Environment, Risk and Decision Making Syllabus

ENR 7150 Autumn 2022

Course Information

- **Course times and location:** Tuesdays and Thursdays, 9:35 – 10:55, Kottman 333

- **Credit hours:** 3

- **Mode of delivery:** In-person

Instructor

- **Name:** Dr. Robyn S. Wilson

- **Email:** wilson.1376@osu.edu

- **Phone Number:** 614-247-6169

- **Office location:** 316D Kottman Hall

- **Office hours:** By appointment

- **Preferred means of communication:**

  o My preferred method of communication for questions is **email.**

  o My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your notification preferences (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Course Prerequisites

N/A

Course Description

When we think about improving decision making for the environment, we typically look to the fields of education and marketing for insight into changing behavior. A wealth of research in psychology and behavioral economics, however, shows that neither education nor outright persuasion will necessarily lead to more thoughtful or more informed choices. The overall goal of ENR 7150 is to explore research in these fields and to deepen your understanding of decision making under risk and uncertainty. The first half of the course will focus on the literature from judgment and decision

making that indicates how individuals process information, as well as highlight potential errors in information processing that may lead to uninformed or biased decisions under risk and uncertainty. The second half of the course will focus on applications from the decision aiding literature meant to improve decision making in complex, risk-laden and multi-objective contexts. Both basic literature and applications from environmental contexts will be covered.

Learning Outcomes

By the end of this course, students should successfully be able to:

1. Understand the theory that underlies judgment and decision-making in multi-objective, risk-based environmental policy and management contexts.

2. Understand the decision analytic techniques designed to improve decision-making in these contexts.

How This Course Works

Mode of delivery: This course is 100% in-person, meeting Tuesday and Thursday from 9:35 to 10:55 AM. Accommodations to participate remotely via Zoom can be made for students located outside of Columbus.

Pace of online activities: This course is divided into **daily reading assignments** that must be completed for the day assigned. Students are expected to keep pace with the required reading for each in-person session but may schedule their efforts to complete that work freely.

Credit hours and work expectations: This is a 3 credit-hour course. According to Ohio State bylaws on instruction (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of C average.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, I expect everyone to complete all the readings, be in class each day, and actively participate in the discussion.

Course Materials, Fees and Technologies

Required Materials and/or Technologies

- Hardman, D. 2009. Judgment and Decision Making. British Psychological Society and Blackwell Publishing Limited.

- Gregory, R., L. Failing, M. Harstone, G. Long, T. McDaniels and D. Ohlson. 2012. Structured decision making: A practical guide to environmental management choices. Wiley-Blackwell: Hoboken, NJ.

- The texts are available from most online retailers (and OSU Libraries). Other required readings in the form of journal articles will be available on Carmen or OSU libraries (https://carmen.osu.edu).

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.

- **Webcam:** built-in or external webcam, fully installed and tested

- **Microphone:** built-in laptop or tablet mic or external microphone

- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the installing Office 365 (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device (go.osu.edu/add-device) help article for step-by-step instructions.

- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.

- [Install the Duo Mobile application](#) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 (HELP)](#) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](#) (go.osu.edu/canvasstudent)
- [CarmenZoom virtual meetings](#) (go.osu.edu/zoom-meetings)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat**: [go.osu.edu/it](#)
- **Phone:** [614-688-4357 (HELP)](#)
- **Email:** [servicedesk@osu.edu](#)

THE OHIO STATE UNIVERSITY

College of Food, Agricultural, and Environmental Sciences
School of Environment and Natural Resources

Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points
Memos	15%
Final Paper	25%
SDM Applications	20%
Final Presentation	10%
Attendance	10%
Discussion Facilitation and Participation	20%

See Course Schedule for due dates.

Descriptions of Major Course Assignments

Attendance

I will take attendance every day and you will receive a grade based on the proportion of classes attended (out of 28). Planned absences that you tell me about the first week of class will be excused (e.g., work commitments, traveling for a wedding, doctor's appointments). Beyond that, there will be no excused absences, you can miss class up to 2 times and still get an A- for the attendance portion of this grade. If you think you will miss more than 2 days in a row due to an unexpected and extended illness, please let me know. Participation via Zoom can be used to accommodate anyone in quarantine due to COVID.

Discussion Facilitation and Participation

Your discussion facilitation and participation grade will account for 20% of your final grade. It will be based on posting 2 discussion questions or topics by 8 PM the night before each class (Mon/Wed) and facilitating discussion with a partner during to *two pre-assigned class meetings*. Each day I will also task one student with being the recorder to take notes and capture the takeaways from the discussion. You will receive a daily "quality" grade out of 5 points for your role in that day's discussion (as recorder, facilitator or regular participant - see rubric). I will lead the first four sessions and model the facilitation approach, see the guidelines for each role below.

Memos

Three 1+ page single-spaced memo will be required over the course of the semester. These memos are an opportunity for you to develop the ideas for your final paper, practice applying course concepts to a real-world problem of interest, and receive initial feedback on your ideas. Each memo will be graded out of 10 points and they will be averaged to account for 15% of your final grade.

In *Memo 1*, you will outline your potential topic of interest and any relevant applications you might draw from the first few weeks of the course on the process of forming judgments, bounded rationality, etc. As described previously, these should be applications that help to explain "poor" decisions or behaviors among individuals leading to a larger-scale collective social problem. In *Memo 2*, you will outline any additional applications from the next several weeks of the course on risk, emotion, environmental decision making, etc. In *Memo 3*, you will outline any additional applications from the section of the course on cognitive and motivational biases.

These memos should be well written (in terms of complete sentences, correct grammar, etc), but do not need to follow a formal paper structure (intro, conclusion, etc). It should be your thoughts and reflections on the readings and the course concepts as they relate to your paper topic. e.g., How are preferences being constructed? How might risk perception be playing a role in "poor" decision making for this particular problem? What role does emotion vs logic play in the decisions and resulting behaviors you observe? What errors or biases in processing might be leading to these "poor" or uninformed decisions?

Final Paper

A 10-15 page, double-spaced paper will be due at the end of the term. The goal of this paper is to apply concepts and lessons from this course to a real-world risk- based decision making problem, both in terms of understanding why this problem exists from the perspective of information processing and potential errors in judgment and decision making, and how we might work to resolve it through the use of decision analytic techniques. **It is critical that human behavior (that is actions or a lack of action) resulting from flaws in information processing be at the core of the issue, but that the "poor" decisions by individuals accumulate to cause societal or collective problems.** The paper will be graded out of 100 and be worth 25% of your final grade.

SDM Applications

The work for this assignment will largely occur in-class during the last section on encouraging better decisions (i.e., the Gregory text). However, you will be responsible for turning in your efforts to document your participation in the exercise (this will require some time outside of class). Your work in the SDM packet will account for 20% of your final grade.

Paper Presentations

During our final exam slot, you will present on your final paper. Your presentation should highlight why your chosen problem exists from the perspective of information processing and potential errors in judgment and decision making, and how we might work to resolve it using decision analytic techniques. Specifically, answer four key questions – what is the societal or collective risk? What actions or lack of action at the individual level are driving the problem? What information processing errors, heuristics or biases are driving those decisions? What decision analytic techniques do you propose using to correct for these issues?

This will be a "modified" Pecha Kucha presentation. You may choose to have 15 slides/20 seconds each, or 20 slides/15 seconds each. Either way, this is 5 minutes total, but you pick if you want less slides and more time on each, or more slides with less time on each. Your slides *must* be timed to advance automatically, so this will need to be well thought-out and concise. You are welcome to use a script if you prefer to keep on time. Use simple visuals appropriately to support your key points, this is meant to be a learning opportunity for your classmates, and a chance for you to share your hard work from throughout the semester (while not boring us all to death). You will be graded on the organization of your presentation, your understanding of the material, and your presentation style, in addition to the content (understanding of concepts from class, connections drawn between theory and application, etc.). A full rubric is posted on Carmen. Powerpoints *must* be loaded to Carmen in advance to ensure that we can manage smooth and efficient transitions between speakers in class.

Academic integrity and collaboration: Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow APA style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in but no one else should revise or rewrite your work.

Guidelines for Student-Facilitated Discussions[1]

Expectations of everyone prior to the discussion period. All students should do the following:

- Thoroughly read the articles (most likely more than once), and have a solid understanding of the big-picture of the article as well as the details.

- Because no one should know substantially more than others about the topic, each individual should do any supplemental reading/searching for background on the reading that they do not understand to share with the group.

- Each student should write down at least 2 topics or questions that they would like to discuss and post them to the discussion board by 8 PM the night before class. Some ideas for types of topics to discuss include: exploring the evidence the authors provide for any their conclusions, expanding on an implication of a study, exploring the

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[1] *adapted from* Sorano (2010) Improving Student Discussions in Graduate and Undergraduate Courses: Transforming the Discussion Leader. *J. Natural Resources & Life Sciences Education*. 39: 84 – 91.

implications of this particular study for understanding of different disciplinary areas or for how the research could be applied in a variety of different capacities, etc.

Expectations for discussion participants during class. All participants should do the following:

- Provide insights, questions, answers to posed questions from the facilitator or recorder.

- Actively listen to fellow group participants and respond to each other's comments rather than just bringing their own comments to the table.

- Engage each other (not just me!)

- Participate "some" (jump in 2 to 3 times)

- Bring in examples from real life to illustrate

- Demonstrate a clear understanding of the readings, tie the discussion back to the readings/key concepts

- Speak up and with confidence

- Be thoughtful, insightful and on-target, don't talk just to talk.

Expectations for the student facilitators during class. The facilitator is a "servant to the group" (Rees, 1998). Facilitation is about seeing what the group needs to move forward and providing guidance and empowering the group; to do so, the facilitator can use any of the following strategies to facilitate the discussion (modified from Rees, 1998):

- Consider the learning goals for the day, and try to choose questions for discussion that help toward the learning goals

- Consider having the class define key terms/concepts to start the discussion.

- Ask questions: To inspire a response is perhaps the most important strategy of the facilitator. Questions should be open-ended questions, such as "what, how, who, why" type questions that encourages brainstorming and creativity.

- Probe in-depth into a comment/idea: Encourages more in-depth analysis, such as: "Why did you say that?" or "Could you be more specific?"

- Paraphrase: Only for clarification of a comment made by a student, not to evaluate or improve it.

- Refer back to earlier comments: Which ties the discussion to previous student's contributions.

- Be comfortable with silence: The facilitator must be willing to wait once a question is posed as people need time to think and frame a response. Thus, a facilitator should not step in and answer one's own question

- Give positive reinforcement: This is a way to encourage participation, especially to students who are quieter.

- Include quieter members: Some ways to draw people out are to ask students directly for their opinion on something that has been brought up, to refer back to comments that quieter people make to draw them out further, or to break the class into smaller groups or pairs that then report to the larger group.

- Shift perspective of the discussion: If all students seem to agree, it may be less likely that a single or few students who feel differently would speak up. To get these students to speak up, the facilitator can ask if there "might be another viewpoint that could be missing from the discussion." In addition, the facilitator can ask for the implications of the topic or a big-picture question; or the facilitator can ask for a specific example or for details to enrich the discussion that may be at too broad of a level.

- Summarize. Occasional summary is helpful to keep the group focused. The facilitator can briefly summarize what has been said before moving on. Or, better yet, the facilitator can ask for someone else to summarize, but it is important that enough time is provided for students to think before answering.

- With approximately 5 to 10 minutes remaining in class, the facilitator should ask the participants to summarize the discussion so that the recorder can capture the key takeaways.

Expectations for the student recorder during class. The recorder is a "servant to the group" and is responsible for being the memory of the discussion group and record participants contributions (Rees, 1998). The recorder should do the following:

- Keep notes during the discussion for distribution to the group via the discussion board within 48 hours of the class discussion.

- Although anyone can suggest that a summary of the discussion or a synthesis of ideas is needed, the recorder can propose such a summary for the group.

- At the end of the discussion, the recorder will compile/share a list of "take home messages" that the group participants create.

- The recorder is encouraged to participate as a participant as well; however, they have the added job of keeping some record of the discussion. In addition, because the reporter often has a good overview of the discussion, he/she should also feel like they can help the facilitator move the discussion along.

Late Assignments

Please refer to Carmen for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments. In-class assignments and attendance/participation points cannot be made up. Late papers/memos will be accepted but will be docked 5/1 points respectively for each calendar day that they are late. While I do not accept documented excuses for making up in-class points, I will excuse any planned absences that you make me aware of by the second week of class (e.g., work related commitments, weddings, etc). If you make me aware of these by the second week of class I will mark these dates as excused and you will receive the attendance/participation points for that day.

Instructor Feedback and Response Time

I am providing the following to give you an idea of my intended availability throughout the course. But you can call 614-688-4357 (HELP) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact me first through my Ohio State email address. I will reply to emails within **48 hours on days when class is in session at the university**.

- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check your notification preferences (go.osu.edu/canvas-notifications) to ensure you receive these messages.

- **Discussion board:** I will check and reply to messages in the discussion boards on Tuesday and Thursday morning each week prior to class.

- **Grading and feedback:** For assignments submitted by the due date, I will try to provide feedback and grades within **ten days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

93–100: A	80–82.9: B-	67–69.9: D+
90–92.9: A-	77–79.9: C+	60–66.9: D
87–89.9: B+	73–76.9: C	Below 60: E
83–86.9: B	70–72.9: C-	

Other Course Policies

Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Tone and civility**: Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably.

- **Zoom participation**: If you have to participate via Zoom, I ask you to have your cameras on, and to mute your microphone when you are not speaking. You are always welcome to use the free, Ohio State themed virtual backgrounds (www.osu.edu/downloads/zoom-backgrounds.html). Remember that Zoom and the Zoom chat are our classroom space where respectful interactions are expected.

Academic Integrity Policy

See Descriptions of Major Course Assignments for specific guidelines about collaboration and academic integrity in the context of this online class.

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's Code of Student Conduct (studentconduct.osu.edu), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's Code of Student

Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.
If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct (go.osu.edu/coam)

- Ten Suggestions for Preserving Academic Integrity (go.osu.edu/ten-suggestions)

- Eight Cardinal Rules of Academic Integrity (go.osu.edu/cardinal-rules)

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university

employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member."

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at https://go.osu.edu/principlesofcommunity. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (https://equityandinclusion.cfaes.ohio-state.edu/). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at https://studentlife.osu.edu/bias/report-a-bias-incident.aspx.

Your Mental Health

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 or reduce a student's ability to participate in daily activities. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand mental health resources (go.osu.edu/ccsondemand) are available. You can reach an on-call counselor when CCS is closed at 614- 292-5766. **24-hour emergency help** is available through the National Suicide Prevention Lifeline website (suicidepreventionlifeline.org) or by calling 1-800-273-8255(TALK). The Ohio State Wellness app (go.osu.edu/wellnessapp) is also a great resource.

Accessibility Accommodations for Students with Disabilities

Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability including mental health, chronic or temporary medical conditions, please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services (SLDS). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services.

Disability Services Contact Information

- Phone: 614-292-3307

- Website: slds.osu.edu

- Email: slds@osu.edu

- In person: Baker Hall 098, 113 W. 12th Avenue

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- CarmenCanvas accessibility (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- CarmenZoom accessibility (go.osu.edu/zoom-accessibility)

Course Schedule

Refer to the CarmenCanvas course for up-to-date due dates.

Week	Session	Topics, Readings, Assignments, Due Dates
		How do individuals process information when making decisions?
1	1	Defining decisions and decision quality
	2	Predictive vs. Subjective Judgment - Hardman, Chapters 1 & 2, "The Nature and Analysis of Judgment" - Gigerenzer, G. (2008). Why heuristics work. *Perspectives on Psychological Science,* 3(1), pp. 20-29.
2	3	Biased Perception and Motivated Reasoning - Hardman, Chapter 5, "Assessing Evidence and Evaluating Arguments" - Jacquet, J., Dietrich, M. & Jost, J. (2014) The ideological divide and climate change opinion: "top-down" and "bottom-up" approaches. *Frontiers in Psychology*, 5:1458, pp. 1-6
	4	Expected Utility vs. Prospect Theory - Hardman, Chapter 7, "Decision Making under Risk and Uncertainty" - Haer et al. (2017). Integrating household risk mitigation behavior in flood risk analysis: An agent-based model approach. *Risk Analysis*, 37(10): 1977-1992.
3	5	Construction of Preference - Hardman, Chapter 8, "Preference and Choice" - Siegrist and Sutterlin. (2014). Human and nature-cased hazards: The affect heuristic causes biased decisions. Risk Analysis, 34(8): 1482-1494.
	6	Naturalistic Decision Making - Hardman, Chapter 11, "Dynamic Decisions and High Stakes" - Kahneman, D., & Klein, G. (2009). Conditions for intuitive expertise: A failure to disagree. *American Psychologist, 64*(6), 515-526. **MEMO 1 DUE – 9/11, Midnight, Carmen Dropbox**
4	7	Defining Risk - Hardman, Chapter 12, "Risk" - Van der Linden. (2015). The socio-psychological determinants of climate change risk perceptions: Toward a comprehensive model. *Journal of Environmental Psychology*, 41: 112-124.
	8	Affect and Emotions - Hardman, Chapter 15, "Intuition, Reflective Thinking and the Brain" - Brosch, T., & Steg, L. (2021). Leveraging emotion for sustainable action. *One Earth*, *4*(12), 1693-1703.

5	9	Construal Level Theory of Psychological Distance - Liberman and Trope. (2009). The Psychology of Transcending the Here and Now. *Science*, 322(5905), 1201-1205. Brugger et al. (2015). Psychological responses to the proximity of climate change. *Nature Climate Change*, 5: 1031-1037.
	10	Game Theory and Commons Dilemmas - Hardman, Chapter 14, "Cooperation and Coordination" - van Vugt, M. (2009). Averting the Tragedy of the Commons: Using social psychological science to protect the environment. *Current Directions in Psychological Science*, 18(3): 169-173.
6	11	Information Processing and Environmental Decision Making Wrap-up - Kleindorfer, P.R. 1999. Chap. 2, pp. 37-56 in Sexton, K., A. A. Marcus, K. W. Easter, and T. D. Burkhardt, editors, *Better Environmental Decisions: Strategies for governments, businesses, and communities*. Island Press, Washington D.C. - Campbell-Arvai et al. 2018. Decision Making about the Environment. Pp. 487-511 in Terry Marsden (Ed.) *The Sage Handbook of Nature.* **MEMO 2 DUE – 10/2, Midnight, Carmen Dropbox**
What are some of the common errors in information processing that lead to "bad" decisions?		
	12	Cognitive Biases: Representativeness & Availability - Hardman, Chapter 3, "Judging Probability and Frequency" - Sunstein, C. 2006. The availability heuristic, intuitive cost-benefit analysis and climate change. *Climatic Change*, 77: 195-210.
7	13	Cognitive Biases: Anchoring and Hindsight - Hardman, Chapter 4, "Judgmental Distortions" - Joireman, J. et al. (2010). Effect of outdoor temperature, heat primes and anchoring on beliefs in global warming. *Journal of Environmental Psychology*, 30: 358-367.
	14	Cognitive Biases: Association, Causation, Counterfactuals - Hardman, Chapter 6, "Covariation, Causation and Counterfactual Thinking" - Attari et al. (2017). Perceptions of water systems. *Judgment and Decision Making*, 12(3): 314-327.
8	15	Decision Making Biases: Discounting and Myopia - Hardman, Chapter 10, "Judgment and Choice Over Time" - Polasky, S., & Dampha, N. K. (2021). Discounting and Global Environmental Change. *Annual Review of Environment and Resources*, *46*, 691-717.
	16	**FALL BREAK**

9	17	Motivational Biases: Ingroup Biases & Outgroup Homogeneity - Hardman, Chapter 13, "Decision Making in Groups and Teams" - Karns, G.R., A. Heeren, E.L. Toman, R.S. Wilson, H.K. Szarek, and J.T. Bruskotter. 2018. Should grizzly bears be hunted or protected? Social and organizational affiliations influence scientific judgments. *Canadian Wildlife Biology & Management* 7(1), 18-30.
	18	Motivational Biases: Attribution Errors - Plous, S. 1993. The Psychology of Judgment and Decision Making. McGraw Hill: New York, NY. Ch. 16, pp. 174-188 - Rickard, L.N. (2014). Perception of risk and the attribution of responsibility for accidents. *Risk Analysis*, 34(3): 514-528.
10	19	Motivational Biases: Confirmation Bias, Confidence and Optimism - Hardman, Chapter 9, "Confidence and Optimism" - Trumbo et al. (2014). An assessment of change in risk perception and optimistic bias for hurricanes among gulf coast residents. *Risk Analysis*, 34(6): 1013-1024.
	20	Review and Applications - Maguire, L. A., and E. A. Albright. 2005. Can behavioral decision theory explain risk- averse fire management decisions? *Forest Ecology and Management,* 211:47-58. - Marx and Weber. (2012). Decision making under climate uncertainty. In Eds. T. Dietz and D. Bidwell *Climate Change in the Great Lakes Region*. Michigan State University Press: East Lansing, MI. pp. 99-128. **MEMO 3 DUE - 10/30, Midnight, Carmen dropbox**
How can we help individuals and groups make better decisions?		
11	21	Debiasing and Choice Architecture I - Schultz, P. (2014). Strategies for promoting proenvironmental behavior: Lots of tools but few instructions. *European Psychologist*, *19*(2), 107. - Dolan, P., Hallsworth, M., Halpern, D., King, D., Metcalfe, R., & Vlaev, I. (2012). Influencing behaviour: The mindspace way. *Journal of economic psychology*, *33*(1), 264-277.
	22	Debiasing and Choice Architecture II - Montibeller and Von Winterfeldt. (2015). Cognitive and motivational biases in decision and risk analysis. Risk Analysis, 35(7):1230-1251. - Shu and Bazerman. (2012). Cognitive barriers to environmental action: Problems and solutions. In P. Bansal and A.J. Hoffman (Eds.) *The Oxford Handbook of Business and the Natural Environment*. 18 pages.
12	23	Foundations of Structured Decision Making (SDM) - Gregory et al. - pp. 1 - 46

	24	SDM: Decision Sketching - Gregory et al. - pp. 47-68
13	25	SDM Objectives and Performance Measures - Gregory et al. - pp. 69-121
	26	SDM: Incorporating Uncertainty - Gregory et al. - pp. 122-149
14	27	SDM: Alternatives and Consequences - Gregory et al. - pp. 150-207
	28	**THANKSGIVING BREAK**
15	29	SDM: Making Tradeoffs - Gregory et al. - pp. 208-238
	30	SDM: Wrap-up - Gregory et al. - pp. 239-288
16	31	SDM Work Session and Class Wrap Up

Final Presentations (Final Exam Slot) - Friday, December 9th, 8 to 9:45 AM

SDM Application Materials Due – Sunday, December 11th, 11:59 pm in the Dropbox

Final Paper Due - Tuesday, December 13th, 11:59 pm in the Dropbox

Grades due December 15th for graduating students and 19th for all else

THE OHIO STATE UNIVERSITY

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