learn how to work collaboratively, delegate tasks equitably and assess peers' ability to convey understanding of the natural and societal implications of environmental risks.

III. Course Expectations:

Prerequisites: Previous or concurrent enrollment in courses 100 and 100L is required.

Technology: Due to the online nature of this course, a computer and access to Internet is required. We will meet synchronously using zoom and canvas applications. I know technology can be unpredictable. I encourage you to notify me sooner rather than later if you or your computer is experiencing challenges navigating these platforms or accessing materials.

Communication

This will be an intensive and fast paced 5-week course. Students will be asked to attend all class meetings, actively participate in class discussions, keep class and reading notes, take two mid term exams, and participate in a group project. Class begins on time, so please arrive punctually. However, if you, due to a job or other responsibilities, find yourself late on a regular basis, please let me know so we can discuss alternatives for participation to ensure your grade is not affected.

Inclusive classroom

UCSC strives to promote principles of community to enhance our learning environment: <https://www.ucsc.edu/about/principles-community.html>. The Environmental Studies Department is committed to fostering safe and equitable learning environments for our students. Students and faculty are expected to be civil and treat each other with dignity and respect. As such, harassment, discrimination, and disrespectful behavior will not be tolerated.

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately, by email, during my office hours, or by appointment, preferably within the first two weeks of the quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu.

* Students without documented disabilities who may need specific accommodations should contact me to set up a conference to discuss specific needs.

Late Policy: All course exams, assignments and the group project are expected to be turned in on the written due date. If a delay is possible or foreseeable, I encourage you to come talk to me as soon as possible to make alternative arrangements.

Academic Integrity: All assignments you turn in must be your own work. Students are responsible for understanding the Academic Misconduct Policy for Undergraduates (<https://ue.ucsc.edu/academic-misconduct.html>). Relevant sections of the UCSC Student Policies and Regulations Handbook are available at <https://deanofstudents.ucsc.edu/student-conduct/student-handbook/pdf/100.0-code-of-student-conduct.pdf>. I encourage you to ask me directly you are not sure if behavior qualifies as academic dishonesty.

Resources: The new living and working arrangements posed by COVID affect us all. Please let me know if I can help better support your needs to be successful in our class during this challenging time.

Slug Support <https://deanofstudents.ucsc.edu/slug-support/program/> If you are facing financial challenges, food and housing insecurity, or other concerns, and you are not sure how to find the resources you need, contact Slug Support at (831) 459-4446. You can also contact Slug Support if you are concerned about a friend or peer and they will connect with that person to help them get access to the resources they need. I can also contact Slug Support on your behalf.

IV. Criteria for Evaluation:

Course assignments encourage steady, continuous and collaborative work during the semester, which will allow each student to gauge their work and grade as we proceed. Course grades will be compiled from the following work:

Participation & Attendance (15%)

This course is reading and writing intensive. It combines lectures with discussion of scientific papers. Reading is required and every class students will submit a 5-10 sentence commentary for the readings assigned for the day. Weekly reading and guest lecture reflections should have the following components:

- a) the central questions and key concepts raised by the readings;
- b) the key findings, argument, and the big picture that emerges; and
- c) the student's analysis of these findings, drawing upon the theoretical tools from the classroom readings and discussions.

Short answer quizzes will be randomly administered during class time to ensure encourage attentive participation.

Group Presentation & Evaluation (15%)

The purpose of the group project is to enable students to examine a particular topic in greater depth, and collaborate with others to explore the wider issues it raises. The assignment consists of two parts: the presentation and the peer evaluation. Students will design and deliver a Pecha Kucha, 20 slide 20 sec per slide, delivered via Zoom screen share during class time on one of the following topics: climate change, agriculture and food production, pollution and waste, biodiversity and conservation. Students may select their own topic upon receiving professor approval. See rubric below. Students will receive a formatted PowerPoint and one-time only, in-class time to practice their presentation with group members using breakout rooms via zooms.

Mid-term (must be posted Canvas on August 18th by 9 a.m.) (30%)

Mid terms will have an in-class and take home component. The in-class components will be closed book and will test students understanding of key words and concepts from the readings. The take home exam will be an open book 3-page assessment of the students' ability to construct carefully thought out arguments related to class content:

- An essay describing the relationship between science, policy, and equity. Ground this description using case example(s) that connects environmental risk and environmental justice. Describe how perceptions of risk can be conveyed to either dismantle or perpetuate inequity among stakeholders.
- An op-ed piece describing an Argument for (or against) a policy decision or management strategy used for mitigating environmental problems, explain your rationale for said position using scientific evidence, and describe the tradeoffs they had to reconcile/consider in making this decision.
- A policy brief proposing three promising policies federal or state governments could take to reduce pesticides, waste, energy, and water use in agriculture, technology, or manufacturing. Describe major institutions (agencies, legislative committees, federal research offices, etc.) and political actors who have the most influence – at the national or state levels – on policy affecting your industry and analyze why these institutions and groups are important and how influential the stakeholders have been. Identify the most promising points of intervention for your policies,

and describe three environmental effects that would be substantially changed if your policies were adopted. Also explain how or why you believe these three environmental effects would be altered by your policies.

Final Research Paper (must be emailed to me at swebb1@ucsc.edu on August 28th by noon, 11:59 p.m.) (40%)

There will not be a final exam for the course; instead students will be responsible for a final research paper. I am accepting a wide range of topics because I'd like you to choose a topic that you are interested in as long as it relates to environmental risks, management of environmental risks, and/or (in)equitable distributions of environmental risk. Early on, you are asked to submit a 1-2 paragraph abstract and annotated bibliography of your proposed topic in the course for approval. We will peer-review drafts in partners; a rubric and guidance on how to do peer review will be given via canvas. Requirements for your final paper are: 8-10 pages double spaced, 12-point font, and have at least 8 peer reviewed journal citations (citations, graphs, if applicable, not included in the page length requirement).

For the maximum amount of points, the essay should be:

- grammatically correct, properly cited, and proofread many times,
- describe the role of science in the environmental question/controversy you choose to write about,
- examine the processes and procedures for managing said environmental conundrum,
- assume a position but provide perspectives on both sides of the question, OR
- explain why you take issue with the way the environmental problem is framed, AND
- support your claims using academic research and policy articles,

Examples of paper topics:

- Can emissions trading effectively mitigate climate change?
- Is the precautionary principle a sound basis for environmental policy?
- Should the US meet the Kyoto Protocol requirements?
- Should DDT be banned globally?
- Is genetic engineering the answer to hunger and sustainable food production?
- Are marine reserves needed to protect global fisheries?
- Is there such a thing as environmental racism?
- Is limiting population growth a key factor in protecting the environment?
- Do the projected consequences of ozone depletion justify phasing out chlorofluorocarbons?
- Are the Earth's fisheries being depleted?

V. Extra Credit

- Submitting a half-page reflection essay on an online policy forum discussing a current environmental risk (1%)

VI. Schedule of Classes and Prescribed Readings

Class	Day	Topics: Reading	Assignment (all assignments are due by 11:59 pm)
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1	7/28	<p>Class overview.</p> <p>Connecting Environmental Problems to Environmental Risk</p> <p>Szasz, Andrew. <i>Ecopopulism: Toxic waste and the movement for environmental justice</i>. Vol. 1. U of Minnesota Press, 1994. READ Introduction pgs. 1-8</p> <p>Tobin, G. A., & Montz, B. E. (2009). Environmental Hazards.</p> <p>William D. Ruckelshaus. 'Science, Risk, and Public Policy.' <i>Science New Series</i>, Vol. 221, No. 4615 (September 9, 1983), 1026-1028.</p>	<p>Set up profile picture on zoom. Review Module 0 before class. Complete first quiz for Module 1.</p>
2	7/30	<p>Risk Assessment and Management Risk</p> <p>McIntosh A. & Pontius J. (2016) Chapter 1. Tools-and-skills. <i>Science and the Global Environment</i>. Pgs. 88 – 94</p> <p>Stephen L. Derby and Ralph L. Keeney, 'Understanding "HOW Safe is Safe Enough?" <i>Risk Analysis</i>, Vol. 1. No. 3, 1981, pp. 217-224.</p> <p>Smith, K. (2013). <i>Environmental hazards: assessing risk and reducing disaster</i>. Routledge.</p>	<p>Group Topics Due</p>
3	8/4	<p>The Precautionary Principle</p> <p>Per Sandin, 'The Precautionary Principle and the Concept of Precaution.' <i>Environmental Values</i> 13 (2004): 461-75.</p> <p>Gardiner, S. M. (2006). A core precautionary principle. <i>Journal of Political Philosophy</i>, 14(1), 33-60.</p> <p>González-Laxe, F. (2005). The precautionary principle in fisheries management. <i>Marine Policy</i>, 29(6), 495-505.</p> <p>Aven, T., & Renn, O. (2018). Improving government policy on risk: Eight key principles. <i>Reliability Engineering & System Safety</i>, 176, 230-241.</p> <p>OPTIONAL: Jacobs (2014) Montreal Protocol & the Precautionary Principle</p> <p>GUEST SPEAKERS: Melissa Mahoney, M.S.</p>	<p>Topic abstract & annotated bibliography Due</p>
4	8/6	<p>Perceptions & Communications of Risk</p> <p>Paul Slovic, 'Perception of Risk,' <i>Science, New Series</i>, Vol. 236, No. 4799 (Apr. 17, 1987), pp. 280-285 Published by: American Association for the Advancement of Science.</p> <p>McDaniels, T., Axelrod, L. J., & Slovic, P. (1995). Characterizing perception of ecological risk. <i>Risk Analysis</i>, 15(5), 575-588.</p> <p>Weber, E. U. (2006). Experience-based and description-based perceptions of long-term risk: Why global warming does not scare us (yet). <i>Climatic change</i>, 77(1-2), 103-120.</p> <p>Shao, W., & Hao, F. (2020). Confidence in political leaders can slant risk perceptions of COVID-19 in a highly polarized environment. <i>Social Science & Medicine</i> (1982), 261, 113235.</p>	

		GUEST SPEAKERS: Dr. Rachel Voss	
5	8/11	<p>The Politics of Risk Cutter, S. L. (1996). Vulnerability to environmental hazards. <i>Progress in human geography</i>, 20(4), 529-539.</p> <p>Sarewitz, D. 2004. "How science makes environmental controversies worse," <i>Environmental Science & Policy</i> 7: 385-403.</p> <p>Gandy, M. (1999). Rethinking the ecological leviathan: environmental regulation in an age of risk. <i>Global Environmental Change</i>, 9(1), 59-69.</p> <p>Thorton, J. (2000). Pandora's Poison: Chlorine, Health and a New Environmental Strategy. Chapter 11: "Good Science, Good Politics."</p>	
6	8/13	<p>Water & Water Scarcity Torrice, M. 2016. "How Lead Ended Up In Flint's Tap Water." <i>Chemical & Engineering News</i>, Vol 94(7). Available at: https://cen.acs.org/articles/94/i7/Lead-Ended-Flints-Tap-Water.html</p> <p>"The Flint Water Crisis: Systemic Racism Through the Lens of Flint." Report of the Michigan Civil Rights Commission, February 17, 2017. <i>Read Executive Summary</i>, pp. 83-86.</p> <p>Christian-Smith, J., Levy, M. C., & Gleick, P. H. (2015). Maladaptation to drought: a case report from California, USA. <i>Sustainability Science</i>, 10(3), 491-501.</p> <p>Dowd, B. M., Press, D., & Los Huertos, M. (2008). Agricultural nonpoint source water pollution policy: The case of California's Central Coast. <i>Agriculture, ecosystems & environment</i>, 128(3), 151-161.</p> <p>GUEST SPEAKERS: Dr. Brent Haddad</p> <p>IN CLASS MID-TERM (60 MINUTES)</p>	Take home mid-term assigned
7	8/18	<p>Biotechnology Krimsky, S. 2005. 'From Asilomar to Industrial Biotechnology: Risks, Reductionism and Regulation.' <i>Science as Culture</i> 14: 309-323.</p> <p>Guthman, J. (2003). Eating risk. The politics of labeling genetically engineered foods. <i>Engineering trouble: Biotechnology and its discontents</i>, 130-151.</p> <p>Otts, S. S. (2014). US regulatory framework for genetic biocontrol of invasive fish. <i>Biological invasions</i>, 16(6), 1289-1298.</p> <p>GUEST SPEAKERS: Halie Kampman, ABD</p>	TAKE HOME MID-TERM DUE
8	8/20	<p>Agriculture & Pesticides Guthman, J. and S. Brown. 2016. Whose life counts: Biopolitics and the "bright line" of chloropicrin mitigation in California's strawberry industry. <i>Science, Technology and Human Values</i> 41 (3).</p> <p>Harrison, J. 2006. "Accidents' and Invisibility: Scaled discourse and the naturalization of regulatory neglect in California's pesticide drift conflict" <i>Political Geography</i>: 25 (2006) 506-529</p>	Draft Paper Due for Peer Evaluation

		<p>Jimenez-Soto, E. (2020). The political ecology of shaded coffee plantations: conservation narratives and the everyday-lived-experience of farmworkers. <i>The Journal of Peasant Studies</i>, 1-20.</p> <p>GUEST SPEAKERS: Estelí Jimenez-Soto</p>	
9	8/25	<p>Pollution & Waste Szasz, Andrew. <i>Ecopopulism: Toxic waste and the movement for environmental justice</i>. Vol. 1. U of Minnesota Press, 1994. READ Chapter 2.</p> <p>Frazzoli, C., Orisakwe, O. E., Dragone, R., & Mantovani, A. (2010). Diagnostic health risk assessment of electronic waste on the general population in developing countries' scenarios. <i>Environmental Impact Assessment Review</i>, 30(6), 388-399.</p> <p>Cooney, G., Hawkins, T. R., & Marriott, J. (2013). Life cycle assessment of diesel and electric public transportation buses. <i>Journal of Industrial Ecology</i>, 17(5), 689-699.</p>	Peer Evaluation Due
10	8/27	<p>Energy & Climate Change "As the World Burns" – New Yorker feature on the death of the climate legislation in the U.S. Senate in 2010. https://www.newyorker.com/magazine/2010/10/11/as-the-world-burns</p> <p>News Conference on Global Climate Crisis Speaker Nancy Pelosi (D-CA) and other House Democrats spoke to reporters about global climate change (Video) https://www.c-span.org/video/?473512-1/news-conference-global-climate-crisis</p> <p>The Intergovernmental Panel on Climate Change https://www.ipcc.ch/reports/</p> <p>Guest Speakers: Dr. David Revell (60-90 minutes)</p>	FINAL PAPER DUE via [terms of delivery]

VII. Rubrics

Group Presentation Rubric

Format: Pecha Kucha, 20 slide 20 sec per slide (3 marks)	<p>Above Average/Excellent (3pt): Meets all requirements of format and matches each slide with speaking points within the given time limits.</p> <p>Sufficient/Adequate (2pt): Meets all requirements of format, but lacks timing detail. For example, reoccurrence of slide moving to next photo while still speaking about a past topic.</p> <p>Developing (1pt): Fails to meet both format requirements but upholds one of two.</p> <p>Needs improvement (0pt): Fails to meet both format requirements</p>
Student speaks (at some point for any duration) during the presentation (3 marks)	
Introduce their topic/environmental problem of concern (2 marks)	
Identify current/relevant science regarding	

the topic (broadly) (2 marks)	
Select/present a case study geographically (2 marks)	
Identify current/ relevant policies about the topic/case study (2.5 marks)	
Apply/Identify 5 key concepts to the case study (2.5 marks)	0.5 pts for each key concept discussed/conveyed
Identify 3 (dis)connects between (broad science) and case study politics (3 marks)	

Take-home Mid-term Rubric

Students will be prompted to write one long essay, drawing upon the entire range of readings for that portion of the course. The grading rubric for the take home mid term will be as follows:

1. The accuracy of the students summarization of key issues involved with careful reference to the readings	35%
2. The precision in which the student answers the questions	25%
3. The clarity of the student's analyzes of the issues involved	25%
4. The attention to detail: references, proof-reading, adhering to page and character limitations	15%

Final Research Paper Rubric

1. The ability to accurately frame and clearly identify your thesis in the introduction (i.e., format).	20%
2. The overall organization of the essay and the clarity of the argument (i.e., clarity).	35%
3. The quality of the analysis, with reference to the theoretical apparatus provided in the class room readings (i.e., content)	30%
4. The attention to detail, with reference to precision of citations, and careful proof-reading.	15%