



Food-Energy-Water Nexus Seminar: Bridging Science, Policy, and Practice

Course Syllabus

Spring 2021 – 1.0 credit
Food-Energy-Water Nexus Seminar
NRSM 542
Monday 4-5:20 pm
Online (and outdoors if possible)

<https://umontana.zoom.us/j/98369830458>

Instructor Information

Laurie Yung

Professor of Natural Resource Social Science
Department of Society and Conservation
Clapp Building (CHCB) #463
laurie.yung@umontana.edu
Office Hours: by appointment

Sarah O’Keefe

Program Coordinator
Department of Geosciences/UM BRIDGES
Clapp Building (CHCB) #371
sarah.okeefe@umontana.edu
Office Hours: by appointment

Course Description

This 1.0 credit seminar will focus on how science moves into decision-making and how we can work with end-users to make our science more relevant and actionable, especially at the food-energy-water nexus. We will cover public perceptions of science, co-production of knowledge, working with stakeholders and indigenous groups, communicating complexity, and integrating science into policy-making. The course will include short lectures, class discussion, small group activities, and a number of guest speakers.

Learning Objectives

Upon successful completion of the seminar, students will be able to:

- Conceptualize the multiple connections and pathways between science, practice, and policy
- Describe public perceptions of science and how people use information in decision-making
- Apply best practices in communicating scientific complexity to practitioners
- Sketch a stakeholder engagement strategy to improve research outcomes and public relevance
- Design a process for co-production of knowledge between scientists and non-scientists
- Work more effectively with indigenous groups in a research and practice context
- Identify challenges, opportunities, and methods for integrating research into the policy-making process

Course Readings and Media

For some class sessions, we are asking students to complete a reading or activity to complete prior to class. All readings are linked to below. We expect that everyone will have completed the assigned reading or activity, so that everyone is adequately prepared for class discussions and activities.

Course Assessment

Course grading is on a “traditional” scale (i.e. letter grades) based on attendance, participation, preparation for discussions and activities, and presentations. Students are also welcome to inquire about their standing at any time.

Attendance

Each of the classes in this seminar cover an entire field of study and research. Course content has been carefully curated and designed maximize your learning. For this reason, attendance at each class and engagement with the readings and activities is very important.

We will take attendance each day in class, and attendance will be recorded on Moodle. Students may have one unexcused absence that will not count against their grade. Additional unexcused absences will result in a lower grade. Beyond one absence, instructors will require documentation of any family or medical issues that result in absences. If a student knows of a conflict in advance (e.g., an academic conference they are attending this semester), they should contact the instructors as soon as possible. In the case of an unanticipated conflict (e.g., illness or family emergency), please communicate with instructors as soon as possible. In the case of more than one absence, students will need to meet with instructors to develop a plan for making up missed content. **Students missing three or more classes will fail the course** (unless a serious, documented family or medical emergency prevents them from attending class and an agreement can be reached with instructors regarding make-up work).

Please be on time. If you have a conflict that requires that you arrive late or leave early, please speak with the instructors as soon as possible.

Participation

As this is a graduate seminar we expect and look forward to engaged participation. Students are expected to carefully and thoroughly read or watch/listen to ALL assigned readings or required media prior to class and come to class prepared to discuss, examine, analyze, and critique each assignment or use the information to engage with lecturers and with the class as a whole. “Engaged participation” does not refer to the number of comments you make during class or your level of expertise, but rather describes the sort of thoughtful, meaningful, prepared (meaning you *actively* read or reviewed the assignments) questions and comments that further your own intellectual development and that of the group. Students will have opportunities for participation during class discussions, small group activities, and report-backs after activities. This will enable participation in different forums so as to accommodate different learning styles. Civility and respect for different views and ideas are also expected, especially when engaging classmates and guest speakers.

Policy Shark Tank Presentation

On April 12th, you will present your research to policy-makers in a 3-minute presentation. This presentation should focus on the policy-relevant or actionable aspects of your research. The goal of this assignment is to give you practice communicating your science to policy-makers. Please keep your

audience in mind and be sure to limit jargon and technical terminology. Focus on the science that the policy-makers need to know and be explicit about how your research could translate into action. The policy-makers will provide feedback after each presentation.

Course Guidelines and Policies

Respect, Inclusion, and Diversity

In teaching courses, we believe and act upon the idea that all students are entitled to and deserve respect, courtesy, and tolerance, regardless of their race, ethnicity, background, religious affiliation, gender, gender identity, sexual preference, disability, or any other difference or identity. Likewise, faculty, staff, guest speakers, and fellow students deserve the same treatment from other students. Therefore, within the bounds of our courses and professional responsibilities as university instructors, we will make every effort to promote and create a safe space for diverse thoughts, regardless of the form of communication. We ask that you do the same.

Given the broad range of speakers and topics presented in this seminar, showing respect for others is paramount and is taken very seriously. We will strive towards an engaging, respectful, and open forum in which numerous perspectives and experiences related to the course material can be discussed and explored.

Equal Access

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and [Disability Services for Students](#) (DSS). If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or by calling 406.243.2243. We will work with you and Disability Services to provide an appropriate modification.

Student Conduct

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the [Student Conduct Code](#).

Course Schedule

Topics are subject to change based on guest speaker schedules. More specifically, April speakers are still somewhat in flux. We will update the schedule as soon as we are able to confirm our guests. Thank you for understanding.

Date	Topic	Learning Objectives
2/22	Understanding Public Perceptions of Science <i>Lead: Laurie</i>	<i>Describe public perceptions of science and how people use information in decision-making</i>
	<i>Reading: The Science, Practice, and Policy Interface</i>	

	<p><i>Please read this article by 3/8. You do not need to complete this reading by 2/22.</i></p> <p>This class will cover public perceptions of science; how and why science is politicized; and how science and policy can address the challenges of confirmation bias and motivated cognition.</p>	
3/01	<p>How Evidence and Models Inform Practice <i>Guest Speaker: Ken Gillingham, Yale University</i></p>	<p><i>Explore how evidence and models inform and change policy</i></p>
	<p>This class will use the case study of the Social Price of Carbon to explore how models and evidence are translated into policy outcomes.</p>	
3/08	<p>Co-Producing Science <i>Guest Speaker: Carina Wyborn, Institute for Water Futures, Australia National University</i></p>	<p><i>Understand the benefits of co-production and how to design a co-production process</i></p>
	<p><i>Reading: Co-Producing Sustainability: Reordering the Governance of Science, Policy, and Practice</i></p> <p>This class will explore the benefits and challenges of co-production, and how to work towards co-production in both your research and practice.</p>	
3/15	<p>Communicating Complexity <i>Lead: Sarah</i></p>	<p><i>Apply best practices in identifying and communicating scientific complexity</i></p>
	<p><i>Readings: https://complexityexplained.github.io/</i></p> <p>This week we will delve into the topic of complexity. What is complexity and how to we communicate effectively about complexity to practitioners?</p> <p>Assignment: In advance of the class you will be assigned to a small group. Each group will research one of the four major branches of complexity: Network Theory, Emergence, Non-Linearity, Adaptive Systems. You will meet with your group in a breakout session during class and then share the key points related to your concept with the group as a whole.</p>	
3/22	<p>Working with Indigenous Communities <i>Guest Speaker: Dr. Karletta Chief</i></p>	<p><i>Explore indigenous ways of knowing and how Western researchers can better engage with indigenous communities in the research process</i></p>
	<p><i>Reading: Adapting Western Research Methods to Indigenous Ways of Knowing</i></p>	

	In this class, we will explore opportunities and challenges for scientists working with indigenous communities.	
3/29	Science and Practice in the Confederated Salish and Kootenai Water Compact <i>Panel of Presenters</i>	<i>Learn how about the integration of science and policy in the Confederated Salish and Kootenai Tribes Compact</i>
	This week we will hear from a panel of presenters regarding how the Confederated Salish and Kootenai Tribes plan to roll out the recently passed Compact, and implications for various food, energy, and water programs.	
4/5	Engaging Stakeholders and Science to Develop Climate Policy <i>Guest Speakers: Climate Solutions Council Members Tracy Stone-Manning and Patrick Holmes (invited)</i>	<i>Learn about stakeholder-driven processes for integrating science into policy-making</i>
	<p>This class will examine the process to develop the Montana’s Climate Solutions Plan, including how stakeholder engagement and science were integrated into policy-making.</p> <p><i>Activity:</i> In 2019, Montana established the Montana Climate Solutions Council to develop a climate plan for the state. In advance of class, please read the Montana Climate Solutions Plan (or at least portions of the plan) and come prepared with questions for our guests. Patrick Holmes chaired the Council and served as Governor Bullock’s Natural Resource Policy Advisor. Tracy Stone-Manning co-chaired the Greenhouse Gas Mitigation Committee. Tracy was formerly the Director of Montana DEQ and currently works for the National Wildlife Federation.</p>	
4/12	Policy Shark Tank <i>Policy-makers TBD</i>	<i>Practice pitching your research to a policy-maker</i>
	In advance of class, please prepare a 3-minute ‘pitch’ about your research and its relevance to policy-makers. Think carefully about what policy-makers need to know about your project and be explicit regarding how they can use your results in decision-making. We will have two policy-makers in the audience and they will provide feedback after each presentation. The goal of this session is to practice communicating the policy-relevance of your research.	
4/19	Engaging Stakeholders and Communities <i>Lead: Laurie</i>	<i>Build skills to engage with a diversity of stakeholders and communities to improve research process and outcomes</i>
	This class will discuss how, when, and why you might engage with stakeholders and communities in your capacity as a scientist.	

	<p><i>Activity:</i> Prior to class, draw a stakeholder map related to your thesis or dissertation research topic. Think about the following questions: Who might use your results in decision-making? Who cares about your research topic (even if they aren't decision-makers)? Who has a stake of some sort in your research project and why? Does thinking about stakeholders change the way you think about your research? Create a conceptual diagram mapping out the key stakeholder groups (these can be organizations, individuals, communities, or social groups) and be prepared to share with the class.</p>	
4/26	<p>Wrap-up and Synthesis <i>Co-leads: Laurie and Sarah</i></p>	<p><i>Synthesize and summarize connections between science, practice, and policy</i></p>