**CEE 438 - Science and Environmental Policy**

**Spring 2025 - Course Syllabus**

(version 1/16/2025)

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**Class web page:** Class materials will be posted on Canvas: <https://canvas.illinois.edu/courses/53622>.

**Class Hours**: MW 2:00 PM – 3:20 PM (UIUC local time), 3019 CEE Hydro Lab.

**Office Hours**: TBD after consultation with students.

**Credit**: 3 hrs

**Learning objectives**

The role of science in the development of environmental policies is complex. There are no unique approaches that work in every case. Every environmental issue has its own physical characteristics and diverse social and economic dynamics. This course aims to motivate engineering students to identify the social and environmental context and implications of their technical work and improve engineering student awareness of how policy is formulated and at what stages in the process and in what ways scientists and engineers can contribute to environmental policy making. After completing this course, you will be able to

* Answer (or debate about) key questions, such as: How does scientific expertise shape environmental policy decisions at the National level and within the United Nations System? What are the key barriers and opportunities for integrating scientific knowledge in environmental decision-making? How can the scientific community be better mobilized to contribute to environmental policy-making processes?How can scientific work contribute to environmental justice issues?
* Understand processes and nuances of national and international environmental legislation and treaty-making and the role of scientists and engineers in this process.
* Assess negotiation dynamics and the importance of technical evidence, through the study of select US legislation and international agreements and through role playing and analysis of case studies.
* Formulate meaningful questions of interest to society through studying policy making relevant literature and working on class projects and identify opportunities where you as an engineer can create value for society.
* Construct oral and written communications for policy purposes, based on evidence-based, fully documented arguments.
* Improve time management and teamwork-toward-a-common goal skills, through practice of teamwork and self-reflection.

**Class format**

This class is based on discussion and student participation. Lecturing is limited. You need to come to class prepared, having read the pre-assigned material and be ready to discuss the discussion questions, with the rest of the class.

*If you take this class asynchronously, you will need to communicate with me to make a working plan, recognizing that asynchronous attendance of this class is limiting in terms of ability to participate in live discussion and formulate oral arguments in real time.*

**Prerequisites**

CEE 202 or IE 300, STAT 400, or equivalent introductory probability and statistics course. One of the biggest challenges scientists have in communicating scientific results is the communication of uncertainty. Having an introductory level understanding of probability and statistics is necessary for being able to discuss this topic. The ability to organize data, do simple data analysis and produce data graphs is important.

**Textbook**

Smith Zachary A., 2022, The Environmental Policy Paradox, 8th Edition, Routledge.

(I reviewed several recent textbooks because of recent rapid environmental developments. I finally decided to keep this book because it presents essential background material for this class in a concise, student-friendly way. We use book chapters as assigned readings in the early weeks of the semester. We use it as reference among other materials you need for your assignments, later in the semester).

**Other Required or Recommended Readings**

Required and recommended readings also come from the older or recent peer reviewed scientific literature, governmental (e.g., US Congress, US EPA) and intergovernmental organization publications (e.g., UN, WHO, IPCC). See specific readings in the class schedule document. Class readings are posted on Canvas, as allowed by copyright restrictions.

**Equipment needed**

Your laptop and cell phone, as for all your courses.

**Recording and sharing material by students:** *Recording material from this course (beside the official recording), including lectures, discussions or other activities* ***is forbidden****.* ***Sharing recorded*** *material or posting it online* ***is also forbidden****. Any violation of these policies will be forwarded to the Office of Student Conflict Resolution for disciplinary action.*

**Weekly Assignments**

There is no repeating weekly pattern, as we work with different ways of communicating and interacting as a class community. But in order to give you an idea, here is a general description of weekly activities.

**Weekly**

Read the required material for the week:

* 1. Prepare responses to the discussion questions of your assigned readings.
  2. Review and evaluate responses by others.
  3. Facilitate discussion.

**Early weeks** (building background, establishing a common vocabulary, getting comfortable with writing for diverse audiences, learning from evaluating others)

**Mid-semester weeks** (going in depth on certain issues – producing quality teamwork)

**Team Assignment: A case study**

A team of 3-4 students is preparing to present an environmental issue, the process of developing policy for the issue, the actors and the implications of that policy and lessons learned.

A second team reviews the materials prepared by the first team and enriches the discussion by (a) identifying points of high importance for which the review team provides additional perspectives or (b) bringing up important points not covered well by the presenting team.

**Late semester weeks** (top step of your learning ladder in this class: practice writing original, influential text on your own)

**Policy Memo**

Policy memo (1200-1500 words plus references). The purpose of a policy memo is to provide analysis and/or recommendations regarding a certain issue. Policy memos are written so that readers can efficiently access fact-based information in order to make an informed decision. Memos should, therefore, try to inform the audience in a concise, organized, and professional manner, while still including the most relevant content (Writing Studio, Thompson Writing Program, Duke University). You will get specific guidance when the project is assigned.

A couple of role-playing games have been scheduled for the middle and end of the semester.

**Grading**

Class participation: 20% (class activities, C-ROADS, EN-ROADS activity, EJ activity, negotiation games, meaningful active participation in all class activities and discussions)\*

Case study: 30% (summary and references 20%, presentation 10%)

Critical review of case study materials for another team: 5%

Memo writing: 35% (memo outline: 5%; draft memo 5%; final paper: 25%)

Presentation/video: 10%;

Review draft memo of others: 5%

\**Please note that* ***class participation is graded based on its quality*** *not just on you talking for the sake of it. Quality participation includes having read the materials, staying relevant to the discussion topic/context, raising thoughtful questions, building on others’ ideas, synthesizing across readings and discussions, expanding on the class’ perspective, and appropriately challenging assumptions and perspectives. You are also graded on ‘balanced attitude’: confident discussants should allow space for others to talk, shy discussants should not retreat thus surrendering the portion of their time to more aggressive others. Facilitator will be helping for such situations, but it is better when everyone is conscious of the underlying, often ‘unspoken’ rules.*

**How do I submit homeworks and projects?**

**When:** Homeworks and Projects have to be turned in **by the beginning of the class period, on the day they are due**. Please note that due to the format of the class, late submissions are not practical in this class. Each student may turn in ONE late assignment with no penalty. Reasons for delayed submissions have to be serious and provable. If your excuse comes after a given deadline, it will not be accepted. Late submissions will NOT be accepted in the last week of classes (which is typically the week the memo is due). Keeping due dates is important for developing those so crucial time management skills.

**Where:** Submissions will happen on Canvas. For good file management purposes, you should be naming any files you submit electronically as follows: ***Your\_LastName\_AssignmentNumber.extension*** (example JONES\_MyPolicyMemo.pdf). Make a habit of naming all files you submit electronically using this format! *Repeated failure to follow this naming format will result in no acceptance of your submission.**Reason: development of good filing habits. Good archiving starts with a plan that includes consistent naming.*

**Class attendance**

It is expected for every class. Let me know **in advance** if you are going to miss class for a serious reason to accommodate late assignment submission.

**CEE Honor Code**

*I pledge to uphold the highest levels of professional and personal integrity in all of my actions, including 1) never assisting or receiving unfair assistance during exams, 2) never assisting or receiving assistance on class assignments beyond that specified by an instructor, and 3) always fully contributing to group activities that are part of a course activity.*

***VERY IMPORTANT!!! Plagiarism: Plagiarism in class assignments will be penalized****.**Visit the following sites**to be informed about what is plagiarism and how to avoid it (see also CEE honor code above):* [*http://guides.library.illinois.edu/citingsources/plagarism*](http://guides.library.illinois.edu/citingsources/plagarism)

**Makeup classes:** Makeup classes will be scheduled if needed, at times that are agreeable to most.

**Other issues:** Do not hesitate to approach me for any concerns you might have relevant to the class. I always encourage your feedback.

**Useful general resources**

**Finding information, managing citations good scientific writing:**

<http://guides.library.illinois.edu/citingsources/citationmanagers>

<https://www.library.illinois.edu/help-services/>

**Some resources on effective scientific presentations**

<https://www.assertion-evidence.com/tutorial.html>.

Other sites I like:

<http://physics.illinois.edu/people/celia/ScienceTalks.pdf>

<http://faculty.cs.tamu.edu/tlw/LinkedDocuments/cgsa.pdf> <http://www.cgd.ucar.edu/cms/agu/scientific_talk.html>

**How to Design, Prepare and Present a Winning Poster (AGU Career Center)**

<https://www.youtube.com/watch?v=1jLLaNXCSws>

**University-wide important policies and resources**

**Accommodations for disabilities**

We work closely with Division of Rehabilitation-Education Services (DRES) (1207 S. Oak St., Champaign; 333-4603; disability@uiuc.edu) to make sure we offer an optimal learning environment for all our students. Please contact me, as soon as possible, if our arrangements are not accommodating enough for your needs, so that I can work with you to find solutions for any issues.

**Campus safety tips**

Important to be aware of your surroundings and alert. Visit the campus website for useful information: <https://police.illinois.edu/services/campus-safety-tips/>.

Make sure you sign up to ILLINI-ALERT for emergency notifications <http://emergency.illinois.edu>.

Emergency response recommendations can be found at the following website: <http://police.illinois.edu/emergency-preparedness/>. I encourage you to review this website and the campus building floor plans website within the first 10 days of class. <http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/>.

**Academic Integrity**

The University of Illinois at Urbana-Champaign Student Code should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: <http://studentcode.illinois.edu/>.

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <http://studentcode.illinois.edu/article1_part4_1-401.html>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

**Wellness**

**Wellness**: <https://campusrec.illinois.edu/programs/student-wellness/dimensions-of-wellness>

**Mental Health**

Significant stress, mood changes, excessive worry, substance/alcohol misuse or interferences in eating or sleep can have an impact on academic performance, social development, and emotional wellbeing. The University of Illinois offers a variety of confidential services including individual and group counseling, crisis intervention, psychiatric services, and specialized screenings which are covered through the Student Health Fee. If you or someone you know experiences any of the above mental health concerns, it is strongly encouraged to contact or visit any of the University’s resources provided below. Getting help is a smart and courageous thing to do for yourself and for those who care about you.

•Counseling Center (217) 333-3704

•McKinley Health Center (217) 333-2700

•National Suicide Prevention Lifeline (800) 273-8255

•Rosecrance Crisis Line (217) 359-4141 (available 24/7, 365 days a year).

If you are in immediate danger, call 911.

**Community of Care**

As members of the Illinois community, we each have a responsibility to express care and concern for one another. If you come across a classmate whose behavior concerns you, whether in regards to their well-being or yours, we encourage you to refer this behavior to the Student Assistance Center (217-333-0050 or <http://odos.illinois.edu/community-of-care/referral/>). Based on your report, the staff in the Student Assistance Center reaches out to students to make sure they have the support they need to be healthy and safe.

You can also access mental health support at McKinley Health Center (<https://mckinley.illinois.edu/>). Or the Counseling Center (<https://counselingcenter.illinois.edu/>). For urgent matters during business hours, no appointment is needed to contact the Counseling Center. For mental health emergencies, you can call 911.

**Family Educational Rights and Privacy Act (FERPA)**

Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See https://registrar.illinois.edu/academic-records/ferpa/ for more information on FERPA.

**Sexual Misconduct Policy and Reporting:**

The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University’s Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: <https://wecare.illinois.edu/resources/students/#confidential>.

**Religious Observances**

Illinois law requires the University to reasonably accommodate its students' religious beliefs, observances, and practices in regard to admissions, class attendance, and the scheduling of examinations and work requirements. You should examine this syllabus at the beginning of the semester for potential conflicts between course deadlines and any of your religious observances. If a conflict exists, you should notify your instructor of the conflict and follow the procedure at <https://odos.illinois.edu/community-of-care/resources/students/religious-observances/> to request appropriate accommodations. **This should be done in the first two weeks of classes**.

**Useful resource for online students**

<https://citl.illinois.edu/citl-101/teaching-learning/resources/transitioning-online/student-resources>

**About electronic communications: ‘netiquette’**

In any social interaction, certain rules of etiquette are expected and contribute to more enjoyable and productive communication. The following are tips for interacting online via e-mail or discussion board messages, adapted from guidelines originally compiled by Chuq Von Rospach and Gene Spafford (1995):

* Remember that the person receiving your message is someone like you, deserving and appreciating courtesy and respect.
* Avoid typing whole sentences or phrases in Caps Lock.
* Be brief; succinct, thoughtful messages have the greatest effect.
* Your messages reflect on you personally; take time to make sure that you are proud of their form and content.
* Use descriptive subject headings in your e-mails.
* Think about your audience and the relevance of your messages.
* Be careful when you use humor and sarcasm; absent the voice inflections and body language that aid face-to-face communication, internet messages are easy to misinterpret.
* When making follow-up comments, summarize the parts of the message to which you are responding.
* Avoid repeating what has already been said; needless repetition is ineffective communication.
* Cite appropriate references whenever using someone else's ideas, thoughts, or words.
* Treat Zoom sessions as in-person sessions.
  + Dress and sit as though you are in class (psychological factor).
  + Use a virtual background if you worry that your background is messy.

**Inclusivity and mutual respect - In my own words**

This class is to provide a welcoming and safe learning environment for everyone, regardless of individual characteristics, appearance, beliefs, preferences, culture, genetics, and any other constructs that can make us lose sight of our common nature. In all ways that really matter, we are all similar: intelligent life inhabiting the only known planet that can support life for us.

I have made an intentional effort to make materials accessible to students of different backgrounds and I offer my time to help students who need extra help. But I need you to be active in this effort!

-If you are a pro on something, do not distance your ‘pro’ selves from the class community! You can support your teammates’ learning journey by not being a ‘I know it all, I do it all myself’! Help others see how they can do things and let them do things. This helps you too, improve your group management and leadership skills.

-If you are a newbie for some assignment, never feel intimidated! Do feel determined to learn! You need to be active responders to class ‘stimuli’ (questions, class work, homeworks, role-playing, office hours). Seek feedback and be ready to accept and use it. **Feedback is not criticism**. Feedback is the essential part of the process of interacting with others and improving ourselves. Strive to be the best you can at every stage. A classroom is like a gym. We build up our skills and intellectual ‘muscles’.

-My role is to help open your learning horizons and support your learning journey. I cannot mandate what you pay attention to or what you learn best. Learning is a continuous, intentional process driven by you. You will gain maximum benefit from the class if you keep being present and open to learning in every step. Leaving this (any) class, you should feel that you have become a more accomplished person in both social/professional skills and technical skills, compared to where you started. What I like seeing by the end of the class, is seeing you opening learning horizons for the rest of us and thus, expanding our shared knowledge space.