

**PA 5715 (Section 002)**  
**Deliberating Science, Technology, and Environmental Policy**  
*AI in Sustainability Practice and Policy*  
Wednesdays | 4:00 - 5:15 pm  
HHH 50A  
1.5 credits (4-5 hours/week)

**Course Instructor:** Fred Rose, STEP Affiliate/Adjunct

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Office Hours: [Appointment calendar](#) or by email arrangement

Fred Rose is currently semi-retired and an adjunct instructor for the Humphrey School of Public Affairs and the Institute on the Environment. He is also a certified Climate Ambassador for Climate Interactive. Fred was the co-founder of Acara and was the lead instructor for all Acara courses. He developed ten UMN courses that provide in-depth experiential learning on creating and implementing solutions that address global grand challenges. He also developed a co-curricular process that supports students and former students engaged in impact ventures. In this role he has taught and mentored over 1000 UMN students, hundreds more in courses and workshops at universities in ten countries and more than 40 pilot ventures. Prior to the U, he had a 27-year career with Honeywell in various engineering and strategy roles. This included extensive experience in India and China. He is also founder of the local non-profit High Tech Kids. [Full CV](#).

**DRAFT Syllabus - April , 2023**

**SUBJECT TO CHANGE AND UPDATE**

***Canvas should always be treated as the most up to date, and will overrule what may be in the syllabus.***

**AI in Sustainability Practice and Policy.** This course is focused on Artificial Intelligence in environmental and energy related work, in both the public and private sector. We will not only look at how it might be used in policy and various environmental and energy applications, we will use it to write a policy brief. Will also examine potential pitfalls, including how to ensure it doesn't perpetuate inequities or misinformation.

AI is already a significant part of much of the existing technology infrastructure. But it's really burst into consciousness in the last year. You can't turn around without seeing an article about the implications of ChatGPT. We will certainly talk about that in this course, but the

scope is much broader. We will cover how AI is used, or could be used, in Environmental studies and research. How can the combination of big data and AI be used to improve Environmental monitoring and impact? What needs to be done to ensure that inequities and misinformation doesn't just get propagated even more through AI and AI generated reports? How can AI be used to assist policy developers? There's plenty of interesting case studies to highlight these challenges. The discussion format of this course will lend itself well to these endeavors. The course will give everyone a chance to try out a variety of technologies as well.

The instructor has spent a career moving a variety of technologies and methods from the lab out into production. You have to embrace the technology, understand it and then figure out how it might be useful (or where it's not useful or even harmful). Simply to say society should be afraid of it is insufficient. People will use it, or try to use it. Policy makers need to be there with them.

### **Learning Objectives**

- Understand the basics of AI and apply that knowledge to discussion of its applications.
- Grow intellectual and professional curiosity related to different approaches and applications of AI through deliberation and reflection.
- Debate core issues related to AI and their application to current issues.
- Students will co-lead class discussions and help design in-class activities. Students will develop and practice facilitation skills.

### **Course Modality**

This course is scheduled as an in-person course. It will not be hybrid. If circumstances are such, we will host the course or session entirely on Zoom.

### **Grade Weighting (DRAFT TBD)**

**Grades will be assigned on the following basis:**

- Class participation 10%
- Session facilitation 40%
- Commentaries 30% (3, 10% each)
- Final reflection paper 20%

### **Participation**

Class attendance and active participation are expected and are essential to make this seminar a success. Attendance measures your presence in class (did you show up to class on time and stay for the entire class?), while active participation addresses preparation for class (did you do the readings and take notes?) and contributions to small group and class-wide discussions (are you contributing to your learning and the learning of others through deliberation and dialogue?). Finally, your participation in class also covers your

courtesy and respect for others – we are learning together in this class. Failure to notify me in advance (at least 24 hours, unless there is an extenuating circumstance) of any missed class will result in a lower participation grade, and more than one unexcused absence will lower your participation grade.

### **When Life Happens...**

Even in the best of times, events can intrude and make it difficult to keep up with our daily responsibilities. Even now in the time of post-pandemic, it seems impossible to lead a life without disruption. I want to make sure that you feel comfortable in reaching out to me if events happen that are causing you problems with keeping up with school. I know that life happens. Please don't hesitate to reach out to me or other resources on campus.

### **Diversity and Inclusiveness**

There is a diversity of people associated with this course, as students, instructors, and community partners. Additionally, we may talk about potentially sensitive topics throughout the semester. While building empathy skills is a major class learning objective, sometimes conflict or concern or frustration may arise. Something may be said in class or a group setting that you feel was insensitive. Please don't hesitate to reach out to me if you are feeling uncomfortable about something.

### **Assignments**

#### *Session Facilitation*

You will each serve as a session facilitator for **two (or more, depends on enrollment) class** sessions. This involves activity before, during, and after the class session.

- Before the class session, please become familiar with all the readings for that class and generate key themes and questions for class discussion.
  - (1) You must select a case/application for the class to explore related to the week's topic. This will be discussed with me prior to class.
  - (2) You must meet with me the week before the class session to discuss the design of the session and the ideas and issues you would like to highlight. Your preparation ahead of time contributes to your grade.
- During the class session, you will provide an overview of the important themes and issues raised by the readings, ending with a few specific questions to discuss. You will then lead a discussion for the remainder of the session — guiding the interaction, eliciting questions, and providing closing summary remarks in the last few minutes of the class.
- Other students will provide feedback on your facilitation.
- After the class session, you will prepare a short (1-2 page) written summary of the themes and issues discussed, issues raised, and connections to other topics in the course (as applicable). This written summary will be distributed (along with any slides you may have used for the session) the following week.
- Grading is based on the level of preparation, framing of themes, issues,

questions, closing remarks, the quality of discussion facilitated, and the written summary.

### *Commentaries*

You are asked to prepare **three commentaries** on selected class sessions. These **two-page papers are due on the week after** the relevant class via Canvas (**by 4pm**). Commentaries are intended to evoke thoughtful consideration of the readings and class discussion. Details TBD.

### *Final reflection paper*

An individual final reflection paper (~5 pages) will be done . Please turn this in on Canvas. This paper provides you with an opportunity to reflect on your ideas and thoughts from the course. Detailed questions TBD.

Weekly Schedule and Readings TBD

## **Plagiarism**

University of Minnesota and Humphrey school policies regarding plagiarism and documenting sources apply to this class.

- Plagiarism will be taken very seriously – document all your sources and avoid ambiguity.
- Standards for citing sources vary tremendously in the policy world, however, in all assignments for this class, you will be expected to provide citations for every source you consult and build upon.
- When in doubt, consult the library resources.

## **Mental Health and Disability Accommodations**

This class is being offered in a professional school and is designed for graduate-level students.

- I assume that you will come into the semester with prior experience managing a complex set of assignments and deadlines. If you feel like you are struggling with this at any point during the semester, please come talk to me.
- If the work for this course becomes overwhelming or you have other things going on in your life, **please communicate with me about your situation**. It is better that I know and understand your conditions than you come to class surprisingly unprepared.
- Above all, your mental health is of utmost importance – no amount of stress is worth sacrifices to your personal wellbeing.

If you have a documented disability or any other circumstance that you think may affect your ability to meet course expectations, please talk to me early in the semester.

- We can make arrangements regarding classroom organization, format, deadlines, or other features of the class.

- It is never too late to request accommodations – our minds, bodies, and

circumstances are continuously changing.

- You can learn more about the broad range of confidential mental health services available on campus via [www.mentalhealth.umn.edu](http://www.mentalhealth.umn.edu). If you have, or think you may have, a disability, please contact Disability Services at (612) 626-1333.

### University Resources & Policies

Resource	Description
<a href="#">Disability accommodations</a>	The University views disability as an important aspect of diversity and is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.
<a href="#">Mental health and stress management</a>	As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic
	performance and may reduce your ability to participate in daily activities. University services are available to assist you.
<a href="#">Nutritious U</a>	At the U of M Twin Cities campus, 17.5% of students worry their food will run out before they can buy more; additionally, 10% of students actually experience food shortages. The Nutritious U Food Pantry provides fresh and healthy food to students that struggle to get enough to eat.
<a href="#">Technology help</a>	The Technology Help service desk is your first point of contact when you need technical support for Twin Cities information technology services.
<a href="#">Scholastic dishonesty</a>	You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty includes <a href="#">plagiarism</a> , cheating, unauthorized collaboration, fabricating information, and obtaining grades or honors dishonestly.
<a href="#">Sexual harassment</a>	The University prohibits sexual misconduct and encourages anyone experiencing sexual misconduct to access resources for personal support and reporting.
<a href="#">Student conduct code</a>	As a student at the University, you are expected to adhere to Board of Regents Policy: <i>Student Conduct Code</i> .
<a href="#">Makeup work for legitimate absences</a>	Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances.

<p><a href="#"><u>Equity, diversity, equal opportunity, and affirmative action</u></a></p>	<p>The University provides equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, membership or activity in a local commission created for the purpose of dealing with discrimination, veteran status, sexual orientation, gender identity, or gender expression.</p>
<p><a href="#"><u>Academic freedom and responsibility</u></a></p>	<p>Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility.</p>
<p><a href="#"><u>Grades and transcripts</u></a></p>	<p>The University has two distinct grading scales: A-F and S-N (this course is graded A-F).</p>
<p><a href="#"><u>Incomplete grades</u></a></p>	<p>According to University policy, incompletes may be assigned when extraordinary circumstances prevent you from completing your coursework on time.</p>