Course Overview
Instructor: Dr. Morgan Edwards, 301 Observatory Hill Office Building, morgan.edwards@wisc.edu.

Class Meetings: Mondays and Wednesdays, 4:00-5:15 p.m. Sessions will meet in Nicholas Hall 4235.

Office Hours: Office hours will be conducted virtually via Zoom. You can schedule a meeting during office hours (Thursday mornings) here: https://calendly.com/morganedwards. If you are unavailable during office hours, please send me an email if you would like to set up a meeting.

Prerequisites: None.

Course Expectations: This is a three-credit course. We will meet for two 75-minute class periods per week over the spring semester. You should plan to spend three hours on learning activities outside the classroom for every hour of classroom time. I expect you to complete all readings and assignments for each session before coming to class and come prepared to discuss.

Learning Objectives
At the end of this course, you should be able to:

- **Examine** how evidence is (and is not) used in policymaking and identify common opportunities and obstacles in evidence-based policymaking.
- **Describe** the types of evidence used in policymaking, their strengths and weaknesses, and approaches to making policy in the face of uncertainty.
- **Evaluate** the appropriateness of evidence for particular policy problems, including analyzing real world cases where evidence was used (or misused) in policy.
- **Synthesize** evidence about a complex policy problem for policymakers using policy memos, infographics, op-eds, and presentations.

Assessment and Grades
Your progress toward the course learning objectives will be assessed in multiple ways. Parentheses indicate the weights given to these components in your final grade.

Participation (15%): Class will be a mixture of lectures, discussions, and hands-on activities. I expect you to complete all readings before class and come ready to actively participate. Not everyone participates in the same way, and the goal of this portion of your grade is to encourage a range of activities that engage in class materials and create co-learning. Examples include sharing thoughts in class, responding thoughtfully to what others have to say, or any form of mutual aid (e.g., taking notes to share with others, providing feedback to others on their assignment drafts, etc.). You will be asked to write a short reflection on your participation at the end of the semester.

At the end of certain class sessions, you will be asked to submit a short reflection that answers the following questions: (1) What was the most important thing you learned? (2) What was the muddiest (least clear or most confusing) part? (3) What would you like to hear more about? You will have the last five minutes of class to complete your reflections.

Policy Memo (20%): You will create a policy memo to practice communicating scientific evidence to a policy audience. We will discuss how to write memos in Lab 1. Your policy memo should be related to the broad policy area in your group case study, but you should identify your topic and complete your
assignment individually. If you have a strong preference to write a memo on a different topic, please contact me to discuss.

**Infographic (20%)**: You will create an infographic that contains at least one visualization of quantitative data. Your infographic should include a short note (one page or less) that describes the design choices you made and why and your intended audience. Your infographic should be related to the broad policy area in your group case study, but you should identify your topic and complete your assignment individually. If you have a strong preference to create an infographic on a different topic, please contact me to discuss.

**Op-Ed (15%)**: You will write an op-ed on a policy topic where evidence plays an important role to practice communicating with a general audience. We will discuss how to write op-eds in Lab 3. Your op-ed should be related to the broad policy area in your group case study, but you should identify your topic and complete your assignment individually. If you have a strong preference to write an op-ed on a different topic, please contact me to discuss.

**Group Case Study and Guide (30%)**: You will work in a group to explore how evidence is used (and misused) in a particular policy area, prepare a case study and guide, and lead a half class session. The goal of the case study is for you to develop expertise in a particular policy area and share that expertise with your classmates. You will have the opportunity to think creatively about an important policy problem and educate yourself and your peers about how evidence is used in policies related to that problem. Your presentation will also enable you to experience taking on the role of class facilitator and give you the opportunity to reflect on what makes for an engaging and effective class session.

**Values and Policies**

**COVID Pandemic**: Learning together in the midst of a global pandemic is a challenging experience for everyone, and the plans for this course may change as the situation evolves. I recognize that COVID may impact your ability to engage with this course in ways that are not always easy to predict. I hope that we can all navigate this semester with flexibility and compassion. We are partners in this learning process, and I welcome suggestions for new ways to engage with course content. Do not come to class if you are feeling sick or have been exposed to COVID.

I will send out a survey before the first day of class to assess your needs for COVID accommodations. Please feel free to update me if your needs change during the semester.

**Justice, Diversity, Equity, and Inclusion**: Justice, equity, diversity, and inclusion are central to our work in the classroom and beyond. I echo the university’s statements on diversity and inclusion:

> Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

> The University of Wisconsin Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world. (Source: [https://diversity.wisc.edu](https://diversity.wisc.edu))

I recognize the importance of eradicating systemic oppression of all kinds and am actively committed to this work. Research and policy analysis methods have played roles in both uncovering and obscuring – and therefore perpetuating – sources of injustice. I aim to center justice in this course. I welcome your feedback and suggestions on how to further these efforts.
In this classroom, Black Lives Matter. For resources on dismantling anti-Black racism in science, please see: [https://www.particlesforjustice.org](https://www.particlesforjustice.org) and [https://shutdownstem.com](https://shutdownstem.com).

**Land Acknowledgement:** I join the university in acknowledging the occupied Ho-Chunk land on which the University of Wisconsin-Madison campus sits:

*The University of Wisconsin-Madison occupies ancestral Ho-Chunk land, a place their nation has called Teejop since time immemorial. In an 1832 treaty, the Ho-Chunk were forced to cede this territory. Decades of ethnic cleansing followed when both the federal and state government repeatedly, but unsuccessfully, sought to forcibly remove the Ho-Chunk from Wisconsin. This history of colonization informs our shared future of collaboration and innovation. Today, UW-Madison respects the inherent sovereignty of the Ho-Chunk Nation, along with the eleven other First Nations of Wisconsin.*

(Source: [https://chancellor.wisc.edu/blog/our-shared-future](https://chancellor.wisc.edu/blog/our-shared-future))

For more information on the Ho-Chunk Nation, please refer to: [https://ho-chunknation.com](https://ho-chunknation.com).

To learn about other places of significance to you or the practice of land acknowledgements in general, please see: [https://native-land.ca](https://native-land.ca).

**Accessibility and Accommodations for Students with Disabilities:** I am committed to making this class accessible for all students, including upholding all university disability policies:

*The University of Wisconsin Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student’s educational record, is confidential and protected under FERPA.*

(Source: [https://mcburney.wisc.edu/instructor](https://mcburney.wisc.edu/instructor))

Additionally, I recognize that accessibility needs may arise that are not explicitly covered by these policies. You are invited to contact me directly to discuss any situation that impacts your ability to engage with this course and how I can best support you and your learning.

**Absences and Religious Observances:** Participation in class is an important part of this course. However, I recognize that situations can arise that require you to miss class. Please contact me in advance of any planned absences, or as soon as is reasonable after unplanned absences, so we can discuss ways to make up what you missed. This may take the form of a memo reflecting on the class material.

If a religious observance will require you to miss class during any of the final presentations, please notify me over email within the first two weeks of the semester. For more information on university policies on religious observances, please see: [https://secfac.wisc.edu/academic-calendar/#religious-observances](https://secfac.wisc.edu/academic-calendar/#religious-observances).

**Academic Integrity:** By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin Madison. Examples of misconduct include cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts. Misconduct may result in disciplinary action including but not limited to failure on the assignment or course, probation, suspension, or expulsion. For more information please see: [https://conduct.students.wisc.edu/syllabus-statement](https://conduct.students.wisc.edu/syllabus-statement). You can also contact me directly if you have any doubts or concerns.
Some of your work in this course will involve writing assignments and presentations. You are responsible for understanding and applying the rules for acknowledging, paraphrasing, and quoting sources in written and oral communications. You should review individual and group assignments carefully with these rules in mind. You can also refer to the Writing Center Handbook: https://writing.wisc.edu/handbook.

Important Dates
All assignments are due before class on the date listed below:

Policy Memo Due: 2/28
Data Visualization Due: 3/21
Op-Ed Due: 4/11
Group Case Studies: 4/25-5/2
Case Guides Due: 5/4

Course Schedule
This is a draft plan for the course topics and readings and may evolve throughout the semester. Updates to the schedule will be announced in class and on Canvas.

Module 1 (1/26, 1/31) – What is evidence-based policymaking?
This module presents an overview of the course and the idea of evidence-based policymaking. We will examine the history of research and policy connections through the lens of the Wisconsin Idea, discuss the difference between evidence and advocacy-based approaches to policy, and explore a case study of evidence-based decision-making in action.

• Session 1: Welcome and Wisconsin Idea
  o Read about the Wisconsin Idea (pages 1-12)
  o Read the syllabus and come with questions
  o Submit the pre-semester survey
• Session 2: Case Study and Project Groups
  o Spend a few hours researching your policy area
  o Create a collaborative contract with your group

Module 2 (2/2, 2/7) – Obstacles to using evidence in policy
This module will discuss how differences in the demands and perspectives of researchers and policymakers create obstacles to evidence-based policymaking. We will discuss models that have been proposed for increasing the use of evidence in policymaking and the role of scientists in public policy and their strengths and weaknesses.

• Session 1: Disconnects between Research and Policy
  o Read Beyond the science bubble
  o Skim Evidence-Based Policymaking, Chapter 1
• Session 2: Theories of Useful Evidence for Public Policy
  o Read Crossing the Imaginary Line
  o Skim The Honest Broker, Chapters 1-3

2/9 – Case Study 0: Designing evidence-based water policies
This case study will discuss the use of evidence in water and fisheries policy with a primary focus on North America. We will discuss opportunities and challenges for creating policy-relevant evidence on mercury pollution and the use and misuse of evidence in the Flint water crisis. You can use this case study as an example for your own case presentations at the end of the semester.

• Read Flint, Michigan, and the Politics of Safe Drinking Water in the United States
• Skim Policy, science, and transdisciplinary research: when will it be safe to eat as much fish as desired?
• Skim Understanding factors influencing the detection of mercury policies in modelled Laurentian Great Lakes wet deposition

2/14 - Lab 1 – Policy Memos
This lab will focus on how to distill scientific evidence in the form of a policy memo. Come to class with an idea for a topic for your Policy Memo assignment. You will have time to refine it during class.

• Read Memorandum on Writing Memoranda

2/16, 2/21 Module 3 – Evidence for policymaking: Experiments
This module will discuss the use of experiments in evidence-based policymaking. We will discuss the scientific method and different types of experimental designs, including simulations and lab experiments and randomized control trials in the field. We will also discuss the reproducibility crisis in social science experiments and ethical issues in experimental design.

• Session 1: Types of Experimental Designs
  o Read Lab Experiments for the Study of Social-Ecological Systems
  o Watch Esther Duflo TED Talk: https://www.youtube.com/watch?v=0zvrGiPkVcs&feature=emb_logo
  o Skim summaries of two studies from J-PAL: https://www.povertyactionlab.org/evaluations
• Session 2: (Un)ethical Experiments and Reproducibility
  o Watch interview with Harriet Washington: https://www.youtube.com/watch?v=PzsNFBZK6ks
  o Skim Objecting to experiments that compare two unobjectionable policies or treatments
  o Skim Evaluating the replicability of social science experiments in Nature and Science between 2010 and 2015

2/23, 2/28 Module 4 – Evidence for policymaking: Data analysis
This module will discuss the use of data in evidence-based policymaking. We will discuss methods in classical statistics and analysis of large datasets. We will also discuss how algorithms and data analysis can reproduce racial inequalities and reproducibility challenges in data analysis.

• Session 1: Data Analysis Methods for Policy
  o Read https://www.brookings.edu/research/what-all-policy-analysts-need-to-know-about-data-science/
  o Skim Predictive Modeling for Public Health: Preventing Childhood Lead Poisoning
  o Skim Electoral Backlash against Climate Policy: A Natural Experiment on Retrospective Voting and Local Resistance to Public Policy
• Session 2: Use and Misuse of Data in Policymaking
  o Read Statistical Errors
  o Read Dissecting racial bias in an algorithm used to manage the health of populations
  o Read Assessing risk, automating racism

3/2 Lab 2 – Infographics
This lab will focus on how to distill scientific evidence in the form of an infographic or data visualization. This lab will be hosted by the DesignLab at UW-Madison.

• Watch Hans Rosling TED Talk: https://www.ted.com/talks/hans_rosling_the_best_stats_you_ve_ever_seen
Read Recipe for an Infographic

3/7, 3/9 Module 5 – Evidence for policymaking: Modeling
This module will discuss the use of models in evidence-based policymaking. We will discuss the major categories of models (with a focus on physical models) and the benefits and drawbacks of simple and complex models. We will also examine real-time use of models in policy negotiations.

- Session 1: Types of Models for Policymaking
  - Read The Use of Models in Policy Analysis
- Session 2: Using Models for Real-Time Decisions
  - Read Use of the RAINS model in acid rain negotiations in Europe
  - Skim Verification, Validation, and Confirmation of Numerical Models in the Earth Sciences

3/21, 3/23 Module 6 – Evidence for policymaking: Qualitative Methods
This module will discuss a wide variety of qualitative methods, including case studies, interviews and focus groups, action research, and ethnography. We will also discuss ways of bringing different forms of knowledge into policy, including traditional knowledge systems.

- Session 1: Case Studies, Interviews, and Ethnography
  - Read “Social Science Research: Principles, Methods, and Practices,” Chapters 5 and 13
  - Skim “Qualitative data sharing and synthesis for sustainability science”
- Session 2: Community, Expert, and Indigenous Knowledge
  - Read “Bridging indigenous and scientific knowledge”
  - Read ‘Next Steps for Citizen Science”
  - Skim “Use (and abuse) of expert elicitation in support of decision making for public policy”

3/28 Lab 3 – Op-Eds
This lab will focus on how to write op-eds on policy topics where scientific evidence plays a key role. Brainstorm an idea (or a few) for your op-ed assignment; you will have time to workshop in class.

- Find one op-ed related to your policy topic and come prepared to summarize and discuss
- Read Climate Change in My Backyard: https://www.nytimes.com/2018/01/11/opinion/california-floods-mudslides-climate.html
- Read I’m a black climate expert. Racism derails our efforts to save the planet: https://www.washingtonpost.com/outlook/2020/06/03/im-black-climate-scientist-racism-derails-our-efforts-save-planet/

3/30, 4/4 Module 7 – Uncertainty in evidence-based policy
This module will discuss issues in dealing with and communicating uncertainty in evidence-based policy, including postnormal science, uncertainty classification, the precautionary principle, decision analysis, and approaches to making high stakes decisions in the face of deep uncertainty.

- Session 1: Types of uncertainty in evidence for policy
  - Skim Science for the Post-Normal Age
  - Skim Defining Uncertainty: A Conceptual Basis for Uncertainty Management in Model-Based Decision Support
  - Skim Seductive Simulations? Uncertainty Distribution Around Climate Models
- Session 2: Policy decision-making under uncertainty
  - Read Decision-making under great uncertainty: environmental management in an era of global change
4/6, 4/11 – Module 8 – Distilling evidence for policymaking
This module will discuss different approaches to distilling evidence in the policy process and common pitfalls. We will discuss the politics of quantification and how memorable numbers can be useful and limiting in policy, and examine a case study on natural gas leaks, measurement, and policy.

- Session 1: Charismatic and mystical numbers in public policy
  - Watch Jessica Seddon TEDx Talk: https://www.youtube.com/watch?v=lGo1ditaaVQ
  - Read Do We Really Have Only 12 Years to Avoid Climate Disaster?: https://www.nytimes.com/2019/09/19/opinion/climate-change-12-years.html

- Session 2: Cost-benefit analysis and life cycle assessment

4/13 – Lab 4 – Presentations
The lab will discuss how to give effective, evidence-based presentations on policy topics to policymakers and other audiences. You will have some time to workshop your group presentations.

- Read Six Steps to Developing an Effective Presentation
- Read Delivering an Oral Presentation
- Watch two TED (or TED-style) talks related to your broad policy topic and make notes on the strengths and weaknesses of the presentations: https://www.ted.com/talks

4/18, 4/20 Module 9 – Why can’t we agree on the facts?
This module will discuss the ways in which evidence is communicated and politicized, with a focus on mis-, dis-, and mal-information in public policy. We discuss the role of different actors in spreading disinformation, including corporations, news media, and social media.

- Session 1: Mis- and disinformation in traditional media
  - Read Defeating the merchants of doubt
  - Optional skim: Assessing ExxonMobil’s climate change communications (1977-2014)

- Session 2: Mis- and disinformation on social media
  - Skim Answering impossible questions: contingent governance in an age of disinformation: https://misinforeview.hks.harvard.edu/article/content-governance-in-an-age-of-disinformation/
  - Skim Repress/redress: what the ‘war on terror’ can teach us about fighting misinformation: https://misinforeview.hks.harvard.edu/article/repress-redress-what-the-war-on-terror-can-teach-us-about-fighting-misinformation/
  - Skim (with a focus on figures) Network Propaganda Chapters 2 and 3
  - Find and read one definition from the Media Manipulation Casebook that you are unfamiliar with: https://mediamanipulation.org/definitions

4/25, 4/27, 5/2 – Group case studies
This module will focus on group-led class sessions (35 minutes each) on the use of evidence in different policymaking contexts. We will conclude with a half session on the third day where we discuss common themes and insights across the five case studies.

5/4 - Module 10 – Future visions for evidence-based policy
This module will bring together everything we have discussed so far to imagine future possibilities for evidence-based policymaking. We will discuss visions for the role of science in policymaking and how different knowledge systems can shape our understanding of the world.

- Session 1: Expanding the Narrative and the Future of Evidence-Based Policy
  - Read Science and public policy: what’s proof got to do with it?
  - Read Is science socially constructed—And can it still inform public policy?
  - Skim Building a Wall on the Imaginary Line, Scientists Duty to the Truth, and There is No ‘Imaginary Line,’ There is as Continuum (these are all short)
  - Read Octavia’s Brood Forward and Introductions
  - Skim Two Ways of Knowing: https://www.thesunmagazine.org/issues/484/two-ways-of-knowing
  - Skim Knowledge systems for sustainable development

Note: This final module has more readings than previous modules because there are fewer readings during the Case Study Presentations. I suggest that you space out these readings during this week and the previous week.